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First, all of us send our deepest sympathy to Bill Solhiem; we only wish we could be with you in your time of sorrow. Ludy passed away inHospital in Honolulu, after brave and difficult struggle with cancer on September, 1999. She was years old. Ludy Solhiem will be sorely missed in the next IPPA meeting.

We would like to thank all of you who sent us articles, commentary, publication abstracts, and other information via mail, fax and internet. It is only through your contributions that we can provide a newsletter that is interesting and well- informed for you and your colleagues. Please keep those contributions coming and share your recent research results, conference announcements, publications or conference abstracts, opinions, etc. with your colleagues in our informal format.

As mentioned on the previous issue, we are trying to set up the newsletter available on the web; however, the development has been very slow since we both work on a volunteering basis. Now, Rasmi has a few students assisting her with the Southeast Asian directory and Web Site. Please be patient with us, we will keep you up date with this development. We apologize to those of you that received your newsletters late, and we have taken steps to correct the mailing procedure. To save on postage, we are sending the newsletter via email to those with e-mail addresses and regular mail to those who do not have access through e-mail. Please make your own copy and pass it out to your colleagues and students.

Rasmi wish to thank her students, **Cholawit and Supharit**, from the Department of Archaeology, for directory and collecting information from Journals and Web Sites and **Kriengsak** from the Department of Western Languages for computer technique.

Our next newsletter is scheduled to appear in May 2000 and we would like to receive contributions by April 15, 2000 for this issue.

CURRENT RESEARCH PROJECTS

Chief Investigator: PETER GRAVE, Partner Investigator: LISA KEALHOFER

Cultivating the Tropical Forest: 12000 years of landuse in the highlands of northern Thailand

ABSTRACT

When, where and how hunter-gatherers became agriculturalists in the Old World tropics remains highly controversial. The Mae Hong Son region, in northern Thailand, provides an excellent opportunity to address these fundamental questions with archaeological contexts spanning the Late Pleistocene to the present. We will establish baseline environmental sequences, reassess sites excavated in the 1960s and early 1970s and investigate new loci to develop a comprehensive record of occupation and environmental change for the last 12000 years. These data will allow the first detailed regional assessment of the transition from hunting-gathering to cultivation, and the role management of forest resources played.

RESEARCH REPORTS

PONGDHAN BANDHOM, Fine Arts Department Branch 6, Nakorn ratchasima, Thailand.

Phanom wan : Archaeological study and Restoration Project

Background

The Khmer civilization developed as a state-level society over many centuries and its empire extended far beyond the present borders of Cambodia. Many Khmer monuments are located in the northeastern part of Thailand, such as Prasat Phum Pone, Prasat Phimai, irrigation system, roads, stone, quarries, kilns, and even hospital.

The location of this monument, from the first period about 5-6 centuries A.D. Expansion of these monuments varied and was largely the result of the intensification of Khmer political power. In the reign of Jayavaraman VII, [1181-1220] the hospitals and Dhamasala were located along the road from Angkor to Phimai, a distance of 225 kilometers.

Prasat Phanom Wan was a Khmer hindu temple. It is located on the low terrace about 15 kilometres from main city of Nakorn Ratchasima in northeast Thailand. In the southern part of Phanom Wan is a stream. Surrounding the temple are fields, owned by local villagers who live about 1 kilometre away. The infrastructure of the area including roads, electricity, irrigation canal and telephones and expansion of industrial factories has occurred in last five years.

Generally, the architecture of Phanom Wan is comparable to Phimai and Phanom Rung, [ca.10-12th centuries A.D.]. During the excavations in front of the temple a laterites and brick floor in the form of the trace way was found. And far from here, is the rectangular laterite base. However, its function is unknow. [Chanthed 1993]

Phanom Wan may have been enclosed by a moat. Moated sites are well-known in this region of Thailand. Arial photographs denote a former large sized reservoir, 1800 by 560 metres, at the northern part of Phanom wan.

Archaeological data

Archaeological procedures since 1990 until last month found evidence of late prehistoric occupation beneath the surface and the temple's foundation layer. Artefacts such as vessels with everted rims and red slipped pottery, seashells and marble bangles were recovered during excavations. [Bandhom 1997]

The excavation at courtyard found a human skeleton associated with iron tools and Phimai black pottery. Similar artefacts have been dated 200 BC.-A.D.300.

Habitation evidence during the first period at Phanom Wan is comparable with other sites in upper Mun valley. Such evidence suggests intra-exchange networks may have existed. Occupation occurred in more than one period at the site. From the excavation data we have determined that Phanom Wan functioned as both a burial and religious site.[Bandhom 1997:106]

Later, 10th century A.D., Khmer culture was more influential in this region. At Phanom Wan at least 2 periods of monuments were found in the same area. The first period is represented by just 9 brick bases located around the courtyard, some of them still have the doorframe and sculpture's pedestal. We believe that during the 10th century A.D. Phanom Wan shows much significance in condition of the architectural complexity.

We do not clearly understand changes which occurred from the first to the second period. However in the 11th century A.D., the temple was constructed over the brick monuments. Although bricks were used in large amounts, the principle raw materials used in building the temple were sandstone.

Many inscriptions inside the principle sanctuary which mention either to the kings or the mission of their officials that eventually this building was not finished and was deserted.

Architectural description

The plan of Prasat Phanom Wan is built alligned with the four cardinal direction. This architectural style has been popular since the 11th century AD. The temple faces east, this is typical of Khmer temples in Thailand. Of note, both the north and the east barays follow the same orientation as Phanom Wan.

Principal sanctuary

Principle sanctuary of Phanom Wan consists of the important parts as base, corp principle and roof in the vertical and follow to the horizontal is main prang, vestibul and entrance hall. This building was enclosed by gallery constructed with sandstone and laterite.

Base

This part was constructed with sand stone on laterite layer, 1 metre in height and without handiwork, except a roughly carved at the lower parts of three porchs of the main prang.

Corps principle

The most important part is the square room or garbhagrha where the sculpture of god was established. Most of windows still have red sandstone balaster, either true window or false ones were planned to be symetrical and was based on weight capacity from the upper.

The lintel and pediment were collaped. However, one lintel is in place at the north porch. The style of art on these elements including colonettes and pilastres shown in Baphuon style which dates to about 11th century A.D.

The original stone floor inside central building may be similar to that of the vestibul During our excavations in the vestibul, we found blocks of sandstone were arranged in order below the earth and modern brick floor but most of them were disturbed. Each of doorframes has a hole for a wooden door. Moreover, some of them have inscription in both Khmer and Sanskrit languages.

Roof

Although the tower of main prang and porch were collaped they were still 9 metres high. Many of the blocks of sandstone from this part were in bad condition. We also found the lotus bud for peak tower but the antefix and other elements were not recovered.

The roof of entrance hall and vestibul were still in placed. However, their position indicates that stones were moved out of their original places.

Small Prang

Located in the south-west area of central buliding, the small prang was built with red sandstone on a laterite base. It is open on only one side: the eastern side. The roof was collaped and unfortunatly at the corners of base appear holes for a wooden structure. Inside this building, the foot printed was laid on the pedestal.

Brick Sanctuaries

Brick sanctuaries are located in the courtyard around central building. These ruins appear just as a base and a doorframe with sculpture pedestal. All buildings may relate to lintel which is kept at Phimai National Museum. It's style of art is dated in 10th century A.D. [Suksvasti 1998:8] However, the central building was constructed above some brick base.

Trace way

The map of 1907 by Lunet de Lajonquiere indicates the trace way in front of east gateway. The excavation in this area by archaeologist of Fine Arts Department found a block of laterites and brick 7 metres long. Tiles were also recovered during excavation.

Structural decay

From the outside, a large sandstone building should be highly stable. In fact, Phanom Wan is a typical structural case and compares with other Khmer monuments in Thailand. In their experience with restoration, Thai-French staffs have noted that problems of the decay include:

1. Foundation faults

Faultiness of foundation is really more an effect of building decay. The builders filled sand into foundation hole and placed laterite layers, either in blocks or uneven pieces beneath the first layer of sandstone. If it bears too heavy a load laterites can become crushed. Moreover, as a rule, wherever the load of the real walls is heaviest there is unstable laterite and sand fill to support it. In effect, there is nothing to prevent the wall from tilting and outward displacement which leads to the raising and dislodgment of the base. [Pichard 1972:15-16]

2. Materials and construction

The arrangement of each sandstone in forming the wall. The sandstone is often set along a vertical grain of rock. [Chanbhosri 1990:5] Therefore the heavy weight from upper stone is too great and they tilt and break. At Phanom Wan, many stones were reused ones and an initial joint side become a gap. Bricks were often used to fill in the gap.

Inside the wall, they used wooden beams to relieve part of the stress from the weight of the stones. Though nothing remains now, it is likely the wood rotted away under tropical climate. This would have left a large gap which would further weaken the walls in the area where greatest strength is required. [Pichard 1972 : 16-17]

Aspects of consideration for Phanom Wan Restoration Project

1. Authenticity of the monument in materials, position, form and construction techniques must be retained as much as possible. A good restoration must be true to the original conception of the monument so its shape must be respected. Any intervention must be legible and removeable, it must also keep the effect produced by the outline of the monument.

2. Anastylis is a method for protection of monuments from deterioration factors therefore, if necessary, new techniques can be applied but there must be a measure for protection of side effects from the chosen materials i.e. cement, steel.

3. The aspect of presentation of ruins as mentioned previously is only to enable visitors to perceive the original form and space of the monument on site as much as the original elements indicate, therefore, exaggerated addition is not appropriate. We are not obliged to rebuild a new prang only to support the top, for instance, we can be contented to preserve the finial or lintel in the museum in case that the original positions cannot be correctly proved. [Poshyanandana 1995]

The stage of restoration

The restoration of Prasat Phanom Wan Project is a joint programme between the French and Thai government. The training programme in conservation a stone monument to technicians from the Fine Arts

Department and the restoration used lime mortar, gravel, and sand for consolidation of the foundation instead of cement and steel is the pioneer requirement of the project.

1. Surveying and Recording

This stage is part of the process of the restoration included a site survey to record the present condition of the monument and relevant data accumulation such as historical documents, photographs, and drawing. Moreover, archaeological research or architectural study must be done to provide the database for other stages.

2. Mode of reconstruction analysis

Technical data under the 1st stage was studied for the analysis of the real form of architectural composition or structural defect and to choose suitable method to conserve. These useful and important for planning the operation, manpower, materials, and budget in each fiscal year.

Recording of the area included sites plans, elevations, and cross sections of all buildings were used to determine size, location and function of the temple structures before they collapsed. We also tested for deterioration of stones and how many broken stones were at the building. This helped in the estimation of new materials to use in the reconstruction.

3. Moving and Dismantling

This stage followed the precise recording of plan, level, and photograph, so that, the erroneous will not occur during the process of reconstruction. During dismantling at the entrance, we found reused stones as element of pediment and some of them were crumbled and immediately broken, all of stones were spread out on ground supported by wooden planks.

4. Improving the foundation

Lime mortar, sand, and gravel are principle materials used for improving the foundation and completing a gaps. Spread foundation of building were designed to support a stone wall and solved faultiness of Khmer building's foundation.

Practically, mix-mortar was poured layer by layer and waited until it dry and reached the same level as the laterite base which we did not dismantled, and filled compacted sand into space of the foundation, then modified pvc. pipes were provided with sand, gravel, and pvc.net for drainage system. [Bandhom 1994:2-4]

5. The reconstruction

A similar project was successfully undertaken at Prasat Phimai several years ago. All staffs of Phanom Wan Project clearly realized that the reconstruction was the most complicated step, especially at the beginning, because many the reused stone were in bad condition, rotted and because of the small size of the sandstone blocks or reused. Also, wherever there were gaps in the original structure in historic time, bricks were used to fill the gaps.

Much time was spent by staff members discussing the problems of reconstructing. It is important to understand that each measurement must be precise and if the replacements of stones deviates from the original structure even slightly, the entire section of wall must be dismantled, and we would need to begin again.

To avoid any error, the data of each stage was strictly followed and accurate adjustment the doorframe's level and position must be considered. The Project's foreman suddenly demolished all stones layer when he found their positions out of the original vestige.

The junction of block is also very important. We have usually checked a horizontal aside and perfectly fit of each stones at least the 1st three layers of sandstone [Ariyadej 1995:44] so that the stones of the above layers such as the lintel and the pediments could easily be replaced. Often stones were not used and instead brick was place next to the doorframe. This made the restoration even more complicate, thus, we had to estimate the gap between the doorframe and the wall from the plan.

Lots of bricks were used by the original builder. This cause many problems in reassembling the temple structure, after they were demolished still have good condition, they were reset only visible part and mix mortar was poured inside.

Reference

- Ariyadej, V. et al, 1995, The Restoration at the West Gopura of Prasat Phanom Wan. In Bandhom, P., editor, *The progress report of Phanom Wan Restoration project*, pp. 44-55. [in Thai]. Fine Arts Department Branch 9, Nakorn ratchasima.
- Bandhom, P. 1994, *The progress report of Phanom Wan Restoration Project*, [in Thai]. Fine Arts Department Branch 6, Nakorn ratchasima
- 1994, Excavation at the South Gopura of Prasat Phanom Wan. [in Thai]. *Muang Boran Journal*, Vol.20, No.4, pp. 165-169.
- 1995, *The progress report of Phanom Wan Restoration Project*, [in Thai]. Fine Arts Department Branch 9, Nakorn ratchasima.
- 1995, Phanom Wan Restoration Project [in Thai] *Sarnkromsilp newsletter*, Vol.8, No.7-8, pp.43-46.
- 1997, Excavation and Chronology of Prasat Phanom Wan, [in Thai]. *Muang Boran Journal*, Vol.23, No.3, pp.95-108.
- 1998, *Phanom Wan Restoration Project : Restoration Planning for the Last Phase*, [in Thai]. Fine Art Department Branch 9, Nakorn ratchasima. [Mimeographed]
- Chanbhosri, K.1990, *Conservation of Sandstone : Case Study at Prasat Phanom Wan*, The interim report, [in Thai], Division of National Museum, Bangkok.
- Chanthed, C.1993, *Excavation at Prasat Phanom Wan*, [in Thai]. Fine Arts Department Branch 6, Nakorn ratchasima.
- Lajonquiere, E.L.1907, *Inventaire Descriptif des Monuments du Cambodge*, Leroux, E. editeur, Ecole Francaise d'Extreme-Orient, Paris.
- Pichard, P. 1972, *Restoration of a Khmer Temple in Thailand*, Serial No. : 2807/RMO.RD/CLP, Unesco, Paris.
- Pichard, P. et al. 1991, Le Prasat Phanom Wan [IK 437] avant Anastylose. Universite Silpakorn, editeur, *Recentes Recherches en Archaeologie en Thaïlande : Deuxieme Symposium Franco-Thai* pp. 42-57. Silpakorn University, Bangkok.
- Poshyanandana, V. 1995, Conservation of Monuments and Archaeological Sites in Thailand, in *Report of the Asian Meeting of Experts for Formulating Guidelines for Archaeological Field Procedures and Techniques*, Directorate General for Culture, Ministry of Education and Culture, Borobudu.
- Suksvasti, S.M.R.. 1988, *Prasat Khao Phanom Rung*, Matichon Co.Ltd., Bangkok.

F. DAVID BULBECK, Dept. of Archaeology and Anthropology, Australian National University and Bagyo Prasetyo, Bidang Prasejarah, Pusat Penelitian Arkeologi Nasional.
Preliminary Results from the 1998-99 Field Seasons in Luwu by the OXIS Project (Origins of Complex Society in South Sulawesi)

Introduction OXIS studies the beginnings of large-scale societies among the Bugis, in South Sulawesi, by testing the archaeological expectations deduced from an anthropological interpretation of the textual and oral sources on South Sulawesi's early history. Previous philological analysis of Bugis texts by Ian Caldwell (1995, 1998), who is the co-Chief Investigator of OXIS, has shown that the Bugis script was developed at around A.D. 1300. Further, according to Caldwell's ongoing research on the king list of Luwu, which is the northernmost of the Bugis kingdoms, Luwu's first ruler would also have commenced his reign at around A.D. 1300. A similar or an earlier date can be calculated for the inaugural reign of several of the agrarian-focused Bugis kingdoms to the south, e.g. West Soppeng, Wajo and Bone (Caldwell 1988; Bulbeck 1993).

However, Luwu appears to be the only Bugis polity mentioned in the *Desawarnana* (or *Nagarakertagama*) written in Java's Majapahit court in A.D. 1365. All of the other identifiable South Sulawesi places—Bantaeng, Makassar, and Selayar—are Makasar-speaking areas (Pigeaud 1962). By at least the 17th century, Luwu had achieved the reputation of being the source of Bugis high culture, and the most ancient Bugis kingdom. In 1888 Van Braam Morris postulated an "I La Galigo" age for Luwu in its heyday, between the tenth to 14th centuries, with reference to the renowned Bugis cycle of epic poetry named the I La Galigo (Mappasunda and Hafid 1992/1993). Christian Pelras' major anthropological

synthesis, *The Bugis* (1996), expounds this early chronology, and the implications that Luwu had developed as a trade-based polity long before the rise of the agrarian kingdoms. But at the other end of the spectrum of views, Bulbeck (1993), following the information in Caldwell (1988), argued that Luwu had originated only in the 14th century, and then expanded rapidly to exert political dominance over much of the South Sulawesi peninsula during the 15th century. Then when the major 16th century kingdoms such as Bone, Wajo and Makassar began to expand, they ran into land previously subject to Luwu, and this turn of events was responsible for giving Luwu its reputation for great antiquity.

These two interpretations of the chronology of Luwu have very different archaeological corollaries, and so should be readily testable through survey and excavation of pre-Islamic (pre-1605 A.D.) sites. The issue has significant implications for major questions such as whether sociopolitical centralization was contemporary with the introduction of writing to South Sulawesi, or preceded it; the nature and variety of the economies associated with early sociopolitical centralization; and the solidity of the basis for “traditional knowledge”, such as Luwu’s reputation for chronological priority.

In 1998 we co-directed three field seasons which, at any time, involved approximately 12 South Sulawesi archaeologists (from Balai Arkeologi Ujung Pandang, Suaka Peninggalan Sejarah dan Purbakala Sulawesi Selatan, and Hasanuddin University Archaeology Department). The seasons lasted between 15 April and 10 May, 19 May and 21 June, and finally 26 July and 30 August. Excavations were undertaken at four lowland sites in western Luwu (Sabbang Loang, Pinanto, Tirosue, Pattimang Tua), 11 sites along the coastal plane of eastern Luwu (Salabu, Patande, Bola Merajae, Taipa, Kuburan Ussu, Ussu 1, Manu Manue, Turunan Damar, Katue, Poloe, Tampinna), and four sites at Matano, north of the eastern coastal plane (Rahampuu 1, Pandai Besi, Lemogola, Paangkaburu). Background on Luwu’s late Holocene prehistory is provided by the apparently Neolithic site of Bola Merajae, and the Paleometallic phases at Sabbang Loang and Katue. The major historical sites with a pre-Islamic occupation are Pattimang Tua and Pinanto. Pre-Islamic origins are also likely for the ironworking at Rahampuu 1, and the cemetery at Paangkaburu.

A last field season was stage between 25 February and 13 March 1999, with some particularly enlightening results. Test pits were excavated at Benteng Tompottikka in Palopo, at Benteng Baebunta near Pinanto, at Benteng Wotu, at Utti Batue and Dadekoe 2 near Pattimang Tua in Malangke, and at Sukoyu, Pontanoa Bangka and Nuha on the northern shore of Lake Matano. Currently, we can give only our preliminary impressions from this last field season. Further, laboratory analysis of the materials excavated samples during both the 1998 and 1999 seasons has barely begun. Nonetheless we will attempt to put interested readers “in the picture” with the most informative summary we can provide at the moment. This will take the form of presenting the five current major working hypotheses of OXIS, spelling out the archaeological expectations, and summarizing the current evidence for or against.

Hypotheses and Preliminary Result. (1) When Luwu became the first South Sulawesi polity to adopt Islam, in 1605, it was still a prosperous and powerful trading organization based in coastal Malangke.

Expectations. Late 16th to early 17th century material-cultural remains, especially imported high-fired pottery (*keramik*), will represent areas under habitation that are larger along the Malangke coast than elsewhere in Luwu at the time. Coastal Malangke contains one or more late pre-Islamic palace centers whose opulence is equivalent to that previously documented for Makassar’s late 16th and middle 17th century palace precincts at Benteng Somba Opu.

Evidence. One key excavated site, easily the largest recorded in 1998, is Kampung Pattimang Tua, which extends across approximately five hectares. Its tradewares indicate it remained under at least partial occupation until around A.D. 1600. It confirms the hypothesis that Luwu was still a prosperous trading organization based in coastal Malangke until that time.

However, Pattimang Tua lacks any early Islamic graveyard, which instead is found a few kilometers away at Utti Batue. Here are the graves of Luwu's first sultan, Andi Patiware Sultan Mahmud, and his teacher Dato Sulaeman, in front of a late pre-Islamic cemetery where looters reportedly found cremated human remains in *keramik* jars, and sumptuous grave goods. Immediately to the south, the exit channel from an *empang* had cut through a 100-150 meter length of cultural materials, which included house posts and ironwares (Bulbeck and Prasetyo 1998). Our 1999 bore survey indicates that this old kampung at Utti Batue was at least as large as Kampung Pattimang Tua. A spectacular haul of broken-up, Ming-period *keramik*, discovered by a local farmer, suggests that Utti Batue had become the palace centre of Luwu by the 16th century.

Results. When Luwu became the first South Sulawesi polity to adopt Islam, in 1605, it was clearly a prosperous and powerful trading organization based in coastal Malangke.

(2) As proposed by Caldwell (1998), Luwu had originated in coastal Malangke by, or during, the 14th century. Luwu remained centred here during its 15th to early 16th century heyday.

Expectations. Malangke coastal sites will contain an abundance of exotic goods, such as *keramik*, which can be confidently dated to the 14th century, before peaking with high-quality 15th to 16th century wares.

Evidence. The hypothesis is confirmed by the excavated ceramic identifications from Pattimang Tua (Table 1), and one red glass bead which should date to at least the 14th century (John Miksic, pers. comm.). The 1998 surface surveys of Pattimang Tua also encountered sherds of fine T'zu-chou black and white, Vietnamese black and white, a 14th century Tehua whiteware, and a 14th-15th century Chinese blue-and-white plate, plus an assortment of 15th-16th century *keramik*. Identified *keramik* from Utti Batue also includes T'zu-chou iron-painted jar sherds and Vietnamese blue-and-white, but otherwise has a stronger accent on 16th century pieces.

Tampung Jawa (or "Javanese cemetery"), which is an enormous looted pre-Islamic cemetery, may provide the strongest evidence supporting the hypothesis. At its west end are two man-made mounds, of approximately 30 meters' diameter, adjacent to an area, 70 meters long by 30 meters wide, where the looters consistently pulled out bricks of approximately 32 centimeters length, 16 centimeters width, and 3.5-4 centimeters' thickness. The bricks surely represent introduced technology, presumably from Majapahit Java. The age of the *keramik* fragments left here by the looters consistently centers on the 14th and 15th centuries. The brick platform (or platforms) may well date to the 14th century, given Luwu's citation in the *Desawarnana*, dated to 1365.

Results. The origins of Luwu can confidently be located in coastal Malangke, and dated to the 14th century. Survey of the pre-Islamic burial grounds surrounding Pattimang Tua and Utti Batue indicates an enormous population during the 15th and 16th centuries, and suggests a cosmopolitan population which included Makasar speakers (from Bantaeng?) and possibly Bajaus, as well as Javanese and Bugis.

Table 1. Tradewares from the 1998-99 Pattimang Tua Excavations

T'zu-chou iron-painted wares, <i>circa</i> 14th century	3	(2 covered with a blue glaze)
Vietnam iron-painted, 14th-15th centuries	1	
Old Ming blue-and-white, 15th century	4	
Ming whiteware, 15th-16th centuries	1	
Ming celadon, 15th-16th centuries	2	
Ming blue-and-white, 15th-16th centuries	2	
Coarse Brownware tempayan, 15th-16th centuries	3	

Vietnam blue-and-white, 15th-16th centuries	1
Sawankhalok celadon, 15th-16th centuries	6
Ming celadon, 16th century	1
Ming blue-and-white, 16th century	2
Ming Swatow blue-and-white, 16th century	5
Ming Swatow “merah”, 16th century	2
Swatow blue-and-white, 17th century	4

(3) Three main advantages of the Malangke coastal region underwrote Luwu’s establishment and efflorescence here, (i) its agricultural potential for producing sago to support a large population, (ii) its strategic location at the mouth of the Baebunta River which could be used for shipping highlands produce—high-grade iron ore, gold and dammar— transported overland a short distance from the Rongkong River within the area controlled by the Baebunta chiefdom, (iii) the production of iron weapons and agricultural tools in Pattimang.

Expectations. Sago phytoliths will be abundant in 14th century and later contexts at Malangke coastal sites. Excavations in Pattimang and Baebunta will reveal traces of iron which can be sourced to the upper Rongkong, as well as gold and dammar gum. Numerous iron artifacts, as well as a factory area for producing ironwares, will be datable to at least the 15th century at Pattimang.

Evidence. The hypothesized advantages of coastal Malangke are confirmed to some degree. Although phytolith identifications have not yet been undertaken, the sherds of an earthenware stove for toasting sago at Kampung Pattimang Tua point to the importance of sago. Significant evidence for local ironworking was also found in the northwest sector of Kampung Pattimang Tua. Dammar gum has been excavated from Utti Batue. Finally, although our own excavations in Malangke have not recovered any gold, local farmers have reported that enormous quantities of gold were looted in Tampung Jawa.

Iron prills of unclear formation (Len Hogan, pers. comm.) have also been excavated at Baebunta’s 15th-16th century palace center of Pinanto. However, it may be difficult to determine whether or not iron was imported from the upper Rongkong, because the road up to Limbong was washed away in the heavy 1998 rains, rendering excavations there logistically impractical. Iron samples which we collected on an earlier survey (Bulbeck and Prasetyo 1998) will be used for metallurgical analysis. Finally, Geoff Hope’s recent inspection of Pattimang Tua indicated to him that it would have been an elevated, near-coastal location at the time of its occupation, subject only to occasional flooding.

Results. Further comment on ancient Luwu’s economy would be inappropriate until the laboratory analysis of the excavated materials has been completed.

(4) The expansion of the Bugis as far as the head of the Gulf of Bone, which includes Ussu and Cerekang, did not occur until a comparatively late stage in Luwu’s pre-Islamic history, if not indeed after Luwu’s adoption of Islam. The coastal communities mentioned in Luwu’s (presumably pre-Islamic) vassal list—Tampinna, Cerekang and Malili—were originally populated by non-Bugis speakers when they first fell beneath Luwu’s authority.

Expectations. Pre-Islamic sites distributed around the head of the Gulf of Bone will produce little, if any, evidence of an ancient Bugis presence. There will be no convincing evidence of cremated human remains, this being the usual Bugis mortuary practice immediately prior to Islamization (e.g. Hadimuljono and Macknight 1983; Bulbeck 1996-7), or of earthenware pottery with identifiably Bugis designs or form.

Evidence. In immediately pre-Islamic times, cremation was clearly practiced by the Baebunta people, and also by the Wotu, according to reports of the contents found in buried martavans and associated grave

goods by local looters. At Tambu-Tambu, near Wotu, this practice apparently dates as far back as the 13th-14th centuries. Earlier this month recovered evidence. Hence, non-Bugis speakers in Luwu may have begun cremating their deceased even before the Bugis did. Nonetheless, pre-Islamic mortuary traditions other than cremation may still be taken as evidence against a Bugis affinity. This would appear to be the case east of Wotu, from Tampinna to Malili, where east-west inhumations, and storing uncremated human bones in or near jars, are the only pre-Islamic mortuary traditions for which we have positive evidence. However, we should point out that that investigations into the historical archaeology of Cerekang has been limited in the extreme, owing to the sacred status of Cerekang's historical sites. Study of the earthenware pottery (looking for identifiable non-Bugis designs or forms, which are absent from the Malangke sites) may provide more reliable information.

Results. From Wotu eastwards, with the possible exception of Cerekang, the spread of Bugis speakers appears to have occurred later than at Malangke.

(5) An industry collecting weapons-grade iron, smelting it and exporting it for the production of Java's renowned *pamor luwu* krisses had been established by the 14th century.

Expectations. The iron smelting industry at Matano, which is included in Luwu's circa A.D. 1500 vassal list (Caldwell 1995), will be found to date back to the 14th century, and to have produced hard, nickeliferous iron consistent with the quality of the *pamor luwu* renowned in Majapahit Java. Failing that, evidence for the 14th century production of weapons of Limbong iron ore (from Bukit Porreo' and Bukit Pangiwanen) will be found, either at Limbong sites themselves, or at Malangke coastal sites.

Evidence. Len Hogan has recently reported the trace presence of nickel in an iron prill from Rahampuu 1. He points out that smelting the ore should enrich the presence of nickel, so this prill could correspond to smelted iron of 1-10% nickel content. His analysis confirms the hypothesized production of nickeliferous iron at Matano. However, to judge from the several surveys of Matano by OXIS, and the four excavations, the earliest *keramik* is Sawankhalok in small quantities, probably no earlier than the 16th century Ming sherdage also recovered at low frequencies. The available evidence from Nuha, Sukoyu and Pontanoa Bangka suggests that settlement here, and any ironworking, occurred later than at Matano. We await the results from 11 charcoal samples, submitted for radiocarbon dating, from Rahampuu 1 and Pandai Besi, to determine whether or not iron smelting had commenced at Matano before the 16th century. Note that on a recent trip to the *circa* 12th-13th century site of Katue, we found a surface find provisionally identified by Geoff Hope as nickeliferous iron ore. If this can be confirmed in the laboratory, it would suggest at least some exportation of nickeliferous iron ore from somewhere near Lake Matano by the 14th century. (Traces of iron had been found very rarely during the Katue excavations.)

The possibility of a 14th century iron industry utilizing Limbong iron ore also remains possible. Detailed analysis of the ironworking levels at Kampung Pattimang Tua will be required before their precise dating, between the 14th and 16th centuries, can be deduced. Metallurgical analysis may discriminate the source of its iron, whether from Lake Matano or from Limbong.

Results. It is difficult to believe that the 14th century rise of Luwu, which appears to have caught the attention of the Javanese, was not somehow associated with Luwu's access to, and potential control over, the high-quality iron ore in Luwu's hinterland. However, the positive evidence for this proposition so far is irregular and no more than suggestive.

Conclusions. The "late chronology" for Luwu, proposed by Bulbeck (1993), is strongly confirmed by OXIS' surveys and excavations. There is no archaeological evidence for the existence of a centralized polity in Kabupaten Luwu any earlier than the 14th century. Trading communities had been established at several places along the Luwu coastline by at least the 13th century, for instance at Tompe (near Dadekoe

2), Tambu-Tambu (near Wotu) and Katue, but they appear to have been small communities. Then, during the 14th and 15th centuries, the population in coastal Malangke appears to have exploded, largely through its attraction of new settlers, seeking opportunities, from as far away as South Sulawesi's south coast and Java. During these centuries, Luwu may well have been the largest kingdom in South Sulawesi, possibly rivalled by West Soppeng (Caldwell 1988, 1995) and Bantaeng (Bougas 1998). Luwu remained a prosperous kingdom, with its basis in coastal Malangke, throughout the 16th century, and until the relocation of its capital to Palopo in the early 1600s (see Caldwell 1995).

For some reason, a tradition of courtly literature does not appear to have developed in pre-Islamic Luwu to nearly the same degree that it became established in the other major Bugis kingdoms such as Bone, Wajo and West Soppeng. Without this historical information, it is currently difficult to identify the factors responsible for Luwu's 14th century rise, 15th century heyday, and continuing prosperity in the 16th century. The texts of the other Bugis kingdoms give some evidence that Luwu extended its suzerainty over a large area of the Cenrana River and Lake Tempe during the 15th century (Ian Caldwell 1988, pers. comm.). This might suggest that early Luwu expanded largely through conquering and looting its neighbors to the south, and exacting tribute from its dependencies. However, reliance on the texts of Luwu's adversaries is likely to give a very incomplete and a biased view on the early economic basis of Luwu.

The general model of Luwu's pre-Islamic organization appears to have been a royal stronghold in coastal Malangke, and an elite Bugis presence along much of the coast of present-day Luwu kabupaten, which was instrumental in controlling trade between the Luwu highlands and the maritime ports. The exportation of nickeliferous iron by the 14th century, corresponding to Majapahit's renowned *pamor luwu*, is a likely possibility but remains unconfirmed. Now that the broad details of Luwu's early history have been clarified archaeologically, it is time for meticulous analysis of the excavated materials so as to provide an explanation for Luwu's rise to prominence.

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References

- Bougas, Wayne A. 1998. Bantayan: an early Makassarese kingdom 1200-1600 A.D. *Archipel* 55:83-123.
- Bulbeck, D. 1993. New perspectives on early South Sulawesi history. *Baruga* 9:10-18.
- 1996-7. The Bronze-Iron Age of South Sulawesi, Indonesia: mortuary traditions, metallurgy and trade. In F.D. Bulbeck and Noel Barnard (eds) *Ancient Chinese and Southeast Asian Bronze Age Cultures*, Vol. 2, pp. 1007-1075. Taipei: Southern Materials Center Inc.
- and Bagyo Prasetyo. 1998. Survey of pre-Islamic historical sites in Luwu, South Sulawesi. *Walennae* 1/1:29-42.
- Caldwell, I.A. 1988. *South Sulawesi A.D. 1300-1600: Ten Bugis Texts*. Unpublished PhD thesis. Canberra: Australian National University.
- 1995. Power, state and society among the pre-Islamic Bugis. *Bijdragen tot de Taal-, Land- en Volkenkunde* 151:325-342.

----- 1998. The chronology on the king list of Luwuq to A.D. 1611. Paper submitted to K. Robinson and Mukhlis Paeni (eds) *International Seminar on South Sulawesi History and Culture*.
Hadimuljono and C.C. Macknight. 1983. Imported ceramics in South Sulawesi. *Review of Indonesian and Malaysian Affairs* 17:66-91.
Mappasanda, Ham and Muh. Yunus Hafid. 1992/1993. *Kerajaan Luwu (Menurut Catatan D.F. Van Braam Morris)*. Ujung Pandang: Balai Kajian Sejarah dan Nilai Tradisional, Departemen Pendidikan dan Kebudayaan.
Pelras, Christian. 1996. *The Bugis*. London: Thames and Hudson.
Pigeaud, T. 1962. *Java in the Fourteenth Century: A Study in Cultural History*. The Hague: Martinus Nijhoff.

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Environmental Reconstruction at Ayutthaya, Thailand.

The aim of this project was to determine what the vegetation of Ayutthaya was like at the time of its destruction by the Burmese in 1767 A.D. To this end 32 samples, supplied by Prof. Keith Branigan, Department of Archaeology, University of Sheffield, and derived from two cores extracted from a pond in the Royal Palace Gardens, labelled Core 2 and Core 3, were subjected to pollen analysis and counts of microfossil charcoal. Ayutthaya was founded in 1351 A.D. but the ponds are of much later age, dating to the times of King Narai.

Both pollen diagrams were dominated by large (above 30 microns in diameter) and small grass grains, Amaranthaceae, Urticaceae/Moraceae and a *Cyperus* species. Pollen concentrations increased in the more recent samples, which appear to post-date the destruction of the city, suggesting that weeds became more abundant. The grasses, amaranths, Urticaceae, Moraceae, and the sedges include plants which are grown as ornamentals but do not seem to be deliberately planted nearby today. The main interest of the diagrams lies with some of the minor plant taxa (both pollen diagrams contain over 150 pollen types). Almost every sample had some mangrove or back mangrove pollen in it. The Rhizophoraceae pollen (*Rhizophora*, *Bruguiera/Ceriops* and *Carallia*) was usually fresh and could have been brought in by wet season flooding or by the wind. It was commonest near the base of Core 2. The *Avicennia*, *Sonneratia* and *Barringtonia* pollen was battered and corroded was more certainly brought in by floods but the mangrove and back-mangrove pollen types are an insignificant component of the total pollen flora. The other tree pollen types are mainly a mixture of indigenous lowland monsoon forest species, and fruit tree taxa, with some pine. The amount of pine pollen is so low that it is unlikely that pine was growing anywhere near Ayutthaya.

A number of the pollen types are not yet certainly identified, but there seem to have been east Asiatic tree species present, some of which are no longer recorded from Thailand. The elm pollen includes grains which are probably from the native species and those from an introduced species. Alder pollen also occurred once, so did hornbeam (*Carpinus*). One species of *Carpinus* has been recorded from Thailand. It is part of the Himalayan element in the Thai flora. However, these grains could be laboratory contaminants. The other interesting types are the American elements: *Annona* and *Carica papaya*. The *Carica papaya* pollen is present in one sample from the lower level of both cores. Pollen grains likely to be from indigenous fruit trees and those introduced in early times from elsewhere in Asia are also present, for instance those of jujube (*Zizyphus*), the mango (*Mangifera*) and the coconut palm (*Cocos nucifera*).

Turning to the shrubs and herbs: we have the occasional grain of *Ixora*, which is commonly planted today, and *Randia* (a shrub/small tree) and the trees/climbers include the fig. There is one common pollen type in Apocynaceae, the frangipani family, which I do not have reference material to identify more closely. This is probably from a planted ornamental. There is also some Agavaceae pollen which is possibly from the Aloe or some other ornamental, and some pollen from something in the buttercup family, Ranunculaceae. One core has a few *Cannabis sativa* pollen grains. *Cannabis* is wind pollinated and was not necessarily growing nearby. It is likely that rope was being made at Ayutthaya and cannabis fibre is used for that, other uses can be neither proven nor disproved from the pollen record [the historical literature, e.g. Turpin (1771) says that no hemp was grown, but it was present in earlier times at Angkor according to an early Chinese account (of 1296 A.D.), the source would be China].

The water plants included pondweed, lilies and various kinds of ornamental, such as the water lotus. The sort of plants that are commonly grown in ornamental ponds in Bangkok today [No reference has been found to there ever having been ornamental ponds. Kaempfer mentions ponds for washing the horses and elephants].

One *Eucalyptus* pollen grain was present in the upper sample from Core 2, so that probably post-dates about 1880. I have fairly precise dates for most recent introductions from the botanical literature. This brings us to what the written record says, and how it ties in with the pollen record. *Eucalyptus globulus* (blue gum) was said (Wanandorn 1934) to have been first seen in Bangkok about 1880 and was introduced to the Dusit Palace grounds when the palace was being built (about 1897-1898).

References

- Turpin 1771. *History of Siam*, from *General Collection of Voyages and Travels*, John Pinkerton, London 1811, IX, 573-655 (xerox in Siam Society Library). Accuracy in doubt, gives a very dubious account of the destruction of Ayutthaya in 1767 A.D....a Dutch eye witness account has been published elsewhere
- Phya Winit Wanandorn 1934. Further notes on introduced plants in Siam. *Journal of the Siam Society (Natural History Supplement)* IX (3): 265-285.

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Report on Fieldwork in Bac Ninh Province, Vietnam, July 1999

This is a shortened version of a longer report submitted by B.K.M. to the Institute of Archaeology, Hanoi, and its contents will be disseminated within that institution at their annual conference, which is to be held at the end of September 1999, by Miss Nguyen Mai Huong.

During July 1999 collaborators from the Institute of Archaeology, Hanoi, University of Pittsburgh, Pennsylvania, U.S.A, and The Queen's University, Belfast, Northern Ireland, participated in fieldwork aimed at investigation of the Quaternary geology of an area in Bac Ninh Province north west of Hanoi. This region had been identified by Dr. Brian Vincent,

University of Otago, New Zealand, and Dr. Francis Allard, University of Pittsburgh, in 1998 as showing potential for a study of the environmental background to the origin of the Bronze Age Dongson culture in the northern part of the (Song-koi) Red River Delta. Research was funded by grants made by the British Academy and the Royal Society of London to Dr. Bernard Maloney, Palaeoecology Centre, The Queen's University, Belfast.

Emphasis was placed upon investigation of the geological evolution of the landscape during the last 4000 years. Numerous borings were made to a depth of 2 m using a split spoon soil auger to determine the sediment texture, its colour, delineate the stratigraphy, and assess the possible origins of deposits. Work concentrated on trying to establish the limits of the middle Holocene marine sediments and more recent fluvial deposits in relation to archaeological sites, that of Dinh To, in particular. The present path of the Duong River, which dissects the 12m² study area, appears to follow a track largely initiated by faulting during the period of prehistoric occupation of the region. So it was decided to try and locate other former river channels and associated features, i.e. levees, point bars, flood plains, etc., situated both to its north and south and to try and find infilled meander lakes to collect samples for pollen analysis and radiocarbon dating from..

Meander lakes may infill rapidly but the pollen is likely to be largely from more local sources than that to be found in open riverine sediments, and erosion and redeposition is unlikely to be a problem. Unfortunately no such sites were found in the areas investigated, although they might be present elsewhere, in places which we had neither the time nor necessary permissions to visit.

In the end we had to make do with samples taken from former river channels and some reasonably undisturbed short cores were obtained from sediments comprised of gleyed soil horizons, non-indurated lateritic valley fill and organic and minerogenic fluvial sediments using lengths of split bamboo bound together with wire, but we do not yet know how hold these are.

It is known that human use of the land in part of this area has led to disruption of the natural hydrological regime through canalization from at least the 11th century A.D. Canalization, artificial heightening of natural levees, digging of both major and minor irrigation and drainage ditches, and creation of banded fields, which has intensified especially from the late 19th century onwards, has drastically changed the landscape from that of prehistoric times. So this is not an easy area for the Quaternary geologist or the pollen analyst to work on, but that makes it all the more interesting!

Apart from relocating naturally deposited sediments, this manipulation of the landscape has almost certainly disrupted many archaeological sites. Added to this, there have been natural changes in the river courses and alterations due to variations in sea level and, possibly, typhoon events.

It is hoped that fieldwork aimed at probing more deeply using a D-shaped borer to further flesh out the mid-late Holocene geological history and collect better material for pollen analysis will continue in 2000. In the meantime, preliminary investigations of the pollen content will be made to establish its range and identify any possible problems of pollen determination. Attempts are

also being made to trace historical documentation relating to modification of the natural hydrology.

It may be noted, that in addition to the cores, wood from the haft of a bronze Dongson axe was collected for identification and possible AMS dating, as was soil from the interior of a socketed arrowhead. Copper in bronze normally inhibits microbial action; therefore it is possible that the soil will contain pollen dating to the time of burial, which may be used to reconstruct the past vegetation. Unfortunately it is unlikely that there will be enough organic material left after extraction of the pollen for AMS dating. Soil was present in a second arrowhead but this was not collected because there was less of it, and because contamination with atmospheric pollen seemed certain.

MIRIAM STARK, Department of Anthropology, University of Hawaii, Honolulu.
The Angkor Borei Project

The University of Hawaii/East-West Center/Royal University of Fine Arts Cambodia Project has concentrated teaching and research efforts at Angkor Borei since 1995. Research at Angkor Borei was begun by the Lower Mekong Archaeological Project (LOMAP) in 1996, and we completed a second field season in 1999. The following section describes some of LOMAP's archaeological findings from work at Angkor Borei.

THE 1996 FIELD SEASON

Three objectives guided the 1996 fieldwork. We sought to document the site's shape and the range of its archaeological features, to evaluate the integrity of subsurface materials and description of the site's stratigraphy; and to collect samples for dating portions of the archaeological site. The field crew completed a preliminary site map that they had begun in 1995, which suggests that the ancient site of Angkor Borei is at least 300 hectares in area and may have been associated with many features found beyond the city's wall (particularly to the south of the city). This site map has been a useful tool for locating features in different areas of the large ancient city.

We also tested two areas of the site using 1 m x 2 m excavation units to obtain radiocarbon samples to build a ceramic sequence. Results of our radiocarbon dating suggest that Angkor Borei was settled ca. 400 B.C., or 500-600 years earlier than the Chinese documentary accounts of the area. Perhaps populations moved into the delta several centuries before the region became sufficiently important in the international trade world to be noticed by the Chinese. Finally, crew members uncovered portions of one of the fifteen or more collapsed brick structures that had been mapped inside the city's walls. The structure we investigated had been mined in recent years for bricks, and was incomplete. However, we could identify the general parameters of this brick construction, and villagers have recovered stone sculptures and inscribed stelae from other brick features on the site with this general shape.

THE 1999 FIELD SEASON

LOMAP continued its investigations of Cambodia's early historic period in 1999 by conducting archaeological excavations at Angkor Borei. A small team of archaeology professors and students from the University of Hawaii (UH) and the Royal University of Fine Arts in Phnom Penh (RUFA) worked together for six weeks from January to March. Research focused on three important loci at the site: 1) the centrally situated mound upon which Wat Komnou sits today; 2) the ancient city wall; and 3) the ancient water features, which are primarily moats and reservoirs. Dr. Miriam Stark, LOMAP's co-director from the University of Hawaii, coordinated excavations at the Wat Komnou mound and the

ancient city wall. Dr. Paul Bishop, a geologist from the University of Glasgow, investigated the age and morphology of the city's ancient water features.

Excavations at Wat Komnou Mound

LOMAP crew members excavated a 2 x 3 meter pit on the southern slope of the mound on which Wat Komnou is located. This mound is located in the central area of the ancient city, making it a likely spot to have been an important residential area. Also, this mound represents the highest ground within the old walls. LOMAP archaeologists were able to dig at the Wat Komnou mound because villagers had accidentally uncovered human bones beneath the surface in this area in 1998 as they removed large amounts of dirt for landfill. With the permission of local landowners, officials and Cambodia's Ministry of Culture, archaeologists began excavating here in January and continued excavations until mid-March. By early April 1999, we blocked the area off with a brick wall and roofed over to prevent damage to the unit during the rainy season.

One of the most compelling aspects of the 1999 excavations lay in the exposure of human remains more than 3 meters below ground surface. Use of relative dating techniques provisionally suggests that these burials date to the 1st century AD or soon thereafter. Most of the skeletons were extended, although we also found some bundles of skeletons that might represent secondary burials. Grave goods accompanied most of the skeletons, and include intact ceramic pots and pig skulls, both of which were found on and around the skeletons.

The discovery of the Angkor Borei cemetery is important for many reasons. It provides a window into the early Funan period of Cambodia, a period about which very little is known. Also, it is the first cemetery of inhumations (not cremations) that has ever been excavated in Cambodia using modern archaeological techniques. Thus, this is the first opportunity to scientifically examine an ancient skeletal population from Cambodia.

Excavations of the City Wall

Another portion of the 1999 fieldwork involved excavations at the ancient city wall. Working closely with Dr. Paul Bishop (University of Glasgow), archaeologists documented and excavated a section of the wall that surrounds Angkor Borei. An earthen and brick masonry-capped wall (ca. 4 m in width at its base) surrounds the ancient settlement of Angkor Borei, and many intact sections remain. Work concentrated in the southeastern portion of the site for logistical reasons. Most of the wall in this area is intact, except for a section in the southeast corner of the site that was reportedly destroyed during the American bombing of Cambodia and a wall cut that a farmer made to drain his fields. Our test trench did not recover radiocarbon samples from this area, but the stratigraphy suggests that the wall was constructed in two episodes. The first episode involved building an earthen embankment around the settlement's perimeter, perhaps in conjunction with the excavation of the inner and outer moats that are still visible in certain areas of the site. The second episode, which may have occurred substantially later in time, involved the mounding of cultural debris on this earthen embankment to create a flat surface, and the construction of an approximately two-meter high masonry brick wall to cap the earthen embankment. The wall that is now visible, therefore, may reflect multiple construction episodes. We have submitted a brick sample from the wall to Dr. David Sanderson of the SURRC Luminescence Laboratory (Glasgow, Scotland) for thermoluminescence dating.

Investigation of Hydraulic Features at Angkor Borei

Work with Dr. Bishop also probed Angkor Borei's ancient water features. The third component of the 1999 field season involved studies of the ancient hydraulic features in and around Angkor Borei. Most

prominent of these are the moats that flank the city wall, and the canal segments (still visible in aerial photographs) that may extend as far south as Vietnam. Dr. Paul Bishop augered areas of the moats and canals to obtain data for geomorphological study, and collected samples for paleoethnobotanical analysis. A final part of the geomorphological research involved coring a large reservoir in the site's southeastern corner to collect ancient sediments. Scientific analysis of these sediments will help us learn what the local vegetation looked like at various points in the settlement's history.

Faunal and ceramic materials from our excavations are currently being processed and analyzed at the University of Hawaii in conjunction with graduate projects, and we await shipment of the human remains for osteoarchaeological study. We are scheduled to return to Angkor Borei for a third field season from May-July 2000, and will continue to investigate environmental change and state formation in the Mekong delta.

RECENT & FORTHCOMING PUBLICATIONS

CHAEAM KAEWKLAJ 1999. Inscription on Ancient Stone Temple of Tamuenthom. *The Silpakorn journal* Vol. 4 No. 2 (March-April).

ROGER BLENCH AND MATTHEW SPRIGGS (eds) 1999 *Archaeology and Language III: Artefacts, Languages and Texts: Building Connections*. London: Routledge.

This volume is the third part of a four-part survey of innovative results emerging from the fusion of archaeology and historical linguistics. The basic data of archaeology are artefacts, pre-eminently pottery, but also settlement sites and other types of material culture. *Archaeology and Language III, Artefacts, Languages and Texts* represents groundbreaking work in interpreting the results from archaeology in terms of language distribution and change, thereby complementing the other volumes in this sequence.

By reconstructing terms for artefacts and relating them to sites in homeland areas or regions of dispersal names can be given to silent objects. Individual chapters consider the reconstruction of house-forms, of maritime technology, of pottery and grave-goods. By putting together fragmentary textual evidence for lesser-known languages, ancient patterns of change and dispersal can be understood in a new fashion. Overall, the volume is intended to provide the tools for a radical rewriting of the conventional discourse of prehistory.

Volume III is a comprehensive examination of the potential for archaeology and linguistics to complement one another in the interpretation of prehistory. It provides concrete case studies of artefacts and fragmentary text materials can all be interwoven to produce a rich narrative of the past.

Selection of chapter titles: "Early Oceanic architectural forms and settlement patterns: linguistic, archaeological and ethnological perspectives" by R. Green and A. Pawley; "Going to pots: fine tuning the prehistory of Mailu Island, southeast Papua New Guinea" by T. Dutton; "Linguistics versus archaeology: early Austronesian terms for metals" by R. Blust; "The dispersal of Austronesian boat forms in the Indian Ocean" by W. Mahdi; "The archaeology of knowledge concerning Austronesian influences in the Western Indian Ocean" by C. Allibert.

KUNLAYANEE KITCHOTPRASERT 1999. Bronze from archaeological Site at Ban Don Thongchai. *The Silpakorn journal* Vol. 42 No. 2 (March-April).

LAURA JUNKER, 1999 *Raiding, Trading and Feasting: the Political Economy of Philippine Chiefdom*. Honolulu: University of Hawaii Press.

PITTAYA DARMDEN-NGARM 1999. Ancient Dams in Thailand. *The Silpakorn Journal* Vol. 42 No. 4 (March-April).

RECENT PhD DISSERTATIONS

PRESENTED PAPERS

CONFERENCES, SYMPOSIA, WORKSHOPS, ETC.

SECOND MEETING OF GOVERNMENTAL EXPERTS ON DRAFT CONVENTION ON THE PROTECTION OF UNDERWATER CULTURAL HERITAGE was held on 19-24 April, 1999 by UNESCO Headquarters in Paris, France. The aim of the convention is to protect valuable underwater cultural heritage – such as shipwrecks and archaeological sites – which is increasingly vulnerable to pillaging by treasure hunters as ever more efficient underwater excavation equipment becomes more readily accessible. All too often this has led to the loss of material of inestimable value to study of the origins and history of civilizations.

THE ECONOMICS OF HERITAGE: UNESCO CONFERENCE/WORKSHOP ON THE ADAPTIVE RE-USE OF HISTORIC PROPERTIES IN ASIA AND THE PACIFIC was held 9-17 May 1999 in Penang and Melaka, Malaysia. Hosted by the Office of the UNESCO Regional Advisor for Culture in Asia and the Pacific and the State Governments of Penang and Malaysia, the conference focused on how contemporary and economic re-use of historic properties and public spaces is a practical and sustainable tool for long term conservation. This was part of a series of UNESCO-sponsored conferences/workshops on heritage management and development in Asia and the Pacific. The conferences meet specific aims of UNESCO's Programme on Integrated Community Development and Cultural Heritage Site Preservation in Asia and the Pacific through Local Effort (LEAP). The forums are not academic exercises, but rather provide practical experience and on-site assessment through lectures, field trips and workshops. The objectives of this conference were to: 1) provide a forum for discussion on issues relating to the adaptive and contemporary re-use of historic buildings and public spaces; 2) allow participants and those interested in heritage preservation to learn and share from each other's experience; 3) introduce case study models for replication in other heritage sites in the Asia/Pacific region, and 4) establish a network to strengthen communication among the participants, owners of historic properties and experts on heritage preservation and re-use.

SEMINAR ON SOUTHEAST ASIAN INDUSTRIAL ARCHAEOLOGY (SS-316) This one – week seminar was held on 7-13 June, 1999 by SPAFA Headquarters in Bangkok, Thailand. Its rationale is that the rise of indigenous and introduced industries, ranging from an important part from simple ironsmiths' and weavers' workshops to true factories, forms an important part of the economic and social history of any region. In Europe and Asia, Archaeologists have made significant progress in recovering and preserving early industrial sites. But in Southeast Asia, such work is still in its infancy.

Southeast Asia archaeologists have begun to produce useful studies of metallurgical, ceramic and lithic industries dating to the paleolithic through early historical periods, and in a few places, ethno-archaeological research has commenced on such objects as traditional pottery making. However, more complex and later industries have been largely neglected, especially, those of the past few hundred years: for instance, Dutch and indigenous shipbuilding in Java; northern Vietnam; cast iron smelting in Vietnam and the Philippines; and medium-to-large scale textile production in several parts of the region. In some

cases, a few traditional factories and mines can be still be found in use, and in other cases, abandoned industrial sites are still more or less intact. It is essential that these as well as excavated industrial sites of earlier periods be studied and preserved.

THE INTERNATIONAL COLLOQUIUM ON ARCHAEOLOGY IN SOUTHEAST ASIA IN THE 3RD MILLENNIUM was held in Penang, Malaysia on 27 to 29 September, 1999. The Colloquium was organized and hosted by the Centre for Archaeological Research, Universiti Sains Malaysia. The aims of the Colloquium were: 1) to explore alternative future directions for the development of prehistory in SE Asia, taking into account each country's level of development, strengths and weaknesses; 2) to identify the main research issues and problems in SE Asian prehistory; 3) to establish a prioritized agenda for the development of field in SE Asia; and 4) to provide one another with an update on the national and regional issues and problems to help individual countries strategise their excavations to obtain the necessary data to understand their own national or local cultural development while at the same time filling in gaps for the complete regional perspective. There were 12 sessions in the Colloquium. The first five sessions were on current research & future plans in Indonesia, Philippines, Vietnam & Cambodia, Laos & Myanmar, and Thailand & Malaysia. The next three sessions focused on the problems and issues of the Paleolithic in Southeast Asia, of the "Hoabinhian" and Neolithic in Southeast Asia, and of the Metal Age in Southeast Asia with discussions including recommendations for future research. Session 9 discussed training needs and development of research facilities, and Session 9 (b) was an evening question and answer session on presented research papers. The final day's two sessions presented the discussions and recommendations for the problems and issues sessions, followed by a session to adopt the various recommendations. Details of the Colloquium's program may be obtained from the Colloquium Secretariat at the following e-mail address: dir_ark@usm.my

PS. The review of the International Colloquium on Archaeology in Southeast Asia in the 3rd Millennium will be in the next issue.

MINISTRY OF CULTURE AND FINE ARTS AND GERMAN ACADEMIC EXCHANGE SERVICE (DAAD) UNDER THE PATRONAGE OF THE GERMAN AMBASSADOR DR. HARALD LOESCHNER

Conference on **CIRCULAR EARTHWORKS IN CAMBODIA**, 14 to 19 November 1999 in the Faculty of Archaeology, Royal University of Fine Arts, Phnom Penh, Cambodia.

The Conference is on new discoveries in the red soils area in Kampong Cham Province, Southeast Cambodia. In a workshop the initial results of the recent work of Cambodian students and international specialists will be presented and discussed in comparison with similar Southeast-Asian studies. The Conference will include an excursion to the Krek/Mimot area near the Vietnamese border.

Conference fees: - Free for local participants
 - US \$ 50,- for foreign participants, including papers and official dinner
 - US \$ 60,- all inclusive package for three-day-excursion

Registration deadline 30 May 1999 Contributions in English, 15 minutes, abstract required two weeks before the conference. Please send applications, including title of proposed paper, by e-mail to:

Mr. Ros Sokhom, Secretary, "EARTHWORK CONFERENCE",

E-mail: archaeology.rufa@worldmail.com.kh Phone: ++855-23-214079

or by mail to: Gerd Albrecht, "EARTHWORK CONFERENCE", POBox 2190, Phnom Penh 3 - Cambodia

CONFERENCE/WORKSHOP REPORTS

JOYCE WHITE, The University Museum, 33rd & Spruce Streets, University of Pennsylvania, Philadelphia, PA 19104, USA.

Workshop on the Bronze Age Culture of Nyaung-gan, Myanmar.

A Workshop on the Bronze Age Culture of Nyaung-gan was held from January 2nd to 7th 1999 in Myanmar (Burma). The Workshop was co-sponsored by the Myanmar Historical Commission, Universities Historical Research Centre and the Directorate of Archaeology. Invited participating scholars from outside of Historical Commission, Universities Historical Research Centre and the Directorate of Archaeology. Invited participating scholars from outside of Myanmar included in alphabetical order: Pisit Charoenwongsa, Charles Higham, Ian Glover, Jiang Zhi Long, John Miksic, Nikom Musigakama, Jean-Paul Pautreau, Nancy Tayles, and Joyce White. Somsuda Leyavanija, Guy Lubeigt, and Dhida Saraya were additional observers.

The Workshop began with a two-day site visit. This was one of the most remarkable scholarly experiences I have ever experienced. Place a dozen experts on various aspects of Southeast Asian prehistory in a new "potentially bronze age" site in a country with no previously defined bronze age sequence and, with only a minimal introduction to the excavations, see what they figure out from the exposed evidence. Sort of a post-doctoral exam for which they are to orally report their findings a few days later! Although when they arrived at the site, most participants were in various stages of jet-lag and cultural adjustment, the wonderful experience energized the group and lively discussions of the evidence ensued over the next two days.

The excavations at Nyaung-gan revealed a cemetery whose graves were variously endowed with ceramics, stone bracelets, copper-base artifacts (mostly socketed implements) and other items. The economic and social meaning of the cemetery was the topic of much of the discussion. Pending absolute dating, there was general agreement that the site probably dated to the 1st millennium B.C.

After the site visit, the participants visited Mandalay, en route back to Yangon, where a 2 day workshop with formal presentations ensued. On the first day back in Yangon, five visiting scholars gave presentations on their work concerning topics of the Southeast Asian bronze age drawing mainly from evidence in Thailand: Joyce White, Nancy Tayles, Jean-Paul Pautreau, Charles Higham, and Ian Glover.

On the second day following formal ceremonies, the Myanmar scholars presented their work on the site and its remains. Dr. Pe Maung Than presented the geology of the region; U Puak Puak discussed the excavation procedures; U Nyunt Han presented a summary of the findings; U Kyaw Han reviewed burial practices; Dr. Daw Khin Lay Yi discussed the osteological study; U Nyunt Htay presented a summary of the findings; U Kyaw Han reviewed burial practices; Dr. Daw Khin Lay Yi discussed the osteological study; U Nyunt Htay presented the metallurgical analyses; U San Nyein reviewed the beads, and U Sein Myint presented an environmental analysis.

During the afternoon, all visiting participating scholars offered additional comments on their observations of the site and the work of the Myanmar scholars.

All participants agreed that the entire workshop was a truly remarkable occasion for the scholarship of Southeast Asian prehistory. The free-flowing and harmonious exchange of ideas among international peers is a feat to be emulated at all future international meetings in our region. Many specific issues were raised in the discussion including both pragmatic and scholarly topics. Obtaining absolute dates and other specialized technical studies such as quantitative elemental analyses for the metal artifacts will be challenges. Concern for the complete excavation of the exposed materials, and the problems

of not only full analysis but also proper storage of the human remains were raised by several scholars. The cultural resource management issues were of not only full analysis but also proper storage of the human remains were raised by several scholars. The cultural resource management issues were raised by Nikom Musigakama, John Miksic, and Pisit Charoenwongsa who commented on the challenges, expenses, and advisability in stabilizing such a site for tourism. Jiang Zhi Long pointed out similarities among some of the Nyaung-gan artifacts with implements excavated in Yunnan. Joyce White proposed alternative models for the economic role that the Nyaung-gan society might have played in prehistory. The papers will be published in a proceedings volume.

All the discussions over the entire week took place among incredible hospitality, peppered with incredible meals, and experiences of the Myanmar culture and country, all under the maternal eye of Daw Ni Ni Myint. Most participants noted that low calorie diets would be in order upon their return home. All participants also "made new friends" and valued spending substantial relaxed time with old acquaintances, as the small group and ample time table allowed for more in-depth interaction than is possible in the typical international conference. The opportunity to see several parts of Myanmar was also a truly special experience. Viewing Pagan from the air, the experiences of the summit of Mandalay Hill at sunset and Swedagon Pagoda in the late afternoon also a truly special experience. Viewing Pagan from the air, the experiences of the summit of Mandalay Hill at sunset and Swedagon Pagoda in the late afternoon, with its indescribable sights, sounds, and aromatic atmosphere, were unforgettable. The remarkable generosity and thoughtfulness of our hosts in so many ways in the organization of the week and the care-taking of the participants will long be remembered by all.

FELLOWSHIPS

GRANTS FOR POSTGRADUATE COURSES AT THE UNIVERSITY OF BRADFORD, DEPARTMENT OF ARCHAEOLOGICAL SCIENCES. The University of Bradford and Foreign and Commonwealth Office Scholarships has nine scholarships open to postgraduate candidates on one-year MA programmes, who come from Indonesia, South Korea, Malaysia and Thailand. Value £3,000. These will be awarded to self-funding international applicants holding an offer of a place on a University of Bradford full-time one-year Masters course on the basis of academic achievement and/or potential. The Department of Archaeological Sciences at the University of Bradford runs taught Masters courses in: Archaeological Prospection, Degradation of Archaeological Materials, Forensic Anthropology, Old World Archaeology, Osteology, Palaeopathology and Funerary Archaeology, Scientific Methods in Archaeology. For further information about the courses, contact: Dr Jill Thompson (email: J.B.Thompson@Bradford.ac.uk) or Dr Cathy Batt (C.M.Batt@Bradford.ac.uk). Web site: www.brad.ac.uk/acad/archsci/homepage.html Applications forms for the scholarships are available from: The International Office, University of Bradford, Richmond Road, Bradford 7 1DP, UK. Email: international-office@bradford.ac.uk Web site: www.brad.ac.uk

AUSTRALIAN NATIONAL UNIVERSITY DOCTORAL AND POSTDOCTORAL FELLOWSHIPS FOR SOUTHEAST ASIAN STUDIES, 2000 ROUND. Fellowships are available in the social sciences and humanities for research on Southeast Asia at The Australian National University (ANU). The fellowships, funded by the Luce Foundation, will be for three to twelve months. Beginning and ending dates are flexible. The primary objective of this fellowship program is to enhance Southeast Asian studies in the United States by giving selected junior scholars based there access to resources for this field of study at the ANU. Doctoral fellows must be graduate students in US universities who have completed their course except the dissertation, are highly recommended, have well developed dissertation topics, and can make a strong case for why a fellowship will benefit their dissertation work. Postdoctoral fellows must be US-based scholars who received their PhD degree within the last five years, are highly

recommended, and have a clearly defined project to undertake at the ANU. Postdoctoral fellowship applicants not based at US universities with major centers for the study of Southeast Asia are preferred. Fellowships include stipends, airfare, and research funding. Deadline for 2000 round: 1 January 2000. Selections will be announced by early March 2000. Similar fellowships will also be available in the year 2001. For further information and application form, see the following web site <http://coombs.anu.edu.au/fseas/index.htm> or contact the School Secretary, Research School of Pacific and Asian Studies: telephone (61-2) 6249 2678; fax (61-2) 6249 4836; e-mail: schlsec.rspas@anu.edu.au, or letter to School Secretary, RSPAS, ANU, Canberra, ACT 0200, AUSTRALIA. Similar fellowships will also be available in 2001.

ASSOCIATION OF COMMONWEALTH UNIVERSITIES GENERAL SCHOLARSHIPS, ACADEMIC STAFF SCHOLARSHIPS, SENIOR RESEARCH AWARDS (Commonwealth Fellowships and THES Exchange Fellowships). Web site: www.acu.ac.uk/awards/awpguk01.html.

CSFP General Scholarships are normally available for study towards a Masters or Doctoral degree. Subject: Unrestricted. Eligibility: Commonwealth citizens and British protected persons who have completed a first degree or master's degree within last 10 years, and who are permanently resident in Commonwealth countries other than UK. Primarily for postgraduate study or research. Candidates should hold a minimum upper second class honours degree or equivalent. Value: University fees, Scholar's return travel, allowances for books, apparatus, approved travel within country of tenure, personal maintenance (plus allowances, where applicable, for spouse and children). Tenable at approved institution of higher learning for 1-2 years initially; maximum 3 years. Number. Up to 200 annually. Application for Commonwealth Scholarships, by nomination only through Commonwealth Scholarship Agency in country in which candidate permanently resides. Closing date: (For receipt of nominations in London) 31 December of year preceding tenure.

CSFP Academic Staff Scholarships are normally available for study towards a Masters or Doctoral degree, but may form part of a higher degree programme in the scholar's home university. The Commonwealth Scholarship Commission normally accepts nominations only from the Vice-Chancellor of the university on whose permanent staff the nominee serves. Academic Staff eligible for these awards may alternatively apply for a CSFP General Scholarship. Subject: Unrestricted. Eligibility: Commonwealth citizens and British protected persons who have completed a first degree or master's degree within last 10 years, and who are permanently resident in Commonwealth countries other than UK. Primarily for postgraduate study or research. Academic Staff Scholarships are open only to candidates not older than 42, holding or returning to a teaching appointment in a university in the developing Commonwealth. Value: University fees, Scholar's return travel, allowances for books, apparatus, approved travel within country of tenure, personal maintenance (plus allowances, where applicable, for spouse and children). Tenable at approved institution of higher learning for 1-2 years initially; maximum 3 years. Number. Up to 100 annually. Application for Commonwealth Academic Staff Scholarships, by nomination by executive head of own university. Closing date: (For receipt of nominations in London) 31 December of year preceding tenure. For all awards, application must be made to the relevant country's Scholarship Agency.

Senior Research Awards, CSFP Commonwealth Fellowships. Commonwealth Fellowships are available each year to enable academic staff in universities in the developing Commonwealth to receive training and experience in Britain, so as to increase their usefulness as teachers in their own universities. The Fellowships are not open for study for a degree or diploma, but there are in addition a number of Commonwealth Academic Staff Scholarships, for work-related study by more junior members or potential members of university staffs, which may include study for a higher degree in any academic discipline. The Commonwealth Scholarship Commission normally accepts nominations only from the Vice-Chancellor of the university on whose permanent staff the nominee serves. Subject: Tenable in any academic subject (including medicine and dentistry). Eligibility: Commonwealth citizens and British protected persons, normally university teaching staff, who have completed their doctorate (or relevant postgraduate qualifications) no less than 5 and no more than 10 years by the date of taking up an award,

and who are permanently resident in Commonwealth countries other than UK. Fellowships will not be offered to candidates over the age of 50. Value: Research support grant, Fellow's return travel, allowances for books, apparatus, approved travel within country of tenure, personal maintenance (plus allowances for spouse and children). Tenable at approved institution of higher learning for a 6 month period or a 12 month period, which may optionally be split across 2 academic sessions. Up to 75 annually. Nomination for Commonwealth Fellowships through executive head of own university. Closing date: (For receipt of nominations in London) 31 December of year preceding tenure.

Senior Research Awards, THES Exchange Fellowships. The ACU administers the Times Higher Education Supplement Exchange Fellowship, financed by the (London) Times Higher Education Supplement, for the support of (a) attachments of university staff, both academic and administrative, to other universities in Commonwealth developing countries to obtain greater experience and training; (b) short study tours of university staff in Commonwealth developing countries to enhance their ability to contribute to national development. 24 fellowships have been awarded to date. Subject: Unrestricted. Eligibility: Open only to academic, administrative, professional and library staff of ACU member universities in developing Commonwealth. Age limit 55. Value: Up to £3,000. Funded by THES. Tenable only in another developing Commonwealth country, for up to 3 months. Number. 1 annually. Application through executive head of staff member's own university. Closing date: (For receipt of nominations in London) 31 May.

THE BRITISH ACADEMY VISITING PROFESSORSHIPS AND FELLOWSHIPS

The Academy's Visiting Professorships scheme enables distinguished scholars from overseas to be invited to spend a minimum of two weeks in the United Kingdom. The Academy grants the title of British Academy Visiting Professor or (for a more junior scholar) British Academy Visiting Fellow and awards a sum of money towards the estimated travel and maintenance costs. All arrangements are undertaken by the visitor's British sponsor. While the delivery of lectures and participation in seminars is not precluded, the main purpose of the visit should be to enable the visitor to pursue research. It is not intended that the Academy's Fellowships and Professorships should be used in conjunction with a non-stipendiary university fellowship. Eligibility: Candidates for nominations must be either established scholars of distinction or younger people who show great promise and who would benefit from time to pursue their research in the United Kingdom. Level of grant: The Academy will meet travel expenses to the United Kingdom, and provide subsistence for Visiting Professors and Fellows up to a maximum of £700 a week. Applicants will be expected to submit a carefully-costed budget within this limit. The normal maximum length of visit will be one month, but applications for longer periods will be considered, although it will be expected that the weekly budget for longer visits will be set at a more moderate level. Method of application and closing date: The British sponsor should apply on the Visiting Professorships application form, available from the Academy's International Relations Department (Tel.0171 969 5220, overseas@britac.ac.uk). Applications direct from foreign scholars will not be accepted. The closing date for applications is 31 December. Applications are considered in late February, for visits to take place during the financial year beginning 1 April. (It may be possible to entertain applications at other times of the year, but the Academy's aim is to allocate the available funds at one time.)

THE BRITISH COUNCIL, INDONESIA. BRITISH CHEVENING AWARDS 2000/2001.

This scholarship scheme is extremely competitive. Only highly qualified and dynamic individuals will be considered. Candidates should be under 40 years of age, have a high quality first-degree and have top class career prospects. Candidates should also have a good working knowledge of written and spoken English. The Chevening Awards are for a maximum of one year, usually for Master courses, or for shorter awards. Awards are not eligible for Undergraduate and PhD studies. No restrictions are placed on the fields of study (except English language teaching, which is not eligible, and Medicine Specialised which takes more than 1 year of study). The Chevening Awards are full scholarships. The scholarship covers, English language training at the British Council Jakarta prior to departure, return airfares to Britain, tuition fees, cost of living, book allowance, warm clothing allowance, extra baggage and other

necessary allowances that are appropriate. The completed form should be returned to the British Council (check with them for deadlines). No attachments or any other documents are required as the initial selection process will be only based on your application form, which should therefore be completed as fully as possible. Short-listed candidates will be interviewed in English at various locations around Indonesia. We regret that we are unable to inform candidates whose applications are unsuccessful. The British Chevening Awards Scheme is a worldwide scholarship programme sponsored by the British Government. It offers scholarships for present and future leaders and opinion-formers to study in Britain. In Indonesia, the Scheme is the responsibility of the British Embassy, and is managed by the British Council. Approximately 50 awards are available for the academic year beginning in September 2000. For further information please contact: Ms Yeyet Suryanti, Scholarships Officer, The British Council, S.Widjojo Centre 1st Floor, Jl.Jend. Sudirman Kav.71, Jakarta 12190. Tel : 021-2524115 or 2524122, Fax : 021-2524129, Email : yeyet.suryanti@britcoun.or.id Web site: old.britcoun.org/indonesia/idschev.htm

THE BRITISH COUNCIL, MALAYSIA. THE BRITISH HIGH COMMISSIONER'S CHEVENING AWARDS. This competitive scholarship scheme is funded by the Foreign and Commonwealth Office of the British government to provide an opportunity to outstanding young Malaysians, from a variety of fields, to further their studies in Britain. The scheme is part of the global programme of British Chevening Scholarships. The scheme in Malaysia comprises over forty awards annually and is divided up to offer a diverse programme of academic scholarships and specialist fellowships in order to maximise opportunity for people with a variety of backgrounds, at different points in their careers. The British High Commissioner's Chevening Awards provides scholarships for undergraduate and postgraduate studies at universities in Britain. The majority of awards are given at postgraduate level and cover the university tuition fee, living expenses and a return airfare. The undergraduate awards cover the university tuition fee only. Awards can be given for a maximum of three academic years. Recruitment is normally open in September and October of the year before courses commence. Please contact: Scholarships and Training Section, The British Council, Jalan Bukit Aman, PO Box 10539, 50916 Kuala Lumpur, Malaysia. Phone: +60 3 298 7555, Fax: +60 3 293 7214, E-mail: scholarships@britcoun.org.my, Web site: www.britcoun.org.my/index.htm

ROYAL SOCIETY MALAYSIAN FELLOWSHIP. One Fellowship is offered annually to an academic or researcher in the fields of natural, agricultural and mathematical sciences, engineering, non-clinical medical research and the scientific research aspects of psychology, archaeology, geography and the history of science. Nominations for the award are sought from the universities and institutions with a significant research track record in the above fields. The Fellowship is tenable for between three to twelve months and is intended to enable senior Malaysian staff to undertake research at institutions in Britain. The Fellowship provides for an economy class return ticket, a monthly stipend and for the payment of any bench fees or attachment fees which may be charged by the host institution in Britain. For details see contact info above.

THE BRITISH COUNCIL, THAILAND. BRITISH CHEVENING SCHOLARSHIPS. A number of scholarships are available for study in the UK for one year diploma or Master's degrees in various fields under the Chevening scheme. In addition to awards funded in full by the British Government, a number of awards are jointly funded by British companies in Thailand. Invitations for applications are issued in mid year and shortlisted candidates are interviewed at the British Embassy by February each year for scholarships commencing in September/October. For further details contact: The British Council, Education Development Manager. Telephone: (66 2) 611 6830-39, # 300, Fax: (66 2) 253 5312 (attn. Education Development Manager), E-mail: David.Alderdice@britcoun.or.th. Web site at: www.britcoun.or.th/thache.htm

THE INTERNATIONAL INSTITUTE OF ASIAN STUDIES located in Leiden, Netherlands accommodates post-doctoral researchers in Asian Studies in a variety of categories. Sponsorship of these fellowships contributes to the Institute's aim of augmenting existing expertise in Asian Studies and of bolstering the exploration of unde rdeveloped fields of Asian Studies in the Netherlands. Dutch and foreign specialists alike are eligible for both collaborative and individual research positions.

The IIAS distinguishes between several categories of fellows including:

1. research fellows (post PhD since <5 years) including individual fellows and those attached to an IIAS programme
2. senior visiting fellows (post-PhD, no age limit). The IIAS offers senior scholars the possibility to engage in research work in the Netherlands. The period can vary from 1 to 3 months.
3. professorial fellows. The IIAS assists in mediating between universities in the Netherlands and Research Institutes in Asia, inviting established scholars (minimum requirement: assistant professor level) to share their expertise with Dutch scholars, by being affiliated to Dutch universities for a period of one to two years.
4. visiting exchange fellows
5. affiliated fellows (post-PhD level). The IIAS can offer office facilities to fellows who have found their own financial support and who would like to do research in the Netherlands for a particular period.
6. ESF fellows

More detailed information can be obtained via the IIAS secretariat: 071 - 527.22.27. As it is one of the policies of the IIAS to stimulate (inter)national exchange, we will gladly mediate in establishing contacts and availability in delivering lectures, organizing seminars, etc. Also see their web site at <http://iias.leidenuniv.nl/>

THE ROYAL SOCIETY EXCHANGES WITH SOUTH EAST ASIA. The Royal Society's International Programme provides grants for scientific research visits to and from the UK (ie, from Singapore, Thailand, Vietnam, the Philippines, Indonesia, Brunei, Burma, Cambodia and Laos; see above for Royal Society Malaysian Fellowship). Overseas scientists (including archaeologists of postdoctoral or equivalent status) apply through the Society's partner organisations where formal exchange arrangements exist, or the UK host may apply for grants for visiting colleagues. Grants are for individuals and the main criteria are the quality of the individual and proposed scientific research.

Types of awards: **Study Visit grants** are short-term visits generally between two weeks and three months, the key objectives being to enhance the research capabilities of individual scientists, develop international collaborative links, and enable participation in international programmes. **Fellowship grants** are aimed at young, postdoctoral scientists to enable them to spend a significant period of research in the partner country in order to enhance their research capabilities, and establish links which may form the basis of future collaboration. Fellowships are for six to twelve months' duration. In general, the Society pays for subsistence, scientific travel within the UK and consumables.

For further information and application, contact: The Royal Society, International Exchanges Section, 6 Carlton House Terrace, London SW1Y 5AG; telephone: 171 839 5561, e-mail: china&southeastasia@royalsoc.ac.uk, web site: www.royalsoc.ac.uk Scientists from the Philippines or Thailand (or Malaysia, see above) can apply to the following relevant organisation or their UK hosts can apply directly to the Royal Society on their behalf: International Department, National Academy of Science & Technology of the Philippines, NSTA Administration Building, Bicutan, Taguig, Metro Manila, Philippines; telephone: 632 837-3172. National Research Council of Thailand, 196 Phaholyothin Road, Chatuchak, Bangkok 10900 Thailand; telephone 66 561 3049.

SOCIAL SCIENCE RESEARCH COUNCIL. Vietnam Dissertation Field Research Fellowships. Dissertation fellowships of up to \$15,000 a year are available to support research in Vietnam for periods between 12 and 24 months. Eligibility: Graduate students enrolled full-time in Ph.D. programs in any of the social sciences or humanities at accredited universities in the U.S. or Canada are eligible. Awards are subject to proof of completion of all departmental requirements other than the

dissertation. There are no citizenship restrictions. Contact: Social Science Research Council, 810 Seventh Avenue, New York, NY 10019 USA. Phone: 212.377.2700, fax: 212 377.2727, web: www.ssrc.org/levels.htm

WENNER-GREN FOUNDATION FOR ANTHROPOLOGICAL RESEARCH. Developing Countries Training Fellowships. The fellowships are intended for scholars and advanced students from developing countries seeking additional training in anthropology, to enhance their skills or to expand or develop their areas of expertise. Candidates may pursue either a course of study leading to a doctoral degree or a specific postdoctoral non-degree plan for obtaining advanced training, in any qualified institution in the world where appropriate training is available. Support is not normally provided for master's studies. Applications from students who have already had extensive training abroad will receive lower priority.

Applicants must be prepared to demonstrate (a) the unavailability of such training in their Home Country, (b) their provisional acceptance by a Host Institution that will provide such training, and (c) their intention to return and work in the Home Country upon completion of their training.

The applicant must have a Home Sponsor who is a member of the institution with which he/she is affiliated in the Home Country and a Host Sponsor who is a member of the institution in which the candidate plans to pursue training. The Host Sponsor must be willing to assume responsibility for overseeing the candidate's training. Because the fellowship is intended as a partnership with the Host Institution in providing the fellow's training, it is expected that candidates will also be offered support by the institution.

Amount and Duration of Awards: Awards are made for amounts up to \$12,500 per year, for periods from six months to three years.

Budgetary Guidelines: Developing Countries Training Fellowships may be used to cover travel, living expenses, tuition, student fees, insurance, books, and any other relevant categories of expenditure. Aid is not provided for salary and/or fringe benefits of applicant, family expenses, or institutional overhead.

Application Information: Inquiries should be made by means of a one-page Summary Statement of Purpose. The statement should briefly describe the following: 1) scholarly goals; 2) proposed training plan to be undertaken; 3) institutional affiliation at home and at intended institution abroad; 4) Host Sponsor at intended institution abroad; 5) beginning date and estimated duration of training; 6) estimated budget for studies/training; 7) other sources of aid; 8) prospects for employment and research upon return to Home Country. Please also include a copy of curriculum vitae or brief biography. If a candidate is considered eligible, application materials will be sent.

Deadline: Application should be initiated at least nine months in advance of the anticipated starting date of training.

Address: Wenner-Gren Foundation for Anthropological Research, Inc. 220 Fifth Avenue, 16th Floor New York, NY 10001-7708 USA. Web site: www.wennergren.org Phone: (212) 683-5000

ARCHAEOLOGY PROGRAMS

THE INSTITUTE OF ARCHAEOLOGY, UNIVERSITY COLLEGE LONDON has recently added several new taught graduate degrees to its program. MA degrees are offered in: Archaeology, Field and Analytical Techniques in Archaeology, Museum Studies, Public Archaeology, Cultural Heritage Studies, Comparative Art and Archaeology, Egyptian Archaeology, and Research Methods for the Humanities. MSc degrees are offered in: Archaeology, Forensic Archaeological Science, and Principles of Conservation. For further information, contact the Graduate Admissions Tutor, Institute of Archaeology, UCL, 31-34 Gordon Square, London WC1H 0PY U.K. Tel: 0171 387 7050 Overseas: + 44 171 387 7050 Fax: 0171 383 2572. Web site: www.ucl.ac.uk/archaeology/index.htm

RESEARCH GRANTS

THE FORD FOUNDATION awards grants for archaeological research and training. Headquarters: The Ford Foundation, 320 East 43rd Street, New York, NY 10017 USA, Main Voice: (212)573-5000, Main Fax: (212)351-3677, web address: www.fordfound.org In **Indonesia**, contact: P.O. Box 2030 Jakarta 10001, Indonesia, tel. 62-21-252-4073, fax 62-21-252-4078, e-mail ford-jakarta@fordfound.org. In the **Philippines**, contact: Makati Central P.O. Box 1936, Makati 1259 Metro Manila, Philippines, e-mail ford-manila@fordfound.org. In **Vietnam**, contact: 340 Ba Trieu Street, Hai Ba Trung District, Hanoi, Socialist Republic of Vietnam, tel. 84-4-976-0164/5/6, fax. 84-4-976-0163, e-mail ford-hanoi@fordfound.org.

WENNER-GREN FOUNDATION FOR ANTHROPOLOGICAL RESEARCH. For information on their research grants write to: 220 Fifth Avenue, New York, NY 10001-7708, USA or visit their web site at: www.wennergren.org

NATIONAL GEOGRAPHIC SOCIETY. For information write to: Committee for Research and Exploration, National Geographic Society 17th and M Streets, N.W., Washington, DC 20036 USA.

ROCKEFELLER FOUNDATION. Awards to assist women and men of outstanding promise to make significant contributions to research and teaching or public service in the future as potential staff members of developing-country institutions associated with the Foundation. For information write to: Rockefeller Foundation 1133 Avenue of the Americas, New York, NY 10036 USA.

SOCIAL SCIENCE RESEARCH COUNCIL. Vietnam Advanced Research Grants. Postdoctoral awards are available to support research in Vietnam. The maximum award amount is \$30,000, which may be used to support either a single research visit for 12 months or two research trips, each lasting no less than six months. Eligibility: Scholars, including independent scholars, based in the U.S. or Canada who have received a Ph.D. in any discipline of the social sciences or humanities in the last five years are eligible to apply. It is expected that postdoctoral fellows will already have sufficient command of the Vietnamese language to conduct research. There are no citizenship restrictions. Application Deadline: December 1, 1999. Application forms will be available after September 1, 1999. Awards will be announced no later than May 2000. For further information contact: E-mail: lam@ssrc.org or Social Science Research Council, 810 Seventh Avenue, New York, NY 10019 USA. Phone: 212.377.2700, fax: 212 377.2727, web: www.ssrc.org/levels.htm

SMITHSONIAN INSTITUTION FELLOWSHIPS. Fellowships support independent research in residence at the Smithsonian Institution. Predoctoral fellowships and directed research fellowships are available in the following disciplines: American History, Material Culture, Anthropology, Biological Sciences, Earth Sciences, History of Art, Astronomy, and Ecology. For information write to: Office of Fwps & Grants L'Enfant Plaza 7300, Smithsonian Institution, Washington, DC 20560 USA.

JOURNAL/PUBLICATION ANNOUNCEMENTS

JOURNAL OF PUBLIC ARCHAEOLOGY, a new international journal, to cover all "public" aspects of archaeology has recently been launched by James and James (first issue, September 1999). The journal intends to address, among other important issues: heritage legislation, protection, management, and abuse; the ethical and political implications of the "restitution" and reburial controversies; the symbiosis of archaeology with nationalism and the nation-state; the increasingly inflamed relationship between archaeology, conservation, and the antiquities trade; the gathering pressures of privatization and contract work on the integrity of archaeology. As well as the development of archaeological policy at international, national, and regional levels, the journal will study and criticize the intersections of

archaeology with education, law, religion, economics, cultural tourism, the media and their representations of the profession and the past, and other points of public involvement. The journal will also carry first-person reports of experience in these fields, reports and reviews of conferences, and reviews of relevant literature. Anyone interested in contributing to the journal, or in receiving a free sample of the first issue, is invited to contact James and James, Ltd., 35-37 William Rd., London NW1 3ER, UK. Phone 44 171 387-8558, fax 44 171 387-8998, e-mail james@jxj.com

THE ABIA PROJECT is an international network which compiles and maintains an online bibliographic database on publications covering South and Southeast Asian art and archaeology. Extracts from the database are published in an annotated *ABIA South and Southeast Asian Art and Archaeology Index* annually. The first volume was published in 1998, and the second volume is scheduled to appear at the end of 1999. Access to the online database will also be made available to the general public at the end of 1999. The **International Institute for Asian Studies (IIAS)** in Leiden and Amsterdam, in collaboration with the Postgraduate Institute of Archaeology (PGIAR) in Colombo, the SEAMEO Regional Centre for Archaeology and Fine Arts (SPAFA) in Bangkok, and an ever-growing network of scholars from Bangladesh, India, Indonesia, Malaysia, Maldives, Pakistan, Russia, Singapore and Vietnam process over 2,500 titles annually. Entries cover scholarly monographs, articles in monographs and periodicals, reviews and PhD dissertations. Records are arranged geographically and according to subject interests that include pre- and protohistory, historical archaeology, ancient and modern art history, material culture, epigraphy, palaeography, numismatics and sigillography. Entries include key words and informative annotations. The printed bibliography also features review articles on recent contributions covering various themes in South and Southeast Asian art and archaeology. Indexes on authors, geographical areas and subject interests facilitate searches in the printed bibliography.

The ABIA team invites scholars to submit information on their publications from 1997 onwards, preferably in the form of a copy with a concise abstract to the following offices.

For material published in South Asia or Central Asia, please send your information to ABIA Project, PGIAR, c/o Ms. Doris Yapa, ABIA Editor, 407 Baudhaloka Mawatha, Colombo 7, Sri Lanka. Tel.: 94-1-694151, fax: 94-1-694151/ 500731 or e-mail postmast@postarc.ack.lk

For material published in Southeast Asia (except Indonesia), please send your information to ABIA Project, SPAFA Documentation Department, c/o Ms. Wilasinee Thabungkan, 81/1 Sri Ayutthaya Road, Bangkok 10300, Thailand. Tel: 66-2-28040229, fax: 66-2-804030/ 6285361 or e-mail spafa@ksc.th.com

For material published in Indonesia, please send your information to Drs. Hasan Djafar, Jurusan Arkeologi, Fakultas Sastra, Universitas Indonesia, Kampus UI Depok, Depok 16424, Indonesia. Tel.: 62-2-7863528/ 3529 or fax: 62-21-7270038

For material published outside South or Southeast Asia, please send your information to ABIA Project, IIAS, Dr. Cynthia Chou (for publications on Southeast Asia) or c/o Dr. Ellen Raven (for publications on South Asia), P.O. Box 9515, 2300 RA Leiden, The Netherlands. Tel.:31-71-5272958, fax:31-71-5274162, e-mail abiachou@rullet.leidenuniv.nl or abiaraven@rullet.leidenuniv. The general editor for the ABIA project is Prof. Karel R. van Kooij. He can be contacted at the address above via the e-mail at krvankooij@rullet.leidenuniv.nl

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artalpha.anu.edu.au/web/arc/resources/pacific/maluku.htm

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