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FEATURES



DEPARTMENTS



COVER

BUDDHA IMAGE FROM VIENTIANE, LAO PDR.

PHOTOGRAPH BY SACHA JOTISALIKORN

# Recent finds of more slab-graves in the Bernam Valley, Peninsular Malaysia

BY LEONG SAU HENG

Stone cist graves have long been known from a limited number of areas in Southeast Asia, especially from the Bernam Valley of Peninsular Malaysia, the Pasemah highlands of south Sumatra, and from central, west and east java. Solitary finds of stone cist graves have also been reported from South Vietnam, at Sa Huynh and Xuan Loc, and the Philippines [1]. These cist graves are normally regarded as Late Metal Age antiquities from the early first millennium AD and are also considered to be one of the many manifestations of early Southeast Asian megalithic cultures. One scholar (Heine-Geldern, 1945), for instance, had grouped these stone monuments as belonging to a younger megalithic complex considered to be distinct from earlier megalithic cultures predating the Metal Age.

In general, despite the fact that archaeological investigations on cist graves in Southeast Asia had begun since the early decades of this century, our knowledge of these culture(s) remains rather vague. This is due to the fact that the majority of the sites were excavated in the pre-war era when field techniques and laboratory analyses were not as advanced as that of today, consequently much data that could have been obtained from such sites were not retrieved. In Peninsular Malaysia, for instance, although a total of 9 slab graves (so called because they were constructed of large slabs of granite) were excavated from the Bernam Valley between the years 1919-1936, these ancient graves continue to be an enigma in the pre/proto history of the region. Several scholars, both archaeologists and historians have spent much time on the questions of the origin and chronology of the graves and of the people who constructed them (Evans, 1928; Wilkinson, 1939; Bradell, 1939; Noone, 1939; Winstedt, 1941; Linehan, 1951; Lowenstein, 1956; and Sieveking, 1956).

For more than half a century (since 1936), no further discoveries of slab-graves were made. This rather dismal situation is now being changed by our recent discoveries of four more slab graves in the Bernam Valley. Two were found at Changkat Menteri and two at Ulu Bernam close by.

The recent discoveries were made in early October 1992 by an archaeological reconnaissance team from the Selangor State Museum headed by the author. Changkat Manteri, a low hill on the banks of the Bernam River was chosen as the first point of our reconnaissance work in the Bernam Valley. In fact, the very first slab-grave reported in the Bernam Valley was accidentally discovered on this hill in 1895 by a British sub-assistant surveyor. The grave was later excavated in 1919 by H.C. Robinson (director of Museums, Federated Malay States) and R.O. Winstedt. Meanwhile, archaeological interest seemed to have shifted from Changkat Menteri when more slab-graves were found elsewhere, namely at Sungkai (which were excavated by I.H.N. Evans in 1927 and 1930) and at Slim River (exvavated by H.D. Collings in 1936). No further discoveries of such graves were made in Changkat Menteri until our recent archaeological reconnaissance work there last year. Two slab graves were discovered. These are all located in a palm oil estate belonging to United Plantations. The first grave, designated K 1 was found on rising ground not far from the bank of the River Bernam. The second, designated K 2 was found on high ground, just slighty over 2 metres below the top of a low hill. The site is about 2 km north of K 1. Slab grave K 1 was excavated in late October 1992 while K 2 was excavated in early January 1993. The excavation team comprised nine personnel from the Selangor State Museum and three from the Museums Department (National Museum) with the present writer as the director of excavations.

A further important outcome of our excavations at Changkat Menteri was the fact that by then many of the local estate workers, especially those who had worked in the estate for a long time, had become familiar with what we were looking for. According to some of these workers, at least 5 other graves had been unearthed accidently in the past. According to one informer, 3 graves were exposed by tractors some 20 years ago in a field[2] just next to Field 8 where K 1 is located. One large grave was found on top of a hill at Ulu Basir nearby. All these went unrecognised (for their archaeological signifcances) and were subsequently bulldozed. The same fate would have befallen the recently discovered slab-graves K 3 and K 4 had it not been for the fact that by now the local folks are able to recognise such structures. Both K 3 and K 4 were recently found by a tractor driver while levelling a large tract of land in a neighbour's estate in Ulu Bernam about less than 2 km downstream from K1. The land here was being cleared (of old oil palm trees) for replanting purposes. The findings were ported to the estate authorities who immediately contacted me at the university. Slab grave K3 is just 76 metres northeast of K4. Excavation of both sites was conducted in February 1993.

As work at all the four sites has only just been completed, it is only possible to present here our preliminary findings. In all our excavations small bits of charcoal were found both inside and outside the graves. These were all carefully collected and will be sent for radiocarbon dating. Our careful excavations showed no signs of a pit at the sites. When the graves were opened, all were found to be infilled with the same soil as that found on

the outside. This suggests that the graves were not dug very deep into the ground at the time of their construction. At all the sites, the graves, or rather parts of them, were only exposed when the top soil, usually 3 or 4 feet thick, had been removed. This top soil was probably of natural accumulation.

One special feature of the Changkat Menteri graves, which was also observed in some of the Slim River graves, is that these graves are lined with floor slabs which slope down towards the foot of the grave. The graves are not orientated towards any particular compass point. Those located on the slopes of a hill, apparently would have the head end of the grave at the higher level so that the floor slab could slope downwards towards the foot of the grave. The Ulu Bernam graves, K 3 and K 4, which are located in the lowland near the river had the head of the graves pointing towards the river. No floor slabs were found in them. Another difference noted between the Changkat Menteri and Ulu Bernam graves is that the latter are are slightly larger and broader than graves K1 and K2 of Changkat Menteri. The Ulu Bernam graves were also constructed of relatively thinner granite slabs. Excavations of the inside of all the four slab-graves were carried out with the utmost care using 5 cm spit for horizontal control. At K1 and K2, patches of darker coloured soil, probably soil from decayed organic substances were found to ocuur in the soil inside the graves. Samples of these organic soils will be sent for phosphate and other chemical analysis. In K1 beads were found only in one area, i.e. at the neck-chest area of the grave. All these data do suggest that these cist-graves were receptacles for primary burials, not secondary burials. Owing to the acidic nature of the surrounding soil (Ph between 5 to 3.5) at these open sites no visible traces of human remains were found.

The same was also recorded for those slab-graves excavated in the pre-war years. This had led some to believe that the graves were probably used for secondary burials. Traces of charcoal found at some of the graves also led the early investigators to believe that secondary burials were practised. The present writer also found several charcoal bits in all graves. At grave K2 pieces of what looks like burnt resin, possibly Kemenyen (benzoin) were also found. All these charcoal bits were probably remains of burial rites conducted during the inhumation of the corpse.

Grave goods were found both inside and outside the graves. The most common grave goods found inside the graves were glass and carnelian beads. At K3 a very large spherical carnelian bead (diameter 25mm) was found inside the grave. A hexagonal bicone bead of rock crystal was also recovered from K3. Fragments of much corroded iron were recorded from all the four graves. Some of these appear to have a socket. The best preserved iron tools, however, were found at K2. They comprised a socketed sickle-shaped tool or weapon, and a socketed spearhead. These were excavated in-situ lying on the left side (looking from the head of the grave) on the outside just beside the grave. A large whetstone was also found together with these iron artifacts. These artifacts were deposited in a linear arrangement parallel to the long axis of the grave, first the whetstone, then the sickle-shaped tool/weapon and finally the spearhead.

Slab-grave K2 appears to be the richest and the best preserved of the four graves excavated by us. Apart from the above mentioned well preserved iron artifacts, more than 2,700 (present count)[3] small red glass beads have been recovered from the grave. Some of these were as extremely small, measuring between 0.5 mm to 0.8 mm in their axis (measured from one end of the perforation to the other), and 1mm to 1.2 mm in diameter. These small red glass beads were found scattered all over inside the grave suggesting that they could have been remains of beadwork. Some were also found outside the grave. The grave also yielded one large spherical carnelian bead, one blue glass bead and several chips or fragments of blue-green glass beads. Our wet sieving of the infilling soil of K2 also yielded several chips of what looked like tiny flakes of gold and two tiny seeds.

K4 is the only grave that yielded no beads. Since part of the grave had been disturbed by the tractor, some of the grave contents could have been lost. A piece of rock crystal together with a small pebble were found inside the grave. The surfaces of the rock crystal were in some places ground down. Other finds from K3 include a large piece of iron, a whetstone and fragments

of jet black glass.

It was, however, at K3 that we encountered one of the most surprising finds. When one of the top cover stones at the head of the grave was removed we found some fragments of a mush corroded iron object. Below this was what at first appeared to be a bronze object covered with a bright green patina. On further removal of the soil matrix (clay in this case) in which the object was embedded we found it to be part of the rim of a lead glazed vessel, probably a footed tray or a large plate. Long burial in the damp clay has caused the vessel to be so soft that it was not possible to fully recover the object without it breaking. The vessel has a fairly hard stoneware body of reddish to buff colour and is covered with a white slip. The glaze is of a bright yellowish-green color. No crazing is found in the glaze. Another fairly large sherd of the same ware was also found close by. This may be a sherd of another vessel or a sherd of the same vessel mentioned above. This group of ceramics is provisionally identified as early Tang wares of the pre-ninth century AD.

The occurrence of Chinese ceramics in a slab-grave here is, indeed, something new. The slab-graves of the Bernam Valley were previously held by many to be of Iron Age antiquity, i.e. belonging to the late prehistoric times dating before the mid first millennium AD. Some scholars have ascribed a relative date of 0 to 400 AD to these graves and the associated socketed iron tools industry. This dating was based on H.C. Beck's typological analyisis of the glass and stone beads found in the Sungkai and Slim River slab graves[4]. The recent finds of Chinese ceramics at slab-grave K3 of Ulu Bernam have, however, shown us that some of the Bernam slab graves might well date from the early historic times. In east Java, at Pakauman some stone cist graves were also reported to have been associated with finds of Chinese ceramics of ninth century date (Bellwood 1985). At Pekalongan, Java a tenth century Chinese jar with pale green glaze containing four socketed iron tools similar to those found in some of the Bernam slab graves has been earlier cited by Lowenstein (1956: 60-61). All these data therefore, do indicate a rather late date for some of the stone cist graves.

As noted earlier in this paper, the Ulu Bernam slab-graves were found to be slightly different (being less slender in shape and constructed of relatively thinner granite slabs) than those excavated at Changkat Manteri. It is likely that the slab graves at Changkat Mantyeri are much older than those at Ulu Bernam. Several charcoal samples have been collected from all the recently excavated sites. These will be sent for radiocarbon dating. It is hoped that these will soon provide us with more concrete dates for our understanding of the Bernam slab grave culture.

## NOTES

1. This was reported by H. Otley Beyer as a grave "of similar type (to the Bernam graves), but of somewhat smaller slabs." See Ivor H.N. Evans, "Notes on the relationship between the Philippine Iron Age antiquities and some from Perak" , Journal of the Federated Malay States Museums vol. 12, 1929.

2. The plantation is divided into various sections or fields, each being about 100 to 150 acres in area.

3. Some of these beads were recovered by dry sieving at the site. The majority, however, were recovered by wet sieving of the soil brought back to the museum. Owing to the fact there was no water at the site, K2 being located up the hill, all the excavated earth, especially that from inside the grave was bagged, carefully labelled and brought back to the museum for wet sieving. At the time of the writing of this paper several bags of soil are yet to be wet sieved.

4. Beck's short report on these beads entitled "Beads from the slab graves in Malaya" is found in Collings' (1937) article in the Raffles Museum Bulletin.

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# DEVELOPMENT OF ARCHAEOLOGY IN VIETNAM

BY HA VAN TAN

*In* Vietnam all archaeological researches before 1945 only involved French archaeologists. In 1945, when the Democratic Republic of Vietnam was founded, archaeological research became a focus of attention. But the war of resistance against French colonialism completely disrupted these efforts. Vietnamese archaeology, in fact, has only existed since 1954, when peace was restored in North Vietnam. From 1975, archaeological activity began to be conducted systematically on a nation-wide scale.

## CURRENT STATUS OF ARCHAEOLOGICAL RESEARCH

The most important institution in this field is the Vietnam Institute of Archaeology, affiliated to the National Centre for Social Sciences. Members of the Institute are active throughout the territory of Vietnam. The Institute of Social Sciences in Ho Chi Minh City, also belonging to the National Centre for Social Sciences, comprises a group of researchers in charge of archaeological sites southern Vietnam.

Archaeological researches are also conducted at a number of museums, particularly the National Museum of History in Hanoi. These museums are under the portfolio of the Ministry of Culture and Information.

Archaeology is taught at the faculty of history in the various universities, but only the University of Hanoi has a Department of Archaeology which is specialized in training archaeologists. Every year, from 6 to ten students-archaeologists graduate from the University. In Vietnam universities are affiliated to the Ministry of Education and Training.

In their activities, archaeologists at the Institute of Archaeology, the National Museum of History and the University of Hanoi usually cooperate in conducting excavations.

Artefacts found from excavations, once having been studied, are stored and preserved at the National Museum of History or in the various provincial museums. At the provincial museums, there are also some archaeologists who are in charge of research and preservation of historical relics in their localities.

The Vietnam Institute of Archaeology now employs 45 archaeologists and 15 technicians specialized in photography, drawing and restoration. It has now 5 research departments: Department of Stone Age Studies, Department of Metal Age Studies, Department of Historical Archaeology, Department of Ancient Technology, Department of Ancient Environment and Man. It also possesses a number of laboratories, but at present they are still very poorly equipped. Many analyses of archaeological artefacts should be carried out at laboratories of the other scientific centres.

In the past, Vietnam had to send samples abroad for C14 dating but we have now have a radiocarbon laboratory at the Institute of Energy in Ho Chi Minh City.

In Vietnam underwater archaeology is still non-existant. But with a country having such a long sea coast and a good number of islands, it is an urgent task to build this branch of archaeology.

The Institute of Archaeology publishes the quarterly "Khao co hoc" (Archaeology) in Vietnamese with summaries in English. The National Museum of History also occassionally issues a review entitled "Thong bao khoa hoc Vien Bao tang Lich su Viet Nam" (Scientific Communication of the National Museum of History).

Archaeologists throughout Vietnam get together at an archaeological conference held annually in September at the Institute of Archaeology. The papers presented at the conference, usually up to a hundred in number, are made public in a proceedings volume entitled "Nhung phat hien moi ve khao co hoc" (New Discoveries in Archaeology). So far 18 such volumes have been published.

Since 1985, many foreign archaeologists have collaborated with their Vietnamese colleagues in excavating archaeological sites in Vietnam. A group of American paleontologists and archaeologists have joined the Vietnam Institute of Archaeology in excavating Lang Trang Cave in Thanh Hoa Province.

Japanese archaeologists from the University of Tokyo and Sophia University have also joined us in excavating Lang Vac, a site of the Dong Son Cullture in Nghe An Province. Together with Australian Archaeologists, we have excavated some medieval sites of ceramics in Hai Hung Province.

In February and March 1993, a joint team of Vietnamese and British excavated a site in Tra Kieu, the ancient capital of the Champa Kingdom, now situated in Quang Nam Da Nang Province. Another group of Japanese archaeologists, including Professors G. Hasebe and Y. Aoyagi, are joining us in excavating Cham ceramic kilns in Binh Dinh Province.

## NEW DISCOVERIES AND RESEARCHES

The earliest traces of prehistoric man found so far in Vietnam belong to

Homo erectus. Teeth of Homo erectus have been discovered in caves in Lang Son and Nghe An Provinces, from Middle Pleistocene deposits.

Recently, the Lang Trang Caves in Thanh Hoa Provinces were excavated by the joint Vietnamese-American team and yielded a Pleistocene fauna with hominid dental remains. Electron spin resonance procedures were employed for dating the stratigraphic levels of four caves, the chronology ranging from 480,000+/-40,000 years BP to 146,000+/-2000 years BP. Within the rich faunal deposits, the hominid specimens (two molars, one premolar, one canine and one incisor) are likely attributable to Homo cf. erectus based more on temporal context than on morphological criteria.

As for stone tools used by Homo erectus, none have been found in those caves where the teeth come. The handaxes, choppers and chopping-tools discovered at Mount Do in Thanh Hoa Province and at Xuan Loc in Dong Nai Province are regarded by some archaeologists as tools used by Early Paleolithic man. Many other researchers, however, are still doubtful because there is no way to date these artefacts with any degree of accuracy.

Our picture of the Late Pleistocene has been changed radically by the discovery of the Son Vi Culture in 1968. So far traces of this culture have been found in more than 120 sites located an ancient alluvial terraces and in caves, as far up north as Lao Cai and Ha Giang Provinces and far down south as Nghe An Province.

Recently, a wide open site of the Son Vi Culture has been investigated by the joint Vietnamese-Japanese archaeological team in Lang Vac Village, Nghe An Province, under a Dongsonian site. The Son Vi Cuture is characterized by end-choppers and side-choppers (or scrapers) made from waterworn quartzite pebbles. Sumatraliths are absent from the Son Vi sites. The Son Vi Culture dates between 23,000 to 13,000 years BP.

After the excavations at Mieng Ho Cave in 1972 and the Nguom rockshelter in 1981, a flake industry was known to our archaeologists. Most of the artifacts are amorphous flakes with marginal retouch. This flake industry is estimated to be from 30,000 to 23,000 years BP, existed before the Son Vi Culture. Thus, in Vietnam, the flake industry of the Late Pleistocene has been replaced by the core pebble industry. Researchers have tried to explain this by suggesting a change in the ecological environment from a dry, cold climate to a hot, humid one. Sparse subtropical forests were narrowing down while dense tropical rain forests were spreading, hence the replacement of one tool-kit by another,which is proof of the adaptive behaviour of prehistoric man.

Vietnamese archaeologists have good reasons to think that the Hoabinhian has its origins in the Son Vi Culture. Now, we have collected firm evidence to show that the Hoabinhian in Vietnam extended back earlier than the Pleistocene-Holocene boundary. The Xom Trai Cave contains classic Hoabinhian artefacts, including sumatraliths, short axes and edge-ground tools, but twenty C14 dates from this cave ranged between 17,000 and 18,000 years BP.

Recently, the joint Vietnamese-Bulgarian excavation at the Dieu rockshelter in Ba Thuoc District, Thanh Hoa Province has entered the final phase. Radiocarbon datings show that human beings already existed in this region from 8,000 to 25,000 years ago. With many stone tools and large quantities of animal bones, several aspects of the natural and cultural evolution from Pleistocene to Holocene and from Paleolithic to Neolithic Ages have been observed and identified.

In Vietnam we can see the law of unequal development in prehistoric culture. In this area, the Hoabinhian began but in another, the Sonviian not yet came to an end. Similarly, the Bac Son Culture makes its appearance in the Lang Son area when the Hoabinhian continued its existence in other sites.

The Institute of Archaeology published a book "The Hoa Binh Culture in Vietnam" in 1989.

In Vietnam alone, archaeologists so far have noted at least four lines for the development of post-Hoabinhian culture:

1. The Da But Culture in Thanh Hoa Province. This culture is represented by round-bottomed pottery. At the beginning, axes were ground on the edge only. Later, axes had an oval section and were entirely polished. In

1990, the Lang Cong site, Thanh Hoa Province, was excavated and adds more light to our knowledge of this culture.

2. The Quyng Van Culture in Nghe An and Ha Tinh Provinces. Unlike Da But tools, stone tools used in the Quynh Van Culture were flaked not polished. Quynh Van pottery was of the pointed bottom type.

3. The Cai Beo site on Cat Ba Island, Hai Phong. The lower layer consisted of coarse pottery, flaked stone tools and edgeground axes. The upper layer contained finer pottery and entirely polished axes and adzes.

4. The Bau Du site on a sand dune in Quang Nam-Da Nang Province contains a lithic industry very similar to the Hoa Binh, with sumatraliths and short axes. On the basis of the late dates of this site (5036-60 BP and 4510-50 BP), we considered Bau Du to be an epi-Hoabinhian site.

The splitting of the Hoabinhian into small post-Hoabinhian cultures may be explained by local adaptations, sedentism and/or agriculture.

In the Late Neolithic, the cultural mosaic became all the more varied with the addition of new fragments and new colours. There was the Ha Long Culture on the northeastern coast characterized by shouldered and stepped adzes. The area of central Vietnam was represented by the Bau Tro Culture known for its shouldered axes. In the valley of the Dong Nai River, the main stone tools were broad hoes and reaping knives. In recent years, the Late Noelithic period in mountainous areas has received intensive study. The Ha Giang Culture in Ha Giang Province identified by our archaeologists in 1990 shows many similarities with some neolithic sites in south-eastern Yunnan (China). What is most striking is the new discoveries in the Central Highlands. Along Dak Ke spring in Dak R'lap District, Darlak Province, a stone axe workshop site was found in 1991. Bien Ho, a rich neolithic site, in Gia Lai Province was investigated in 1992.

During the past thirty years, Vietnamese archaeologists have devoted a considerable amount of their effort towards the study of the Metal Age. Our archaeologists have discovered the pre-Dong Son Bronze Age cultures in Northern Vietnam. We have reconstructed the process of the cultural evolution over two thousand years from pre-Dong Son. Today, we think that the mystery of the origins of the Dong Son Culture can be solved. In our opinion, the Dong Son Culture directly evolved from pre-Dong Son cultures. It is certain that the process was an unbroken, continuous and indigenous one, although possible outside influence cannot be discounted.

The Bronze Age cultures in northern Vietnam finally culminated in the Dong Son, a splendid culture widely distributed, covering over half of Vietnam's current territory, as can be seen from Table 1.

Recently, the joint Vietnamese-Japanese excavation at the Lang Vac site, Nghia Dan District, Nghe An Province, shed more light on the Dong Son Culture. On an acreage of 156 square metres, 93 burials of various types have been found: stone-covered, pottery-covered, and jar burials. On this site, we also found artefacts of the famous Dong Son Culture, including daggers, situlaes, arm and leg rings attached with tintinnabulas. One of the most remarkable finds is a bronze pick axe bearing both Central Asian characteristics and a Dongsonian decoration pattern.

In 1991-1992, many boat coffins with bronze artefacts have been discovered at Uong Bi Town, Quang Ninh Province. These coffins give further evidence to the expansion of the Dong Son Culture. After the book "Dong Son Drums in Vietnam" was published (Tokyo, 1990), many drums were also found in different provinces.

The most important achievement of archaeology in Vietnam recently is the discovery of sites belonging to the earlier phases of the Metal Age within the territory of the Sa Huynh Culture. These sites are considered by some archaeologists to belong to the Early Sa Huynh Culture or the Sa Huynh Culture of the Bronze Age, whereas some other archaeologists define them only as of the pre-Sa Huynh Culture. In the eyes of these scholars, the Sa Huynh Culture belongs to the Iron Age only.

Despite these different opinions, all Vietnamese archaeologists are of the same view that the Iron Age Sa Huynh Culture has roots roots in the culture represented by these earlier dated sites (such as the Long Thanh site (Quang Ngai Province) with two C14 dates: 3370 +/- 40 BP and 2875 +/- 60 BP). So far we are able to

| REGION / AGE | THE RED RIVER VALLEY | THE MA RIVER VALLEY | THE LAM RIVER VALLEY |
|---|---|---|---|
| EARLY BRONZE AGE | THE PHUNG NGUYEN PHASE | THE CON CHAN TIEN PHASE | THE DEN DOI PHASE |
| MIDDLE BRONZE AGE | THE DONG DAU PHASE | THE BAI MAN PHASE | ? |
| LATE BRONZE AGE | THE GO MUN PHASE | THE QUY CHU PAHSE | THE RU TRAN PHASE |
| EARLY IRON AGE | THE DONG SON CULTURE | | |

TABLE 1

| REGION / AGE | PHU YEN-THUAN HAI | QUANG NGAI-BINH DINH | QUANG NAM-DA NANG |
|---|---|---|---|
| EARLY BRONZE AGE | XOM CON, HON DO | LONG THANH | BAU TRAM (LOWER LAYER) |
| LATE BRONZE AGE | ? | BINH CHAU | BAU TRAM (LOWER LAYER) |
| IRON AGE | CLASSIC SA HUYNH CULTURE (JAR BURIALS AND SETTLEMENT OF IRON AGE) | | |

TABLE 2

give a sketch about the successive phase of the Sa Huynh in *lato sensu* in the Metal Age, as shown in Table 2.

In 1990-1992, some Sa Huynh sites with jar burials were excavated in Thua Thien, Hue Province. A book on the Sa Huynh Culture has been published in 1991.

In South Viethnam, since 1975, Vietnamese archaeologists have investigated and excavated many Metal Age sites in the Dong Nai river valley. The excavations of Doc Chua site in Song Be Province have contributed greatly to the study of the Metal Age in this region. Nearly 100 moulds and 100 Bronze artefacts have been found within an area of 432 $m^2$. Bronze axes have similar shape to the ones in Non Nok Tha (Thailand). The culture in Doc Chua also developed through different stages. It has two C14 dates: 3145 +/- 130 BP and 2495 +/- 50 BP.

In 1990, for the first time, human skeletons, stone and bronze axes and stone and ivory beads were found at the site of Rach Rung in the Mekong delta. Rach Rung has two C14 dates: 2800 +/- 45 BP and 2780 +/- 40 BP.

Recently, research on historical archaeology also counts some new findings.

In 1991, the excavation at Hoa Lu, the royal city of the Dinh Dynasty in the 10th century, unearthed a large architectural structure in brick. This structure is laid on a foundation made of several layers of large and flat lumbers. A remaining portion of the citadel rampant is also built on a wooden foundation.

At Thang Binh, Thanh Hoa Province, a graveyard with dugout wooden coffins have ceramics which bear the brown decorative patterns of the Tran Dynasty (13th-14th centuries). Some ceramic kilns of the Le Dynasty (15th-18th centuries) have been excavated in Hai Hung Province.

More relics of the Champa Culture were found recently in Central Vietnam. In Thuan Hai Province, we find two new groups of stupa-temple structures in the dense jungles: the Ba Chan Re and Lang Go. Champa relics and inscriptions are also found in Ea Knuech Village, Darlak Province in the Central Highlands. A Buddha statue with sanskrit inscription is found in a Champa site in Gia Lai Province. In particular, the excavations of a kiln site at Go Sanh, Binh Dinh Province gave specimens of Cham ceramics. A significant number of bowls, plates, cups, tiles and architectural decorative pieces were probably made in the 14th century.

The Oc Eo Culture, supported by new discoveries, was evidently spread over the Mekong Delta: statues of Vishnu, terracotta articles and gold pieces found in Cuu Long Province, a stupa-styled structure in Tay Ninh Province, as well as various statues of gods, linga and yoni. Along both sides of Dong Nai River, in Lam Dong Province, 13 sites were investigated. They include brick or stone temples, shrines and statues built on hilltops.

ACKNOWLEDGEMENTS

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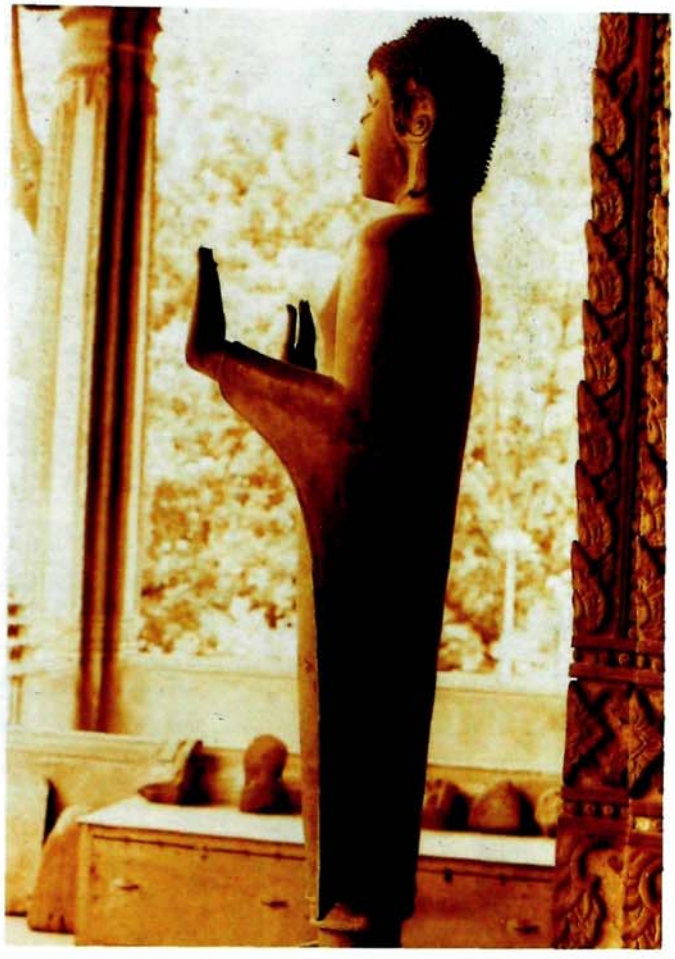
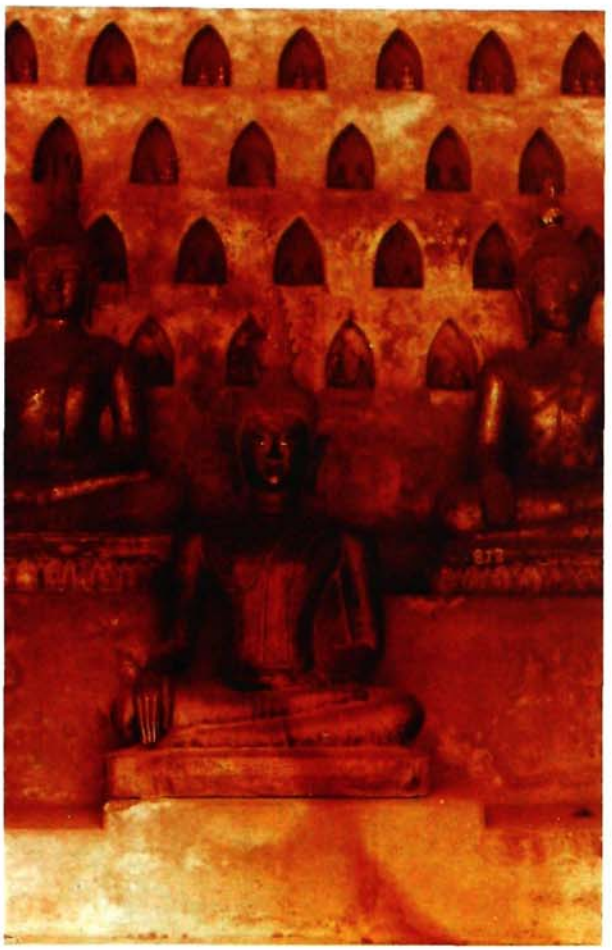
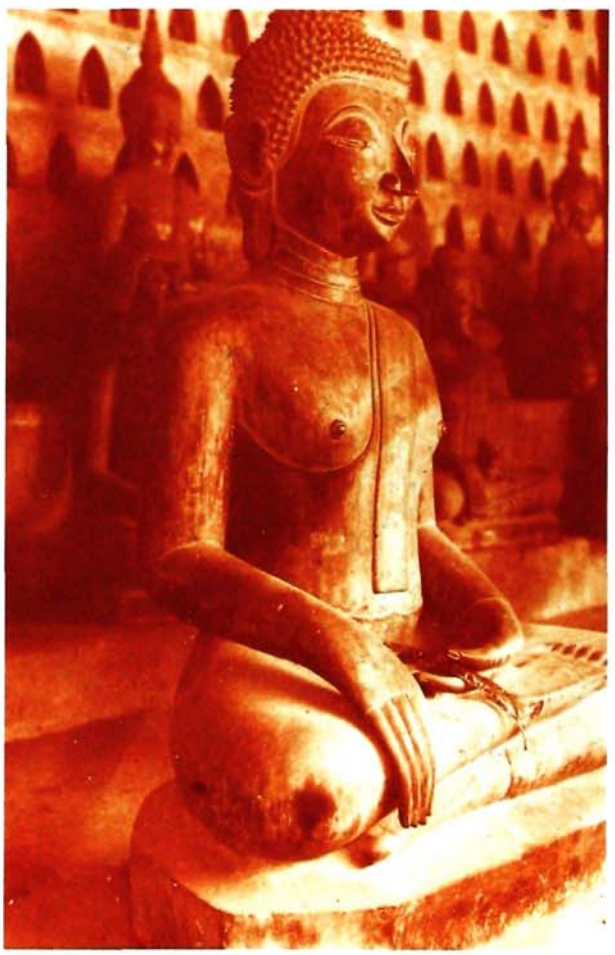
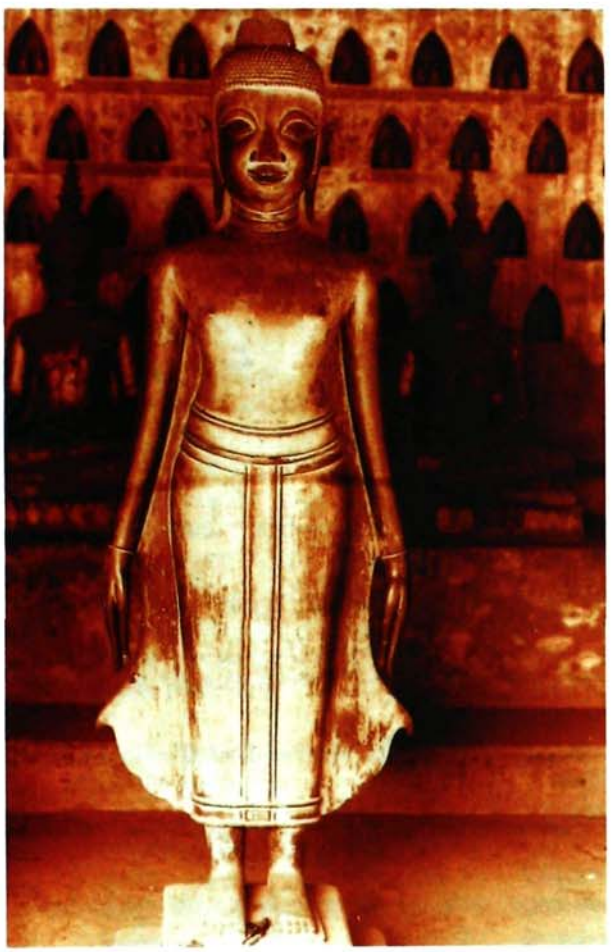
# *buddhas of vientiane*

BUDDHA IMAGES FROM VIENTIANE, LAO PDR.
PHOTOGRAPHS BY SACHA JOTISALIKORN









# COSMOLOGY AND AESTHETICS OF THE JAVANESE DANCE

BY BEN SUHARTO

*This paper will explore the cosmology of Javanese dance and will focus on analysing Yogyanese dance from the court city of Yogyakarta. By expanding the meaning of the word taya (dance) and mataya (to dance) into another level of meaning, this paper will examine the relationship of the dance performer as microcosmos, with the Supreme Being, the macrocosmos. The unification of microcosmos (human being) and macrocosmos (Supreme Being) is known in Java as the concept of 'Manunggaling kawala-Gusti'.*

The discussion of the cosmology of the Javanese dance will lead to the theoretical conceptualization of a cosmic relationship. The following analysis will focus on the conceptualization of the cosmic relationship with reference to practice. Interpreting this holistically requires a certain way of thinking. (Kaeppler said that the ways of thinking about the arts, which includes the pattern of rules by which they are judged, are mostly determined by the cultural tradition of which "they are a part." She also said that aesthetics could be defined as ways of thinking about such forms of art including the dance [Kaeppler 1971: 175]). Most of the exploration in this paper is based on my personal intuitive experience which gradually develops into reasoning. In other words, it is a process from feeling to the finding of ways of thinking.

The following discussion consists of several points which include: Javanese terminology for dance; the significance of the lack of a term synonymous with 'dancer'; transformation, the shifting of different levels of consciousness; the mandalas of *sastra mataya* (the knowledge of dance), *sastra wirasa munggeng joged mataram* (the knowledge of *wirasa* in the *joged mataram*), *sastra srimpi wiragadadi* (the knowledge of four cardinal points in developed movement), *sastra srimpi wirage tanpa wargenan* (the knowledge of four cardinal points in the movements without limitation).

## JAVANESE TERMINOLOGY FOR DANCE

Several words such as *joged* (*ngoko*, low Javanese), *beksa* (*krama*, high Javanese), *igel* (*Kawi*, old Javanese), and *taya* (*Kawi*)) exist in the Javanese language which refer to dance. Among those terms, *taya* has another meaning which refers to Supreme Being. This meaning of *taya* as *Shiva* is found in references to writing attributed to Sultan Agung (1620-1645):

> *"...Pratandhane Manikmaya, wus kanyatan kawruh arah sayekti, iku wusakiring tuduh, Manikmaya an Taya, kumpuling tyas alam arwah pambilipun iku witing ana akal, akire, Hyang Maha Manik..."* (Sri Mulyono in Darmanto Yatman 1985:81-82).
>
> ("....The symbol of Manikmaya is shown to be the science of true destiny and that is the end of the symbol. Manikmaya is Shiva. Manikmaya is *Taya* or emptiness. That is the unification of the heart and mind. The ancestors' world is the entrance to the rational world. It marks the end of the great god, Manik....")

This definition of taya is more concisely stated as:

> *"... Sang Hyang Taya nama lain/ gelar Buda"* (Mardiwasito 1978:350) [*Taya* is another name for Buddha].

In this definition of *taya*, *mataya* as a verb can mean to worship and to unify with the Supreme Being.

*Taya* can also mean a state of emptiness (*kosong*) or nothingness (Prawiroatmodjo 1981:243). In this meaning it signifies that unification with Shiva or Supreme Being is the same as the achievement of emptiness or the unification with Buddha as the Supreme Buddha.

In the story of *Sutasoma*, it is said that in the deepest essence, Buddha and Shiva are one. Sutasoma is the Javanese poem (*kakawin*) written by Tantular in the 14th century during the reign of Rajasanagara from the Majapahit Kingdom (Zoetmulder 1974:341-342).

*Taya*, which is the term for dance and *mataya*, to dance, has another level of meaning in the spiritual dimension. This means that dance not only functions as entertainment but can also function as individual ritual, although the dance performer may never recognize this. The ritual aspect of the dance is not always determined functionally, as the dance is performed for ritual ceremony, but can be determined by placement in the unification between the individual dance performer (microcosmos) and the Supreme Being (macrocosmos).

## THE SIGNIFICANCE OF THE LACK OF A TERM SYNONYMOUS WITH DANCER

Despite the terms *igel*, *beksa*, *joged*, *taya* which mean 'dance', the Javanese language in the Yogyakarta tradition does not have a noun to name the person who is dancing. The Javanese words referring to the word 'dance' *joged*, *igel*, *beksa*, could be transformed to mean 'dancer' by adding to those words the prefix *pe-* (for example, *penjoged*, *penigel*, *pembeksa* and *petaya*). But the fact remains that these word forms do not exist. It is

significant that there is no term naming the dancer, only a way of naming the performer by describing the person who performs the dance, or the 'doer' of the dance.

This notion could be more easily understood by realizing the important tradition among performers in Yogyanese dance in relation to spectators. According to tradition as has been passed down through generations, the dancer should maintain an attitude to avoid showing his individual self. The performer should remember that the spectators will not look at how one is dancing, but rather look at his dance. The Javanese expression is: "*Aja kok tonton anggonku njoged, nanging tontonen jogedku,*" which means: "Don't look at how I am dancing, but look at my dance," (Hardjosoebroto: personal communication 1962). The notion mentioned above is also found in another area away from Yogyakarta. One time during his research in East Java, Geertz had been warned by his informant that he should look at the dance while watching a dance performance, rather than at the dancer (Geertz 1960:286).

### TRANSFORMATION, THE SHIFTING OF DIFFERENT LEVELS OF CONSCIOUSNESS

The concept of transformation as defined by Allegra Snyder is helpful in understanding the kind of trance that was described by Prince Suryobrongto of Yogyakarta. She defines transformation as:

> "....the sense of experiencing a break from one level of reality to another, a transformational device, shifting levels of consciousness..." (Snyder 1974: 220)

Prince Suryobrongto emphasized the importance of maintaining consciousness during the dance, though he described this as the state between consciousness (*sadar*) and subconsciousness (*tak sadar*). In this state the dancer is transformed into someone else. This is the shifting of consciousness defined by Allegra Snyder.

Although her definition is meant to explore the distinction between non-dance and dance movement, it is also helpflul to understand the concept in relation to the spiritual dimension in dance. I want to suggest that the idea of shifting levels of consciousness explains why the dance performer should deny himself and let the spectator look at the dance. It seems that if the dance performer still thinks he himself is dancing and expects the spectators to look at him, then possibly no transformation has occured. Referring back to the statement of Sultan Hamengkubuwana VIII of Yogyakarta, if one still shows his personality or individual self in his dancing, he will never be a good dancer in the wayang wong (Suryobrongto 1981:81).

Based on the discussion of the concept of dance performer, the idea of transformation, and the concept of *mataya*, I propose a mandala entitled *sastra mataya* (the knowledge of dance) to formulate the outer and inner relationship of Yogyakarta dance (outer) and *joged mataram* (inner) which leads to understanding of the unification of microcosmos (dance performer) and the macrocosmos (Supreme Being).

### SASTRA WIRASA MUNGGENG JOGED MATARAM (THE KNOWLEDGE OF WIRASA IN JOGED MATARAM)

Prince Suryobrongto said that *joged mataram* is the content and the Yogyakarta style of dance is the container. He described *joged Mataram* as four prnciples:

1. *sawiji*: focus, concentration without mental disorder

2. *greget*: inner dynamics without being coarse

3. *sengguh*: self-confidence without being arrogant

4. *ora mingkuh*: discipline, without retreat in facing difficulty.

The concept of *joged Mataram* can be condensed into two opposing elements. These elements are: 1. self-control *(pengendalian dir)* and 2. ecstasy (*kepanjingan*) (Suryobrongto 1970:13; Suryobrongto in Bambang Pujasworo 1987:2). Both elements should exist within a person so that it becomes clear that the transformation which occurs in the dancer is still within the state of consciousness. No matter how much one expresses the feeling of ecstasy, it should be balanced by the sense of self-control. Both are pulling each other resulting in the kind of tension which builds strength and power in the dance.

Prince Tejakusuma used the phrase "*...jumbuhing rasa lan pikire...*" or the unification of feeling and thinking (Kussudiardjo 1981:14) to describe this same concept. The unification of feeling and thinking can be the manifestation of the two opposite states of self-control and ecstasy. Both components should co-exist in one, pulling each other, not interfering with one another.

The balance within one, in the basic principles of 'ecstasy and self-control' could be and should be measured using the four components of *joged Mataram* as parameters. These two opposite elements create tension and harmony when unified within one person. Buckminster Fuller used a new term 'tensegrity' to describe nature's strength relationships in the universe, that is the tension and integrity or contractional integrity (Fuller 1975:372). In Yogyanese dance there is a technical term similar to that of tensigrity which is '*ngenceng*' (tautness) that is the concept of tension yet harmony within the dance performer.

### SASTRA SRIMPI WIRAGADADI (THE KNOWLEDGE OF FOUR CRADINAL POINTS IN DEVELOPED MOVEMENT)

The *sastra mataya* should be seen as the conceptualization of the theory of unifaction of microcosmos and macrocosmos, *sastra srimpi wiragadadi* should be perceived as the conceptualization of the practice of it. I propose a conceptual framework in the form of a mandala to be used as an instrument for examining the relationship between the dance itself and the concept of universal duality. One example of the concept of universal duality and the concept of the Absolute One that led me to form the concept of *srimpi wiragadadi* is *gula jawa* or *gula klapa* (Javanese sugar or brown coconut sugar) bought at the *pasar* (market). *Gula jawa* is formed into a shape called *lirang*. A *lirang* is half of a sphere with one flat side. If two *lirangs* are matched on their flat sides, they form a spherical shape called *tangkep*.

A *lirang* is never thought of as half a *tangkep* but has the integrity of wholeness in itself. One can ask for *selirang* (one *lirang*) or *rong lirang* (two *lirangs*) of *gula jawa* when purchasing it. Further, as the manifestation of Absolute One, one *lirang* when unified and joined with another *lirang* is one *tangkep*.

*Srimpi* is a dance performed by two pairs of females. If we equate one pair of dancers with one *lirang*, a single pair of dancers can be thought of as a whole in itself. With the addition of the other pair, it becomes one *tangkep*.

*Srimpi* is commonly known as a symbol of the balance of the universe. The Javanese believe that this dance is an expression of the balance between good and evil, dark and light, or earth and sky. This explains why the four dancers wear the same costume while engaging in a symbolic conflict in which no one wins, because all have equal power and strength.

The word *wiragadadi* is derived from two words, *wiraga* and *dadi*. The former is associated with the physical aspect of dance; it is about body movement itself. The latter means 'done,' 'ready,' or 'successfully completed.' This term is often applied to the mature dance performer. Dance teachers commonly use the term *dadi* to label a dancer who has accomplished a certain role in *wayang wong* dance drama as '*wayang wadi*' (mature *wayang wong* performer). This signifies that the guru feels that the dancer has achieved the ability to independently develop his individual style. But since there is no dance performer who is expected to have reached the state of perfection in dance, the individual style sometimes emerges without the full awareness of the dance performer.

The concept of *srimpi wiragadadi* explores what a dance performer can continously gain in his dance as an unlimited accomplishment. In the context of dance, the term *srimpi* implies that the dance performer uses the idea of balance as the source of strength or power, rather than satisfaction with only the accomplishment of dancing. In other words, the aim of dancing is not to achieve virtuosity, nor to be better than one's fellow dancers, but rather having become a competent dancer to continue deepening one's personal expression.

The definition of dance as stated by Prince Suryaininrat is as follows:

> *"Ingang dipun wastani djoged inggih punika, ebaking sedaja*

*saranduning badan, kasarengan ungelig gangsa, katata pikantuk wiramaning gending, djumbuhing pasemon lan pikadjenging djoged (Soerjadiningrat 1934:3)*

(What is called dance is whole body movements, accomplished by the sound of gamelan music, choreographed to match the rythm of gamelan music, the harmony of facial expression or symbol and the meaning of the dance).

At first, this definition seems unclear, especially because it ends up with the word dance which is the very word being defined. However, by considering *joged* in relation to the two-dimensional shape of the mandala, it seems that Sryadininrat's definition is a cyclical-circular definition. In a sense the repetition of the word dance is cyclical in its arguments; defining dance by using the word dance.

The definition of dance by Suryainingrat has been formulated into three basic principles which are:

1. *wiraga*: whole body movements;

2. *wirama*: accompaniment of dance by the sound of gamelan music, choreographed to match with the rythm of gamelan music; and

3. *wirasa*: the harmony of facial expression or symbol and the meaning of the dance.

In this definition, *wiraga* implies the need to learn Yogyanese dance step by step.

The definition of dance by Suryainingrat and the formulation of it into three basic principles led me to examine the concept of duality for further understanding of this universality of dance. This definition shows that the concept of duality can be described in such a way that it represents the universal duality, that is, harmony between the microcosmos and macrocosmos. Further, the relationship between microcosmos and macrocosmos can also be illustrated in the kind of relationship created by the tension of pulling each other which results in strength or power. It is important to note that the concept of duality is more easily understood if the macrocosmos has an unlimited meaning, while the microcosmos is labelled the limited.

The points on the mandala represent the second element of Prince Suryainingrat's definition of dance, *wirama*. The two points are: the sound of gamelan and the rythm of gamelan. At first these two terms might give the impression of redundancy, but these are the points that symbolise the universal duality. I label them as *ungel* or sound (unlimited) and *wira ma* or rythm (limited).

In the third element of *wirasa*, another duality can be found, the harmony of *pasemon* or symbol and *pikajeng* or the meaning of the dance. Based on this duality, I would suggest that the former represents the limited, and the latter represents the unlimited. Sometimes the *pasemon* is interpreted as the facial expression which in Yogyanese dance should be limited considering that the dance performers are not allowed to express the inner with their faces. The idea is that a strong inner feeling will naturally give expression to the face without further effort.

Of the two pairs in contrast and harmony, the first pair is 'sound' and 'rythm,' and the second pair is 'symbol' and 'meaning.' I place both pairs in a square so that the first aspect, *wiraga* which does not have duality implicit in Suryainingrat's definition could be placed in the middle. Placing the *wiraga* in the middle means that the *wiraga* and the circle become a pair. It is important to place the other pairs in such a way that if they are placed at the end points of the square, they represent the contrasting duality between limited and unlimited. Following the form of the mandala in which a circle often contains a square, I place this square of *srimpi wiragadadi* within the circle. The *wiraga* (body movement; doer of the dance) should be able to maintain the midpoint between all contrasting elements of the square. Only by achieving those midpoints one would be granted to unify with macrocosmos that is diamgramatically shown as the circle in the mandalic form.

The midpoints of four different directions is called the cardinal point. The *srimpi* dance is said to be the symbol of the four cardinal points (north, south, east and west)

or four universal elements (fire, air, water and earth) (Brongtodiningrat in Soedarsono 1984:82). The four cradinal points each with four directions could only be found in all of the midpoints of every four directions as the result of harmony of the two contrasting elements of the square and the harmony of *wiraga* and the circle.

The state of dynamic balance of the *sastra srimpi wragadadi* could create four smaller circles. The cardinal point of the bigger circle forms the cardinal point of the smaller circles. This involuting formation of circles leads to the concept of the infinited circle; the circle can become smaller or in reversing the involuting process, it can become bigger. One can thus see these circles as representing the state of emptiness and fulness at the same time.

general

specific

On the other hand, this state of emptiness can also be thought of as the state of fulness in that every circle has four elements of two pairs which contains the universal duality within it and is binded into the state of *ngenceng* or tensegrity. The teachers of Yogyanese dance in the court of Yogyakarta often give the lesson by saying that in order to become a good dancer one should be able to understand what is the meaning of the phrase: *"Kokthong nanging kebak"* (empty but full or emptiness and fulness at the same time). What this means is never explicitly stated. I wish to suggest that the mandalas in the discussion of this paper would be an alternative answer to the notion of *"kothong nanging kebak."*

## CONCLUSION

The term *mataya* refers to the state in which the dance performer becomes unified with the Supreme Being. Inclusive within this state of *mataya* is the concept of duality between:

| | | |
|---|---|---|
| the macrocosmos | and | the microcosmos |
| theory | and | practice |
| content | and | the container |
| joged Mataram | and | Yogyakarta dance |
| the Supreme Being | and | the dance performer |

In the *mandala sastra srimpi wiragadadi* and *sastra wiraga tanpa wangenan* the resultant harmony between the macrocosmos and the microcosmos is dependant on the midpoint of balance between the two, by maintaining the midpoint between all of the opposite elements of the square in the circle/circles.

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# World Festival of Children's Theatre: Antalya 1992

BY ASSOCIATE PROFESSOR DR. CHUA SOO PONG

With limited resources and manpower, the newly formed National Centre of the International Amateur Theatre Association of Turkey, must be congratulated for its enormous success in hosting the World Festival of Children's Theatre in April, 1992 in the scenic city, Antalya. Accommodating 500 energetic children and their teachers from 25 countries in an 8-day festival using four very different performing venues proved no easy job. With the

support of the Ministry of Culture and the Foundation of National Theatre and Opera, the organizing committee was able to house all the delegates in comfortable hotels and to transport them to theatres of selected places of interest as well as mobilize a great number of local families to provide the children with the special experience of outings or home stays. With no previous management experience of a large scale international event and only a small number of volunteers, the organizing committee was not without difficulties in solving the many unexpected problems posed by nature and man. The thunder storm, for example, forced the opening ceremony venue to be changed from an elegant ancient theatre to a humble school hall. The shortage of funds also imposed considerable constraints in logistics. The small size of the municipal hall also at times frustrated both the performers and the audience.

What then, has this feast of children's theatre achieved? The children, who were apparently tired in the later part of the week, had learnt much about organizing themselves, rushing from performance to performance and from dining hall to dining hall. They must have, by the end of their stay learnt to appreciate the many different kinds of music, costumes, songs and dances, as well as national flags of a few more countries. They probably exchanged addresses with some new friends who might not even speak their language. A casual encounter in the theatre or at the picnic at this age might lead to some meaningful collaboration across the oceans years later. At any rate, the children might have learnt that there are numerous peoples who have different ways of life in the world and yet they share the same love of the stage. The little experience they have had with the workshop leaders also opened new windows to their theatre.

For those like me, who had the privilege of conducting workshops for the children, the Antalya experience was indeed valuable. As it was challenging for me to work with children who speak none of the languages I know, I had to devise body language to communicate with the children who were very different in age and experience. The youngest in my group was nine while the oldest as 16 years old! The other great thing was that the workshop leaders who stayed in the same hotel, were able to exchange views in the short time they had, regarding the formats and focus of their workshops. These useful idea exchange sessions were very helpful.

Every children's theatre practitioner probably has his or her own preference in terms of training methodology, styles, creative process, and teaching priority. But the festival's offer of children's theatre from varied cultural backgrounds presumably broadened everyone's perspective and they would be more open minded in their approaches in the future. Some obviously felt that it is important to train the children with techniques and skills without which they will not be able to express themselves in the style of a particular tradition, be it realistic or stylistic. Some believed that children at a young age should be let free in their expression of emotions, thus encouraging them to improvise with minimum interference. I did hear some group leaders criticizes the former, asserting that such a method would kill the creativity of the children. Such a view ignored the fact that if we want to pass on our artistic heritage to the

next generation, whether ballet, Chinese opera or Korean pansori, the children must be disciplined in the necessary technique. The creativity comes later after they have mastered the technique, in their interpretation of classical works. Improvization is a good exercise to stretch the imagination of children, and it is undeniably a valuable means of training children. Improvization pieces are valuable as long as they remain classroom exercises. It is unfair to present them in the theatre, as the unedited version often lacks dramatic sophistication. In my view, leaders of children's theatre groups who intend to present performances at festivals that showcase the alertness of child performers are responsible for guiding and coaching the children and ensuring that the pieces have artistic merit worth attention.

Preparing a big feast with so many dishes for the children is well intended but the organizer seemed to forget about the limit of the stomach. Being unable to digest the food is a waste of good food. Sometimes one forgets that one can achieve more by digesting less. The next Festival organizer might like to consider the following:

1. Present no more than three one-hour plays a day, thus giving time for the leaders to discuss the shows with the children.

2. Give time slots for the children to interact among themselves.

3. Provide time for the leaders to exchange experiences in the format of symposium with panel discussions or paper presentations.

# *Chemical Identification of Palm Leaf (Corypha umbraculifera)*

BY SIRICHAI WANGCHAREONTRAKUL
AND KULPANTHADA JANPOSRI

*Palm leaf from various kinds of palm trees in the family Palmae was used as writing material in Asian countries before the advent of paper.[1] The palm leaf was cut to size and a pointed metal was used to incise letter and drawing on the palm leaf. Black charcoal powder was then applied and rubbed on the writing in order to make it visible.*

The Bangkok National Museum has a large number of palm leaf manuscripts dated from the Ayutthaya to Rattanakosin periods about 16th-19th centuries AD. A typical palm leaf manuscript is illustrated in Figure 1. However some of the palm leaf manuscripts, after being kept for a long period of time, became brittle and damaged as shown in Figure 2. In order to find a suitable method of preserving and conserving these palm leaf manuscripts, it is necessary to understand the chemical and physical nature of the palm leaf.

There are three main species of palm trees found in Thailand. These are Corypha lecomtei, Corypha umbraculifera and Corypha elata but Corypha umbraculifera is mainly used for making palm leaf manuscript.[2]

Venugopal et al.[3] reported that the major constituents of palm leaf from Corypha umbraculifera were α-cellulose (41-49%) and lignin (28-43%). However the other components were not yet determined. The objective of this work was to carry out further studies on the chemical characterization of compounds found in this palm leaf.

## EXPERIMENTAL SPECTROSCOPIC ANALYSIS

Infrared (IR) spectra were recorded on a Hitachi I-300I spectrometer. Nuclear Magnetic Resonance (NMR) spectra were recorded in deuterium chloroform at 60 MHZ on a Varian EM 360L instrument or at 300 MHZ on a Bruker AM-300 instrument. Chemical shifts were determined from internal tetramethylsilane for 60 MHZ or trichloromethane for 300 MHZ.

## GAS LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY (GC-MS) ANALYSIS

GC-MS analysis was carried out using a Hewlett-Packard 5986 Computer data system.

## PALM-LEAF EXTRACTION

Dried palm leaves from Corypha umbraculifera (8.92 gram) were extracted with diethyl ether using a continuous extraction apparatus for 35.5 hours. The ether extract was dried with magnesium sulphate and filtrated through a short silica gel column eluted with diethyl ether. The solvent was evaporated and a colourless waxy material (0.70 gram) was obtained.

## HYDROLYSIS

The crude palm leaf extract (62 milligram) was dissolved in methanol (5 millilitre) and sodium hydroxide (1 gram) in water (5 millilitre) was added. The mixture was refluxed for 3 hours. The reaction mixture was cooled to room temperature and was extracted with diethyl ether. The ether layer was separated and dried with magnesium sulphate. The solvent was evaporated under reducing pressure to give a neutral fraction as light yellow viscous oil (18.2 milligram)

The basic fraction was acidified with 1 molar hydrochloric acid and extracted with ethyl acetate and washed with water and dried with magnesium sulphate. Evaporation of the solvent gave the acid fraction as a viscous brown oil (46.8 milligram).

## NETHYLATION

The acid fraction (46.8 milligram) was dissolved in methanol (20 millilitre) and concentrated sulphuric acid (1 millilitre) was added. The mixture was refluxed for 5.5 hours and was diluted with water. The mixture was extracted with ethyl acetate and washed with water, saturated sodium bicarbonate, water and then dried with magnesium sulphate. Evaporation of the solvent gave a mixture of methyl esters as viscous brown oil (53.6 milligram).

## RESULTS AND DISCUSSION

Continuous extraction of palm leaves (Corypha umbraculifera) with diethyl ether gave palm fibres and lignin as insoluble materials (8.2 gram) in an extraction thimber as shown in Figure 3. Evaporation of the ether extract gave a waxy material and soon solidified as colourless solid (0.7 gram) as shown in Figure 3. Venugopal and his co-workers already characterized the palm fibres therefore our interest focused on the identification of the compounds obtained from the ether extract.

Infrared spectrum of the mixture from the ether extract showed two strong absorption bands at 1740 and 1168 $cm^{-1}$ suggesting a carbonyl ester group. Two very strong absorption bands at 2920 and 2856 $cm^{-1}$ together with the absorption bands at 1476 and 1466 $cm^{-1}$ hence a long chain methylene group. The high field NMR

spectrum provided a confirmation of the ester structure by two triplets at $\int$ 4.19 and 2.28 due to two methylene groups adjacent to the carbonyl ester group. A large broad band at $\int$ 1.22 and a triplet at $\int$ 0.88 also established a long chain alkyl group. From the above evidences, it might be proposed that the major components of the ether extract was a mixture of esters (1) of long chain fatty acids and long chain alcohols.

$$CH_3(CH_2)_m\overset{O}{\overset{\|}{C}}-O(CH_2)_nCH_3 \quad (1)$$

$$CH_3(CH_2)_mCOOH \quad (2)$$

$$CH_3(CH_2)_nOH \quad (3)$$

Where m and n are any number

Two triplets at $\int$2.35 and 3.65 in a high field NMR spectrum and a broad band at 3132-3636 $cm^{-1}$ and a carbonyl band at 1712 $cm^{-1}$ in the infrared spectrum indicated that small amounts of carboxylic acids (2) and alcohols (3) may also be present in the mixture.

A further attempt was then made to identify the length of the aliphatic side chain. A simple procedure was employed. This involved hydrolysis of the crude ether extract and then methylation of the carboxylic acids so that the resultant methyl esters and alcohols may be identified by GC- MS.

Hydrolysis of the ether extract gave a neutral fraction and an acid fraction. The NMR spectrum of the neutral fraction showed a triplet at $\int$ 0.89, a broad band at $\int$ 1.15-1.40 and a triplet at $\int$ 3.78 as expected for a long chain primary alcohol. GC-MS analysis of the neutral fraction gave a major component at retention time 7.55 minutes and a minor component at retention time 8.54 minutes as shown in Figure 4. The mass spectral data was summarized in Table 1. The m/e of each parent peak gave the length of each alcohol. Therefore it might be suggested that two alcohols were heptadecanol (4) and nonadecanol (5)

$CH_3(CH_2)_nOH$

4 : n = 16

5 : n = 18

The NMR spectrum of the acid fraction illustrated two triplets at $\int$ 0.89 and Z.35, a large broad peak at $\int$ 1.28 and a small broad band at $\int$ 5.45 confirmed the structure of a long chain fatty acid. Methylation of the carboxylic acids gave a mixture of methyl esters. An ethyl ester was confirmed by a singlet at $\int$ 3.74 in the NMR spectrum due to a methoxy group.

The results of GC-S analysis of the methyl esters are shown in Figure 5 and Table 2. Four methyl esters were obtained. Each compound showed the parent ion peak and a parent ion minus 31 peak together with the typical fragmentation of methyl ester at m/e 87, 74, 59 and 43. The major methyl ester was assigned as methyl palmitate (6). Three minor methyl esters were methyl stearate (7) methyl behenate (8) and methyl tetracosanoate (9).

$$CH_3(CH_2)_m\overset{O}{\overset{\|}{C}}-OCH_3$$

6 : m = 14

7 : m = 16

8 : m = 20

9 : m = 22

With the above information, it might be assigned that the major ester in the ether extract was heptadecanyl palmitate (10) and the minor esters might be esters (11-17). Small proportions of four carboxylic acids (palmitic acid, stearic acid, behenic acid and tetracosanoic acid) and two alcohols (heptadecanol and nonadecanol) might also present in the mixture.

$$CH_3(CH_2)_m\overset{O}{\overset{\|}{C}}-O(CH_2)_nCH_3$$

10 : m = 14 , n = 16

11 : m = 16 , n = 16

12 : m = 20 , n = 16

13 : m = 22 , n = 16

14 : m = 14 , n = 18

15 : m = 16 , n = 18

16 : m = 20 , n = 18

17 : m = 22 , n = 18

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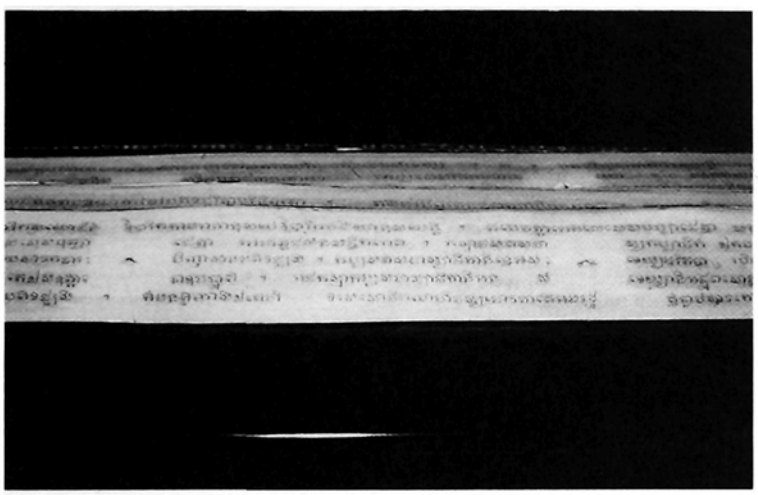


FIGURE 1 PALM LEAF MANUSCRIPT

FIGURE 2 TWO PIECES OF BRITTLE AND

DAMAGED PALM LEAF MANUSCRIPT

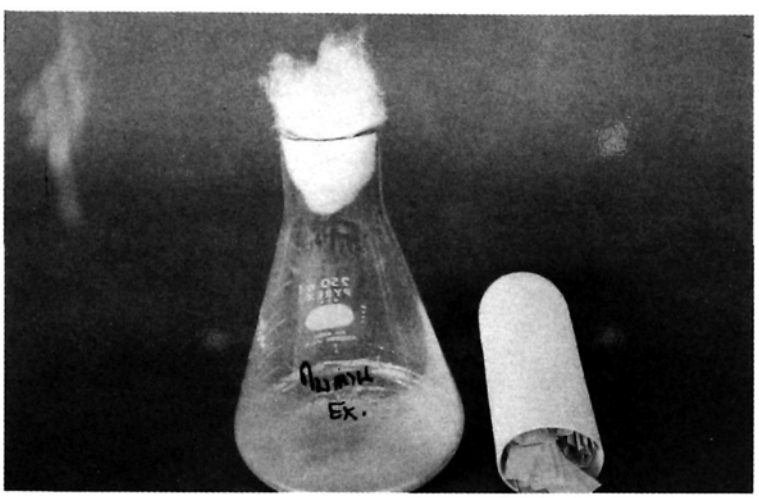



FIGURE 3 COLOURLESS SOLID (IN AN ERLENMEYER FLASK) FROM ETHER EXTRACT AND PALM FIBRES IN AN EXTRACTION THIMBER

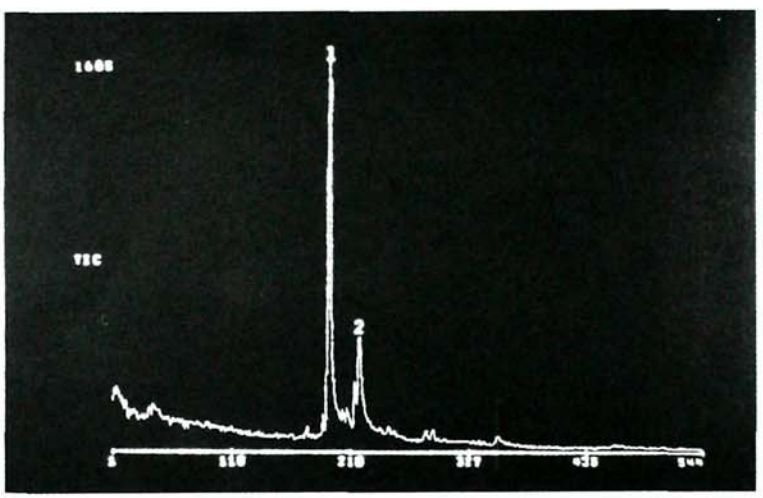



FIGURE 4 GAS CHROMATOGRAM OF THE NEUTRAL FRACTION

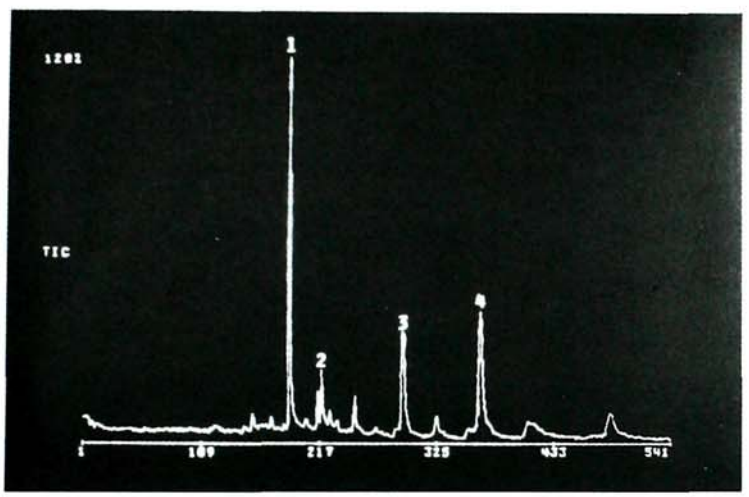



FIGURE 5 GAS CHROMATOGRAM OF THE METHYL ESTERS

| COMPOUND | PEAK IN FIGURE 4 | RETENTION TIME (MINUTE) | MASS SPECTRUM (m/e) |
|---|---|---|---|
| 4 | 1 | 7.55 | 256(M, 6%), 129(27), 97(17), 73(100), 60(90), 57(70), 43(86). |
| 5 | 2 | 8.54 | 284(M, 5%), 185(9), 129(26), 97(39), 83(51), 73(100), 60(71), 57(87), 43(80) |

TABLE 1 GC-MS ANALYSIS OF THE NEUTRAL FRACTION

| COMPOUND | PEAK IN FIGURE 5 | RETENTION TIME (MINUTE) | MASS SPECTRUM (m/e) |
|---|---|---|---|
| 6 | 1 | 7.39 | 270(M, 15), 239(1), 143(8), 87(53), 74(100), 59(4), 57(10), 43(20). |
| 7 | 2 | 8.41 | 298(M, 8%), 267(2), 143(17), 87(78), 74(100), 59(8), 57(19), 43(27). |
| 8 | 3 | 11.18 | 354(M, 4%), 323(1), 143(15), 87(87), 74(100), 59(5), 57(31), 43(33). |
| 9 | 4 | 13.52 | 382(M, 7%), 351(0.5), 143(15), 87(62), 74(100), 59(3), 57(26), 43(21). |

TABLE 2 GC-MS ANALYSIS OF THE METHYL ESTERS

# SPAFA Affairs

### Theatre and Dance Research Funded by the Korea Foundation

SPAFA Senior Specialist in Performing Arts, Assoc. Prof. Dr. Chua Soo Pong received a Korea Foundation Fellowship Grant to conduct a research project on "Theatre and Dance in Contemporary Korea and Southeast Asia: a Comparative Study", August 15th-November 13th 1992.

Despite the fact that in most parts of the world, traditional culture and contemporary dance are closely linked, it is surprising to note that in this regard many accounts by scholars are limited to describing either traditional culture or contemporary dance. Therefore new studies which examine the relationship between traditional culture and contemporary performing arts needs attention.

The aim of this research was to explore the interrelationships between traditional Korean culture and contemporary dance and theatre in Korea, and compare such evolution with those in Southeast Asian countries. The three-month fieldwork sought to demonstrate that these close links exist both at the ideological level and the practical level in the creative process.

Assoc. Prof. Chua compared the wide variety of theatres advocated by their practitioners, public and private fundings of performances, practises of educational institutions, and documentation systems of performances. He also went to examine how Korea had achieved a high level of development in theatre in so short a time and examined the role of government, cultural and educational institutions in the promotion of culture in general and theatre and dance in particular.

Assoc. Prof. Chua is one of the first groups of distinguished scholars around the world being invited by the Korea Foundation since its inception in January 1992.

The Korea Foundation's activities encompass all aspects of exchange including personnel exchange, support for Korean studies abroad, organization or assistance for a wide variety of international exchange activities, publication and distribution of books and research materials on Korea in foreign languages.

Assoc. Prof. Chua was attached to the Seoul National University during his three-month research in Korea. It is hoped that he will explore the possibility of establishing official linkage between SPAFA and leading Korean institutions which are involved in the studies of Southeast Asian culture.

### CEM Provides Technical Aid and Staff Training to SPAFA

After the signing of a "Contribution Agreement" between CIDA (Canadian International Development Agency) and SEAMES for another five-year funding support for the SEAMEO-Canada Cooperation Project, effective 1 August 1990-30 September 1995, an Agreement was signed between SEAMES and CEM (College Edouard-Montpetit), committing both to serving SPAFA's needs for technical assistance by Canadian specialists as well as staff

# SPAFA Affairs

training for personnel from all Member Countries.

Under SEAMES' guidance, another Memorandum of Agreement was also signed between SPAFA and CEM on 25 June 1991 to formally establish linkages between both institutions under the umbrella of the afore-mentioned legal agreements.

Based on mutual trust, CEM and SPAFA had started implementing a number of programmes even before the signing of the agreement, namely the assistance of three Canadian specialists, and a visit to Canada by Professor M.C. Subhadradis Diskul in May 1991.

### SPAFA personnel training in Canada in Fy 1991/1992

From May to September 1992, SPAFA personnel went for training and study visits in Canada in the fields of paleonotology, archaeological data processing, historic building management and library and documentation system networking.

Below are brief summary reports of their study and visits.

a) Mr. Pissit Charoenwongsa, SPAFA Senior Specialist in Archaeology, departed from Bangkok on 3 August 1992 and returned on 23 August 1992.

The objective of his trip was to visit archaeological/cultural sites of public interest, museums/interpretive centres and to discuss with Canadian authorities views on and approaches to cultural resource management. This exposure to the Canadian reconstruction of sites is extremely useful for strategic planning of management of large sites like historic parks. Assistance and cooperation have been offered by many institutions, namely Pare Canada in Ottawa for site registration methods, Canadian Heritage Information Network for museum collection recording programme, Canadian Conservation Institute for advice on conservation equipment and techniques. He also worked with Terrance Gibson of Western Heritage Services Inc. in Saskatchewan, on certain types of hardware/software for basic artifact/site recording programme.

b) Prof. Khunying Maenmas Chavalit, SPAFA Library and Documentation Officer, visited Canada during 5-18 September 1992.

The purpose of her visit was to familiarise herself with new technologies for processing and dissemination of information on cultural heritages, and to establish linkages with relevant institutions in Canada, especially Canadian Heritage Information Network (CHIN), Cultural Conservation Institute (CCI), the National Library and the National Archives of Canada. The excellent intensive programmes of the study-visit were arranged for her including such activities as observation of information processing from central databases and specialised databases. Visits were also arranged for observations on technical processes for conservation of library and archival materials, of textiles and waterlogged woods, with emphasis on how conservation process data were recorded into the computer. It was unfortunate that the Director of CHIN was not in

# SPAFA Affairs

Ottawa during her visit. However, she met almost all the heads and senior officers of the various divisions of CHIN who explained to her the activities of the divisions. At CCI, she paid a courtesy call on the Director General and discussed with him the possible cooperation in future between CCI and SPAFA, through CIDA and the SEAMEO Secretariat. Similar courtesy calls and discussions were made with the directors of the National Library and the National Archives. All the officers concerned in each institution visited had given their best attention to ensure that the visits were beneficial. Relevant documents were also given to her for further study.

c) Dr. Hidajat Sjarief Hardjasasmita, a lecturer from the Bandung Institute of Technology, Indonesia, spent his whole month of May, 1992 in Canada studying Zooarchaeology and Paleonotology of the Vertebrate. His study took him to the Tyrell Paleonotological Museum at Drumheller, the "Head-Smashed-In" World Heritage Archaeological Centre in Alberta, and the Royal Ontario Museum in Toronto.

d) Mr. Mohd Kamaruzaman A. Rahman, a university lecturer from the Department of Archaeology, National University of Malaysia, also spent his whole month of May 1992 in Canada undergoing training in Archaeological Data Processing Techniques, mainly at the Western Heritage Services Inc, Saskatchewan. Studying the computer software for archaeologists developed by WHSI was considered the highlight of his programme.

e) Mr. Vira Rojpojchanarat is an architect working on the conservation of historic buildings and monuments under Thailand's Division of Archaeology His visit replaced the training programme in "Handicraft Promotion Techniques" planned for a staff from Brunei Darussalam. Since the Royal Brunei Government was not ready for nomination in 1992 the training programme in "Historic Building Management" scheduled for 1993, replaced it, to utilise the funds. Mr. Vira's programme in August 1992 highlighted considerable interpretive centres in Alberta, heritage conservation organisations in Ottawa, and historic sites in Ouebec.

### Canadian technical assistance

During Fiscal Year 1990/1991 Canadian specialists provided technical assistance in the fields of conservation of archival and library materials, underwater archaeology, and labanotation.

a) Miss Jane A. Dalley, is an expert in conservation of archival and library materials, from Culture, Heritage and Recreation Provincial Archives, Winnipeg, Manitoba. She spent one full month, from 17 February to 17 March 1991, at the National Archives of Singapore to conduct the training course in Conservation of Archival and Library Materials (S-t 122 b). Miss Dalley made all efforts to stimulate interests in the subject, and to make trainees, having different professional backgrounds, to learn theory and acquire skills within the allotted time. She recommended, for future courses, to provide sufficient supply of small tools, to avoid repetition of theoretical work between the three


course components, and to organise a specific course on some particular aspects of conservation, instead of a general one. She also suggested ways and means to continue communication between Manitoba and SPAFA for professional development through cooperation and mutual support.

b) Associate Professor Rhonda Ryman-Kane is a faculty member of the Dance Department, University of Waterloo. Assoc. Prof. Ryman-Kane conducted a training course on Labanotation which was held in Singapore, during 2 March to 18 March 1991. Since she had not received in time relevant documents for the training course, as well as general information about Singapore and the Southeast Asian linguistic and cultural background, it took her much efort to get acquainted and adjusted to the environment. However, in spite of this, she ran the course very effectively and was much appreciated by her teaching colleagues and her trainees. Assoc. Professor Ryman-Kane drew up a list of valuable recommendations, focussing on the issues of continuity on the part of both teachers and trainees, in planning and preparing courses and in maintaining and refining their skills through continued practice, between courses. The other recommendations include the use of video tapes of final presentation and project for use as teaching resources; the acquisition of books; and the provision of translators.

There were three experts from Canada who provided technical cooperation during the Fiscal Year 1991/1992; namely Mr. Eric Waterton, Mr. Terrance H. Gibson, and Mr. Mario Poulin.

c) Mr. Eric Waterton, Manager, Museum Services, Department of Culture and Multiculturalism, Government of Alberta, assisted in the Advanced Training in Ethno-Archeology (S-T151 a) which took place in Bangkok and Sakai Cave Site, Tambol Palian, Traang Province, Thailand. Special assignment for Mr. Waterton was to assist with the fieldwork, and to deliver one lecture on a case study of Canadian ethno-archoeology. Mr. Waterton was happy in his field work and found no problems regarding his adaptation to the environment. He felt that he was under-utilised. Part of this was due to the fact that the ethnic group to be studied—the Sakai—constantly moved from place to place and were not always available to act as informants. Another significant reason was that the Sakai were bored by the trainee's photographing and interviewing. Being a non-archaeologist, he also felt that he could not contribute much to the main focus of the fieldwork which was the completion of the archaeological excavation. Mr. Waterton's suggestions for future courses cover: ( 1) more course details should be provided in advance; (2) selection of participants who would benefit most from the training; (3) more time for instruction on ethnology or ethnological investigation; (4) limiting the number of participants.

d) Mr. Terrance G. Gibson of the Western Heritage Services Inc, Saskatchewan, spent one full month imparting skill and knowledge in computer applications for


archaeological data processing to 11 participants from four Member Countries of SPAFA, at Silpakorn University Computer Centre, Thailand, from 10 May 1992 to 12 June 1992. His performance impressed the trainees and centre staff, and with his in-depth background in archaeology as well as his advanced knowledge in computer applications, he was requested by all concerned to come back again for the next training course in 1994.

e) Mr. Mario Poulin is from the College Edouard-Montpetit. He spent one and a half months, during 24 June-5 August 1992, with the training course on the Development and Promotion of Creative Crafts, assisting both the 12 trainees and the course organiser, the Cottage Industries Division, Department of Industrial Promotion, Thailand. Mr. Poulin is also the CLI's coordinator who spent most of his assignment on the course management as well as the fine-tuning of the curriculum. With his hard work, the group projects became the highlight of the training programme and the final products were much appreciated by the trainees as well as the CID personnel.

**Archaeological Beads Analysis**

Beads have had great roles to play in human life and human civilization, from aesthetic, technological, spiritual and commercial aspects. Beads were produced since pre-historic time, anywhere in the world. At present numerous ancient beads of various types, shapes, ages, and made of different kinds of materials have been collected and preserved by cultural institutions as national and world treasures. From the archaeological point of view, they are considered as artifacts which contribute significantly to the interpretation of the role of a site in the trade network. Studies on beads will bring out information on manufacturing centres, trade centres, distribution centres and so on.

To enable persons engaged in archaeological works and custodians of national heritages having bead collection repositories to analyse and classify beads systematically, utilizing scientific technology and methods, SPAFA has organized a training course on archaeological beads analysis, for approximately two months, from 31 October to 20 December 1992 with the cooperation of the University Kabanesaan Malaysia.

The main purpose of the course is to help the participants to analyse beads, and on the basis of beads to possibly reconstruct as the source of raw materials, production centres, a real coverage of varied types of beads in chronological ordering and so on.

There were 13 participants from Indonesia, Malaysia, the Philippines, Thailand and Canada. Resource persons were Mr. Peter Francis Jr, American bead trade expert, Mr. Ray Santiago, a Philippine archaeologist, and Dr. Tan Teong Heng, Malaysian geologist. Mr. Francis' travel expenditure was contributed by the Asian Cultural Council of the U.S.A.

# SPAFA Affairs

Trainees were given lectures on the following subjects: materials and forms of beads; quantitative spatial and temporal framework; analytical methods and techniques for identification of beads; beads as component of trade with involvement of economy; aesthetic and religious consideration of beads. Trainees spent part of the time for practical execises.

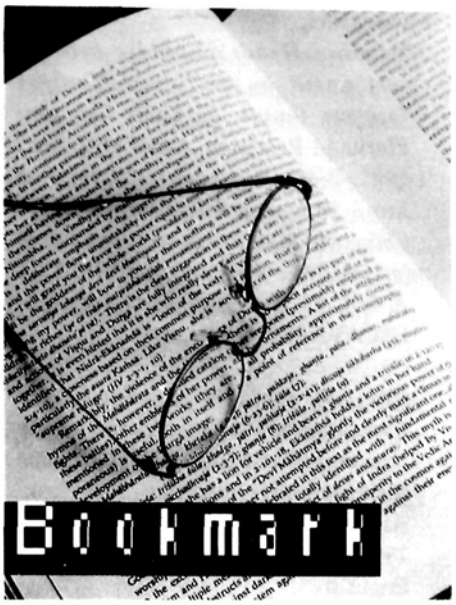
In the final evaluation of the course, the trainees expressed their satisfaction with the course, though the majority felt that there should be more time alloted for practical work. They recommended that more advanced level courses be organized for the same group.

**7th SEAMEO-SPAFA Governing Board Meeting**

In October SPAFA held its 7th Governing Board Meeting in the new SPAFA Building.

Governing Board Member for Singapore Mr. Kwa Chong Guan, was unanimously elected as the new Chairman of the Governing Board. Fr. Gabriel Casal, Governing Board Member for the Philippines, was elected Vice Chairman.

In his impromptu acceptance remarks, the newly elected Chairman said he was honoured to assume the Chairmanship at this high point of SPAFA's existence when it is moving into a magnificent building and ready to move into new areas of work. He is optimistic that the joint efforts of the Board and the staff of SPAFA will redound to successfully meet all new challenges and assignments. He called on the Board and the staff to collectively review the Centre's programmes and priorities, and if necessary, make some difficult, perhaps painful, decisions about restructuring them in view of budgetary constraints. He encouraged the Board and staff to continue working together in addressing the challenges and the many opportunities in SPAFA's operations. He concluded by thanking his colleages for the confidence they have placed in him and assured them that he will do his best for SPAFA.




Compiled by Khunying Maenmas Chavalit

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