SPAFA DIGEST

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SEAMEO

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SPAFA OBJECTIVES

The objectives of SPAFA are :

- To promote awareness and appreciation of the cultural heritage of the Southeast Asian countries through the preservation of archaeological and historical artifacts as well as the traditional arts;
- To help enrich cultural activities in the region;
- To strengthen professional competence in the fields of archaeology and fine arts through sharing of resources and experiences on a regional basis;
- To promote better understanding among the countries of Southeast Asia through joint programmes in archaeology and fine arts.

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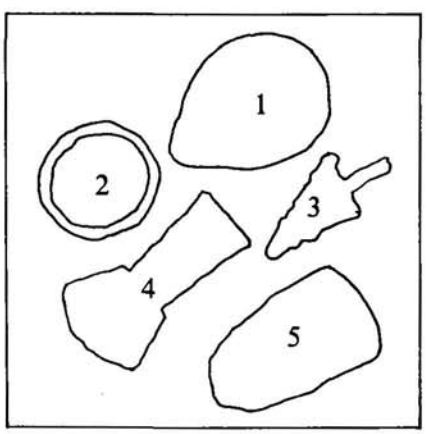

The Cover

Copper-Bronze Industry in Prehistoric Thailand

1 An earthern ware crucible showing traces of copper drippings excavated at Noen Klong Bamrung, Lop Buri.
2 Bronze bracelet from Phu Noi, Lop Buri.
3 Arrowhead from Noen Klong Bamrung, Lop Buri.
4 Copper or bronze axe dug at Noen Klong Bamrung, Lop Buri.
5 Ceramic mould for making arrow heads excavated at Non Klong Bamrung, Lop Buri.

A FEW WORDS TO OUR READERS

This is the last issue of the **SPAFA Digest** under the current set-up when SPAFA is a SEAMEO Project. Beginning July 1, 1987, the SPAFA Regional Centre will replace the Project and there will be no more SPAFA Co-ordinating Unit. The operations of the Regional Centre will be more centralized under a new administration. In view of this major change, the editors of the **SPAFA Digest** take this occasion to make some assessments of the past. A proper assessment necessarily requires that we keep the major aims of SPAFA in sight.

The aims of SPAFA are: [1] to promote awareness and appreciation of the cultural heritage of Southeast Asia: [2] to help enrich cultural activities of the region; [3] to strengthen professional competence in the field of culture; [4] to promote better understanding among the peoples of the region.

In line with these goals, the SPAFA Co-ordinating Unit puts out the **SPAFA Digest** which comes out twice a year every June and December and has a circulation of approximately 200 distributed to individual scholars and institutions. Its publication is intended to disseminate information on cultural activities in the region (including those of SPAFA), to serve as a forum for exchange of information, views, opinions, ideas, and experience in the field of culture; and to publish research findings and similar studies in archaeology, conservation and restoration, the performing arts, fine arts, handicrafts as well as Southeast Asian culture in general.

A total of 13 issues have been published so far since the first one came out in 1981. The articles in the maiden issue reflected the immediate concerns of the founders of SPAFA (then known as ARCAFA), and were to give direction to the organization's subsequent programmes. How to conserve and restore the region's architectural monuments threatened to destruction by nature and by man. And to develop a corps of well-trained professionals in the fields of archaeology, conservation and restoration, museology and the performing and fine arts. One gets the impression from reading the project descriptions that the founders gave serious thoughts in conceptualizing the SPAFA programmes and in devising workable and practical schemes for their implementation. At the outset, the first organizers of SPAFA drew up a set of activities that would cover as many aspects and manifestations of culture as possible. If a balanced programme has not been achieved, the intention has always remained. This observation can also apply to the **SPAFA Digest** which tends to lean more towards archaeology and related disciplines.

The majority of the articles published in the succeeding issues of the **SPAFA Digest** were papers presented at SPAFA-sponsored Seminars, Conferences, Workshops, and Training Programmes. Hence, papers on Srivijaya Studies, Ceramics, Maritime Trade and Shipping are predominant. The topics and subjects covered are of course those which were the themes of the seminars ranging from technical papers on conservation of wooden artifacts, stucco, etc., preliminary reports on excavations, researches in progress, to full-blown scholarly papers backed by years of research. The last type of course rarely appears on the pages of the **SPAFA Digest** and if they do, they are often reprints from previous publications. Nonetheless,

most of the articles reprinted are those that make significant contributions to the understanding of the culture and history of the region, or to the problem or topic under investigation. Undoubtedly reprinting these articles make them more accessible to the readers of the **Digest.**

Contributors from within and outside the region are about on par, with those from Southeast Asia slightly more. Among contributions coming from within the region, the Philippines appear to have provided more articles, a consequence perhaps of the greater facility with which Filipinos use the English language rather than more active scholarship. Indonesians have contributed the second largest number of articles, some of them were translations from Bahasa Indonesia. Thai writings constitute the least in number. Again the fact that the English language is the medium used in the magazine may have precluded the inclusion of more Thai articles. As far as this writer can ascertain, **SPAFA Digest** editors have not attempted to translate significant articles from Southeast Asian languages into English. Contributors from outside the region in the order of their frequency are those from USA, France, the Netherlands, Japan, Australia, Great Britain, and the People's Republic of China. The total absence of contributions from Brunei. Kampuchea, Burma, Vietnam, India, Pakistan and Sri Lanka, not to mention a total silence about cultural activities in other Asian countries creates an artificial gulf between SPAFA and many non-SPAFA member countries.

On the whole, the articles are of very high quality, and the publication format is attractive and makes pleasant reading. Given the limited budget and a tiny staff of two people, the editors can look back with pride with the publication of the 14th and last issue.

In closing perhaps it is time for the editors to solicit the opinions of their readers if they seriously intend to improve the quality of the magazine.

We start off by making our own suggestions.

It would be interesting to find out what our readers think about the magazine's title. The title is somewhat misleading since the articles are neither digested nor abridged from longer originals. The editors have in fact toyed with the idea of changing the name, but from the length of time - 7 years and from inertia, the acronym SPAFA and **SPAFA Digest** remain wedded together. The decision rests on the succeeding staff of the SPAFA (and we hope also from the readers) whether to change or retain the name.

One would also ask whether lengthy reports of SPAFA activities under the section "SPAFA Affairs" could be better put to use by more information about region-wide activities and cultural developments which affect large numbers of people. To give only a few examples, handicrafts is one of SPAFA's major concerns. And yet, the magazine has not done any reporting on the wide and varied activities going on in our region about national handicraft centres, exhibitions and fairs of local and regional handicrafts. Even the mounting of major exhibitions by national and provincial museums go unnoticed by the **SPAFA Digest.** If it is to be **the** region's clearing house for information on culture and cultural activities, perhaps the **Digest** should expand beyond reporting its own activities to the broader happenings in the region.

Also lacking, considering that SPAFA was established to help advance professional competence and knowledge about culture of Southeast Asia, is the paucity of sustained intellectual discussions and debates which is the substance of scholarship and professionalism. Intellectual discussions and criticisms, reviews and evaluation of researches and writings form an important section in every scholarly journal. One of the most exciting and stimulating reading in all scholarly journals are precisely articles which probe the basic assumptions, methodologies, kinds of evidence, and logic of argumentation on which scholars base their conclusions. It is hoped that the **SPAFA Digest** under whatever name it will metamorphose on July 1, 1987 will consider these suggestions.

DERMAYU BATIKS A SURVIVING ART IN AN ANCIENT TRADING TOWN

by Paramita Rahayu ABDURACHMAN

INTRODUCTION

In the eastern corner of West Java, where the Cimanuk River pushes its way into the Java Sea, leaving its sediment to form an estuary in the course of time, a river-harbour village called Dermayu came into existence. It was to play a small but recognizable role in the trade of textiles and other merchandise. Its location near the sea and on the river made it important for both the coastal and inland trade. It thus served as an entrepot for the goods that were carried by vessels upstream or by bullock-carts and other means of conveyance into the interior. The road led southwards via other small villages, clustered near the harbour, on the West side of the river. They had come into existence in the same period as the harbour-village, at the end of the 14th century. The area was part of the realm of the Hindu kingdom of Sunda, of which the boundaries at that time were the Ci Pamali in the East, near Brebes and Sunda Strait in the West.

The Cimanuk River and some villages in that neighbourhood were first mentioned in the narration of Bujangga Manik, a monk who in the 14th century traversed the island of Java from West to East on two consecutive trips (Noorduyn 1982).

A more detailed description of the port that was located on the Cimanuk is given by the Portuguese author, Tome Pires, who accompanied the first Portuguese fleet in its search of the Spice islands in 1511. His findings have become the famous **"Summa Oriental".**

It seemed that the villages were founded and settled by people who had come from different parts of the kingdom and even of the world. Most of the latter group were traders like "Parsees, Arabs, Gujaratees, Malays and other nationalities, there being many Moors among them" In another part of the book, Pires says that:

> *"The port of Chi Manuk is the sixth port. This is not a port in which junks can anchor, but only at the harbour bar, so they say; others say "yes". Many Moors live here. The captain is a heathen. It belongs to the king of Sunda.*
>
> *The end of the kingdom is here. Chi Manuk has good trade. Java also trades with it. It has a good large town".*

It is obvious that a number of political and social changes had taken place between the end of the 14th century and 1512. The kingdom of Sunda was still an important force, having a number of important harbours. However, it had lost part of its realm, so that the Cimanuk had become its eastern border.

This may have been caused by the rise of Cerbon as an independent force which was consolidating itself as a sultanate. Cerbon was the "sixth port" on the north Java coast mentioned by Pires. It had its own harbour-master called "captain" while in local narrations he is called "lurah". Another term applied to a harbour official was "shahbandar" indicating influence from the Middle East. By this time Islam had come to these parts. Muslim traders and religious men had been active in that area, and had settled there since the 14th century.

Until then the name of the port (Dermayu) was never mentioned. It appears for the first time on Portuguese maps of the 16th century. According to local legends the name "Dermayu" was taken from the name of the wife of the harbour-master. She was called "Darma Ayu" and excelled not only in physical beauty but also in possessing a compassionate personality and was revered by the local people. It is in fact this name Dermayu, that is still used until the present by the local people to designate the oldest part of the area of the town. Together with Dermayu, other old villages are part of the original area;

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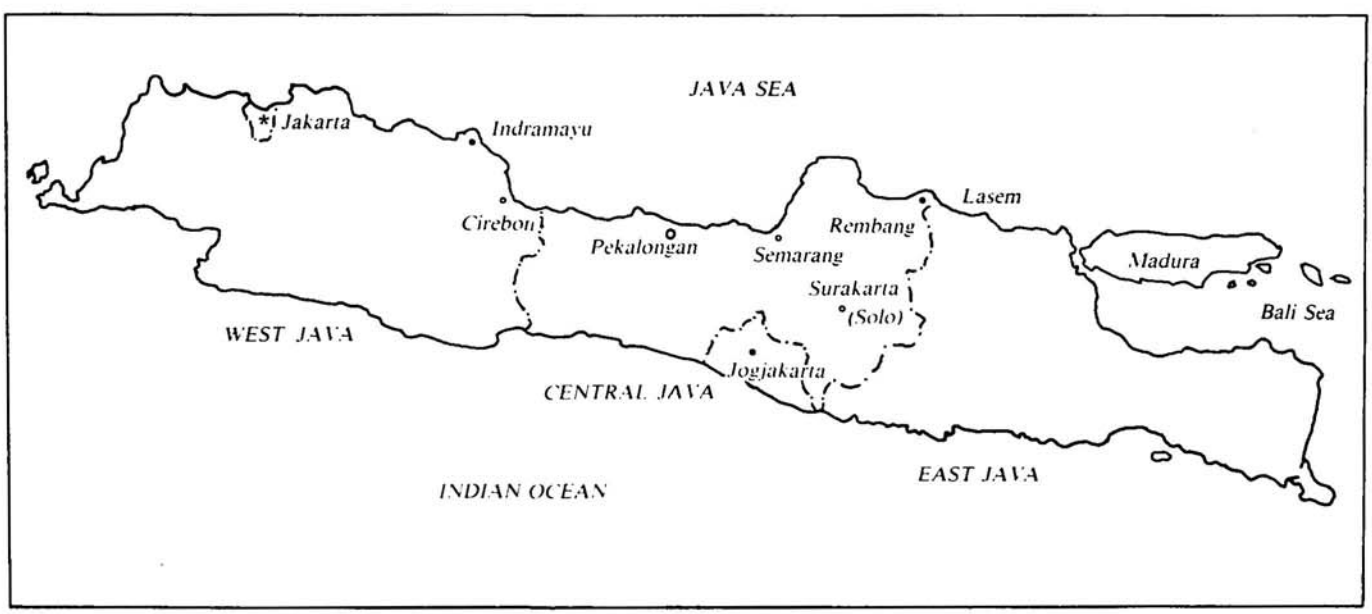
they are linked by family, trading and religious ties. These are the villages of Panganjang and Pauman, north of Dermayu, Sindang and Babakan south of it. They are all situated on the west bank of the river. On the eastern bank, still being part of the old Dermayu area, other communities sprang up. They were Chinese, Javanese and other people who may have arrived at a later date, possibly in the 15th and 16th centuries. They occupied the lands that had been formed by the sedimentation of the river and had become firm land. This was a connecting point which linked the harbour via the east coast with the new harbour villages that had come into existence on the road to present-day Cerbon, namely Singapura, Gunung Sembung and Muara Jati. From these points the settlers had moved southwards to establish a new capital of a Muslim kingdom, named Cerbon. This again was linked westwards by a road that led through Plered, Plumbon and Palimanan and met with the road from Dermayu southwards through Jatibarang. From the junction of these roads, one road led westwards through the mountains to Sumedang, another led southwards, along the eastern slopes of Mount Ceremay and again cutting through mountainous area to Galuh. Both Sumedang and Galuh were principalities, centres of political and cultural power, but still forming part of the kingdom of Sunda. But the triangle formed by Dermayu - Palimanan - Plered (and later Cerbon) was the original area of religious and cultural life of the northeastern part of West Java. Here the arts flourished and they exerted influence on the trends that Dermayu and Cerbon culture should take.

Although Cerbon used her claim of descendancy form the Hindu Kingdom of Sunda, she never succeeded in gaining political domination over Dermayu. Cultural and social relations between Cerbon and Dermayu thrived and strengthened, but Dermayu retained her independent status. Times were changing rapidly with the rise in power of the Dutch East India Co. in the 17th century. After having established a fortress at the seat of the former harbour of Kalapa and renaming it Batavia, the Dutch East India Co. set out on a policy of establishing itself as a force along the coast, and also to curtail the kingdom of Mataram in Central Java. Mataram, in answer to this challenge embarked on a military campaign in 1621, to besiege and conquer the Dutch fortress at Batavia. The ruler of Mataram, Sultan Agung took farmers and their families along and had them settled on the areas along the north coast in order to plant paddy and other food-crops that would be needed to sustain the military campaigns. The Dermayu area received a quota of about 40 families; they became the nucleus of the peasants in that area, and also served as the link with Central Java.

Mataram's efforts met with ill luck and it gave the D.E.I. Co. the opportunity to consolidate its military and political strength to bring the north coast under its control, and to attack the strongholds of the opposing interior principalities, Sumedang and Galuh. For this purpose the harbour of Dermayu was used as the strategic base from where to go upstream and further inland. It seems that a redoubt was built on the east bank of the Cimanuk. The campaigns met with fierce resistance and were only ended when the Prince of Sumedang ceded Dermayu to the Company in 1678. Since then it became one of the Company's official harbours and due to its position on the trade routes from the West to the East, it became an even more important trading station, collecting produce from the hinterland and dispersing foreign trade goods. It retained this position until the early 20th century when it lost



Map of Java

its position because of the growing sedimentation which made the river unnavigable for modern vessels. One reminder of the Dutch period was the name given by the Dutch to the town, calling it **Indramayu.** In 1641 the term "Indermayo" appears in a Dutch document (Haan, I, 1910) it may have been a corrupted form of the original Dermayu. Whatever the origin, ever since the 17th century the town and surrounding area have been known as "Indramayu"

The Dutch settled in the eastern part, across the river from the old parts of town. Here they developed their centre of trading and administration and built there warehouses and offices. The new town grew, especially in the late 19th century when it became the official seat of the (Javanese) Bupati and the (Dutch) Assistant-Resident. It had now become part of the Residency of Cheribon. The town itself assumed the quasi-cosmopolitan character like so many other coastal towns and is still so until today. Many new settlers were constantly arriving, finding a new livelihood there.

Dutch administration and Chinese families settled in this new town, each forming their own community within the city boundaries. The Dutch civil servants, the estate holders and those involved in trading occupied the best residential parts, so did the Indonesian civil servants and other newcomers. The Chinese had their own "Pecinan" completed with klenteng, Chinese temple.

On the west banks of the river, which had still to be crossed by ferry until about 1930, other groups of newcomers settled. These were people who for reasons of their own did not want to settle in the Dutch section of the city but preferred to assimilate with the original settlements. They were small traders, artisans, political refugees and religious preachers who had come from different parts of the archipelago: Palembang, Aceh, Bugis, Goa, North Moluccas, Kalimantan. Their integration into the local community contributed to the varied cultural expressions as have continued to live in Dermayu.

Dermayu, now part of modern, lively city, Indramayu, retains much of its old, almost medieval character, with its old mosque, graveyards of the original founders and old families, wooden houses, wood-carved mimbars (pulpits), doors and windows, home food industries with a very typical cuisine and of batik, fruit, orchards and fishing communities. The name "Dermayu" thus means for the local people the traditional way of life with its old families, its crafts, the old beliefs, as opposed to what modern Indramayu stands for.

DERMAYU BATIKS

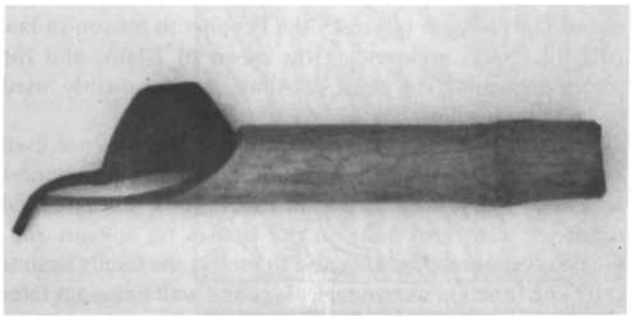
There is very little known about the history of Dermayu batiks. There is little doubt, though, that a resist dyeing technique was known in West Java for at least a millenium. The technique of rice-paste glued on to rough homespun, handwoven cotton is known in areas as far West as ancient Banten. The cloth was dyed indigo-blue or mengkudu (morinda citrifolia) red, while the covered surface remained white. Besides rice-paste, other semi-fluid substances, like bean-paste and vegetable paste made from several kinds of leaves may have been used too. The finished products were probably used mostly for ceremonial purposes, such as temple decorations or religious banners and draperies. The motifs were mainly dots and circles, linear and geometric patterns, reflecting a cosmology of the traditional cultures of Indonesia. To make these ornaments, perhaps a bamboo stick was used as a pen.

Dermayu which formed part of the Hindu kingdom of Sunda in the 14th century, may have known the technique of batik by the beginning of the A.D. era. In addition, its position as a harbour town saw a flow of trade goods passing through, part of which were textiles. They came from the Middle East, Gujarat and Pulicat in India, from China and mainland Southeast Asia. Often they were painted textiles, coloured painted cloth like palamporis from Persia and kalamkaris from Gujarat. These were the "pintados" as called by the Portuguese. But other cloth like embroidered textiles from China were also part of the trade items.

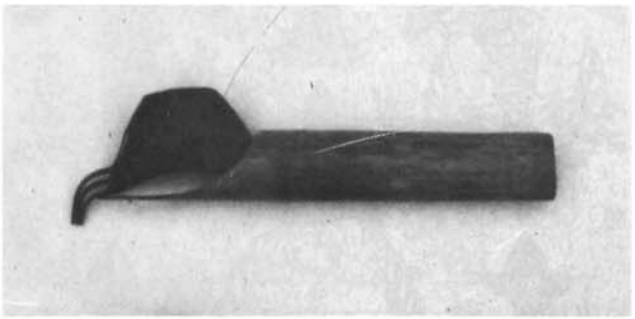
These imported cloths were generally meant for the use of the well-to-do and social upper classes. The peasant used either beaten barkcloth from the gebang tree (Corypha utan lamk) for daily wear, weavings from home-spun, home-woven cotton and, if batik was made, it was still of this same material.

Besides painted and other types of coloured cloth, white cloth was also imported. They were coarse or fine, unbleached or bleached. Wax was also a trade item, coming from the island of Timor, and could be used as a covering agent.

It is believed that the art of making batik may have been introduced into Dermayu by people who came from Lasem. However, it is not clear which exact place is meant, because in the 15th century there were two places with that name, one near Tuban, the other one near Sedayu, which were at that time important ports. One should not overlook the geographical location of Dermayu at the northern point of the artistic-religious triangle formed by Palimanan in the Southwest and Plered near Cerbon in the Southeast. Within this triangle there are a number of centres which are known for the artistic expressions of their different communities. Many of them lived as religious or craft guilds, headed by a leader and observing rituals that had been handed down to them for generations. Each of these communes had its own line of art or craft. Thus one would find kilns near Palimanan, painting on cloth (which developed into batik) in Trusmi and Kalitengah. Plumbon was a well known batik-centre in the old days but is now better known for its music and dance, sharing its reputation with Arjawinangun. Gegesik became famous for its glass painting and wayang puppet making. Plered also used to make pottery, but is now more of a market town. A further development were the small communities which sprang up within the boundaries of Cerbon town, like Kanduruan which produced batik for



A single spout canting



A multi spout canting

the Chinese community. In Dermayu itself, batik developed in the same fashion, also in Sindang and Babakan, and then in Pauman, which have kept the tradition alive until the present. A network of religious, artistic and family affiliations developed between these communities, and it is no wonder that a common artistic language sprang into life. Its main characteristic is an openness, boldness, which can be immediately recognized whether in batik, dance, music, glass-painting or related arts. Its expressions are forceful, yet never vulgar. Refinements and embellishments are incorporated into the composition but never deter from the original design.

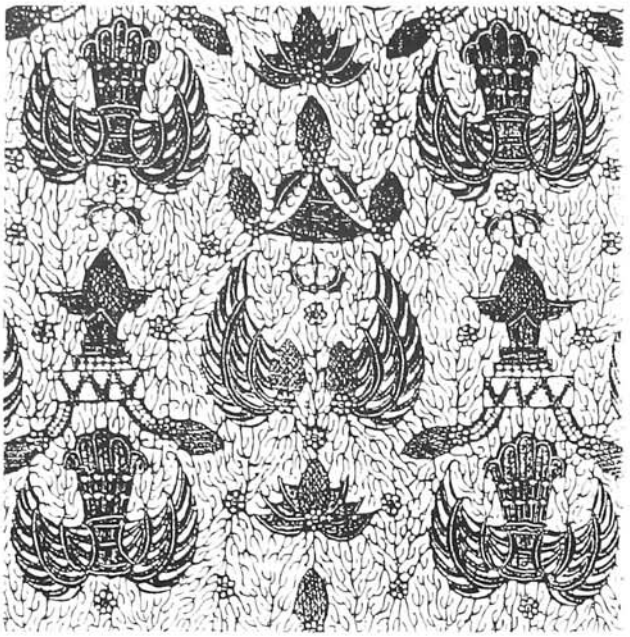
Thus if it is true that there are Dermayu batiks that look like Lasem copies, these are only part of the whole spectrum that the region has retained for a long time. But it is particularly the "non-Lasem" type that makes a Dermayu batik stand out and in which one will find the characteristics of Dermayu art. Designs may fit different categories made by outsiders, geometrical, calligraphic, and free-form. In addition to those one would find a range where influences from West Java and Central Java are apparent. These are batiks that became the prerogative of families who originated from outside Dermayu. But whatever the designs and motifs, or their origin, foreign or local or just across the nearest border, by the time that the Dermayu artisans started designing, they had been conversant and probably influenced by whatever style or motif passed through their area, and in which they recognized universal motifs and symbols. In the hands of the local artisans these motifs developed into designs that assumed a meaning relevant to the philosophy of life of the artisan. Thus, also the outsider would speak about a Lasem influenced batik, a Mataram motif, a Chinese, Indian or Middle-Eastern design, the phoenixes, banzis (swastika), peonies, lotuses, lars (wings) and Quranic sayings were not merely copies of conventional motifs but were the interpretation of the artisan's own perceptions.

One of the distinguishing characteristics of Dermayu batik is the continued production of "village batik." This "village batik" is made from home-spun cloth usually of unbleached cotton called **blacu,** and decorated with designs made with **canting*** with wider spouts. This type of rougher cloth is believed to be the earlier prototype of batik cloth which in time tended to become more and more refined. In any case, "village batik" is still being manufactured in Tuban, Gresik, Madura and Bantul (South of Jogjakarta) and in many other villages in Java. The production of batik cloth utilizing finer cotton cloth **(mori)** and the finely-spouted canting for applying the wax were a later development. In the case of Dermayu known more for its "village batik" finer batik is only made upon special order. Another peculiarity of Dermayu batik is the absence of space-filling motifs in the forms of dots, lines, and other tiny motifs called **"isen".** In Central Java "isen" motifs are indispensable to a composition, hence Central Javanese batik makers are known for having explored all possible variations of these tiny and minute space-filling motifs. By contrast, Dermayu and Cerbon batik makers try to avoid using too many "isen" motifs but if ever called upon by customers to use these motifs, they see to it that the space-fillers will not distract attention from the main design. For this reason, Dermayu and Cerbon batiks are characterized more for their use of one or a few dominant but bold designs against a more open, relatively empty ground.

However, to please the customers from outside the region who prefer designs with "isen" the Dermayu and Cerbon batik makers employ a new device the **cemplongan** made up of 10 to 200 fine needles welded together into a handle that can be used to apply scores of dots and lines **(cecek, colok)** and other space-filling motifs in one stroke. The **cemplongan** has been improved from a heavy and cumbersome implement to a streamlined tool which a child can easily manipulate. And to assure thorough waxing, the cloth is placed on a banana trunk as the working surface through which the fine needles of the **cemplongan** can penetrate. The introduction of the **cemplongan** has led to the employment of space-filling motifs into Dermayu batik, although not to the same extent as in Central Java.

The predominant colours of Dermayu batik are blue and red. Blue colour is derived from the indigo plant, while red

* ***Canting*** *(pronounced like the English word chanting to sing) Canting is an implement used to apply molten wax on cloth; it is made of two components, a wooden or bamboo handle, and a small, spouted cup-like portion which holds the melted wax.*



Example of wing motifs stylized from the mythical bird, Garuda the vehicle of the God Visnu. The simplified wings are called ***"lar"****,* ***"mirong"****, or* ***"sawat"*** *combined with* ***"meru"****, the sacred mountain.*

is obtained from the **mengkudu** tree **(Morinda citrifolia).** Soga **(Peltophorum pterocarpum Backer),** the source for reddish-brown colour obtained from the bark is the usual dyestuff for Central Javanese batik. However, because of the heavy salinity of the local water, Dermayu batik workers do not use soga bark and therefore produce no reddish-brown colours characteristic of Central Java. If there is any demand for soga-dyed batik, the waxed cloth will have to be sent to Central Java for the dyeing process. With the introduction of artificial dyes, batik makers have experimented with many new colours. But either the water formula or the unsophisticated local artist has not yet achieved the results similar to the batik centres from Central Java.

A few words should be said about the different designs which for the sake of clarity can be put into different categories. They are mostly grouped into calligraphic, geometric and free-form designs.

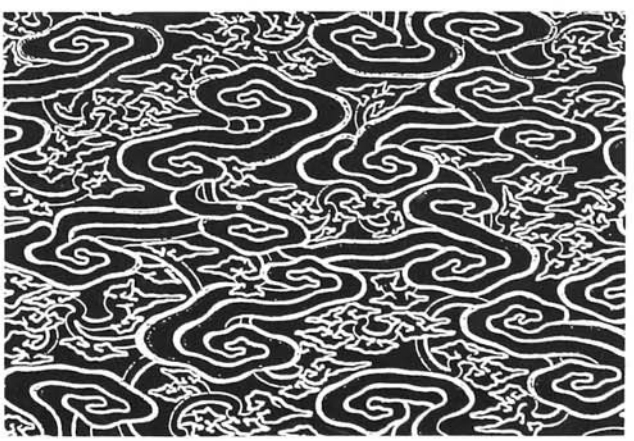
The least known and therefore less appreciated Dermayu batiks are those with Arabic calligraphy. Yet, in these batiks one would find the true nature of Dermayu society as it once was. The end-products may not have been as overpowering as the calligraphed batiks of Cerbon, but in their simplicity they are equally beautiful. The designs, as a rule, centre around the writing of **asma al husna,** (the ninety-nine most beautiful names of Allah) as well as the names of the Prophet, his kin and the Imams (Welch 1979).

Also a rendering of the "bismillah" ("In the name of Allah") often intertwined forming a rosette in the middle of the cloth and its four corners, while the remaining space is filled with the word "Allah". Unlike Cerbon calligraphs where the lion frequently appears, Dermayu concentrates more on the non-figural design. However, the double-bladed sword Dul al Faqar (given by the Prophet to his son-in-law Ali), the cock, announcing the dawn of Islam, and the parrot, repeating the name of Allah, are frequently used in Dermayu calligraphs.

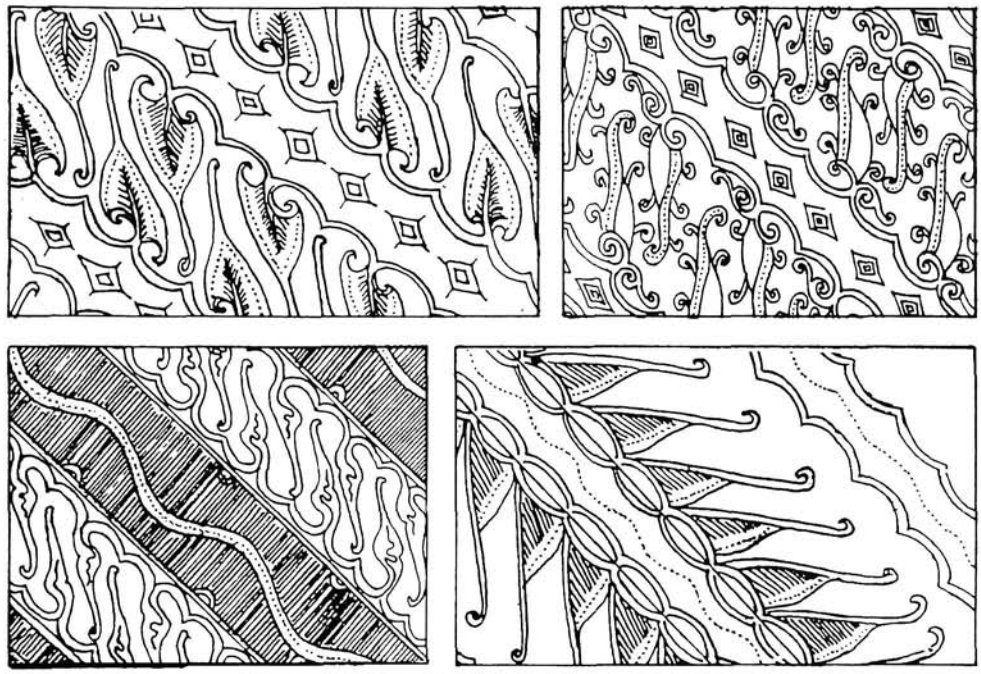
Batiks with calligraphic designs were as a rule not used as clothing material, but were specially made for banners and flags which were carried in processions. Calligraphed draperies were also hung in the houses on solemn and, religious occasions, at times also to protect the family against evil. The function as banners, flags and wall hangings later changed to that of clothing, especially for going to the mosque or to a religious function within the community. Later, Arabic calligraphy in a combination with geometric motifs were used for making headcovers and shawls. These batiks were also a large export product to regions outside Dermayu. From the number of such cloths found in Sumatra, it is evident that they were much in demand there.

Geometric designs are still very popular, although there are only a few left. Their forms suggest that the designs once represented spatial symbols but their names refer to practical functional uses of these symbols. Names that survived are such as "mata angin" (weather vane), "pintu ratu" (door of the king), which looks like a compass. Another wellknown motif shows a field of Chinese seals, bordered by swastikas, phoenixes and flowers. The name is "Si Jaring". "Jaring-jaring" are airvents in the walls of houses, bringing fresh wind in an otherwise hot, enclosed area. The cloth bearing **jaring-jaring** designs was used as a bedsheet for sick people. According to local belief the design had the power to cure diseases, as it brought coolness to a feverish person. Often these motifs are executed with the "cecek" (cemplongan) technique.

Free-form designs are part of an extensive group that includes the flora and fauna of the Dermayu area. It is very striking that there are more representations of water rather than land animals. Patterns with fish, crustaceans, eels and fisherman's boats are more predominant than designs with deer, elephants and mythical animals. Even monkeys find



Cloud motif called ***megomendung,*** *one of the most characteristic decorations used in batiks of Cerbon.*



Samples of ***parang*** *motifs characterized by diagonal lines in steeply inclined composition. Originally parang motifs were restricted to the nobility of the courts of Central Java, but they are now worn by almost everyboby and has thereby lost its earlier connotation.*

their way only very occasionally into the animal world of Dermayu batiks. As mentioned before, cockerels and parrots are portrayed, but only in connection with calligraphy, peacocks appear as symbols guarding the gate to paradise.

One interesting group is that where Central Javanese influence is apparent. They appear in the typical Mataram heraldic designs such as the Garuda wings, in its modes of "lar", "mirong" and "sawat". However, not being bound to the protocol of the Central Javanese courts, the forms and sizes of the motifs are altogether different. The Garuda outsized wings of Dermayu batiks are uncommon in Central Java. The wing motifs are also more outspread, bold, in contrast to the Central Javanese, which show a more quiet aspect of the Garuda, as if in repose. In the same fashion, other Central Javanese motifs are portrayed differently, reflecting the attitude and perception of the local artist.

Two motifs popular in Central Javanese courts, **"lereng"** and the **"parang"** did not become part of Dermayu batik vocabulary. "Lereng" (meaning sloping, the slope of a mountain) is a favourite design among West Java's elite circles. It may well be related in symbolism with the Central Javanese "parang", which is associated with the kris. Both motifs are regarded as contrary to the normal horizontal, vertical or a circular direction in which ordinary mortals move. The diagonal line is only meant for those who have been able to move against these pre-set directions. "Lereng" and "parang" used in batik motifs were mainly used by the nobility, aristocracy and later certain elite groups. Since there never was a court in the Dermayu area and the aristocracy that later developed were not indigenous to the area, whenever lereng and parang motifs are used they are incorporated into the design upon request of those who deem it necessary to display status and symbols associated with the Javanese courts.

Although Indramayu has become a modern town, the art of batik-making is still surviving. In the Dermayu area, the village of Pauman has become a batik making centre. Sindang and other villages along the old Western trade road are also part of this continuing tradition. However, it is only a home-industry engaged in by women for obtaining additional income while their husbands are away for a length of time, as fishermen or labourers. In addition to making the typical Dermayu batiks, they also make batiks for the workshops at Trusmi and Cerbon, but will not engage in the soga-dyeing and the finishing of the cloth.

Efforts are being made by official agencies to step-up these home-industries and convert them into bigger workshops so that the batik artists can earn regular income. Hitherto the batik makers have not been enthusiastic to accept this change in attitude to an age-old craft, in which they have the role of artist. This is clear from the fact that they pride themselves that no "cap" (block-print) batiks are ever made in their area.

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A DESCRIPTION OF POTTERY MAKING IN TALIBON, BOHOL

by Mary Jane CALDERON and Thelma ROALES

INTRODUCTION

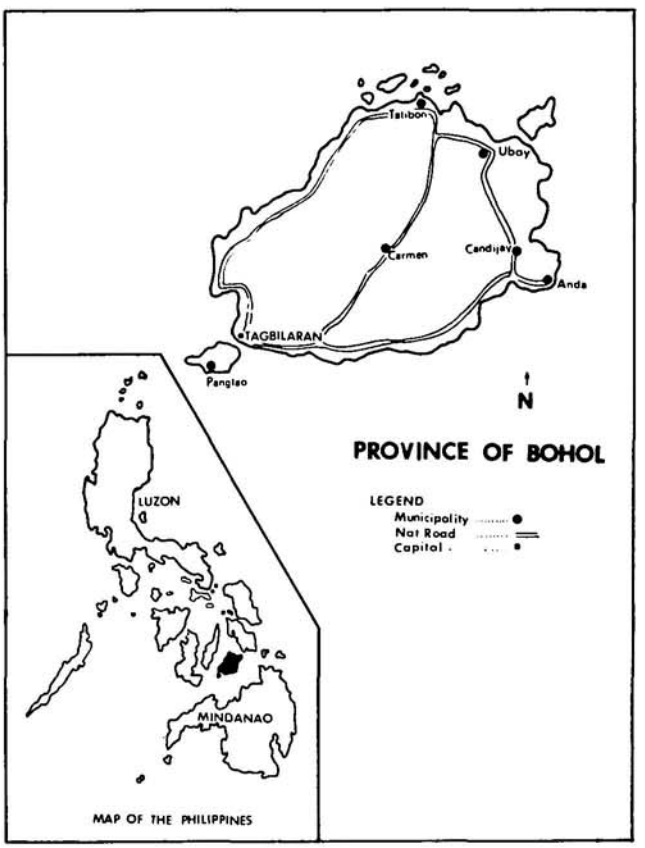
Bohol, with a land area of 4,000 square kilometres, is the tenth largest island in the Philippines. One hundred fourteen kilometres from Tagbilaran (the capital of Bohol), and lying between Ubay and Jetafe, is the municipality of Talibon. As of 1986, the population of Talibon was 34,097, with 27 barangays. One of the barangays in Talibon is Bagacay, a pottery village, chosen as the site of this study. There are around 51 household potters in the area.

This study will focus briefly on the pottery types and functions, and will document the manufacturing process of pottery in detail. Our approach to the subject matter will be based on our interviews and observations during field work in 1986.

Daniel Scheans, (Scheans 1966) has surveyed the written descriptions on earthenware pottery manufacture among fifteen ethnolinguistic groups: the Ivatans (Scheans 1952), Ivanag (Solheim), Tingguians (Cole 1952), Ilocano (Scheans 1965), Bontok (Jenks 1905), Makakaya Kalinga (Scott 1958), Pampangan (Solheim 1952), Buhid (Conklin 1953), Bicol (Foster 1956), Panayon Bisaya (Solheim 1952), Cebuano Bisayan (Hart 1954), Bagabo (Cole 1913), Bukidnon (Cole 1956), Manobo (Garvan 1931), and Sulu (Szanton 1963).

Scheans also surveyed pottery manufacture in fifty provinces in the Philippines based on a 73-item questionnaire. One thousand two hundred black and white photographs were taken and 300 items of pottery specimens

The authors attended the SPAFA Training Course in Ethno-Archaeology held in Bagacay, Talibon, Bohol, Philippines from July 22 to September 22, 1986. Miss Calderon is Curator of the University of San Carlos Museum, and Miss Roales is Research Assistant at Archaeology Division, National Museum of the Philippines.



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were collected and housed in the Anthropology Department at Portland State University (Scheans 1977).

P.J.F. Coutts and R.K. Fullagar recorded local pottery making traditions in Antique and Aklan (Coutts and Fullagar 1980) while Scheans described pottery manufacture in two poblacions in Bohol, Albur and Valencia, which is similar to the method of pottery manufacture to be described in this paper.

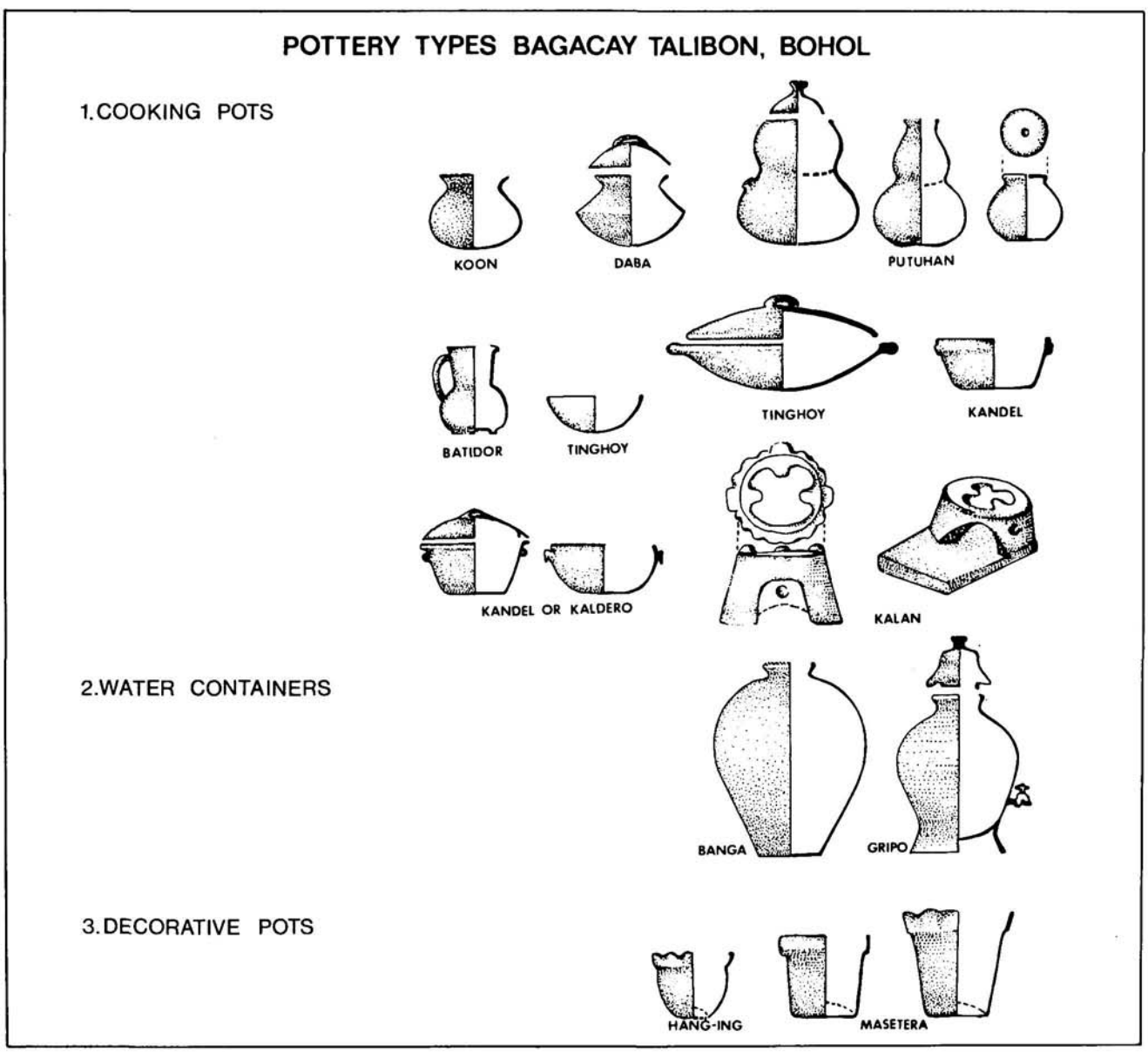
POTTERY TYPES AND FUNCTIONS

The pottery in Bagacay are of three types (1) cooking pots, (2) water container pots and (3) decorative pots. They are classified according to their sizes and the market prices in the 1930s. The smallest pot is called **anlet** (around 8 cms. in height and 9 cms. in width). The second to the smallest is called **segunda** (Spanish term for second) followed by **upat singco** (the price of four pieces of five centavos) **tagdusan** (the price of two pots for three centavos). **Uno y media** is the biggest pot and measures around 28 cms. in height and 30 cms. in width.

THREE TYPES OF POTS

A. Cooking Pots

1. Kolon/koon - this is general term for all globular pots of different sizes, from the smallest to the biggest. The pots' rims are flaring and the semi-rounded lips have impressed linear designs called **giring-giring.**



2. **Daba** - this is generally applied to all angled pots of different sizes.
3. **Putuhan** - this is a double-gourd pot serving as steamer for rice cakes.
4. **Batidor** - pitcher-shaped vessel purposely for preparing native coffee and cocoa.
5. **Hudnohan** - low cylindrical vessel for cooking rice cakes. Diameter is 40-45 cms.
6. **Tatso** - shallow hemispherical pot for cooking peanuts.
7. **Tinghoy** - small hemispherical pot for gold melting.
8. **Takkub** - the cover of a pot with a loop handle.
9. **Kalan** - **(sug-ang)** stove.

B. Water Container Pots

1. Jar **(banga)** - oval-shaped vessel for water storage. It has a circular flat base, a short neck and a rounded lip. Cement slipping around the exterior body of the pot reduces the vessel's porosity.
2. Jar with a faucet **(gripo)** - the jar with a faucet cemented on the lower portion of the body is called **gripo** and purposely made for drinking water. This vessel is usually made with a cover.

C. Flower Pots, and Similar Plant Containers

1. **Masetera** - truncated pot, with its flat base perforated for water seepage. It has a wide mouth and a rounded lip for planting purposes.
2. **Hang-ing** - small pots with cut-out design or simple perforations for decoration and suspension. These are especially made for orchids.
3. **Kaang** - flower pots.
4. **Figurines** - anthropomophic and zoomorphic figures.
5. **Toys (toy-toy)** - these resemble the cooking pots and the water container pots, except that they are usually made smaller.

PROCESS OF MAKING POTS

A. Ritual

Every time a new source of clay is exploited, a ritual is performed near the source before the clay is gathered. The ritual is called **(pag-abang)** which means to "rent" and is explained by the potters as a means of payment **(bayad)** to the surrounding spirits for the clay they gather.

During the ritual, **pag-abang,** a young red-feathered rooster which has not been used for cockfighting is offered. It is believed that the red colour of the feathers has an effect on the redness of the pot during the firing. A pig, raised in the community, may also be used as an offering.

If a single potter will utilize a clay source, he or she shoulders all the expenses for the ritual sacrifices. Otherwise, the expenses are shared among the other potters.

Aside from the rooster and pig offerings, tobacco, local wine, biscuits, cooked rice, candles, rice cakes and money are also offered. No salt is added to the cooked food since the potters believe the spirits dislike salt. After the offering, some food are left on the table near the new clay source, and salt is added on the food to be eaten by the guests.

The ritual is officiated by a **mananampit** or **kamao manampit** (someone who calls or knows how to contact the spirits). There are five persons in Bagacay who act as the **mananampit** or spirit callers. Two are women-potters and the three are husbands of potters. The **mananampit** usually come from a family of potters who **themselves** had the gift or ability to **contact** the spirits who guard the clay source. Prayers are transmitted by mananampit parents to their children.

Paghakut ug Yuta (Gathering Clay)

Clay is gathered during the daytime. The source of clay **(gigikanan)** can either be near the potter's house or as far as the neighbouring village. Clay sources are usually shared.

A tool commonly used in clay gathering is the **budlong** an iron bar 70 cms. long with one end flattened and sharpened. Sacks, baskets or banana leaves are used as containers.

The different clay types (brown, red, and sandy clay) are either mixed at the clay source area or at home.

B. Preparing Clay

Magluka o magkubkub - digging of different clay types

Dukdukin - pounding the clay types in compact pieces using the **makmak,** a short bamboo stick.

Ibulad sa init - drying the pounded clay to make them brittle.

Bisbisan - sprinkling water on the clay.

Takuban ug dahon o sako - covering the wet clay with a plastic sack or dry coconut leaves, to be left for a few hours or overnight to soften the clay.

Pilion ang bato ug - removing the impurities like plant roots and pebbles as these can

pisliton cause breakage **(liki, buak)** during firing, hard soil pieces are seperated and discarded.

Maglikit - kneading the clay to have the proper consistency. The clay is again covered with a plastic sack or dry coconut leaves and stored.

Magsagul ug-yuta mixing the clay types

Maggumos - mashing the clay, and if desired, adding water for plasticity.

Mag-umol - preparing the clay lumps called **umol** for pot making.

C. Paggama ug Koon - Pot-Making

Two techniques of pot-making are commonly practiced in Bagacay namely, the pinching/handmolding technique and the paddle and anvil technique. Two other techniques (coiling and clay sheet-end joining) are not often practiced.

Pinching/Handmolding Technique

These methods involve the potter's hands and fingers. A lump of clay is squeezed between the fingers, creating a rhythmic pattern of finger marks.

Magbangag - inserting the thumb at the centre of the clay lump while the rest of the fingers hold on to the exterior in a pinching manner with the fingers scraping the clay exerting sideward, upward and downward pressures towards the bottom.

Gahimu ug wait - shaping the interior rim with a bamboo stick in a circular manner and with the rotation of the **ginit,** flattening the lip and making it even with a slight, downward pressure.

Paglimpyu ug wait - clamping the rim with wet fingers in a rotating manner and air drying the pot.

A male potter making a stove by hand-molding

Paddle and Anvil Technique

This technique involves the use of a wooden paddle and a stone anvil. The former is used on the exterior and the latter on the interior. The purpose is to lessen the porosity of the pot and make it more compact.

Magbaul - paddling the pot

Mag-abog - shaping the body of the pot using the paddle and supported by the anvil inside, gradually defining the neck and the shoulder.

Magpatubo sa binaul - raising the base, slowly defining the body.

Maggiring-giring - applying an impressed design on the rim with the edge of the paddle.

Magtiltig - final paddling

Coiling Technique

Series of circular coils are laid to a desired height and size of pot. To form the vessel, the paddle and anvil technique is used.

A potter at work. On the Foreground are partially worked vessels intended for flower pots. Techniques involve are hand-molding and paddle and anvil technique.

Clay Sheet-End Joining Technique

A lump of clay is flattened into sheets on a sack which is fastened on the ground. Then the sheets are rolled on the potter's arm and brought to an upright position with both ends joined and polished by wet hands.

D. Decorating the Pot

Bagacay potters use three types of decorative treatment on their pots. The most common decoration is called **giring-giring** and is usually found on cooking pots and water containers. Using the side of the paddle **(pikpik),** successive short and linear impressions are made on the lips of the pot.

Another decorative treatment is the **pagkulit.** Coconut midrib **(tungog sa lubi)** or a sharpened bamboo stick is used to incise the surface of the pots. The most common design for this treatment is the **buak-buak** (floral design) which is usually found on the covers of the pots.

A slip made from a thin mixture of cement is also applied. This type of slip is only applied on jars and sometimes on flower pots. Slip application is not a decorative treatment, but a sealant to lessen porosity and permeability.

E. Pagbulad - Drying

The pottery undergoes gradual air drying during the formation of the pot. After the pots are finally formed, the pots are dried under the sun. These are sun-dried in an open place near the potter's house and at different times of the day, and are occasionally turned around to different positions to obtain an even result. The pots are completely dried after three days.

Fire drying is resorted to when orders from clients have to be hurriedly met. The process of fire drying is the same as firing but less fuel is used. After the pots are completely drained of their water content, some portions are polished.

F. Magbuwaw or Magpasinaw - Polishing

The exterior portion of the pot is polished with a glass **garapa** or a quartz stone, **bato.** Some potters slightly wet the exterior of the vessel before polishing it. After the pots are polished, they are sundried again, exposing the different portions of the pot **(balihun)** for an even result. After 80-100 pots are made and collected, (some polished, while others remain unpolished), they are ready to be fired.

G. Pagba - Firing

A sunny day, with moderate winds is the ideal condition for pot firing. The firing area is an open field usually small around two metres in diameter, and located not far from the potter's house generally about fifteen to twenty metres away.

Four kinds of materials are used as fuel for firing; coconut leaves **(palwa),** dried coconut husks, cogon grass and any available dry wood. One hundred pieces of coconut leaves normally costs from six to eight pesos. These are gathered around the community or bought in the neighbourhood. Firewood are usually gathered just a few hours before the actual firing, about 3-4 hours.

Open firing is a common sight in Bagacay especially on Saturdays. Every member of the family shares in this activity - gathering of firewood, pots' arrangement in the firing area, actual firing and packaging of pots.

Heavy pots are arranged on the bottom layer followed by smaller pots on top. The pots are arranged in such a way to allow air circulation to be maintained during the firing process. More firewood are placed on top of the pots in preparation for firing.

A match is lighted and the firewood at the bottom of the heap is burned. This allows the heat to flow upward and to spread evenly around the pots. In case more fuel is needed, cogon grass or dried coconut leaves are added. After firing, each pot is removed with a long piece of bamboo and taken out of the cinders to cool. The firing process takes about thirty to forty-five minutes to complete. After the pots are cooled, they are ready to be used or sold.

CONCLUSION

Several studies on pottery manufacture have been done which gives a general description of pottery making. This study tried to document the step-by-step process of manufacture of pottery. The potters of Bagacay believe that a ritual has to be performed as payment to the spirits for the clays they gather. Through offerings to the spirits the potters insure themselves against sickness and the chances of pot breakage.

Most potters in Bagacay belong to the third or fourth generation of potters. Unfortunately however, very few of their children have followed the family tradition and instead prefer to be hat weavers or salaried workers. Though there continue to be a demand for Bagacay pottery, the prevalent use of aluminum pots and plastic containers has resulted in diminished demands for pottery.

ON A TENTATIVE LOCATION OF "FO-SHIH COUNTRY" IN THE T'ANG PERIOD

by Shōji ITŌ

This article will attempt to set forth a tentative view concerning the location of "Fo-shih Country" in the T'ang period. Since this is only tentative, I would therefore welcome suggestions and corrections on my theory.

In a previous SPAFA's Workshop on Srivijaya, Mr. Khemchat Thepchai[1] of Thailand reported that he found Chinese glazed stoneware sherds of the T'ang period during his excavation at Laem Pho in Chaiya, Surat Thani Province in southern Thailand. He proposed that Laem Pho might have been an important Srivijaya entrepot at that time.

I-Tsing (637-712 A.D.), a great Buddhist monk and sutra's translator, recorded his travels between 671 and 695 A.D. to "Fo-shih Country". Through ancient Chinese records like the writings of I-Tsing, we can obtain more information about the location of Fo-shih.

Another useful record which can help locate Fo-shih is an old Chinese record called the **Hsin T'ang Shu** ("Dili-zhi 33") that gives us some information about the location in Fo-shih country. This book gives an account of a maritime route, from Canton in China to the Indian Ocean. It was actually a record written by a Chinese "Chia Tan" in about 800 A.D. of the T'ang period.

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This article was presented at the Tenth Conference of the International Association of Historians of Asia held in Singapore, October 27-31, 1986.

There are several interpretations of the voyage made by Chia Tan. With all due respect to the earlier scholars, my reading of those records based on comparisons with current geographical sources yields the following:

"If one goes to the Southeast from Canchou for 200 li, one reaches Tunmen-shan. After that, in full sail, if one goes to the West (from Túnmén-shān) for two days, one reaches Jiūchōushih for two days, one reaches Xiangshih. Also if one goes to the Southwest (from Xiangshih) for three days, one reaches Chànbulao-shān. This Chànbulao-shān is in Húanwang country. This country is situated in the sea East about 200 li.

Again if one goes to the South (from Chànbulao-shān) for two days, one reaches Ling-shan. Also if one goes (from Ling-shan) for one day, one reaches Mendu country. Again if one goes (from Mendu country) for one day, one reaches Gǔdá country Also proceeding (from Gǔdá country) for half a day, one reaches Bēntuóláng-chōu. Again if one goes (from Bentuolang-chou) for two days, one reaches Júntulúng-shān. Again if one goes (from Júntulūng-shān) for five days, one reaches a strait, which is called "Chih" by the native people. This strait runs from the North to the South with a length of 100 li. On its northern shore is Lö-Yueh

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country. On its southern shore is Fo-shih country (In Fo-shih country, I heard the following:) If one goes by ship to the East (from Fo-shih country) for four or five days, one reaches Ho-ling country, which is the largest one in the southern countries. (Now put back in Fo-shih country), again if one goes out into the West through the strait, one takes three days to reach Kokosengchih country".

From this record of "Hsin T'ang Shu", several place names or countries and the time required to sail to these places are as follows:

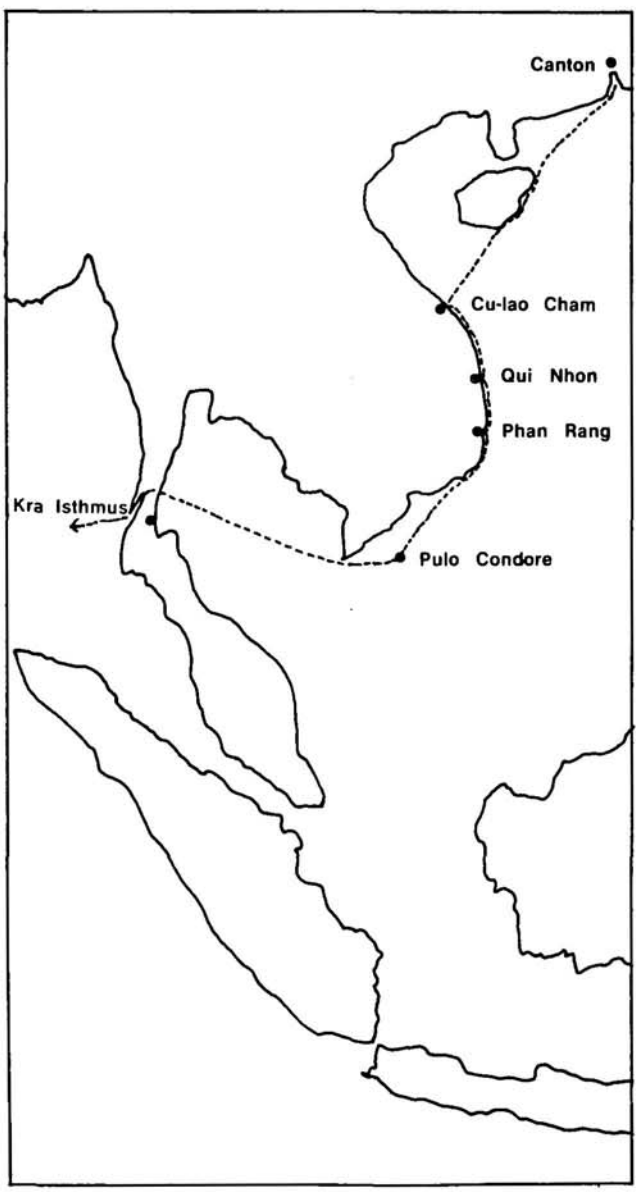

Fig. 1 A maritime route from Canton to the Indian Ocean via "strait" about 800 A.D.

Canchou (Canton)
↓ to the Southeast, 200 li
Túnmen-shān (near Hong Kong)
↓ to the West, for two days
Jiūchoūshih (unknown)
↓ to the South, for two days
Xiangshih (around eastern shore of Hainan island)
↓ to the Southwest, for three days
Chànbulao-shān (Cu-lao Cham)
↓ to the South, for two days
Ling-shān (Qui Nhon)
↓ for two days and a half
Bēntuoláng-chōu (Phan Rang)
↓ for two days
Jūntulùng-shān (Pulo Condore)
↓ for five days
Strait (Kra Isthmus)

Firstly, according to this record, it takes the sailboat 18 days and a half from Tunmen-shan to the Strait. Beyond the strait, it takes the sailboat 19 days and a half from the strait to far off Sri Lanka. So based on the sailing direction the strait mentioned in the text is situated almost in the middle between Tùnmén-shān (near Hong Kong) and Sri Lanka.

Secondly, one can estimate the distance a sailboat can cover an average of 156 kms. in a day. So between Cu-lao Cham and Qui Nhon, the sailboat advanced 132 kms. in a day. Next, between Qui Nhon and Phan Rang, it ran 136 kms. in a day. And from Phan Rang to Pulo Condore, it advanced 200 kms. in a day.

Since it takes 5 days for the sailboat to traverse the distance between Pulo Condore and the strait, we can calculate the distance between the two places, average distance the boat travels a day 156 kms. times 5 days making a total of 780 kms. So it can be proposed that the location of the strait might be a place 780 kms. distance from Pulo Condore. As I have shown in Fig. 1, if one searches for the location of the strait 780 kms. from Pulo Condore on a map, one can see that it will be located approximately in the Malay Peninsula.

Thirdly, it was quite regrettable that in this voyage, no mention was made about the direction of the sailboat from Pulo Condore. It is unknown which way the sailboat headed. But it seems likely that the direction of the sailboat should naturally follow the directions of the tide and wind. As for the wind direction, Prof. M.C. Chand Chirayu of Thailand explained in his article in the **Journal of the Siam Society** (1974) Vol. 62, part 1 that the wind direction could have brought the ship on which I-Tsing was travelling in December, to points Southwest and above the equator. The fact that I-Tsing took 20 days to reach landfall, could mean that the ship sailed with the Northwest monsoon which cut short the journey

by half[2]. As far as the tide direction is concerned, Fig. 2 shows that the direction of the tide first advanced to the Southwest from the southern shore of Formosa, then turned directions at Pulo Condore or Cape Camau and advanced to the Siam Gulf. So following the directions of the wind and tide, we can estimate that the direction of the sailboat was westward up to the interior sea of the Siam Gulf. Then it might have reached the eastern shore of the northern part of the Malay Peninsula. I am inclined to think that the port of call might have been an entrance to the "Strait".

It seems to me that "Fo-shih country" should be located in the Malay Peninsula. According to **Hsin T'ang Shu,** Fo-shih country was situated on the southern shore of the strait. So if one could locate the strait, automatically it is possible to know the location of Fo-shih country. Fortunately, the record added some descriptions about the strait. They are as follows:

(1) The Strait is called "Chih" by native people.
(2) The Strait runs from the North to the South with a length of 100 li.
(3) On the strait's southern shore is Fo-shih country.
(4) It takes 3 days to traverse (the area) to the West through strait.

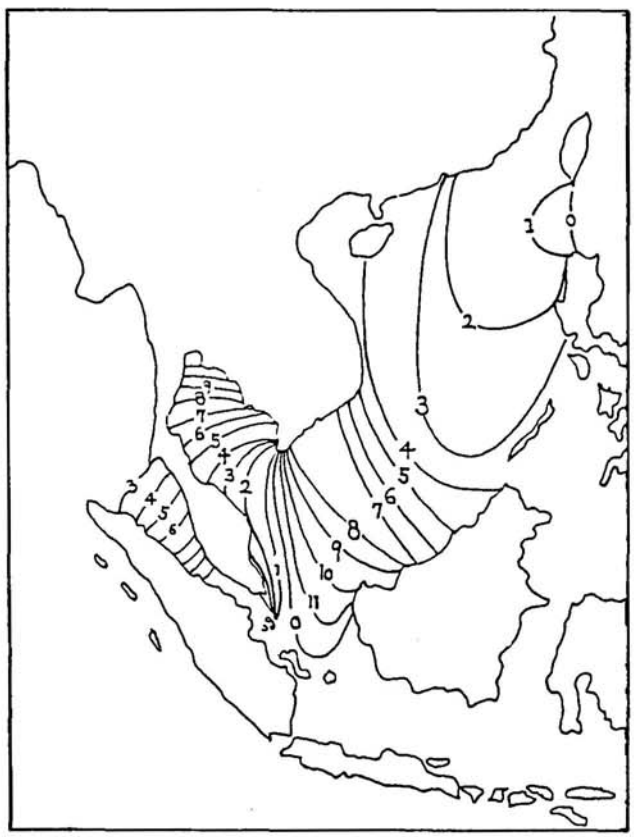

Fig. 2 The lines of tide shown at intervals of one hour based on Dobby, 1956

Among the four points of the description, (2) is the most important one. But in the present days, there is no strait or channel to traverse from the eastern to the western shore of the Malay Peninsula. But I imagine the existence of such a channel as a tentative possibility. The "Strait" referred to in the text might be the Kra Isthmus in the northern part of the Malay Peninsula. My hypothesis is supported by the fact that today, the Kra Isthmus acts as a channel and runs from an interior area of the Malay Peninsula to the western shore.

At first, it seems to me that the description in record, "from north to south," might fit the flowing direction of Kra Isthmus. In the next place, a remarkable point in record, is that it was recorded that the length of this strait, was "100 li". This term called "li" is a unit of distance used during the T'ang period. "100 li" is equal to 55.98 kms. in length at that time. However the actual length of the Kra Isthmus from Ban Pack Cham, in the northern edge to Victoria Point is 67 kms., which forms the mouth of the Isthmus, the 100 li (55.98 kms.) is shorter. But it seems that it is

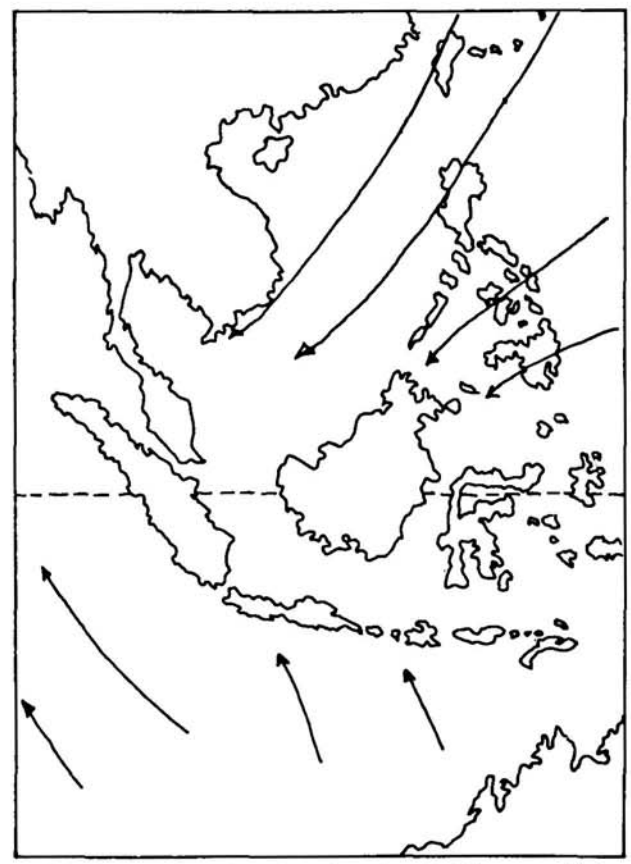

Fig. 3 Windchart for November when It-Ching set sail from Canton for Chele-foche in 671 A.D. according to · Prof. M.C. Chan Chirayu Rajani.

reasonable to assume that "100 li" might only be an estimate of the distance between the end points of the Isthmus of Kra.

In other words, distances used in **Hsin T'ang Shu** were represented only in multiples of 100 li. Thus the East-West distance of the Kra Isthmus in the T'ang period text was reckoned simply as "100 li". Therefore, I am inclined to think that the description of "the strait as having 100 li in length which runs from north to south" might refer to length and directional flow of the Kra Isthmus as it is in the present days.

Another question still remains to be answered, and this is the location of the entrance of the "Strait". I suggest that the entrance might be in the area of Chumphon. But in this record, there is no description about the land on the eastern shore of the Malay Peninsula to the eastern entrance of the Kra Isthmus. Perhaps the writer omitted describing the eastern side of the Isthmus due to the short distance involved. The writer was probably more concerned showing other travellers how to get across the Kra Isthmus.

As a conclusion, since the text described "on this strait's southern shore is Fo-shih country", I am inclined to think that Fo-shih country might be the area around Chaiya. As I have mentioned at the beginning of this paper, Chinese T'ang ceramics were found in Chaiya, and several Buddhist ruins and images were also discovered in this area.

In a previous SPAFA's Workshop, Mr. Preecha Noonsuk[3] of Thailand presented a paper about the meaning of the term "Chaiya". He said that Chaiya originally meant "Banyan tree-Medicine". Since the Bayan tree is the sacred Bodhi tree for Buddhists, thus Chaiya is closely associated with Buddhism. Likewise the meaning of "Fo-shih" also has Buddhist connotation "Fo" means Buddha and "Shih" means death.

Finally, to show the Buddhistic character of Fo-shih country, we refer again to the Chinese pilgrim, I-Tsing, who stayed in Fo-shih country during the T'ang period. I-Tsing described this country in his book, called **"Ken-pen-shuo-i-chieh-yu-pu-po-i-chieh-mo"** (Buddhist sutra) 5 as follows:

> *"In Fo-shih, there are over one thousand Buddhist monks living. They strive to learn and practice Buddhism. Its method, rites, etc., are the same as in China. Therefore if Buddhist monks of the T'ang period wish to go to India and learn Buddhism, they should stay at Fo-shih for one or two years, then they had better head for Central India".*

The remarkable point in this record is the relationship between Fo-shih country and Central India. From this description, it seems to me that the location of Fo-shih country was a place from where a traveller could easily reach Central India, and where Indian Buddhist influences could spread easily. In paper presented at previous SPAFA Workshop on Srivijaya, I discussed a peculiar iconographic image of Avalokitesvara Bodhisattva[4] found in Chaiya that is closely associated with images of Avalokitesvara Bodhisattva found in Central India. I believe that the iconographic similarities between the Chaiya Avalokitesvara and those found in Central India further supports my hypothesis that Fo-shih was located in the area in and around the Isthmus of Kra, possibly at Chaiya.

NOTES

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2 M.C. Chand Chirayu Rajani: "Background to the Srivijaya Story - Part 1", **Journal of the Siam Society,** Vol. 62, Part 1, 1974, Bangkok. pp. 185-187.

3 Preecha Noonsuk: "The Study of Local Place Names on the Thai Peninsula, Takuapa, Jaiya and Nagara Sri Dharmaraja" Paper presented at the **SPAFA Consultative Workshop on Archaeological and Environmental Studies on Srivijaya,** Bangkok and South Thailand, March 29 - April 11, 1983.

4 Shōji Itō: "Remains on the Iconography of Bodhisattva Images Found in Chaiya, Southern Thailand". Paper presented at the **SPAFA Consultative Workshop on Archaeological and Environmental Studies on Srivijaya,** Bangkok and South Thailand, March 29 - April 11, 1983.

GLOSSARY OF CHINESE CHARACTERS

Fo-shih 佛逝
I-Tsing 義淨
Hsin T'ang Shu 新唐書
Dili-zhi 地理志
Chia Tan 賈耽
Canchōu 廣州
Tunmen-shān 屯門山
Jiūchoūshih 九州石
Xiangshih 象石
Chànbulāo-shān 占不勞山
HuánWàng 環王
Ling-shān 陵山
Mendu 門毒
Guada 古笪
Bēntuóláng-shōu 奔陀浪州
Jūntulùng-shān 軍突弄山
Chih 質
Lo-yueh 羅越
Kokosengchih 葛葛僧祇
Ken-pen-shuo-i-chieh-yu-pu-po-i-chieh-mo
根本說一切有部百一羯磨

Taishō Tripitaka, vol. 24, no. 1453,
(Mūlasarvāstivādaikaśatakarman)

RECENT RESEARCH ON THE NEOLITHIC IN PENINSULAR MALAYSIA

by LEONG Sau Heng

Archaeological evidence for the Neolithic[1] in Peninsular Malaysia is far from scanty. At least over 130 sites have been reported. These include a handful of archaeologically excavated sites, and numerous locations where chance finds of cord-marked pottery and/or ground stone artifacts have been reported.[2] Chance finds are of little archaeological value apart from the information they provide on the material culture, particularly the types of ground stone artifacts and earthenware pottery of the prehistoric groups involved, and to some extent, the geographical distribution of these artifacts in the peninsula. Data from the excavated sites are, undoubtedly of far greater value. However, since only small scale excavations were conducted at these sites some of the interpretations arrived at based on the data retrieved from these sites remain largely tentative. For the earlier (pre-war) excavations the value of the data yielded would also have to depend on how systematically these sites were excavated.[3] The types of data obtained form these sites would also depend on the types of retrieval methods known at that time, and the range of laboratory analyses available. For instance, the collection of soil samples, the use of dry and wet sieving for the recovery of small items were seldom practised at that time, although dry-sieving was reportedly undertaken during H.D. Colling's excavation at Gua Bintong in Perlis (Collings 1937). It was also a great loss to the archaeological record that no attempts were made to collect charcoal samples from the hearths (ash layers) encountered in the excavations at the cave sites for the purpose of radiocarbon dating. This was simply because radiocarbon dating for archaeological purposes was then unknown.[4]

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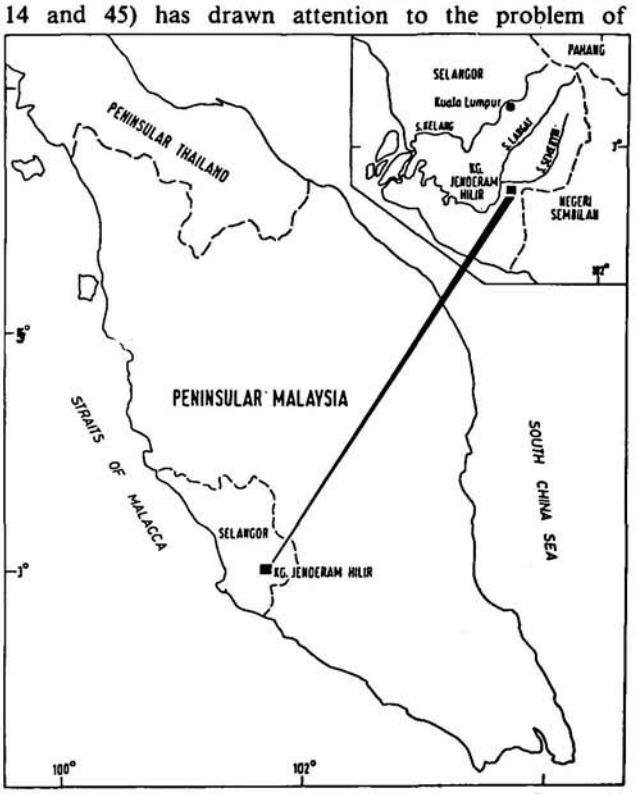
Many of the cave sites in Peninsular Malaysia have suffered some degree of disturbances resulting from burrowing animals,[5] and from human activities, such as burials during the later prehistoric times, and the digging of guano in modern times. Some sites were completely destroyed by the guano collectors, such as the Bukit Chintamani site (Peacock and Dunn 1967). The disturbances can cause a great deal of problems connected with the interpretation of the stratigraphic relationship of the various finds, especially, if we are dealing with a multiple component site where more than a single cultural layer are present. Tweedie (1953: 14 and 45) has drawn attention to the problem of



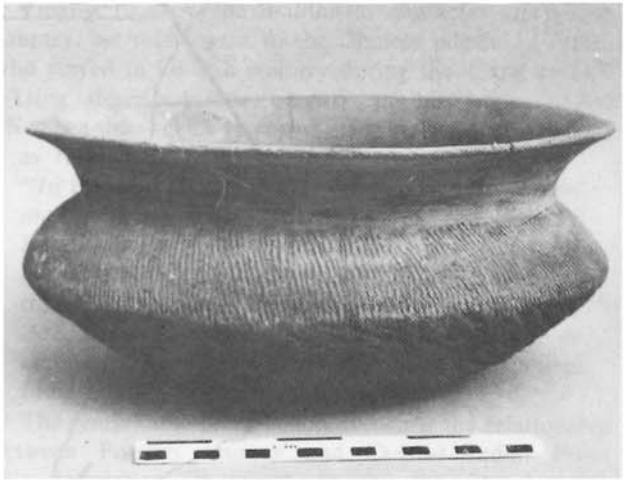
Map showing the location of Kg. Jenderam Hilir in South Selangor.

this mixing of cultural deposits, and Bellwood (1985:168) has also commented on the possibility of the presence of some residual remains (from an earlier cultural layer) in the pottery-bearing upper layer at Gua Cha.

Outlined above are only a few of the problems facing the researcher working on the Neolithic phase of the peninsula's prehistory. A major portion of the archaeological record for this phase comprises the artifactual material and their distribution in the peninsula. There is, therefore no lack of data on the material culture of the Malayan (i.e. Peninsular Malaysia) Neolithic. Much of the early works are largely focused on the description of the material culture encountered at the sites.[6] The discovery of Gua Cha and its subsequent excavations (Noone 1939, Sieveking 1954) have provided much invaluable data on Neolithic burials in the peninsula, at the same time adding more items (e.g. stone and shell beads, shell spoons) to the artifact inventory of the Malayan Neolithic. The large number of whole, as well as partly restorable earthenware vessels recovered from the site has also expanded our knowledge on the range of pot forms and types of surface decoration.

The early Gua Cha excavations, on the other hand, have yielded little information on the subsistence economy of the Neolithic groups(s) involved. It was not until the 1979 excavation that attempts were made to recover (by flotation) plant food remains. Unfortunately no recognizable plant food remains were found in the prehistoric deposits. According to Bellwood (1985) there is no evidence to suggest cereal cultivation at Gua Cha, but some kind of horticulture can be assumed.[7]

Indirect evidence for the presence of some form of horticulture has also been suggested earlier by Dunn (1964). The evidence came from the Gua Kecil III levels where both pottery and ground stone artifacts were present. In the levels below this phase, cord-marked pottery were already present, but there were no ground stone tools. These earlier levels namely, Gua Kecil I and II, yielded lithic finds comprising flake tools and Hoabinhian type tools. The levels Gua Kecil I and II are regarded by Dunn as deposits representing the late Hoabinhian phase, and it is interesting to note that Dunn's quantitative analysis of the excavated finds showed a marked drop in shell and animal bone counts in the Gua Kecil III levels and not in the earlier (Hoabinhian) levels. The marked drop in shell and bone counts at Gua Kecil III apparently suggest a decline in hunting and gathering activities. This has been interpreted by Dunn as indirect evidence for the appearance of horticulture. Similar quantitative analysis was also conducted at Kota Tongkat (Peacock 1917). Both the Gua Kecil and Kota Tongkat evidences, however, are from small scale excavations. Further work at these sites are required to confirm the observations of their earlier excavators. Furthermore, it is also necessary to bear in mind that the cultural stratigraphy at the cave sites are often beset with problems, especially in the absence of clear natural stratigraphy to assist in our interpretation of the cultural stratigraphy. My own view is that very often fine sub-surface disturbances in the cultural layer of each occupational phase is hard to detect. This can often result in the mixing of cultural materials from different occupational phases. This problem is particularly acute in the inter-faces between the occupational phases. In view of this, one can only accept with some caution the Gua Kecil and Kota Tongkat findings.



A wide-mouthed carinated pot from Jenderam Hilir site. Black burnished on the exterior upper portion, and cord-marked below. Notice the two varieties of cord-marking featured on the same vessel.

In the past, with regards to the study of the Neolithic in Peninsular Malaysia, too much emphasis has been placed on the cave sites, and many of the potentially important open-sites have not been properly investigated. This is probably due to the fact the archaeological record in the open sites is usually less well preserved. The problem of stratigraphy is even more serious at these sites since many of the sites are often located near the rivers. Flooding during the heavy rains and the erosion of river banks can result in serious disturbances of both the horizontal and vertical stratigraphy of the sites. There is also a tendency for the early researchers to look for sites in the caves and rock-shelters since their efforts were often rewarded by finds. Only Evans (1931) attempted an excavation of an open site at Nyong on the banks of the Tembeling River in Pahang. In other instances, however, excavation was no longer possible because the sites have already been destroyed by tin mining activities. These are often sites where Neolithic finds were accidentally unearthed during mining operations, but report on their discoveries reached the museum authorities much too late to prevent further destruction of the sites.

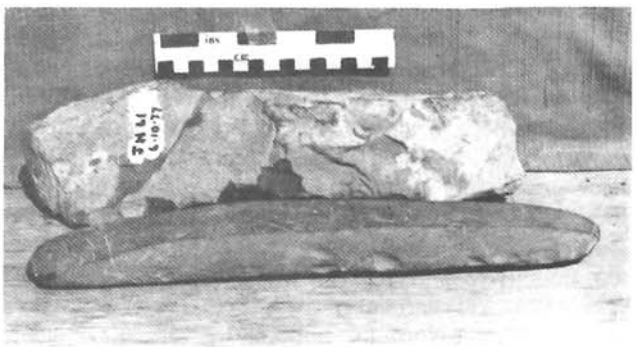
The importance of open sites in connection with studies

related to prehistoric subsistence economics and settlement patterns cannot be overemphasized. Cave sites were only occasionally frequented by the Neolithic communities, and were also sometimes used for burials. This may be one of the reasons why no recognizable plant remains have been recovered from the prehistoric deposits at Gua Cha. Study of the palaeoenvironment within which the prehistoric economic system operated would also be pertinent to our understanding of the actual settlement sites themselves and may yield more information than the caves sites. With recent developments and advances in the sciences, more scientific analytical methods are now available to the archaeologists. Besides chronometric dating methods, a wide range of laboratory analyses can be used to extract data previously thought impossible to obtain.

Recent work at Jenderam Hilir in South Selangor (2° 53' 25" N, 101° 43' 51" E) has for the first time, been able to throw some light on the settlement pattern and economic activities of a tripod pottery group in the peninsula. Abundant cord-marked pottery (including over 135 legs of tripod vessels), several ground or polished stone tools and other stone artifacts and implements have been recovered from the site. The site itself is located in the floodplain of the Langat River near the confluence of the Langat and Semenyih Rivers. The presence of tripod pottery in Peninsular Malaysia has long been known since their discovery at Kodiang (Gua Berhala in Bukit Kepelu) by Williams-Hunt (1952) in Kedah, and Gua Bintong (Peacock 1959) in Perlis. At the time of their discoveries archaeological interest was focused mainly on the tripod pottery finds rather than the surrounding topography. It is interesting to note that although both were cave sites (in limestone hills) they were located in, or in close proximity to the fertile Perlis plain. Recently tripod pottery finds have been reported from many more cave sites in the low limestone hills on the Perlis Plain. The geographical distribution of the tripod pottery sites in the peninsula clearly suggest that the tripod pottery communities apparently had preferences for certain types of localities for habitation-that of the lowland plains and fertile alluvial valleys. I believe that the preference for these locations are undoubtedly related to the change in subsistence economies. Very probably these were lowland dwellers practising some form of horticulture.

Base of a Tripod Pot showing aperture where one of the legs was detached. Jenderam Hilir site, Selangor, Malaysia. Similar tripods were found in Kodiang, Kedah.

At the Jenderam Hilir site itself some degree of sedentism in their settlement pattern is indicated by various artifactual finds such as several stone adzes, more than 44 pieces of heavy stone equipment for various grinding and pounding chores. The latter tools are heavy items, many of them weighing from 1 kg. to 7 kgs. These are clearly not easily portable items and were most probably implements connected with still unspecified activities of the Neolithic community at the site. Judging from the wear patterns found on many of these implements, particularly the presence of deep grooves and deep circular depressions found on some of the grinding equipment indicate long and continuous use. The presence of pottery, especially large cord-marked storage jars and the tripods (characterized by splayed hollow feet which make them too cumbersome to pack) again points to some degree of sedentism at the site. X-ray fluorescence analysis conducted on the clay of the tripod pottery from the Jenderam Hilir site has shown that local clay sources were used highly indicative of local manufacture. More importantly still, the analysis has revealed quite high values for phosphorus (P_2O_5) in the clay of the Jenderam Hilir sherds (tripods, and other cord-marked vessels). The values were 0.575 for the tripod (leg sample), 2.439 for a sherd of a cord-marked jar, and 0.653 for the base of a cord-marked bowl (all values are expressed as a percentage by weight of the element in the sample). Such values for phosphorus are very high compared to the values recorded for clay samples from other clay deposits near the site but from strata not contemporaneous with the prehistoric occupation. All these samples had low phosphorus values ranging from 0.013 to 0.33, and in one case there was no trace of the element at all. The very high values recorded for phosphorus in the Jenderam Hilir pottery samples is suggestive of the fact that the clay for making these pots were actually obtained from the nearby river bank or even within the habitation area. This is because high phosphorus content in the soils are usually found at habitation sites. The most likely cause for the high percentage of phosphorus is the decomposition of organic matter due to human activity. These organic matter may include human and animal excreta and



A large unfinished adze; and a long finished adze from Jenderam Hilir site.

residues, as well as all types of food debris.

So far no direct evidence have been obtained from the site that would permit me to point more specifically at the types of activities directly related to their subsistence economy. However, judging from the geographic location of the site, as well as the evidence suggesting some degree of sedentism in their settlement pattern it is very likely that this prehistoric group was a farming group. In this connection it is also interesting to note that some pieces of burnt clay have also been excavated from Jenderam Hilir.[8] It is tempting to link these finds with slash and burn activities that might have taken place during the settlement at the site. Further investigation has to be undertaken before this interpretation can be confirmed. Pollen analysis conducted on excavated soil samples from the site has indicated an open environment. This is suggested by high counts of fern spores, and the presence of pandanus. However, the evidence are again tentative since the site has undergone some disturbances in the past.

FOOTNOTES

1. The term "Neolithic" here refers to those prehistoric cultures which do not have metal artifacts, and which possess at least two of the following traits viz. fully ground stone artifacts, earthenware pottery, and a food-producing economy based for the most part on horticulture.
2. The discoveries are reported mainly in the BRM, JMBRAS, JFMSM, and FMJ.
3. Excavations by L. Wray at Gunong Cheroh in 1886, and W.M. Gordon at Gua Kerbau in 1921 were inadequate by modern scientific standards.
4. It was only in 1951 that the first samples were submitted (by P.D.R. Williams-Hunt) for radiocarbon dating.
5. Minor disturbances caused by burrowing animals have, for example, been reported by Stein-Callenfels and Evans at Gua Kerbau (Stein-Callenfels and Evans 1928:152). Similar disturbances were also noted in the Bukit Chintamani deposits (Tweedie 1953:14).
6. The best general acccount is found in M.W.F. Tweedie's "The Stone Age in Malaya" (1953).
7. Also see Bellwood and Adi 1981.
8. Vast quantities of pieces of burnt clay have also been reported from a major tripod pottery site at Ban Kao in West-Central Thailand (Sorensen 1964, Sorensen and Hatting 1967).

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ABBREVIATIONS

AP	Asian Perspectives. Honolulu.
APAO	Archaeology and Physical Anthropology in Oceania.
BRM	Bulletin of the Raffles Museum, Series B. Singapore.
FMJ	Federation Museums Journal, Kuala Lumpur.
IC	Indonesian Circle. London.
JFMSM	Journal of the Federated Malay States Museum. Kuala Lumpur.
JMBRAS	Journal of the Malayan/Malaysian Branch of the Royal Asiatic Society. Kuala Lumpur.
JSS	Journal of the Siam Society. Bangkok.
MH	Malaysia in History. Kuala Lumpur.
PTCPFE	Proceedings of the Third Congress of Prehistorians of the Far East. Singapore.

HIGHLIGHTS OF PHILIPPINE PREHISTORY: 1986

by Wilfredo P. RONQUILLO

INTRODUCTION

Researches in Philippine prehistory from its inception during the Spanish Colonial Period (ca. 16th-19th centuries) to 1950 have been adequately documented (Evangelista 1969) complemented recently by a resume of archaeological researches in the Philippines from 1951 to 1983 (Ronquillo 1985). These two papers have taken into account:

1. The pioneering endeavour of H. Otley Beyer in his effort in the reconstruction of Philippine prehistory (Beyer 1947; Beyer and de Veyra 1947) and his attempt to correlate Philippine archaeological data with the populations of the Pacific Islands (Beyer 1948);
2. The works of Fox (1959, 1970, 1974) and Solheim (1959, 1960, 1964) from the 1950s to the early 1970s which resulted in the inclusion of the terms Calatagan, Cagayan Valley, Kalanay and Tabon Caves in the archaeological literature; and
3. The various researches in prehistory undertaken in the Philippines during the 1970s and the 1980s by both Filipino and foreign archaeologists.

A more detailed presentation of Philippine prehistory with emphasis on dated archaeological sites in the country has just been completed (Peralta n.d.) to be a part of an exhaustive documentation of the prehistory of Southeast Asia.

This article will deal basically with the highlights of major findings in Philippine archaeological research in 1986. The two major finds discussed here are the following:

1. The Balanghai Archaeological Sites in Northeastern Mindanao; and
2. The Griffin Underwater Archaeological Site at Basilan, Southern Mindanao.

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THE BALANGHAI ARCHAEOLOGICAL SITES

BRIEF HISTORY BACKGROUND

Archaeological materials recovered from various kinds of archaeological sites serve as direct evidence of prehistoric social and cultural life. As important sources of data these archaeological materials are useful in the search for regularities that exist among the set of sites encountered.

Northeastern Mindanao, specifically the vicinities of Butuan City, Agusan del Norte, had indications of immense archaeological potential as shown by the recovery there in 1976 of noteworthy archaeological finds which include:

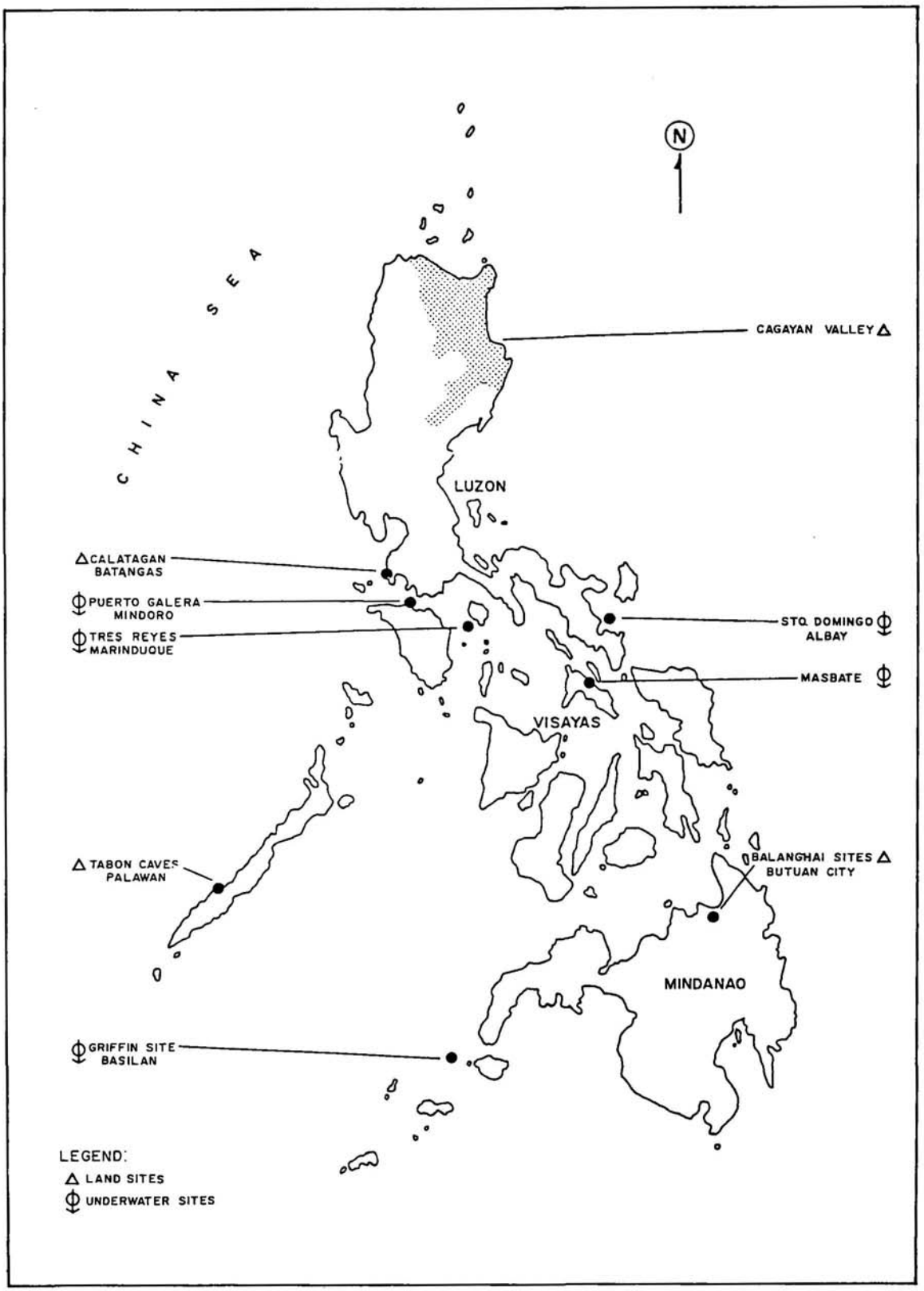
1. the discovery of large, plank-built and edge-pegged wooden boats with seagoing capabilities dating to the 4th and 13th centuries A.D. which had tremendous significance to Southeast Asian prehistory notably in the field of prehistoric maritime trade (Peralta 1980; Scott 1981); and
2. the recovery of Yueh and Yueh-type wares which date to the Five Dynasties (907-960 A.D.).

Balanghai I with a carbon-14 age determination of 320 A.D. is the oldest known pre-European watercraft found in the Philippines while prior to the recovery of the Yueh and Yueh-type wares in Butuan the oldest known evidence for tradeware materials from Philippine archaeological sites date to the Song Dynasty (960-1270 A.D.). By the early 1980s two other boats identical to the first two finds were known to exist as a result of probing by illegal pothunters. The excavations and recovery of these by the National Museum, however, were suspended due to the prohibitive cost of conservation.

The Balanghai archaeological sites are water-logged resulting in an ideal situation conducive to the preservation of wooden archaeological materials. It was the illegal pothunting activities in search of marketable tradewares which brought to the attention of the National Museum the archaeological potential of the Butuan sites.

THE 1986 BALANGHAI ARCHAEOLOGICAL FINDS

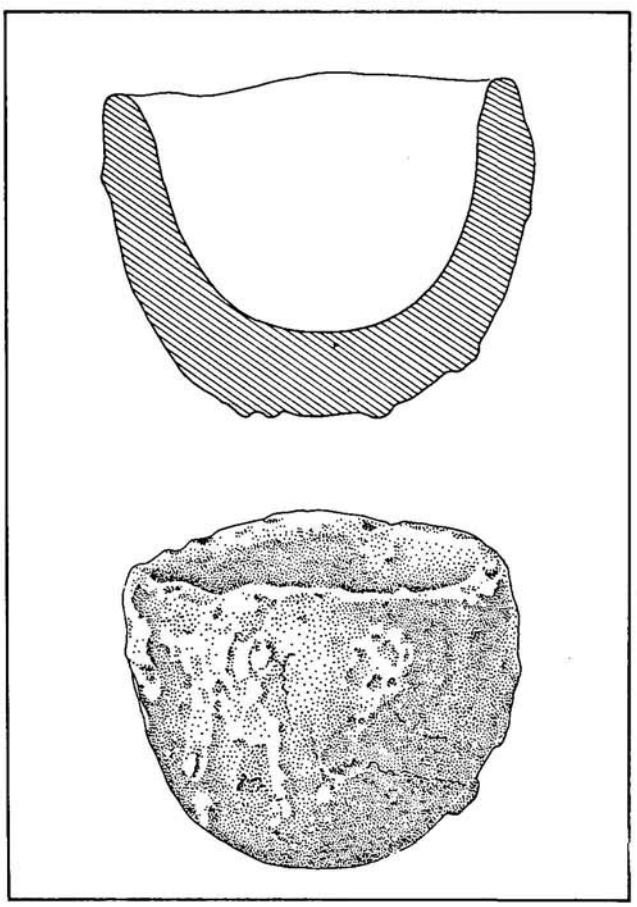
In May 1986, another flurry of illegal excavations were



Map of the Philippines showing sites discussed in this article

undertaken in the vicinities of the Balanghai I site. This time the local inhabitants were in search of worked and unworked gold fragments found in the area. In the process of their gold panning activities archaeological materials were encountered the majority of which have never been found in any Philippine archaeological site. The recovered materials include:

1. more than 100 pieces of intact clay crucibles;
2. wooden tools in the shape of a pincer, a pick and a knife;
3. fragments of worked, unworked and possibly, reworked glass beads;
4. metal artifacts made of iron, bronze, lead and gold in the form of an adze, a basin, bells, a blade a buckle, a cymbal, ear pendants, a gong, knives, projectile points, rings and tangs;
5. worked stone artifacts in the form of a mould for gold melting discs;
6. worked wooden artifacts in the form of decorated wood fragments, decorated boat prow, toy top, figurines and pegs - both finished and unfinished;
7. worked animal bones made from fish vertebrae and mammal bones;
8. iron slags; and
9. 9th-10th centuries A.D. Middle Eastern polychrome glass jarlet.



A clay crucible from the Balanghai sites, Butuan City.

Limited controlled excavations by the National Museum technical staff at the Butuan Regional Museum were undertaken at the area where the gold panning activities were being carried out (Cembrano n.d.). The recovered archaeological materials from these controlled excavations were cursorily analyzed by the participants to the Third Intra ASEAN Archaeological Excavations and Conservation Workshop held at Butuan City from November 18 to December 2, 1986.

The archaeological materials recovered from the controlled excavations by the National Museum include earthenware pottery sherds, earthenware basin sherds, earthenware stove sherds, grey earthenware sherd used as a gold melting disc, a Yueh bowl sherd, stoneware jar sherds, a Ching Pai sherd, celadon plate sherds, earthenware body sherds, Siamese kendi stoneware sherds, celadon bowl sherds, a wooden peg, glass beads, lead wastes, gold fragments, earthenware net weights, an andesite stone probably used as a mortar, and extraneous stones and pebbles.

THE UNDERWATER ARCHAEOLOGICAL SITES

BRIEF HISTORICAL BACKGROUND

The earliest record of underwater archaeological activities in the Philippines was in the summer of 1967 when a joint National Museum - Times-Mirror-Taliba underwater scuba team worked on a shipwreck at Sto. Domingo, Albay about 500 kilometres south of Manila. The shipwreck was believed to be that of a Spanish galleon as indicated by the recovery of two huge anchors with a forging date of 1649 and other associated materials such as a bronze butterfly hinge, pottery sherds, copper plates and nails, chain links, capstans, plankings and the center bolt of an auxiliary mast. The sunken vessel is believed to be one of the galleons that plied the Manila-Acapulco route during the late 16th to the early 19th centuries A.D. (Lopez 1967).

It was after a gap of 15 years that the underwater archaeological activities of the National Museum was resumed with the excavation in 1982 of a sunken incoming merchant vessel off the Southeast coast of Marinduque Island about 150 kilometres south of Manila. Located in about 130 feet of water the excavations at the wrecksite resulted in the recovery of over 1,200 artifacts, 188 being intact pieces of stoneware jars and covers, porcelain plates, dishes, saucers, and bowls. The tradeware materials recovered date to the Ming Dynasty (Conese 1981, 1983).

A year later underwater archaeological work started at Puerto Galera, Mindoro Island. Under 50 to 80 feet of water the excavations at this site resulted in the recovery of very few archaeological materials. The clear visibility of the water aided in the partial looting of the area prior

to the archaeological work by the National Museum. Only 60 intact items were recovered at this site 30 of which are stoneware jars of Chinese provenance. Other finds include porcelain plates, dishes and bowls, a blue-and-white kendi, several celadon incense burners and two scalloped-edged blue-and-white bowls. There were variations noted in the decorative designs of the large dragon jars some being embossed while others were incised and appliqued. Looting must have caused a lot of breakage of still intact ceramics for hundreds of newly broken stoneware and porcelain sherds were recovered from site (Alba 1984).

THE 1986 UNDERWATER ARCHAEOLOGICAL FINDS

In July 1986, the combined efforts of the National Museum and the World Wide First Company initiated an underwater archaeological exploration in the shallow waters of Northwestern Basilan Island, Zamboanga del Sur. Aided by archival records, specifically the captain's log, the exploration activities were undertaken in search of the **Griffin,** a 499 - ton English vessel of the East India Company which sunk in 1761 after hitting a rock. The **Griffin** was sailing with four other East India Company ships when the disaster occurred. It had cargoes consisting mainly of **porcelain and tea.** All the 99 crew members of the vessel were rescued and the remaining ships were recorded to have sailed safely for home.

The use of magnetometers was undertaken in the initial stage of the exploration but was discontinued due to equipment breakdown. Since the longitude and latitude were recorded in the captain's log during the time of the disaster an initial 5-square kilometre was delimited as the extent of the survey activities. The first indication of the ship's remains was the recovery of a blue-and-white porcelain sherd found under 3 metres of sand. The other remains which were recovered through the use of an airlift included small and shallow blue-and-white porcelain bowls, blue-and-white plate fragments, blue-and-white cups with effaced enamel designs, fragments of lead sheets and pieces of rope. The materials were found scattered around the strewn iron ballasts of the ship (Nicolas n.d.).

After over 4 months of continuous excavation activities at the **Griffin** underwater archaeological site more than 4,000 intact pieces of artifacts were retrieved. The most numerous are porcelain cups, plates and bowls some still encased in wooden containers which were probably the original crates used for these materials. Three of the 26 recorded cannons have also been recovered at three separate locations about 60 metres apart from one to the other. Iron ballasts, each weighing about 15 kilograms, were encountered piled in three separate places.

SIGNIFICANCE OF THE NEW FINDS

Important archaeological materials with varied implications for archaeological research in the Philippines have been recovered at two important sites in the southern part of the country.

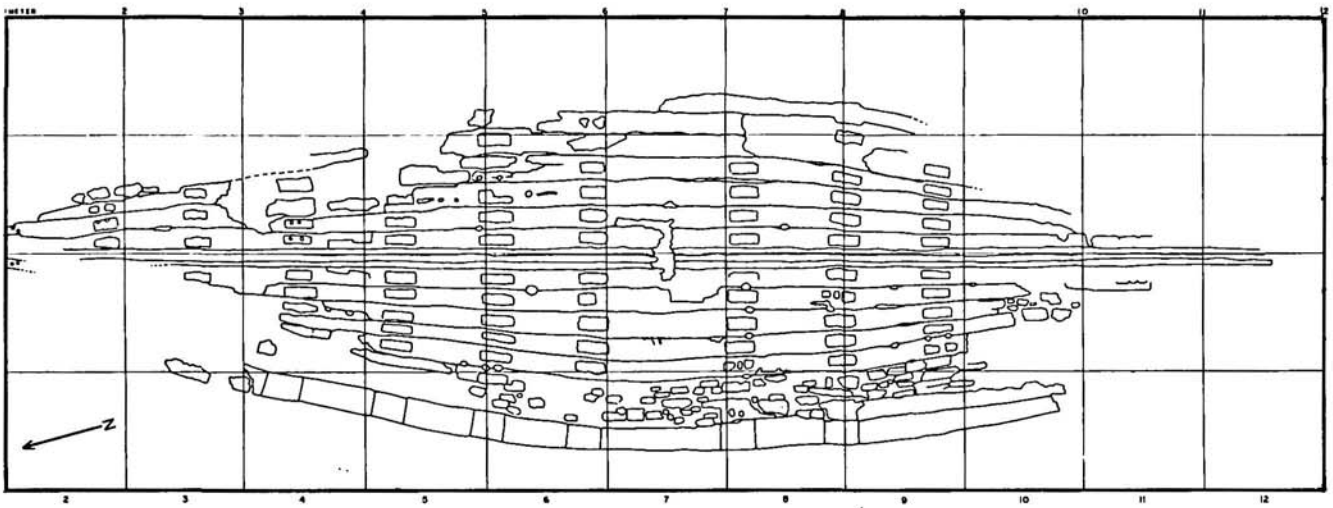
At the Balanghai sites in Butuan City, Agusan del Norte two plank-built Balanghai boats were recovered and dated by the National Museum in the late 1970s. Subsequently three more were found. One of these 3 boats was recently partially retrieved during the ASEAN Workshop held in Butuan City in November of last year. One boat was unfortunately destroyed by the gold panners searching for more gold. A total of 8 boats so far were found at the Butuan sites.

The additional archaeological materials encountered both by the pothunters and those recovered from controlled excavations of the National Museum are indicative of a fairly dense population, of craft specialization - the technologies of wood-working, metal and glass working and/or reworking, and of the existence of an active maritime trade network involving the exchange of large volume of goods across islands.

The existence of eight plank-built boats in Butuan City, prior to the destruction of one boat, has great implications to Southeast Asian prehistory for this is the first time that a flotilla of prehistoric boats and found in such numbers in the region and possibly in the whole world.

At the Basilan underwater archaeological site the

Picture showing the Planks of Balanghai 5 and the wooden supports for the conservators.



Grid plan of Balanghai 5

recovered materials could be used to generate data that may be useful in the elucidation of maritime vessel construction, of the so-called private trade wherein cargoes are not entered in the vessel's manifest, and of the maritime trade networks in the archipelago. Although the boats technically fall under the historic period, the finds at the **Griffin** underwater archaeological site may prove beneficial to researches in prehistoric maritime trade.

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CURRENT RESEARCH ON PREHISTORIC COPPER-BASED METALLURGY IN THAILAND

by SURAPOL Natapintu

During the past 2 decades we have gained much information about the history of copper-based metallurgy in Southeast Asia through work carried out in northeastern Thailand. Analyses of bronze materials from Non Nok Tha and Ban Chieng indicate that the ancient Thai metalsmith understood well most of the basic techniques of copper/bronze metallurgy since the early period of bronze using in this area. The development through time of the technology is discussed by Stech Wheeler and Maddin (1967:47) who noted that

> *".....Metallurgy in Thailand was not static after the early development of the basic techniques of bronze working, since smiths continued to experiment and achieved results which had, at least, cosmetic significance."*

However, archaeologists interested in ancient metallurgy continued to believe that the history of bronze in Southeast Asia is still imcomplete. This is due to the fact that past researches and analyses, though important, have yielded evidence indicating only the existence of bronze manufacturing, types of alloys, and techniques of fabrication. No archaeological evidence of raw material procurement and processing has yet been properly studied.

Archaeologists of the Archaeology Division of the Thai Fine Arts Department have therefore put more effort into the study of archaeometallurgy in Thailand. These efforts were rewarded in 1984 when archaeological work began at a large prehistoric copper mine in northeastern Thailand, and at a major copper production centre in Central Thailand.

The current research on copper-based metallurgy presented here includes (a) work conducted by the Thailand Archaeometallurgy Project*, a joint project between the Thai Fine Arts Department and the University Museum of the University of Pennsylvania, specially organized for the investigation of the origin and development of metal using in Thailand, and (b) work conducted by the Central Thailand Archaeological Project (CTAP) of the Thai Fine Arts Department. This research will be described separately according to the geographical setting of the sites involved, namely Northeastern and Central Thailand.

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NORTHEASTERN THAILAND

The most recent research concerning prehistoric copper based metallurgy in this region of Thailand is that carried out by TAP in 1984 and 1985. Existing resources of base metal ores (copper-lead-zinc) as well as archaeological sites containing metallurgy-related materials were visited and studied by the team. A summary of researches in those two seasons has already been presented elsewhere (See Pigott 1984, 1985; Pigott et al. n.d.). Therefore, the present chapter will describe only the most interesting site, Phu Lon (ภูโล้น) a copper mining complex located in Sangkhom District, Nongkhai Province.

The area of Phu Lon was originally located by archaeologists associated with the feasibility study programme of the Pha Mong Dam Project. It was those people who later informed Mr. Udom Theetiparivatra, an economic geologist of the Department of Mineral Resources (DMR), about green staining observed on rocks at Phu Lon. Mr. Udom's report to the DMR suggested that Phu Lon was an ancient copper mine. A geochemical survey at Phu Lon was then initiated (Sutham et al. 1983).

TAP's team, guided and joined by Mr. Udom, visited Phu Lon in 1984. A brief test excavation was conducted at the area labelled "Pottery Flat", named after its quite flat appearance and the quantities of potsherds scattered on its

**The Thailand Archaeometallurgy Project (TAP) was partly supported by the National Geographic Society.*

surface. A single carbon sample from this test trench provided a calibrated date of ca. 450-395 B.C. (Pigott 1984). This was the first radiometric dating for a prehistoric copper mine in Thailand. It helped to convince TAP that an extensive excavation at Phu Lon had to be given priority.

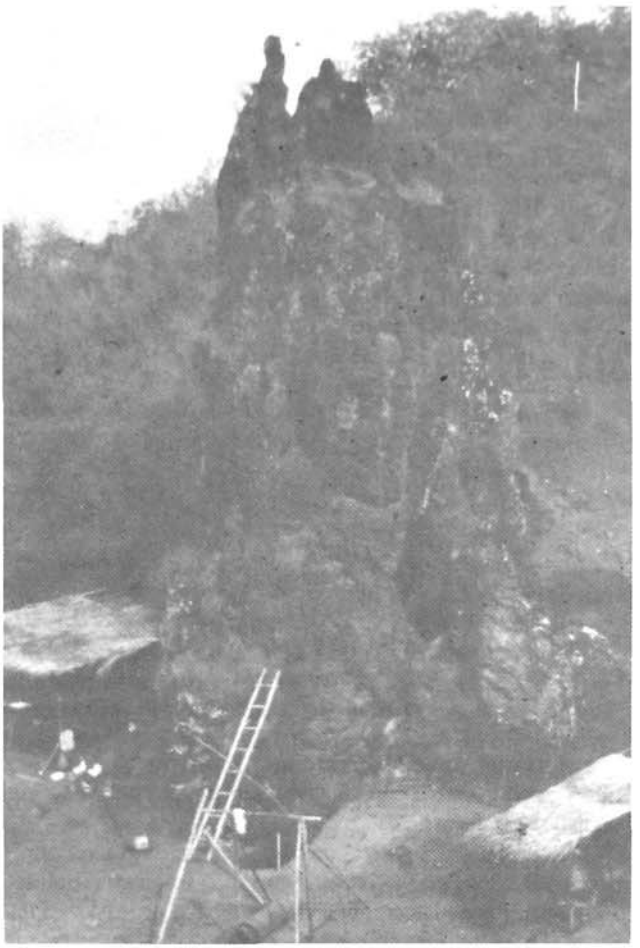
In 1985, with the assistance of the Northeastern Thailand Archaeological Project under the leadership of Mr. Sathaporn Kwanyuen, TAP's team, including Dr. Vincent Pigott of the University of Pennsylvania, Mr. Udom of the DMR and the writer who represented the Thai Fine Arts Department, conducted intensive excavations at the site of Phu Lon. Various individuals contributed specialized skills to the excavation: Prof. William W Vernon, a geology professor at Dickinson College in Pennsylvania, U.S.A.; Dr. Roberto Ciarla of the Italian archaeological organization, ISMEO, based in Rome; Dr. Gerd Weisgerber, a mining archaeologist of the Deutsches Bergbau Museum in Bochum, Germany. Mr. Petar Glumac, a Ph.D. candidate from the University of California at Berkeley, also joined the work for a short period.

Excavations were conducted in 6 areas in Phu Lon, namely the Lower Flat, Peacock Cave, Upper Caves, Pottery Flat, Bunker Hill and Ban Noi Village.

In the Lower Flat, Peacock Cave and Upper Caves, several mine shafts and galleries were identified. The configuration of these mine shafts, as explained by Dr. Weisgerber, pointed to at least two levels of mining technology. The narrow winding shafts of the Lower Flat area suggested the use of metal tools, whereas the rounded configuration of the galleries at the Upper Caves indicated the use of stone tools in mining activities. The stone digging tools and mauls found randomly distributed in the layers of mining rubble and the metal pick blade marks sometimes observed in the walls of certain mine shafts also supported the idea of two distinct mining techniques.

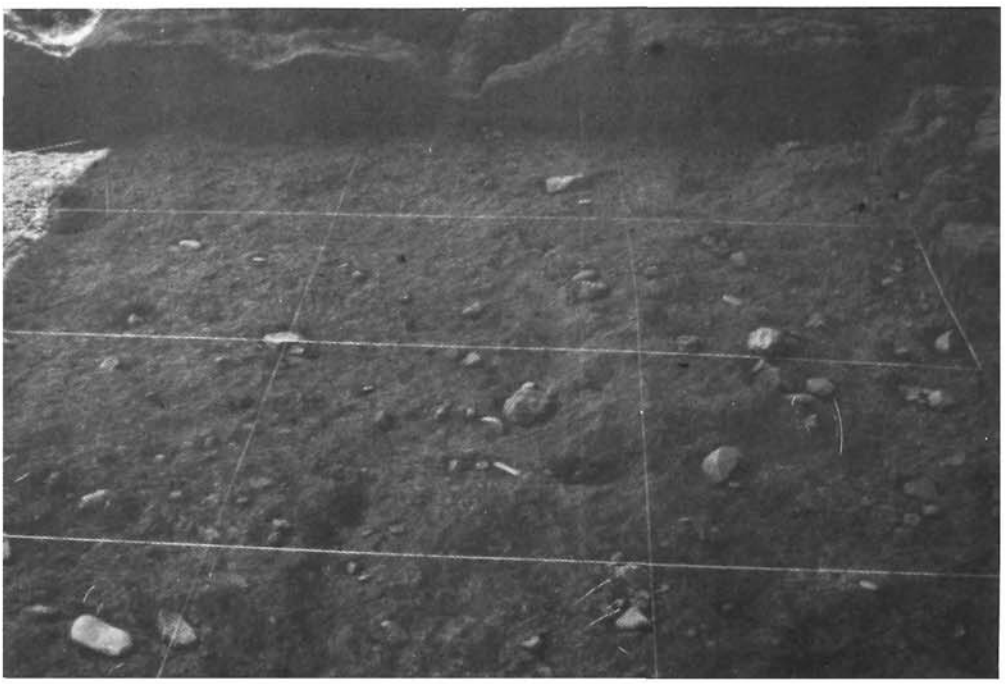
The operations conducted at these three areas included excavating the rubble fill from several mine shafts and trenching in front of certain shafts. It is evident that in that area, the predominant ore mined was malachite. There are strong indications that native copper was also available and exploited.

Most of the trenches could not reach bed rock. In fact, the excavation team was informed that a drill hole of the DMR showed that the mining rubble on the Lower Flat was at least 10 metres deep. However, our trenches, averaging 3-4 metres in depth, exposed quite a uniform stratigraphy in those parts of Phu Lon. The deposits consisted of mining debris. Some river cobbles of a volcanic nature (used as mining tools) and a small number of potsherds, the majority of which had cord-impressions, were found randomly distributed in these debris layers. Frequently, lenses of clean sand were found interspersed with layers of mining rubble. The clean sand beds or lenses were believed to indicate temporary pauses in mining activities. The overall pattern was one short term mining in successive intervals over an extended period of time.



Excavation of a mine shaft at Phu Lon, Nong Khai Province in 1985.

A larger scale excavation was also undertaken at the Pottery Flat, where a 1984 test trench had provided a C14 date of 450-395 B.C. The excavation confirmed that there was only a single archaeological stratum at this locality. However, now we know that the stratum varies in thickness from 30 cms. to just a few cms., and that it covers an area of at least 60 metres wide and 90 metres long. It comprised primarily of pea-sized gravel interspersed with larger skarn and rock fragments. These are the "gangue", or the discarded residue from the process of crushing the mined skarn and picking out the ore. The stratum also yielded enormous quantities of cord-marked potsherds, charcoal, malachite fragments, stone crushing/grinding tools and anvil fragments, polished stone adzes, ceramic crucible fragments, pieces of stone bracelets, and fragments of sandstone and ceramic moulds, as well as a broken clay animal figure with a curvilinear incised design. The volume of crushed skarn indicates that ore processing was the dominant activity at Pottery Flat. The mined ore was crushed on flat anvil stone with small handheld small cobble crushers or grinders. Clusters of tools and anvils in association with malachite bits and crushed skarn were found distributed on the surface



Excavation at Pottery Flat, Phu Lon, Nong Khai Province showing grid where clusters of artifacts were found: ore fragments, anvils and pestles or crushers.

of the stratum at various locations. Presumably, malachite and possibly native copper were being hand collected and transported elsewhere.

Numerous crucible fragments, some with green copper dross adhering, and two casting mould fragments pointed to the presence of metal working activities at Pottery Flat. Since we found no smelting slag there, it is reasonable to surmise that these activities were limited to the melting and casting of native copper. However, the possibility of the crucible reduction of malachite ore was also suggested. Tylecote (1974) and Pigott (1985:173) noted that crucible smelting of high purity malachite was possible, and that the process would not produce large quantities of slag.

The substantial amounts of charcoal at the Pottery Flat, which exceeded the amount likely to be derived from solely domestic activities, also suggested metal working, either native copper melting and/or the reduction of malachite. The charcoal also pointed to the possibility that the mined ore might have been roasted to increase friability and thus to ease the process of ore crushing. Moreover, roasting would facilitate smelting by transforming the mined ore into a porous substance which could be reduced easily and at a temperature lower than that usually required.

Evidently, other activities took place on the Pottery Flat along with ore crushing and metal working. These activities included the knapping and grinding/polishing of stone adzes. A stone bracelet blank, a number of stone bracelet fragments and a few bracelet cores suggested that the stone workers did not confine themselves to making immediately useful tools.

Thus Pottery Flat at present is seen as an activity area devoted to a variety of industries. However, due to the absence of animal and fish remains, the interpretation of the Pottery Flat as a habitation area has to be regarded as unproved.

Other excavated areas at Phu Lon are the so-called Bunker Hill and Ban Noi Village. It is apparent that another mining and ore crushing operation was conducted at Banker Hill. At Ban Noi Village, situated at the foot of Phu Lon Hill, three trenches were dug. The deposits exposed in all three trenches were quite similar, composed mainly of crushed skarn with characteristics resembling the archaeological strata on the Pottery Flat. Some distinctive thick-walled historic potsherds were found in the upper portion of the deposits. However. the basal level at Ban Noi might be contemporaneous with the Pottery Flat and Bunker Hill. This suggestion was based on the fact that the excavated areas share certain artifact types; namely, stone bracelets, polished stone adzes, and cord-marked potsherds. One copper/bronze socketed axe and a small quantity of smelting slag were also recovered in the Ban Noi trenches. These are crucial evidence in support of the idea that the processes of smelting, melting, and casting of copper were carried out in the area of Phu Lon.

The excavated materials from Phu Lon are now under laboratory investigation. It is hoped that, by combining the results of laboratory analyses with traditional archaeological studies of artifacts, it will provide us with a better understanding of prehistoric Southeast Asian copper-based metallurgy and will enable us to reconstruct the processes

involved in this technology. A more complete history of copper/bronze metallurgy in Southeast Asia can then be written.

CENTRAL THAILAND

The CTAP and the TAP have jointly been involved in two research projects on prehistoric copper-based metallurgy in Central Thailand. A group of copper production sites has been located in the area bounded by Khao Wong Prachan and its related mountains. The area is thus called Khao Wong Prachan Valley (Surapol 1985).

As of now, nine major copper production sites have been found. Moreover, through investigations by Mr. Udom, nine localities concerned with copper ore extraction activities have been identified in this area of Central Thailand.

A detailed geological description of the copper ore sources is still in preparation. However, general information about the mining sites is shown in Table 1. Data on the smelting sites appears in Table 2. The evidence from the smelting sites will also be separately, and briefly, described.

THA KAE

The site of Tha Kae was excavated twice, in 1980 by the present author and in 1983 by Rachanie Bannanurag of the Archaeology Division, Fine Arts Department. The deposits at the site are divided into three major phases of occupation. The earliest phase contains some burials with associated goods including pots with curvilinear incised designs, cord-marked pots, red pedestal bowls, shell disc beads, and shell bracelets. Some polished stone adzes and bronze bracelet fragments were also recovered from this phase. Numerous stone bracelet fragments and bracelet blank cores attest the on-site production of stone bracelets during the early phase of occupation.

In the second phase at Tha Kae, several new types of pottery appeared along with iron artifacts and glass beads. Mr. Bhuthorn Bhumathon, the present head of the Lop Buri Museum who joined the excavations, found a burial of this second phase that contained an iron implement together with a very thin-walled bronze bowl covering the skeleton's face. Layers of glassy copper smelting slag belong to this phase. Several copper ingots of small shallow bowl shape and a number of ceramic bivalve moulds (one apparently for arrowhead casting) have been found as stray finds at Tha Kae; these are very possibly associated with the slag. Evidence pointing to a larger occupation area, and possibly a larger population as well, was also noticed (Surapol 1984).

The third phase of Tha Kae represents a protohistoric/early historic occupation. Artifacts similar to those usually recovered in the so-called enclosed or "Dvaravati" sites in Central Thailand characterize this phase. Contacts with distant areas are evidenced by a small clay "Roman" type lamp and silver coins bearing Indian-influenced symbols of belief (Bhuthorn 1986).

No radiometric dates from Tha Kae are available yet. The dating of the site, therefore, has to be based on comparison with artifacts from other dated sites including Kok Chareon (Watson 1979, Ho 1985), Lop Buri Artillery Camp, and Don Ta Phet (Glover et al. 1983, Glover 1983, Chin 1976). The present writer is convinced that the early phase of Tha Kae, the assemblages of which are comparable to those of Kok Chareon, can be placed safely within the second millennium B.C., if not earlier. The second phase of Tha Kae is

TABLE 1: COPPER ORE RESOURCES IN KHAO WONG PRACHAN VALLEY, LOP BURI PROVINCE, CENTRAL THAILAND

NO	SITE NAME	LOCATION		TECHNIQUE/EVIDENCE OF ORE MINING/ EXTRACTING	MINERAL/ORE FOUND	
		VILLAGE	DISTRICT		TYPE	CHARACTERISTIC
1	Khao Wong Prachan	Huai Pong	Khok Samrong		magnetite, malachite	bedded
2	Khao Pha Daeng I	Phai Kwang	Muang	open pit, ore crushing	malachite, chrysocolla, azurite, pyrite, magnetite	outcrop
3	Khao Pha Daeng II	Phai Kwang	Muang	ore crushing	wollastonite, Malachite	float
4	Khao Pha Daeng III	Phai Kwang	Muang	open pit	wollastonite, malachite	float
5	Khao Phu Kha I	Army Aviation Center	Khok Samrong	mining shafts and adits, ore crushing	malachite, chrysocolla, epidote	bedded
6	Khao Phu Kha II	Army Aviation Center	Khok Samrong	mining adit	malachite	bedded
7	Phao Phu Kha III	Army Aviation Center	Khok Samrong	mining adit	malachite	bedded
8	Khao Phu Kha IV	Army Aviation Center	Khok Samrong	mining shaft	malachite	bedded
9	Khao Phu Kha V,	Army Aviation Center	Khok Samrong	ore crushing	malachite	outcrop

characterized by pottery resembling that of Lop Buri Artillery Camp, which has thermoluminescence dates of ca. 700 B.C. The phase is possibly dated to somewhere between the early first millennium B.C. and the beginning of the Christian Era. The third phase is not earlier than the first century A.D. and not later than the sixth century A.D.

LOP BURI ARTILLERY CAMP

This site has been well known among Thai archaeologists since the excavation there in 1964-1965, when a great quantity of metal objects were unearthed. A summary of the excavation and finds has been presented by the late Prof. Chin You-di (1967:56-58). It is apparent that an assemblage of more than 50 burials was recovered along with pottery and stone beads. Numerous bronze and iron objects were found in association with the burials. According to Prof. Chin You-di (1967:56-57), the human skeletons had either bronze, glass, or ceramic bracelets. Many skeletons had more than one bronze ring on a single finger, and one skeleton even wore a toe-ring.

The site was revisited by the writer in 1984. Some glassy copper smelting slag and skarn rock bearing traces of malachite were found scattered over the site. It is convincing that the ancient inhabitants of Lop Buri Artillery Camp also performed processing, smelting and casting of copper. There are two thermoluminescence dates for this site; 700±166, and 1224±300 B.C. (see Bronson and Han 1972:323).

WAT TUNG SINGTO

Wat Tung Singto has not been excavated yet, but a preliminary survey has been conducted. Evidence relating to copper/bronze metallurgy (including copper ingots, moulds for ingot producing and ceramic bivalve moulds) was accidentally found during the digging of a pond (CTAP 1985). Many potsherds, mainly of cord-marked and red slipped types, were present on the surface of the site. Some rounded stone-crushers of wollastonite bearing traces of malachite were also present, along with thin layers of finely crushed slag. The site is currently considered to belong to the first millennium B.C.

HUAI YAI AND HUAI YAI RESERVOIR

These two related sites consist of a pair of juxtaposed mounds, which were studied in 1984. It is evident that the site of Huai Yai, yielding artifacts comparable to the early phase of Tha Kae, can be placed in the second millennium B.C. while the site of Huai Yai Reservoir, containing burials with iron and bronze objects as well as carnelian and agate beads, dates to the first millennium B.C.

The sequence of prehistoric occupation here seems, therefore, to be divided into two major phases. The Huai Yai site represents Phase I while Huai Yai Reservoir represents Phase II.

Archaeological evidence from the earlier phase includes several burials with shell ornaments and curvilinear and coarse cord-marked pots. Discs of marine shell and "H" shape beads, recalling those from the upper level of Khok Phnom Di (which is now dated to the second millennium B.C.--Amphan Kijngam, pers. comm.), were also recovered from a burial of Huai Yai I. The most interesting evidence

TABLE 2: COPPER PRODUCTION SITES IN KHAO WONG PRACHAN VALLEY

NO	SITE NAME	LOCATION		ROCK/ORE FOUND
		VILLAGE	DISTRICT	
1.	Tha Kae (ท่าแค)	Tha Kae	Muang	
2.	Lop Buri Artillery Camp (ศูนย์การทหารปืนใหญ่)		Muang	skarn, malachite
3.	Wat Tung Singto (วัดทุ่งสิงห์โต)	Phai Kwang	Muang	malachite, wollastonite
4.	Huai Yai (ห้วยใหญ่)	Huai Yai	Muang	malachite
5.	Huai Yai Reservoir (อ่างเก็บน้ำห้วยใหญ่)	Huai Yai	Muang	
6.	Non Mak La (โนนหมากลา)	Huai Pong	Khok Samrong	malachite associated with quartz crytal, skarn, hematite, magnetite
7.	Non Pa Wai (โนนป่าหวาย)	Huai Pong	Khok Samrong	malachite, chrysocolla, chalcopyrite, hematite, magnetite, skarn
8.	Non Khok Wa (โนนกกหว้า)	Huai Pong	Khok Samrong	malachite, pyrite hematite, magnetite
9.	Nil Kham Haeng Reservoir (อ่างเก็บน้ำนิลกำแหง)	Army Aviation Center	Khok Samrong	Quartz crystals, epidote, skarn, malachite

from this phase is that which points to the contemporaneous on-site production of polished stone adzes, stone bracelets, and copper. Numerous prepared stone blanks, hammer stones, waste flakes, stone adze rough-outs, whetstones with use-marks, and both finished polished stone adzes constitute evidence of every step of stone adze manufacturing. A great quantity of flat and rounded stone bracelet blanks, bracelet blank cores, and stone bracelet fragments attests to an industry producing these ornamental items. And a substantial volume of copper smelting slag and crucible fragments are point clearly to the presence of copper smelting. Thus, Huai Yai site is seen as both a habitation area and an area devoted to various industrial activities.

The second phase of the Huai Yai area, represented by the site of Huai Yai Reservoir, is characterized by burials with different pottery types and iron implements. Copper smelting continued during this phase. However, smelting techniques seem to have been more advanced as suggested by a distinctive glassy slag that may indicate higher furnace temperature and a better recovery of metal from the ore.

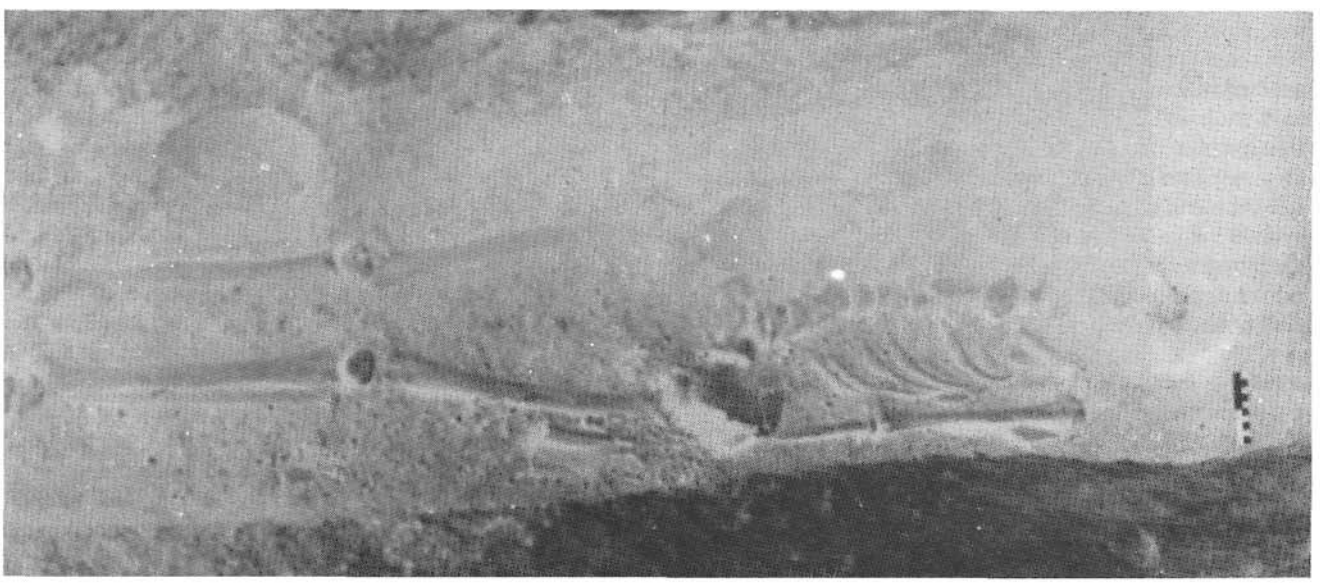
NON MAK LA

The site of Non Mak La was excavated in 1985 by a team of the Central Thailand Archaeological Project. Apparently, the mound of Non Mak La consists of both domestic and industrial areas. A ceramic assemblage from the domestic quarter of the site is quite comparable to the assemblage found at Lop Buri Artillery Camp. The seeming industrial area is a large glassy slag heap about 1 metre deep, and more than 100 square metres in area. Dr. Vincent Pigott of the University of Pennsylvania suggests that the glassy slag at this site indicates quite an efficient smelting technology However, prills of metallic copper, the size of which varies from several mms. to less than 1 mm., are always found trapped inside the slag. Other metallurgy-related materials including crucible fragments, tuyeres, and fragments of furnace lining are also found in the slag layer. Mr. Udom from the Department of Mineral Resources, who joined the excavation for a short period, also identified copper ores in the slag deposit. Thus, it is evident that Non Mak La represents another copper production locality of the first millennium B.C.

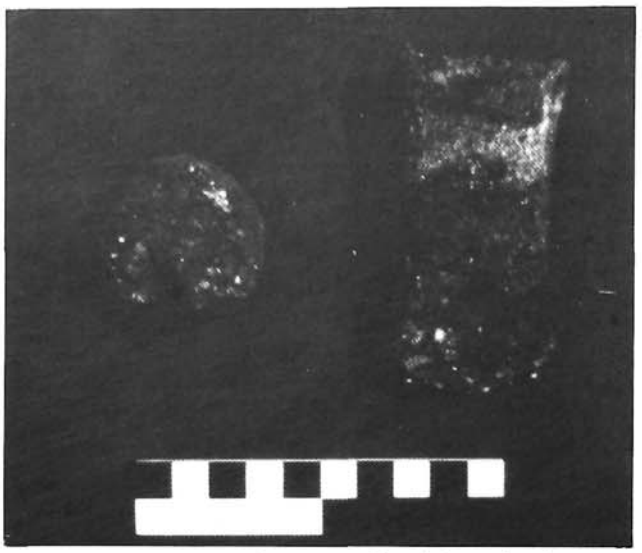
NON PA WAI, NON KHOK WA AND NIL KHAM HAENG RESERVOIR

These sites were originally surveyed by CTAP three years ago (CTAP 1984), while excavations there were undertaken in 1986 by TAP. The excavation team comprised Dr. Pigott, Mr. Andrew Weiss and Miss Lisa McQuail from the University of Pennsylvania, Dr. Roberto Ciarla from ISMEO in Rome, Mr. Udom from the Thai Department of Mineral Resources, and the writer of this article from the Fine Arts Department.

The site of Non Pa Wai appears to be the largest prehistoric copper production site so far discovered in Thailand, if not Southeast Asia. The excavation here revealed a deposit about 3 metres deep covering an area of about 5 hectares. The deposit contained a very large amount of copper metallurgy debris, potsherds, animal bones, and some burials. It can be separated into 2 major phases. The early phase yields evidence of copper smelting and some burials. One of the more interesting burials contained an extended skeleton with several broken pieces from a pair of ceramic bivalve mould (for socketed axe casting) placed at both hands and at other parts of the body. This burial is nicknamed "The Metal Worker's Grave". Another burial was furnished with a copper-based socketed axe. This axe, which could have been produced in a mould from "The



An unusual burial excavated at Non Pa Wai, Lop Buri in 1986. This particular skeleton was surounded with several bivalve moulds for making axes. The excavators believed that this burial represents a highly-specialized master craftsman.



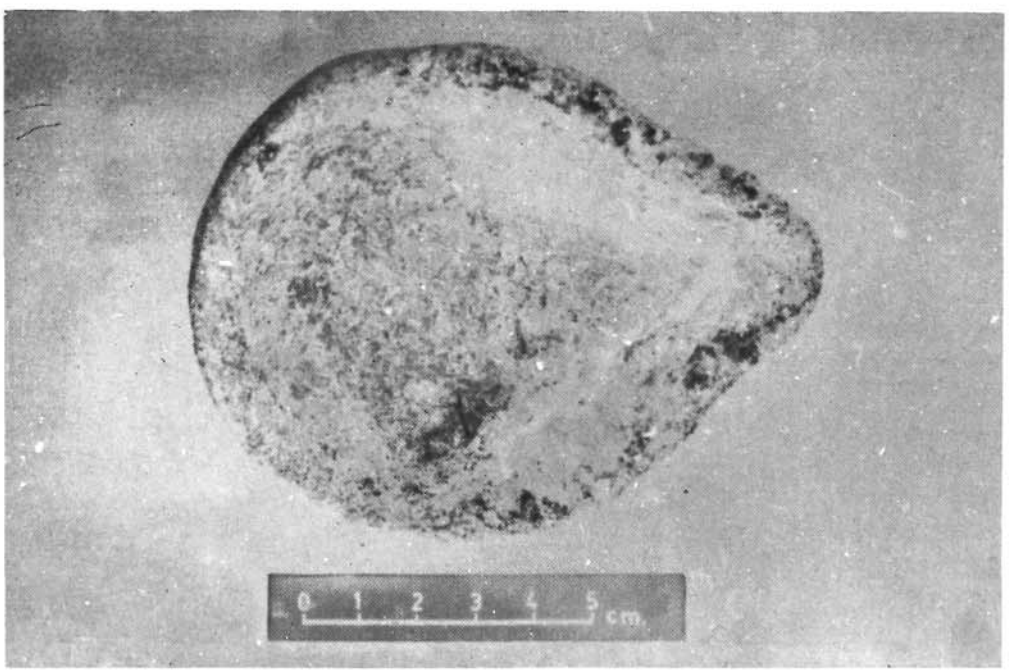
A copper axe at the right and a disc of heamatite dug at an industrial site Non Pa Wai, Lop Buri. Below the layer where these artifacts were found were burials.

Metal Worker's Grave", has beveled sides on one face, but curving sides on the other. Faunal remains from the early phase include both aquatic and mamal species. Ceramics with coarse corded-impressions on the exterior surface predominated. These ceramics are similar in style to those from phase I of Huai Yai. They are also typologically comparable to sherds excavated from the prehistoric occupation at Sab Champa (Artit 1972; Veerapan 1979), located about 60 kilometres, northeast of Non Pa Wai. The later phase at Non Pa Wai is represented by a deposit averaging 3 metres deep of ashy soil intermixed with copper smelting slag, ceramic moulds in cup and conical shapes, ceramic bivalve moulds, fragments of large crucibles, etc. This large volume of metallurgy debris seems to indicate a period when a boom in copper production occurred. The ceramic assemblage from the later phase, especially the cup and conical moulds and the distinctive pottery decoration styles, is clearly different from the assemblage of the basal levels. A diagnostic black and dark brown burnished pottery with triangular incised designs around the shoulders is comparable to vessels unearthed at Lop Buri Artillery Camp. This forms the basis for placing the copper production of the later phase at Non Pa Wai in the first millennium B.C.

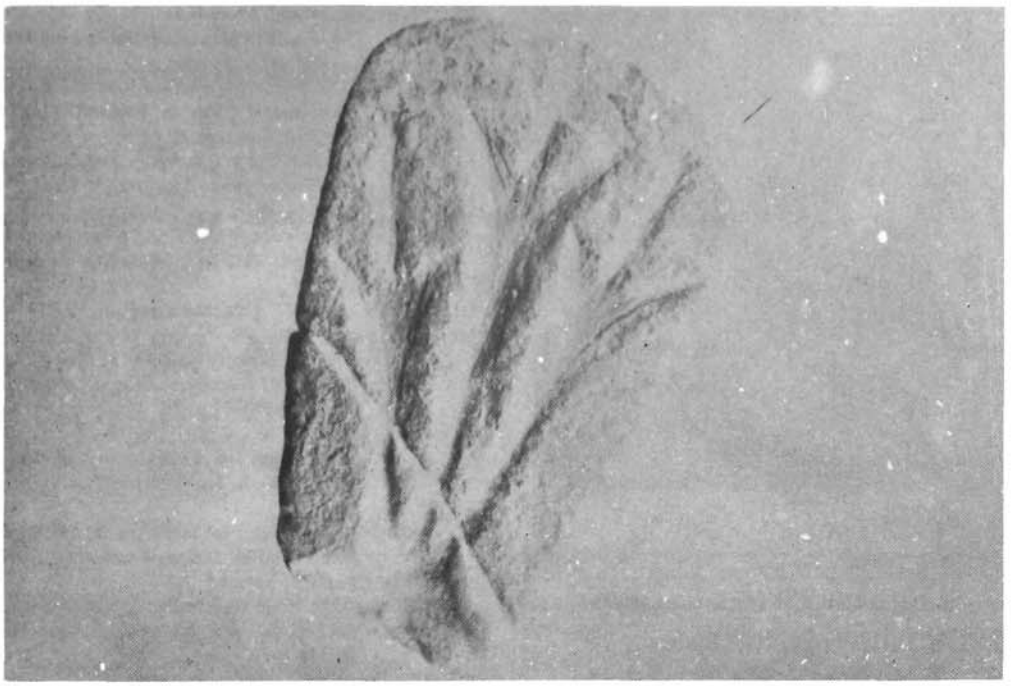
At Non Khok Wa, a small test trench was dug. It is evident that the area was a prehistoric ore crushing site. Based on ceramic comparison, the ore crushing activity at Non Khok Wa is very possibly contemporaneous with the later phase of Non Pa Wai.

The excavation at Nil Kham Haeng Reservoir revealed a deposit more than 5 metres thick, comprised numerous layers containing finely crushed ore and slag. Some ceramic bivalve moulds, small bowl-shaped copper ingots, and a few mis-cast copper implements were recovered here. The most interesting find made here was a burial with a bimetallic bracelet. This bracelet, of iron wrapped around a copper-based metal core, recalls the one reported from Ban Chiang, in levels now dated to the first millennium B.C.

The number of sites and the quantity of slag at each copper smelting site in the Lop Buri area point to an industrial level of copper production. The fact that cup and



An earthern ware crucible showing traces of copper drippings excavated at Noen Klong Bamrun, Lop Buri.



Ceramic mould for making arrow heads excavated at Non Klong Bamrung, Lop Buri

conical moulds were made in several sizes suggests that various standard sizes of copper ingot were produced along with some copper objects. However, it is interesting to note that not many ingots or finished objects were found in the excavations and surveys at these sites. This may indicate that most of the metal produced at Khao Wong Prachan was distributed to other areas for working.

It has been pointed out elsewhere that intersite exchange networks were already well established during the second millennium B.C. in Central Thailand (Surapol 1984). This idea is supported by the fact that ornaments of marine shell were found at a number of sites. For example, cowries with a cut-off back were recovered at the sites of Kok Chareon, Tha Kae, Lop Buri Artillery Camp, and Noen Klong Bamrung in Central Thailand. Cowries shaped by the same technique were also unearthed in a burial at the site of Non Chai, Khon Kaen Province, northeastern Thailand. Mourer and Mourer (1970) also mentioned cowries with cut-off backs in their report on excavation at the site of Laang Spean in Cambodia.

The relationship between the Khao Wong Prachan copper production centre and other sites in Central Thailand can be tentatively reconstructed. More than 40 sites containing some artifacts relating to copper/bronze metallurgy have now been located within the Lower Chao Phya Valley Among these, the most interesting sites include Phu Noi, Noen Klong Bamrung and Sab Champa.

Phu Noi is a prehistoric cemetery located about 30 kms. northwest of Khao Wong Prachan. Thirty-two burials were exposed in a 3 by 5 metre test trench. Other than pottery, some skeletons were furnished with ornaments of marine shell, turtle carapace, ivory and non-local stone beads. These finds are strong evidence for the existence of exchange networks linking Phu Noi with other sites in the interior and on the coast. Contact between Phu Noi and the Khao Wong Prachan copper production centre can be deduced from a clay mould, of the same fabric as those found at Khao Wong Prachan sites, and a copper/bronze bracelet recovered accidentally by a villager during construction of a new monastery at Phu Noi.

The site of Noen Klong Bamrung was excavated by Miss Saengchan Trikasem of National Museum Division, Fine Arts Department. It is located about 60 kms., northeast of Khao Wong Prachan. The excavator found a cemetery with a number of burials containing copper/bronze artifacts. The most interesting find there was a burial with clay bivalve moulds. The writer of this article has already examined these moulds and found that they have the same fabric and form characteristics as moulds from the copper production sites in the Khao Wong Prachan Valley.

The site of Sab Champa, situated about 60 kms. northeast of Khao Wong Prachan, was excavated by a team from Silpakorn University led by Veeraphan Malaiphan (1979), who reported that a number of ceramic bivalve moulds were unearthed. Sab Champa was briefly revisited in 1984 by a team of the CTAP; they found that a local villager had collected several bivalve moulds that resembled those from the Khao Wong Prachan area.

Copper or bronz axe dug at Noen Klong Bamrung.Lop Buri .

CONCLUDING REMARKS

The evidence excavated from these prehistoric copper-based metallurgical sites is still being analyzed. When this work is finished we can expect a better understanding of the history of copper/bronze metallurgy in Thailand and Southeast Asia.

At this moment the writer of this article is convinced that copper-based metallurgy was well developed in mainland Southeast Asia by the second millennium B.C., if not earlier.

It is hoped that the results from the current analyses will make it possible in the near future for the undertaking of problem-oriented research, designed to deal specifically with the causes and consequences of the adoption of copper-based metallurgical technology. Thus, a better understanding of cultural processes in prehistoric Southeast Asia may eventually be reached.

ACKNOWLEDGEMENTS

The writer of this article would like to extend his appreciation to the staff members of the Research Section, Archaeology Division for their assistance in preparing and typing this paper. Special thanks is due to Dr. Bennet Bronson who proof read this paper and provided some valuable suggestions.

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SPAFA AFFAIRS

PREHISTORY OF SOUTHEAST ASIA, FOCUS OF SPAFA SEMINAR

The SPAFA Co-ordinating Unit with the cooperation of the SPAFA Thai Sub-Centre, concluded a Seminar in Prehistory of Southeast Asia. The Opening Ceremony of the seminar was held at the King Vajiravudh Memorial Hall, National Library, Bangkok, Thailand.

Mr. Nikom Musigakama, the Director of the Archaeology Division gave the address to all participants. He said that this was the first time that the SPAFA Thai Sub-Centre hosted a seminar on the Prehistory of Southeast Asia, in contrast to the Philippines SPAFA Sub-Centre for Prehistory which had successfully implemented similar activities several times before. He mentioned the objectives of the Seminar and stressed that this seminar would further the work already done by SPAFA in bringing together archaeologists and specialists in Prehistory in the ASEAN region. The people of the region, he said, had been closely inter-dependent for the past 10,000 years and will continue to do so in the future.

The Seminar was formally opened by Deputy Director-General of the Fine Arts Department, **Dr. Suvit Rasmibhuti.** In his welcoming address he mentioned that this seminar included many representatives of ASEAN as well as non-ASEAN nations most of them were outstanding archaeologists and specialists. He said that the aim of the seminar was for the intensive communication among them.

The seminar ran from January 12 to 15 1987 in Bangkok and then the field research and trips were conducted from January 16 to 25, 1987 in Lop Buri, Surat Thani, Phangnga, Phuket and Krabi, southern Thailand.

RECOMMENDATIONS

The major recommendations presented at the Seminar were as follows: contact between Southeast Asian institutions conducting prehistoric research should be established and further promoted through exchange of publications, research data, and joint implementation of significant national projects, as well as through personal contacts between scholars and researchers; regular meetings between Southeast Asian Prehistorians should be promoted to discuss research data obtained scientifically in order to consolidate existing prehistoric reconstructions; the study of rock arts in Southeast Asia should be continued and expanded. Those recommendations were brought out by the Indonesian delegation.

The Philippine delegates recommended that thorough survey, mapping, and exploration of the limestone formation in southern Thailand with special attention to caves with prehistoric materials because of their potential for future archaeological research; a move should be initiated to protect the archaeological sites in southern Thailand; and, immediate attention should be given to shell midden sites in southern Thailand and lithic working sites in northern Thailand, and that these sites be investigated by highly-experienced teams.

The Malaysian delegation recommended that sea level changes in Southeast Asia should become a focus of study; reference collection of shells found in Southeast Asian sites should be established in order to identify species discovered in archaeological sites, to provide indication regarding past modes of utilization and preparation of shells for human purpose, and to increase paleoenvironmental studies. Bead and ceramic samples should be shared with SPAFA member countries, prepare four sets of bead and shard samples for distribution to the other member countries in order to assist researchers in observing the frequency, distribution and differences of types, and variations in surface decoration. There is a great need to standardize terminologies and descriptions of the categories of types of artifacts. Conservation and

Group photo of Seminar Participants taken at Surat Thani

preservation of rock arts site should also be undertaken scientifically.

The Thai delegation brought out some of the major problems which need further research: 1) clearer distinction of the different periods of Thai prehistory; 2) more precise description and categorization of stone tools; 3) standardization of terminologies of artifactual materials: 4) improve the periodization scheme of Southeast Asian prehistory. They also recommended that there should be closer cooperation between archaeologists, geologists and geomorphologists in order to include environmental changes in archaeological research.

The Seminar participants also recommended that more research should be undertaken regarding: 1) mangrove adaptation; 2) hunting-gathering ecology; 3) excavation of large prehistoric sites utilizing multi-disciplinal and inter-disciplinal approaches involving particularly the specialists in the field of geology and geomorphology; 4) investigation of ancient mining and metallurgy in Southeast Asia; 5) seek more precise methods of defining the boundary between Pleistocene and Holocene periods; and 6) systematic and comparative study of burial systems in prehistory and their possible implications on rock paintings and other cave art.

COUNTRY REPORTS

Country reports from three participating member countries: Indonesia, Philippines, and Thailand were presented and discussed. The first country report was presented by the Thai delegation. **Mr. Pisit Charoenwongsa,** head of the research department of the Archaeology Division, the Fine Arts Department, who was elected Chairman of the Seminar presented his paper entitled "The State of Prehistoric Research in Thailand". He reported that inspite of limited funds available, the scope of research by the Fine Arts Department had expanded to all regions of Thailand. The second Thai country report was presented by **Mr. Surin Pookajorn** on the Phi Tong Luang hunter-gatherers. He supplemented his report by a slide presentation. The third Thai country report entitled "Current Research on Prehistoric Copper-Based Metallurgy in Thailand" was presented by **Mr. Surapol Natapintu.** Based on present evidence, he reported that copper-based metallurgy was well developed in mainland Southeast Asia particularly in Thailand by the second millennium B.C. or even earlier.

The fourth Thai country report was presented by **Mr. Werasit Choosangthong** who discussed excavation at Non

Mr. Pisit Charoenwongsa from Thailand, Chairman of the Seminar flanked by Dr. Jesus T. Peralta from the Philippines as Vice Chairman and Miss D.D. Bintarti from Indonesia, Rapporteur of the Seminar.

Muang, Khon Kaen, northern Thailand, a moated circular mound 5 metres high, 600 metres in diameter which was explored in 1983. The fifth paper of Thai participant was given by **Mrs. Amara Srisuchat.** Her paper dealt with important cave and other prehistoric sites in southern Thailand. She presented numerous slides, and discussed excavations at Pak-Om, Buang Baeb, and Kho Khi Chan. C-14 dates from the three sites ranged from 4,750 to 6,910 B.P. She also discussed briefly a few sites with rock paintings, and called attention to the similarity between a rock painting and an orang asli using blow pipe similar to those in Malaysia.

The sixth paper of Thai participants was presented by **Mr. Niti Sangwan.** His paper dealt with rock painting sites in the Phangnga and Krabi bay areas, numbering nine examples. His talk was supplemented with slides. **Asst. Prof. Pacharee Sarikabutara** presented the final paper from Thailand. She discussed motifs used in the cave paintings in Krabi and Phangnga areas.

The Philippine delegation presented two papers. The first paper by **Mr. Wilfredo Ronquillo** discussed "Highlights of Philippine Prehistory: 1986". He reported on the major finds in Mindanao: (1) Butuan, Agusan Province in the northeastern Mindanao where 8 boats (balanghai) were found; and (2) The Griffin underwater site, located South of Basilan island near the Zamboanga Peninsula. The data show evidence of seafaring capabilities and trade links in the islands and overseas by the early centuries A.D.

Next **Dr. Jesus T. Peralta** discussed the "White Paste Stamped Ceramics Found in Butuan City, Agusan Province". The wares were white, with stamped decoration, and fired at about 800 degrees C. These are the only white paste wares found in the Philippines. Some of the unusual features of the ceramics is that it is stamped decorated all over the body, in a technique which showed generally even pressure which may indicate that they were not made with the use of carved paddle. He concluded that these white paste stamped marked ceramic were imported to the Philippines. Similar wares were recovered from Dumaran, Palawan, and in Bujang Valley, Kedah and other places in Southeast Asia. The wares provide further proof of trade contacts with Southeast Asia by about 10th century A.D.

INDONESIAN COUNTRY REPORTS

The first paper of Indonesia's country reports was delivered by **Ms. D.D. Bintarti** concerning "Urn Burials in Indonesia". She reported that there were three prehistoric burial systems, namely with or without containers, or a combination of both. Excavated sites include Anyer and Plawangan on Java, Gilimanuk on Bali, Melolo in Sumba, and Lowoleba, a number of other sites are known but have not been excavated. She showed numerous slides to illustrate her presentation.

The second paper by **Mr. Kosasih E.A.** dealt with excavations in two caves on Muna Island, Southeast Sulawesi, in 1986. Paintings of humans, animals, ships and solar motifs are found in a complex of caves of the island. Animals depicted include horses, while faunal remains found in excavations included both land and aquatic species. Earthenware ceramics were also found which showed similarities with pottery from Buni, Northwest Java, Kalumpang, South Sulawesi and Lewoleba.

SPECIAL REPORTS

Dr. Nik Hassan Shuhaimi gave an overview of research on prehistoric archaeology in Malaysia, 1976-1986. He discussed Prof. W.G. Solheim II's periodization of the history of archaeological research in Malaysia, and suggested some revisions. The work of I. H. N. Evans and G. de G. Sieveking deserve to be seen as having fundamentally influenced the direction of research in Malaysia. Archaeology done by Malaysian scholars dates from Adi Haji Taha's work in Gua Cha, Zuraina Majid's in Niah Cave, and Leong Sau Heng's at Jenderam Hilir.

Mrs. Leong Sau Heng described "Recent Research on the Neolithic in Peninsular Malaysia". Over 130 Neolithic

sites have been reported. Very little data on neolithic economy has been collected. Flotation was undertaken in 1979 at Gua Cha by Adi Haji Taha, but no recognizable plant remains were recovered. She said that cave sites had been over-emphasized at the expense of open sites. The Jenderam Hilir site, an open site, has yielded cord-marked pottery, including 135 tripod legs, ground or polished stone tools, and grinding stones. Furthermore she asserted that the distribution of sites with tripod pottery showed that there was preference for low-land plains and alluvial valleys, probably as a consequence of dependence of the pottery-makers on horticulture.

Prof.Dr. Hong Djin Tjia discussed "Ancient Shorelines of Peninsular Malaysia". He concluded that sea level rose by 5 ms. between 5,000 B.P. and the present, then declined to 2 ms. with fluctuations to 1 m. below present level between 2,000-1,500 B.P., then rose again to 1-1.5 ms. above present level a few hundred years ago.

Dr. Bennet Bronson presented his paper on "Models for Southern Thai Pre- and Proto-History". He described southern Thailand as possessing unusual environmental and geographical characteristics, and the course of development of early societies were also as unusual. Regular seasonal movements by hunter-gatherers are likely to have occurred, during months of scarcity when human groups were forced to disperse. Sophisticated, market-oriented hunter-gatherers may have constituted the main population in the South until the early second millennium A.D.

Dr. David J. Welch presented a paper on "Approaches to Settlement Pattern Studies in Southeast Asian Archaeology," based on his current research in the Phimai and Pattani areas. In a 1600-sq.km. area of Northeast Thailand, 334 probable sites have been identified from aerial photos; 300 sq.kms. have been checked by ground survey. Statistical analysis showed that sites were not randomly or evenly distributed, but clustered at certain spots, particularly on recently-formed low terraces. Based on the types of sizes of the settlements suggest that several politico-economic units existed around Phimai in the late Prehistoric period.

Dr. Karl Hutterer, read his paper entitled "Southeast Asia as a Region". He called attention to the dearth of knowledge concerning the Southeast Asian palaeolithic as one of the major challenges facing archaeologists in the region. A regional perspective, he asserted, must be combined with intensive local research to understand the transition from hunting and gathering to food-production. Exchanges of ideas as well as plants among various parts of Southeast Asia must have been reciprocal, and must be considered in developing hypotheses of development of Southeast Asian cultural traits.

Mr. Sayan Praichanchit, presented his paper "Preliminary Report on Lithic Industries in Mae Hong Son, Nan and Uttaradit: Northern Thailand". At Mae Hong Son, of the 6 different artifacts, majority were unfinished bifacials, some exhibiting edge-grinding and polishing. At Nan 7 types of artifacts were found, the most common were axes. While at Uttaradit, at least 5 types of artifacts were found. Neither ceramics, nor faunal remains had so far been found during the survey. By comparison to finds in dated sites such as Spirit Cave, Ban Chiang, and Chansen, the site may date to ca. 5950-200 B.C.

Dr. Douglas Anderson, discussed his findings based on his survey and excavation in Krabi. Survey began in 1974 and excavation began four seasons later. At Na Ching, adzes may have been manufactured at Lang Rong Rien rock shelter, Hoabinhian discoidal artifacts with steep edge

The Philippine and Indonesian Delegations.

Some of Thai Delegates to the Seminar. From left to right : Mr. Surapol Natapintu, Mr. Surin Pookajorn, Mrs. Amara Srisuchat, Miss Pacharee Sarikabutara, and Mr. Niti Sangwan.

flaking similar to those from Malaysia were found. C-14 dates for this stratum range between 7,000-8,000 B.P. Beneath it follows a metre-thick limestone layer, then three more cultural layers marked by charcoal stains, bone, and stone artifacts (fewer than 50 from all three). Level 8 has two dates of around 27,000 B.P. and one of 32,000 B.P., level 9, one date of 37,000. No date has been obtained for level 10.

The paper by **Dr. Sin Sinsikul** discussed "Quaternary Geology and Sea-Level Changes in the Area of Phangnga and Krabi" which he illustrated with slides. At 30,000 B.P. Phangnga experienced a transgression; a regression subsequently is indicated by an oxidized soil layer. Peat was deposited between 20,000-11,000 B.P. At 8,000 the sea entered Phangnga Bay. Shells were cemented in caves around Phangnga Bay around 4,500 B.P. It is concluded that sea level rose up to 5 ms. above the present level at about 5,700 B.P.

Mr. Paiboon Pramojanee dealt with "Geomorphology and Soils of Krabi and Phangnga". He showed slides of the area. At Sai Thai, Krabi, sea level was 12-20 metres higher at 5,740±130; at Trang, 5,120±90; at Satun, 7,680±140 B.P.

Prof. Dr. R. P. Soejono discussed "Developments in Prehistoric Research in Indonesia During the Last 10 Years". He showed slides of the sites of the artifacts found. Over 100 sites have been investigated during this period, distributed throughout most of the country.

PARTICIPANTS

The official delegates of three SPAFA Member Countries were as follows: Prof. Dr. R.P. Soejono, Miss D.D. Bintarti and Mr. Kosasih E.A. from Indonesia; Dr. Alfredo E. Evangelista, Dr. Jesus T. Peralta and Mr. Wilfredo P. Ronquillo from the Philippines; Mr. Pisit Charoenwongsa, Mr. Niti Sangwan, Mr. Surapol Natapintu, Mrs. Amara Srisuchat, Mr. Werasit Choosangthong, Mr. Surin Pookajorn and Miss Pacharee Sarikabutara from Thailand.

Consultants and Specialists from different countries and institutions also attended the Seminar. From Malaysia, five attended namely: Prof. Dr. Hong Djin Tjia, University Kebangsaan, Bangi, Selangor, Dr. Nik Hassan Shuhaimi bin Abdul Rachman also from the same University. Dr. Zuraina Majid from University Sains Malaysia, Penang, Mr. Adi Haji Taha of the Muzium Negara, Kuala Lumpur, and Mrs. Leong Sau Heng, University Malaya, Kuala Lumpur. There were 3 consultants from Thailand namely, Asst. Prof. Dr. Pornchai Suchitta from Faculty of Archaeology, Silpakorn University; Dr. Sin Sinsikul from Department of Mineral Resources, Ministry of Industry; and Mr. Paiboon Pramojanee of Deparment of Land Development, Division of Soil Survey, Ministry of Agriculture and Cooperatives. From the USA, the consultants were: Dr. Douglas D. Anderson from Brown University; Dr. Karl L. Hutterer from the University of Michigan; Dr. Bennet Bronson of the Field Museum of Natural History; Dr. John N. Miksic, specialist in Archaeology under the Ford Foundation who has been teaching at the University of Gadjah Mada, Jogjakarta, Indonesia; and Dr. David J. Welch, Fulbright Visiting Lecturer at Prince of Songkhla University, Pattani. There were one each from England and France, namely Dr. Ian Glover of the Institute of Archaeology in London and Mr. Jean Boulbet, who has been working on the fauna and flora of the Phuket, Phangnga and Krabi areas,

respectively.

Observers from within and outside the region were in attendance. Six Malaysians coming from different states participated in the Seminar, namely Mr. Ahmad bin Harun, Mr. Md. Ali Jaafar, and Mr. Zakaria Kamaruddin from Kedah; Mr. Kamaruzaman Abdul Rahman, from the University Kebangsaan, Bangi, Selangor; Dr. Othman Yatim from Muzium Negara, Kuala Lumpur, and Mr. Ibrahim Kalali from Sabah Museum, Sabah. From Thailand, observers came mostly from Divisions of Archaeology and National Museum, Department of Fine Arts. They were Mr. Pathommarerk Ketudat from the Faculty of Sociology and Anthropology, Thammasat University; Mr. Sawang Lerdrit from the Center of Southern Thailand Studies, Prince of Songkhla University; Mr. Pajrapong Na Pombejra; Assoc. Prof. Chusiri Chamoraman; Assoc. Prof. Wattana Puttanguranon from the Faculty of Humanities of Ramkhamhaeng University; Mrs. Kulpanthada Janposri from Conservation Laboratory of the National Museums Division; Mr. Vidya Intakosai, Project Leader of the Underwater Archaeology Project, Sattahip, Chon Buri; Mr. Prachote Sangkhanukit, Mr. Metha Vichakkhana, Mr. Pathom Rasitanon, Mr. Jaruk Wilaikaew, Mr. Staporn Kwanyuen, Mr. Pratheep Phengtako, Mr. Arunsak Kingmanee from the Archaeology Division; and Mr. Somchai Na Nakhon Phnom from the National Museums Division. From England, there was Ms. Elizabeth Moore, a Graduate Student working on the thesis; from the USA, Dr. Vincent Piggott from the University Museum, University of Pennsylvania; Miss Jill Thomson and Mrs. Judith Welch. There was one observer from India, Dr. H. P. Ray, of the Centre for Historical Studies, Jawaharlal Nehru University, New Delhi.

A total of 115 people attended the Seminar during the sessions in Bangkok and/or the field trips to the South.

MR. KONGDEJ PRAPATTHONG, A MEMORIAL

by YUPHA Klangsuwan
Faculty of Sociology and Anthropology, Thammasat University

Kongdej Prapatthong.
"Don't wear a sad face when working..."

Mr. Kongdej Prapatthong one of Thailand's outstanding historical archaeologists passed away suddenly in his office on July 16, 1986 at the age of 48. His passing is a great loss to Thai scholarship in general, and to Thai archaeology in particular. His death is a tremendous loss to many people who had the good fortune of having known him.

A learned man who had a mastery of several Thai classical and Indian languages, he also possessed a vast knowledge of Asian history and culture. Colleagues and students who needed to verify their sources of information, or were in search for precise facts turned to Mr. Kongdej for help. Not only did Mr. Kongdej willingly share information, he even cited exactly the sources, including the date, place of publication, and the edition of the book. He relied on original inscriptions and primary sources rather than the interpretation of some other scholar

no matter how world famous that scholar may be. His immense knowledge and sharp memory earned him the reputation of "portable reference library" and "the walking encyclopaedia". But to most of his colleagues and friends he was simply "khūn," and to the youngsters he was "Phi Khūn".

A serious and dedicated scholar, he never made his profession come in the way of making friends and in enjoying the company of young people. At work and at play, Khun Kongdej did things wholeheartedly and intensely, like playing Thai chess, a game where he was a champion. He was the best guide and companion in difficult fieldtrips. Fieldtrips with Khun Kongdej were as interesting as they were fun. And he could make archival research as intriguing as detective story. He often reminded close friends, "Don't wear a sad face when working, otherwise you will scare the younger generation away from scholarship".

Khun Kongdej came from a family of naval officers. His father was Captain Yam Prapatthong who was married to Khun Suwanna and they had six sons, four of whom became Colonels of the Royal Thai Navy except the eldest and the third sons. Khun Kongdej was the eldest, and the only one who chose a scholarly career. He used to say that while his brothers fought the battles, he would write the accounts.

He received his early education at King Pong Vidhya School and at Wat Rachativas School. Later he took up a Bachelor's Degree in Archaeology at Silpakorn University. After graduation in 1962 he won a scholarship to study for a Master's Degree in archaeology at Deccan College, Poona University, India, and subsequently underwent further training in archaeology at the Archaeology Institute of India. Soon after his return, he joined the Fine Arts Department but decided after a few years to spend sometime teaching historical archaeology at Silpakorn University (1966-1974). In 1974, he joined the National Library where he became an epigraphist from 1974 to 1980. However, in 1980 he was appointed as archaeologist in the Conservation and Restoration Section of the Archaeology Division, Fine Arts Department. In 1982 he became Chief of that Section, a position he retained until his death in 1986.

While still a schoolboy, Khun Kongdej already demonstrated his incisive and critical mind. One of his high school teachers who taught Thai history gave a lecture on the Thai-Burmese wars waged during the Ayutthaya period. The teacher told the pupils that King Hong Sawadee Burengnong was a "Lin dam" (literally "had a black tongue") which has the connotation in Thai of being an extraordinary brave warrior. Kongdej answered back and argued that the appelation suited King Tabengchaveti better than King Hong Sawadee Burengnong. The teacher was upset by the boy's temerity to question him, and asked the boy where he got his information. Kongdej replied proudly that he read it from a well-known novel entitled, **Phu Chana Sib Thid** (The All-Round Hero-Winner) which was written by a famous writer named Yakhob. Instead of analyzing the reasons behind their difference of opinion, the teacher scolded Kongdej and said: "How dare you use a novel that was not approved by the Ministry of Education!". Whereupon Kongdej was beaten three times. This lesson in Thai history was to remain as a negative example on how to conduct intellectual discussions for the rest of Kongdej's life. He decided to devote himself in the pursuit of verifiable evidence on Thai history.

The scholarly skills he acquired whether in languages, archaeological methods, and documentation were channelled to one of the main preoccupations of his life to trace the origins and the development of the Thai people. For this reason, he proposed a research project which would entail the study of Thai chronicles as well as Chinese historical records for all possible references on the Thai people, and together with these historical accounts, undertake archaeological research in Thailand and China. He found many references to the early Thai people in Chinese chronicles, annals and other literary sources. Such toponyms as Thai-nung, Ta-mung could refer to Thai people who were said to have lived along the Huang Ho and later settled at Nakhon Lung, Kakhon Pa. He also believed that novels like the Sam Kok (The Romance of the Three Kingdoms) could be useful sources of information. In some of the sections of this long literary work, there were references to Thais who lived along the southern part of China, and such characters mentioned as the Beng Heng, the Man-ong seem to parallel with what the Thais know as local lord. Nanchao Kingdom in southwestern China was also said to be once the settlement of the Thais of ethnically related Thai people. He mentioned that the Nanchao Inscription of King Kao Lo Feng period may show evidence of the Thai groups in Yunnan, and that the King in Mong Hua dynasty may have been a Thai. Khun Kongdej also worked on Northern Thai Chronicles such as Singhona Wat Kumarn, and those of Payao, Hirannakorn Nuang-yang Chiang Saen, Phra Dhatu Doi Tung, Chiang Mai, etc. All of these chronicles tell about people in Lanna Thai who

were not natives but who migrated and built their settlements in the area. In short, Khun Kongdej wanted to utilize historical accounts, chronicles, inscriptions both in Thailand and in China in order to throw light on the archaeological evidence about the various ethnic groups related to the Thai peoples.

Khun Kongdej was a meticulous historian and insisted on assessing the evidence before using them. For instance, he said that the Thai scholars generally overlook the important difference between chronicles (which refer to the royal family and the dynasty) and history. Scholars should bear these differences in mind before using sources and writing up history text-books. These distinctions are important in order to fully understand the developments of the institution of the monarchy, Thai society in general, and that of the Thai peoples whoever and wherever they may have been in the past.

He had an active and wide-ranging teaching career. He taught archaeology at Silpakorn University from 1966-1974 where he headed the Historical Archaeology Section. He also gave lectures at Thammasat University, Chulalongkorn University, and at the Educational Institute for Buddhist Monks. He taught at these different institutions until 1974 when he was transferred to the National Library. While he was working there, he did research on the Mons in Thailand using the various inscriptions found in Thailand, as well as from foreign sources. In his articles, he discussed the possible sites where the Mons could have settled, and inferred from these where other Mon inscriptions were most likely to be found. His other important articles is on the "Ancient Inscriptions at Supadnaram Temple". There were three inscriptions found at the Supadnaram Temple, Tham Phu Ma Nai, Khong Chiam District, Ubon Ratchathani Province. The first inscription which is the oldest of the 3 tells about the beginning of the northeastern history along the Mūn River. The King was named Mahentharaworaman. The inscription is dated to about 558-657 A.D. The second and third inscriptions are of the same date around 858-957 A.D. These three inscriptions provide evidence of the existence of a well-organized society in the area of Ubon Ratchathani 1,400 years ago. Another stone inscription which he transcribed, translated and analyzed was a stone inscription dated 1485 B.E. which was found by Mr. Sukhit Rungratanakorn, of the Computer Center of the Highway Department.

In his researches, Mr. Kongdej was not satisfied with using only one type of evidence. He believed that social processes were very complex and thereby required an array of evidence from archaeological remains, inscriptions, references from both internal and external sources, and that materials prior to and immediately after an event or a period in history can aid scholars in analyzing evidence and putting them in the right perspective. His work on the style of the chedi in the Sukhothai and Chiang Saen periods, demonstrated the way he skillfully used the different types of evidence and source materials. In the "Phra Dhatu Chedi of Muang Chiang Saen", he showed that the style of the chedi changed in accordance to both the practical structural requirements as well as changing symbolisms and religious conceptions of the time. He also explained how foreign influences were incorporated into the chedi form and re-interpreted according to Thai tastes and symbolism. His article on Sukhothai

MR. KONGDEJ PRAPATTHONG

Name	Kongdej Prapatthong
Date of Birth	: December 17, 1937
Father and Mother	: Capt. Yam and Mrs. Suwanna Prapatthong
Wife	: Khun Songsri Prapatthong (Veeraprachat)
Daughter	: 1. Miss Siriratang Prapatthong 2. Miss Waltanawan Prapatthong
Education	: - King Pong Vidhaya School - Wat Rachativas School - Certificate in Archaeology from Silpakorn University, 1958 - B.A. in Archaeology from Faculty of Archaeology, Silpakorn University, 1962 - Deccan College, Poona University: Archaeology Institute of India
Official Employment	: - 1962 Curator Archaeology Division, Fine Arts Dept., worked in Chiang Saen District, Chiang Rai Province. - 1966 transferred to Archaeology Department, Silpakorn University. - 1971 head of the Historic Archaeology Section, Archaeology Dept, Silpakorn University. - 1974 Epigraphist National Library Division Fine Arts Dept. - 1978 Epigraphist National Library Division Fine Arts Dept. - 1980 transferred to Archaeologist Conservation Section 1. - 1982 Archaeologist Chief of Conservation Section Fine Arts Dept. - 1985-1986 Archaeologist Chief of Conservation Section Archaeologist Division.
Date of Death	: July 16, 1986 in the office room at Archaeology Division.

Archaeology discussed the plan and location of the town, the architectural style of the monuments, and utilized inscriptions, historical accounts, chronicles in order to show the development of the town through time. One final example to illustrate his thoroughness and incisive scholarship is his article entitled "Ideas on Ayuthya Chronicles" where he discussed from internal evidence of the texts, and on linguistic principles of how chronicles were written, re-written, revised, and even re-interpreted by subsequent writers. He said that these changes within the chronicles show the intricacies in using them as evidence of historical events.

Busy as he was as a full-time researcher on epigraphy, because of his love for intellectual discussions and exchange of ideas, he often invited friends and students to his home for informal sessions. It was at these meetings that he presented his research findings and asked colleagues to evaluate his ideas and opinions.

Although he loved intellectual exchanges and discussions, Khun Kongdej was never one to put down another person, or make differences of opinion mar friendships. Possessed with a charming personality, his calm and quiet style of doing things, his ability to relate to all kinds of people under trying circumstances, he was often asked to act as an arbiter and mediator in various institutional disputes. This task he did at great expense of his time and energy, and even risking his own personal career. Fortunately, he was always successful in bringing together rivalling factions. A very simple man at heart, he asked for the simple joys of family life, the company of close friends, and his work. It is ironic that such a brilliant and devoted scholar rose no higher than rank C-6 in the civil service. But it is almost certain that Khun Kongdej held no rancour against anyone person nor any institution. He loved life and scholarship too much to bother about ranks and promotions. However, as an administrator, he looked after the promotion and career development of those immediately below him. One of the last jokes he told friends just before he died was that, perhaps after all these time, the results of his researches would pass approval of the Ministry of Education. It is regrettable that his numerous fine articles are not accessible to those who cannot read Thai. The Fine Arts Department by issuing a memorial volume which compiled most of Khun Kongdej's writings is a step in the direction of disseminating scholarly works by a Thai to a wider public. It is hoped that an English translation would soon follow.

SOPHIA APPEAL FOR THE SAFEGUARDING OF THE ANGKOR COMPLEX

The International Symposium on the Preservation of the Angkor Complex held at Sophia University, Tokyo on April 20, 1985;

1. Considering that the Angkor Complex comprising Angkor Wat, Angkor Thom and many other monuments is the highest expression of the splendor of Khmer civilization which flourished in the present Cambodia;
2. Being convinced, therefore, that the Complex represents one of the most valuable cultural heritages which mankind can be proud of as its common assets;
3. Being seriously concerned that the Complex is deteriorating owing to the revages of tropical nature and to the difficulties in safeguarding it effectively;
4. Being of the opinion that the Complex should be preserved by the Cambodian people by all possible means, if necessary through international co-operation;
5. Appeals to those individuals and organizations concerned with the cultural heritage of mankind to join their efforts in finding appropriate ways to prevent the deterioration of the Angkor Complex and in creating the conditions which allow its restoration and preservation; and

Kamkpuchean Youths, two of them Monks, enjoy the Peaceful Grounds surrounding the Temple of Angkor Wat. The Temple was built during the reign of King Suryavarman I (1002-1049 A.D.) and is one of Architectural Wonders in the World.

6. Appeals, further, to those institutes and organizations concerned to study the desirability of finding an appropriate way to train personnel who may participate in the eventural restoration and preservation of the Angkor Complex.

This is an excerpt from **CULTURAL HERITAGE IN ASIA: Study and Preservation of Historic Cities of Southeast Asia** Edited by Y. Izhizawa and Y. Kono and published by Institute of Asian Cultures, Sophia University, Tokyo.

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