

Prehistoric Archaeology in Eastern Mainland Southeast Asia and the Philippines

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IN this paper I am primarily concerned with the fieldwork and research that has been done on the prehistoric archaeology of Laos, northeastern Thailand, Cambodia, North Vietnam, South Vietnam, and the Philippines since the end of World War II. After a brief summary of the fieldwork that has been accomplished, I will look at the effect new finds may have on the traditional framework of the prehistory of the area. In conclusion, I will suggest some of the problems and areas on which we should work in the near future.

EASTERN MAINLAND SOUTHEAST ASIA

The eastern mainland I refer to in this article is not only an area of convenience for this symposium, but the work carried out there has geographic, and possibly cultural, meaning. Geographically, it includes the Lower Mekong Basin—the river and its tributaries—and the area to the east that drains into the South China Sea. How closely these two drainage areas were connected culturally in prehistoric times we do not know as yet, but there are indications that the area of the Korat Plateau of northeastern Thailand and the area south into Cambodia were culturally similar, at least during Neolithic times, and that the two areas differed from central and western Thailand. The Philippines, while obviously related to Southeast Asia, must be primarily culturally derivative of the adjacent mainland (see Fig. 1). As each country has a different organization for archaeological research and each of those acts independently, I will treat each separately.

Fieldwork

Laos

There has been less fieldwork and research in Laos than in any other country in Southeast Asia since the war. Next to Burma, Laos is the least known country, prehistorically, in

Southeast Asia. There is no archaeological service nor any other organization that has an active archaeological program. However, a repository for antiquities was created in Vientiane in 1960 and, eventually, this collection could develop into a National Museum with a research program.

The little fieldwork that has been done has been the work of individuals, incidental to their primary programs. The Crown Prince of Laos, Prince Phetserath, and Joel Halpern investigated and made collections in a burial cave near Luang Prabang in northern Laos (Horr 1959: 2-3). P. B. Lafont, of the *École Française D'Extrême Orient*, has located several sites in various areas. To my knowledge, no results of these widely scattered activities have been published.

Northeastern Thailand

Work on the Korat Plateau started in the fall of 1963. This began a three-year program of archaeological salvage by the Thailand Fine Arts Department-University of Hawaii Archaeological Expedition in northeastern Thailand. The purpose of the expedition was to explore four future reservoir areas before water started backing up behind four new dams on which construction had started in 1963 and 1964. I led the expedition. Financing came primarily from the National Science Foundation of the United States with assistance of the Fine Arts Department of the Ministry of Education of Thailand.

The first season's exploration resulted in the location of more than twenty sites. Only two of these were prehistoric, but there was a good chance that the lower levels of three more might be prehistoric. The two prehistoric sites were found in small rock-shelters in the Lam Pla Plerng Reservoir area, southwest of Korat. Crude tools and used sandstone flakes from the ceilings of the shelters were turned up in one test pit in each site. A few small potsherds were found in both pits. No metal was found (Solheim and Gorman 1966: 115-123). The three potentially prehistoric sites were found at the very end of the field season and since the rains were starting, there was no time to test them. The sites were at the western end of the reservoir on the Nam Pong River. On the surface were found numerous cord-marked sherds and a few pieces of porcelain (Solheim and Gorman 1966: 174-178). Several preliminary reports on this season's work, as well as the final report (Solheim and Gorman 1966) have appeared (Solheim 1964a, 1966a).

The second season's work began with the excavation of the two sites at Lam Pla Plerng. During the excavation two more sites of the same nature were found nearby and excavated. All four sites had similar stone artifacts and two different pottery wares. From about halfway down in one of these sites a charcoal sample produced a radiocarbon date of about A.D. 500. No good hearths were found in the sites below the top levels, and there was considerable root penetration down between the rocks that made up much of the deposit (Solheim and Gorman 1966: Pl. IIb), hence, the likelihood of contamination of the lower levels by more recent charcoal. The A.D. 500 date could be correct, but I suspect that the lower levels of these sites would date from 2,000 to 4,000 years ago, or before. The material from this site will not be analyzed before late 1969. Extensive testing of the three possibly prehistoric sites in the Nam Pong reservoir area produced human skeletal material in all three, including extended burials with associated burial furniture.

We decided that Nam Pong 7 would be the main dig for the third year of the program. In the Lam Pao Reservoir area, to the northeast of Nam Pong, the field season was com-

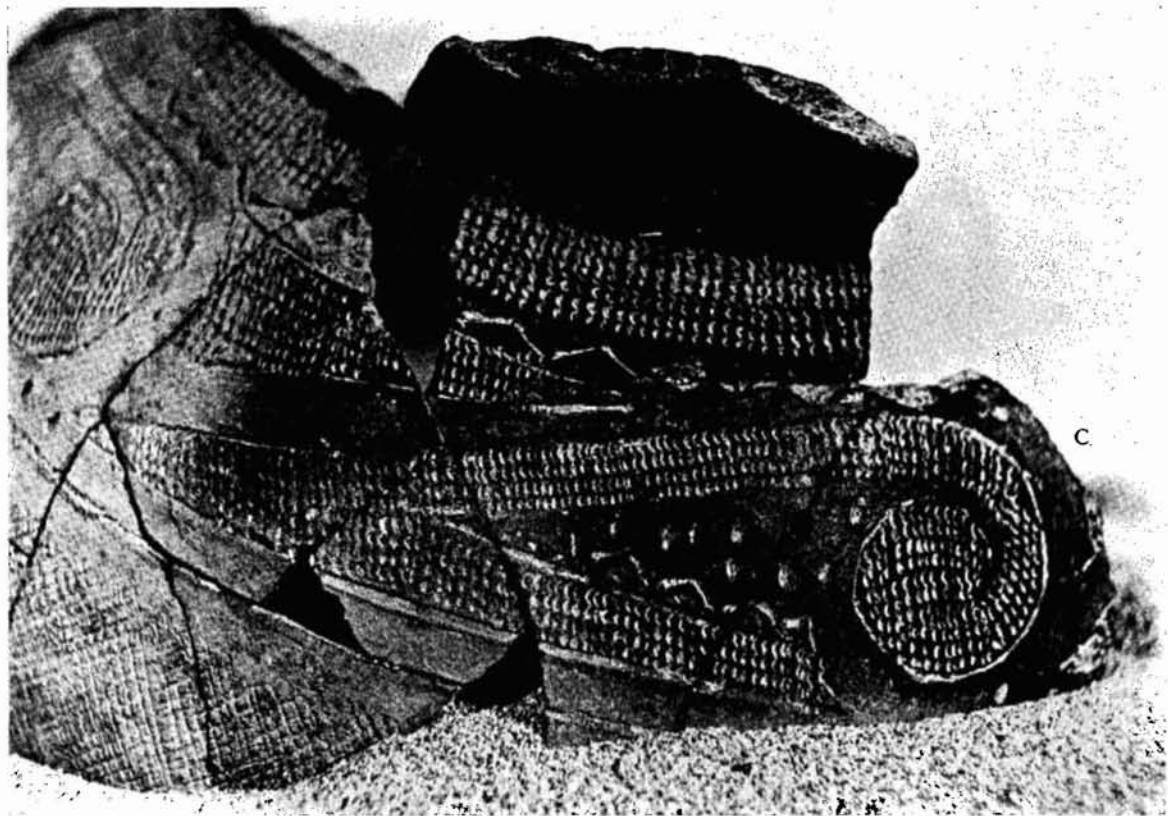


Plate I Earthenware pottery and burials from Non Nok Tha, northeastern Thailand: *a*, cord-marked jar with ring foot from Layer 5 (ca. A.D. 1400?; ht. 6 cm); *b*, cord-marked jar with ring foot from Layer 6 (ca. 1800 B.C.; ht. 7 cm); *c*, incised and impressed decoration from Layer 21 (1966 excavation, others 1968).



Plate I *d*, bowl with ring stand from Layer 7 (ca. 3000 B.C.; ht. 15 cm); *e*, several burials from different layers.

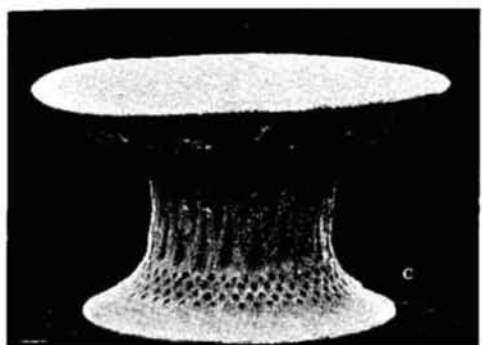


Plate II Prehistoric earthenware from Palawan (*a-c*) and other localities in the Philippines: *a*, effigy jar with open mouth; *b*, jar with Sa-huynh-Kalanay type decoration; *c*, Novaliches Complex bowl; *d*, Kalanay Complex lid from Marinduque (De Santos Collection); *e*, Novaliches Complex bowl from Mabini, Batangas (De Santos Collection); *f*, ring-footed jar with applique decoration from Taal, Batangas (De Santos Collection).



Plate III Prehistoric Philippine earthenware from the De Santos Collection: *a*, ring-footed jar with applique decoration from Taal, Batangas; *b*, jar with multiple applied handles from Taal, Batangas; *c*, jar with applique handles from Taal, Batangas; *d*, black fired jar with ring foot from Calamba, Laguna; *e*, hollow effigy figure from Calatagan (Baha), Batangas; *f*, red slipped and incised jar with ring foot from Taal, Batangas; *g*, jar with ring foot and vertical applique from Taal, Batangas; *h*, jar with vertical applique from Taal, Batangas.

pleted with the excavation of two early historic sites—Lam Pao 7 and 8 (Solheim and Gorman 1966: 160–161, Pl. XVII)—of the Dvāravati period, the earliest historic period in this area of Thailand, going back to about the sixth century A.D. No prehistoric material was found below the historic site.

The third season's work was focused on excavations in the site of Non Nok Tha (Nam Pong 7). Twenty-one archaeological layers were distinguished in an excavation about 2 m deep. From the top 11 layers numerous cremations were found in cord-marked jars with ring feet that had been placed in small pits. From layers 13 through 21, about 90 extended burials were found with associated grave goods (mainly pottery). From the photograph the burials appear to be placed in any direction (Pl. *Ie*), but in actuality each layer (occupation) seemed to have consistent direction and pattern. In the layers with the cremations bits of bronze, iron, and rare sherds of porcelain were found. From the top of Layer 20 through Layer 13, fragments of bronze were found, but there was no iron or porcelain. Sandstone double molds (for casting axes), a bronze axe, other tools, and bronze bracelets were found associated with a few of the burials (Solheim 1967*a*; 1967*b*, Figs. 1, 2*b*; 1968*a*). The pottery in layers 21 and 20 has more variation in form and decoration than that in the layers above, but it is obvious that the pottery is traditional, with some of the cord-marked forms continuing from the bottom right to the top layer (Pl. *Ia–b*). Painted decoration, found only in bottom layers, is patterned in red triangles and scrolls on a tan background (Solheim 1967*b*, Fig. 4*b*). Similar painted pottery has since been reported from several other locations in northeastern Thailand. Skillfully incised decoration is also found only at the bottom (Pl. *Ic*), while a cruder incised decoration on top of cord-marked surfaces continues for a few layers above the bottom. Bowls with ring stands are found only in the bottom two or three layers (Pl. *Id*), but many variations on the other more common forms continue somewhat longer. From its first occupation until its final use (around 150 to 200 years ago) the site was probably occupied only for relatively short periods of time and then abandoned, to be reoccupied in a generation or several hundred years later. A radiocarbon dated sequence has been suggested for the site, probably beginning with the period when bronze was in use without iron around 3000 B.C. and continuing into the first centuries A.D. (Solheim 1968*a*).

Exploratory excavation was undertaken in Phimai during the last month of the three-year program. The year before, black pottery had been found stratified here beneath the foundations of a Khmer ruin which is under repair by the Fine Arts Department of Thailand (Solheim 1965). Much more black pottery was recovered through all levels, as was evidence of metal working. The most common forms of the black pottery are shallow bowls, most of which have concave bases; a few have small ring stands. A common decoration on the black matte surface of this pottery is a mark pressed on with a polishing tool, making a shiny broad line. From Layer 6 in this site comes a radiocarbon age of 1930 ± 100 B.P. (GaK 991). Several layers below Layer 6, the black pottery and metal probably go back several hundred years B.C.

British archaeologists started working with the Fine Arts Department in January 1966. The joint program, under the direction of William Watson, will continue for up to five years if the finds warrant it. The first season Watson's party explored in northern and central Thailand. Among other sites, they found a site near Chaibadan, in the central provinces, that had impressed and incised pottery similar to that found in the bottom layer at Non Nok Tha.

Cambodia

Archaeological activity in Cambodia continues to be focused on the Khmer monuments. However, Bernard P. Groslier, director of the research and restoration at Angkor for Cambodia and the École Française D'Extrême Orient, has from time to time done some excavation in prehistoric sites. Circular earthworks have been known for some time in eastern Cambodia, Cochin China, and the southern half of the Korat Plateau in northeastern Thailand (Williams-Hunt 1950; Malleret 1959). Several more of these have been discovered recently in Cambodia, and one of them, investigated by Groslier, contained neolithic tools (Solheim 1966b: 3). One of the sites that was tested in northeastern Thailand was thought to be a Dvāravatī site (Wales 1965). A major prehistoric site excavated by Groslier has not yet been reported, other than a mention of its probable importance (Groslier 1966: 195).

In 1963 Edmond Saurin announced finding the first known palaeolithic sites in Cambodia. A summary report of these sites and the palaeolithic tools appeared in *Asian Perspectives* (Saurin 1968). Correlation of the sites, found on various terraces of the Mekong, was made according to the level of the terrace where found and indicates that there was a slow evolution in tool form, one of the changes being from larger, early forms to smaller, later forms. Many of the tools were made of petrified wood and bear a general resemblance to the Anyathian tools of Burma. These are primarily unifacial, and true bifacials are rarely found.

North Vietnam

More prehistoric archaeological research had been done in north and south Vietnam before World War II than in any other equivalent area in Southeast Asia. None of the researchers were Vietnamese; everything was done by foreign scholars, primarily Frenchmen. Following the withdrawal of the French, there developed in North Vietnam a local interest in the prehistory of the area, and excavation was begun by Vietnamese scholars in 1959. In 1960 the Vietnamese scholars were joined by P. I. Boriskovsky, an eminent Russian archaeologist, who helped them set up a training program at the University of Hanoi and who worked with them in the field.

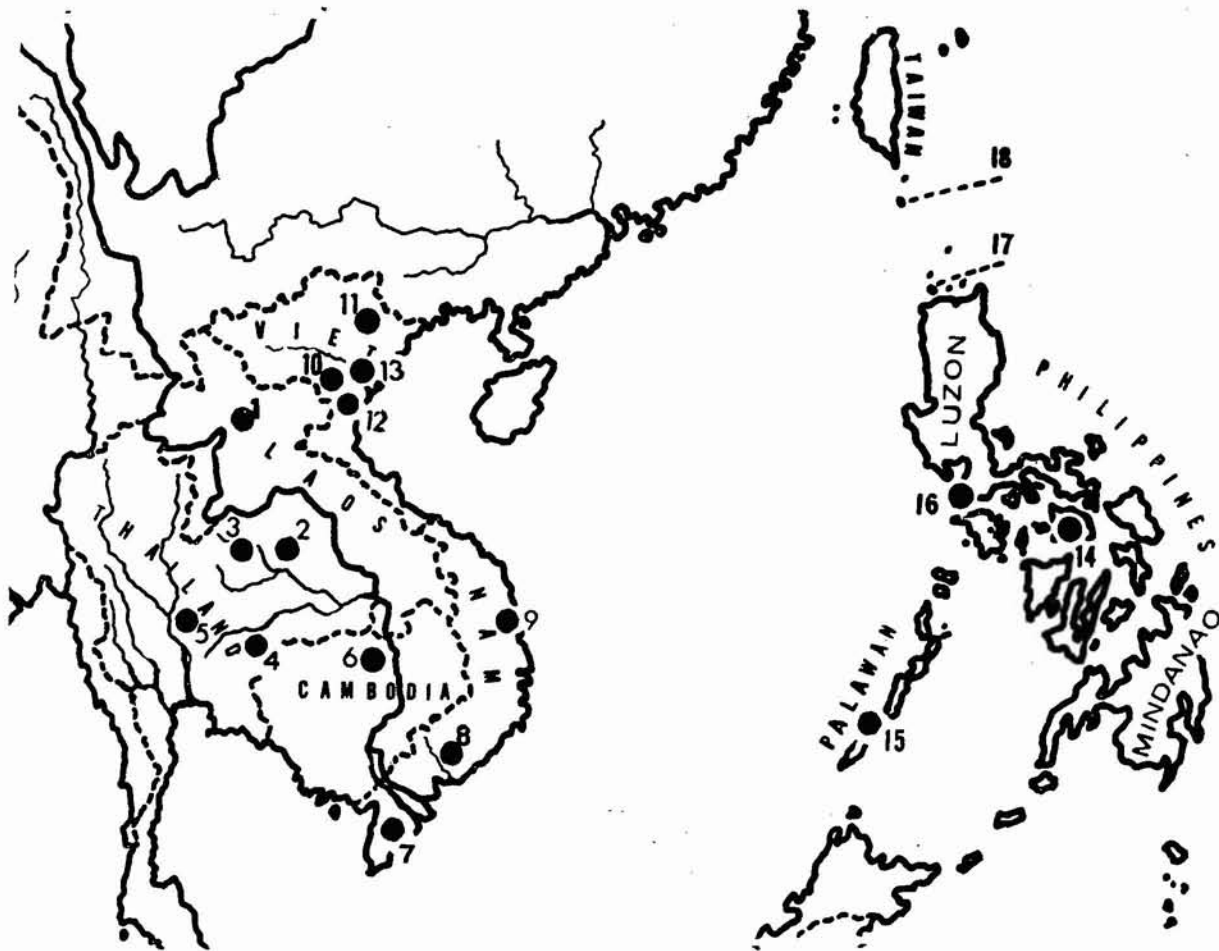
Since 1959, exploration has resulted in the discovery of many new sites. Palaeolithic and neolithic sites, and sites with metal, have been excavated. Working with Boriskovsky, the Vietnamese discovered an early palaeolithic workshop about 170 km south of Hanoi. Most of the worked stone recovered was in the form of flakes, but a few cores were found, including a typical Chilean hand axe (Solheim 1962: 24-26; Boriskovsky 1968). Several Hoabinhian cave sites excavated by M. Colani were investigated, and three new caves with Hoabinhian remains were discovered and excavated. This work was done to check Colani's concept of the Hoabinhian, and it was concluded that "... her publications give a relatively full and objective picture of the Hoa-binh inventory" (Solheim 1962: 28).

In 1963 a shell midden was discovered in which were found, "... massive rough side-scrapers, cutting tools, oval axes, flakes, hammerstones, massive prismatic and conic cores, anvils, saddle-querns and pestles, and basket-marked pottery. No polishing of stone or Hoabinhian-like tools were found. Twelve upright flexed burials were recovered" (Solheim 1966b: 9). Open-air late neolithic sites contained well-polished rectangular axes and hoes, drilled stone beads, bracelets, and pottery. Shouldered adzes have not been found.

To my knowledge, final reports have not been published on any of these sites. Two books presenting the prehistory of Vietnam have appeared, one in Vietnamese, published in North Vietnam (Hà and Trần 1961), and the other in Russian (Boriskovsky 1966). Neither

Fig. 1 Important archaeological sites or localities in Southeast Asian pre-history:

1. Luang Prabang
2. Lam Pao
3. Non Nok Tha
4. Lam Pla Plerng
5. Khok Charoen
6. Mlu Prei
7. Oc Êo
8. Xuan Loc
9. Sa-huỳnh
10. Hoa Binh
11. Bac Son
12. Đông Sơn
13. Hanoi
14. Kalanay
15. Tabon
16. Calatagan
17. Fuga
18. Batanes



of these books has many plates, and each illustrates neolithic and later materials with only a few line drawings. So far I have been unable to have translations made of either of these books and consequently have no idea of the artifacts from the neolithic and later sites. [Translation of Boriskovsky's book has now appeared in several parts in *Soviet Anthropology and Archeology*. Ed.]

South Vietnam

The only active man in the field in South Vietnam since the war has been E. Saurin. He has discovered and excavated in several late neolithic and metal-containing sites in the general area of Saigon. These sites are similar to Mlu Prei and Sa-huỳnh in their pottery and associated artifacts. One of these, a burial jar site with artifacts relating it clearly with Sa-huỳnh, has produced two radiocarbon dates of around 300 B.C. (Solheim 1966b: 9; Saurin 1963; Horr 1963; Solheim 1968b). Saurin has also discovered some palaeolithic tools in an area to the south of Xuan Loc (Solheim 1966b: 9). He intended to return to the area for further work but unfortunately was unable to do so before he retired to France late in 1965.

Portions of three lithophones have been found since the war by Condominas and Lafont (Hackenberg 1957: 53; Condominas 1952). It is not unlikely that more of these will be found as they are kept as heirlooms in small villages in the mountains.

THE PHILIPPINES

The people of the Philippines ultimately have their ancestry in the mainland of Southeast Asia. It is unlikely that there were any "waves of migration" from specific areas on the mainland to specific areas in the Philippines; more probably, an uneven movement of small groups took place from several general areas, sometimes accidentally, sometimes purposely. Cultures which were at first transplanted from the mainland or other islands adapted to localities in the Philippines and subsequently evolved locally with additions from the outside, as contacts of one kind or another were made among the peoples of these Filipino cultures—contacts with each other and with people from the outside. If this theory is valid, the Filipinos are then basically Southeast Asian, but at the same time they have developed traits that are uniquely Filipino. In the treatment of their prehistory, this distinction must be kept in mind.

Before World War II the study of Philippine prehistory was virtually monopolized by one man, H. Otley Beyer. Because he did not believe in publishing his data in the form of site reports, but rather as adjuncts to occasional summary papers, others interested in Philippine prehistory could only accept or reject Beyer's hypotheses on faith. However, in about 1950, a small number of Filipino and American archaeologists began working with Beyer and through the National Museum of the Philippines, and a revolution in Philippine archaeology has taken place since that time.

The major fieldwork since 1950 has been done through the Philippine National Museum by Chief Anthropologist Robert B. Fox, Alfredo Evangelista, and several others of the museum staff. In 1956 Fox and Evangelista excavated three caves in Sorsogon Province, southern Luzon. Here they found a jar-burial-stone-tool assemblage with no metal remains. Beyer had held that there was no neolithic pottery in the Philippines (Fox and Evangelista 1957a). In 1957, Fox and Evangelista explored and excavated several cave sites on small

islands off the east coast of southern Luzon. Here they found a jar-burial-stone-tool assemblage similar to the one they had found the year before in Sorsogon. Some decorated pottery was found with the jars, and it was similar to the decorated Kalanay Complex pottery of Masbate (Fox and Evangelista 1957b: 67). In 1958, a major excavation was undertaken by Fox and the museum staff at Calatagan in southern Batangas, south of Manila. Here, in two large burial sites, over 500 burials were excavated with associated earthenware pottery and Chinese and Siamese porcelain and stonewares of the late fourteenth to early sixteenth centuries (Fox 1959a: 334). Numerous small but important excavations are made each year by the museum staff as a result of finds reported to the museum. Brief accounts of this work are to be found in *Asian Perspectives* and in Council for Old World Archaeology summaries (Conklin 1957; Evangelista 1960, 1961, 1962, 1963; Solheim 1957a, 1958, 1959a, 1961a, 1964b).

The major work undertaken by the National Museum has been in a number of caves on the west coast of Palawan. These caves were discovered by Fox and Santiago, and excavation was begun in Tabon Cave under Fox's direction in 1962. Only very brief mention of this work has appeared other than in newspaper publications in the Philippines (Evangelista 1963: 53-56; Solheim 1964b: 5; 1964c: 199-200). A preliminary report by Fox, primarily on the earlier levels in the Tabon Caves (ca. 30,000-5000 B.C.) appeared in *Studies in Philippine Anthropology (In Honor of H. Otley Beyer)* (Fox 1967). A more comprehensive report on the Tabon Caves has been prepared by Fox and was published as a monograph in 1970. Fox presented a report at the Eleventh Pacific Science Congress in Tokyo in 1966 in which he gave the major finds and chronology of these sites. In the lowest levels of Tabon Cave four flake-tool industries were found which yielded radiocarbon dates between about 30,000 B.C. and 7000 B.C. The different industries are so designated not because they are different in manufacture and form but because they were recovered from different strata. The Tabon Caves are in a limestone formation that is virtually an island in the South China Sea, yet no seashells were found associated with these early flake tools in Tabon Cave. From another cave the same tool industry was recovered, but this time they were found in a shell midden. One date associated with this material was close to 2000 B.C. A small flake-and-blade tool tradition dated at about 5000 B.C. was found in a cave in a nearby area, associated with seashells. The explanation suggested by Fox for the absence of seashells previous to about 7000 B.C. is that the seacoast was too far away at that time to make it practical for cave dwellers to take shells back to the caves. Sometime between 7000-5000 B.C., with the end of the Würm glaciation and the rise in sea level, the sea came up to the base of the formation, and shellfish were gathered and brought into the caves thereafter.

Several early neolithic sites have been found in different cave areas on the west coast of Palawan. Three of these sites had partially flexed burials with associated ground shell adzes made from *Tridacna* shell (Evangelista 1963: 54 and Pl. Ia). Two radiocarbon dates place these between about 3800 and 2500 B.C.

Late neolithic sites are much more numerous and have a greater variety of associated artifacts, including pottery. The earliest pottery is not yet dated, but is likely to be previous to 1000 B.C. It is composed of small, sophisticated vessels such as one kind of pitcher the mouth of which is a gaping mouth of a human head (Pl. IIa). Associated with the pottery were a few plain burial jars and a stepped adze. The later neolithic sites have more pottery (including highly decorated pottery), burial jars, agate bracelets, and jade and stone beads, and have radiocarbon dates around 800 B.C. Later yet, a related, but more complex, series

of assemblages has continuing burial jars, but adds rare bronze objects, many jade ornaments, glass, and gold. This phase probably dates between about 600 and 200 B.C. Iron was added to this assemblage probably around 200 B.C. or a little earlier. The decorated pottery shows many similarities with the Sa-Huỳnh-Kalanay Tradition pottery (Pl. II*b*) and also with the Novaliches Complex pottery (Pl. II*c*). Later sites are also found in the area, including those with Sung and Yüan porcelains and stonewares (tenth-fourteenth centuries). These Palawan sites are comparable in importance to the Niah Cave sites in nearby Borneo. The pottery shows definite relationships, including common cord-marked pottery in both areas.

From 1950 to 1954 I worked in the Philippines, concentrating primarily on jar-burial sites. My first expedition was to southern Tayabas in southern Luzon, where small excavations were made in two jar-burial sites (Solheim 1951 and 1961*b*: 131-135 and plates 7-9). In 1951, with the assistance of Alfredo Evangelista and other students, I excavated several small sites in Batungan Mountain (Solheim 1953 and 1968*c*) and a jar-burial site nearby (Solheim 1954), and began excavation in the Kalanay Cave site. Two of the sites at Batungan were apparently neolithic (no metal was recovered), and had plain- and red-slipped pottery, with and without decoration. These were the first neolithic sites to contain pottery found in the Philippines. A charcoal sample from one of these sites gives a date of about 750 B.C. for this pottery and the associated artifacts (Broecker, Kulp, and Tucek 1956: 164). In 1952, I briefly investigated several jar-burial sites on Fuga Island north of Luzon. This was followed in 1953 with a brief excavation of burial-jars in Batan Island of the Batan Islands, the northernmost of the Philippine island groups (Solheim 1961*b*). Also, in 1953, I was able to return to Masbate and complete the excavation of the Kalanay Cave site. In 1956 I worked over the earthenware pottery and associated non-porcelain-non-stoneware artifacts in the Guthe Collection, made in the Visayan Islands in the early 1920s, at the University of Michigan. From this work and that on the Kalanay Cave site, I formed hypotheses on the Kalanay Pottery Complex and the Sa-Huỳnh-Kalanay Pottery tradition (Solheim 1957*b*, 1959*b-c*, 1960, 1964*c-e*, 1967*c-d*).

In the last few years, two universities in the Visayas have begun archaeology programs of a modest nature. These are San Carlos University in Cebu and Silliman University in Negros. Both universities are exploring in neighboring areas and both have been doing some exploratory work in Mindanao, where they have found carved limestone burial jars in considerable number (Maceda 1964).

Unlike the Mainland Southeast Asian countries (except for Malaya), there have been several articles and short books summarizing major portions or all of Philippine prehistory. The first and most detailed of these works is by Beyer on the Philippine "stone ages" (1948). Just before this report he had written a popular account of Philippine prehistory (Beyer and de Veyra 1947) and an outline of the known archaeological sites and finds in the Philippines (Beyer 1947). In 1953 I wrote a short account of Philippine archaeology (Solheim 1953), and Michael Sullivan did a similar report in 1956 (Sullivan 1956). In 1959 Fox made a brief summary of Philippine prehistory as a handbook for an exhibit sponsored by the UNESCO National Commission of the Philippines and the National Museum (Fox 1959*b*). There has been nothing, however, bringing together all the scattered new research of the last twenty years.

There are two factors present in the study of Philippine prehistory that are not found to any extent in the other Southeast Asian countries. They are the private collector and antiquity shops. For the last ten to fifteen years many wealthy Filipinos have been collecting

prehistoric Philippine artifacts, primarily ceramics. When a new site is found—particularly if Chinese or Siamese ceramics are present—clandestine grave robbing quickly follows, except in rare circumstances. A small group of professional grave robbers has developed who even locate new sites themselves and then proceed to pillage them for unbroken and little-damaged artifacts. The best objects go to a few remarkable collections in Manila and the poorest go into the antiquity shops where they are bought by tourists and taken out of the Philippines. Not all collectors or antiquity shops are equally to blame for the deplorable destruction of the data of Philippine prehistory. For example, Leandro and Cecilia Locsin have made careful excavation of sites on their own property and in the best amateur tradition are publishing the results. One book published by Tuttle came out in 1967 (Locsin 1967). One of the best collections has been brought together by Arturo de Santos, a Manila physician. Dr. de Santos is donating this collection to the Philippine Cultural Center, now being organized. De Santos is one of the few collectors who has been interested in the locally made Philippine earthenwares, examples of which I include here (Pls. II*d-f* and III*a-h*). While the locations from which these objects came are known, their associations usually are not.

TRADITIONAL RECONSTRUCTIONS AND THE NEW DATA

The traditional reconstruction of Southeast Asian prehistory is Robert Heine-Geldern's "Urheimat und früheste Wanderungen der Austronesier" (1932). Beyer's reconstruction of Philippine prehistory (Beyer 1948; Beyer and de Veyra 1947) involves a slight reorganization of Heine-Geldern's thesis as it concerns the Philippines, but no major changes.

The new data are now pointing the direction for required changes in the traditional reconstructions. In general, the sequence suggested by Heine-Geldern and Beyer seems to be correct. The major change probably will be to move the dates back considerably. More than anything else, perhaps, a new philosophy in the interpretation of the apparent changes is required. The old reconstructions are organized in terms of migrations bringing in whole new cultures that, for the most part, replace what was present when the new people arrived. The new data seem to me to suggest that local evolution and traditions continuing over long spans of time are the general rule, and that outside influences penetrated and were assimilated by the peoples, but did not overwhelm them. There must have been considerable movement by individuals and families, and occasionally by a number of families, as protohistoric accounts suggest. These dispersions probably went in all directions, although more commonly they followed the currents and winds when the movement was by water. Thus, the "migrations" suggested by Heine-Geldern and Beyer probably overemphasize movements of people when the emphasis should be on some other form of diffusion that moved new elements of culture through and into the area.

More specifically, Heine-Geldern's shouldered adze (*schulterbeil*) people have not yet been located. While these adzes are widespread in eastern Southeast Asia, they do not appear to be an element of a distinct culture. Beyer's belief that pottery did not come into the Philippines until the coming of iron has been disproven. It is interesting that Beyer's early dating for iron working in the Philippines, which many people felt was much too early, is being borne out by Fox's work in Palawan.

In the conclusions of my book *The Archaeology of Central Philippines* (Solheim 1964*d*), I suggested a number of changes to Beyer's hypothesis on the coming of iron and associated

cultural elements to the Philippines. While I would still agree in general with what I said at that time—with the revisions I made in my paper in *Asian Perspectives* (1964c)—in the light of Fox's work in Palawan further changes are required, including an earlier dating for a number of the Guthe sites where the typical Kalanay Complex pottery and the Novaliches Complex pottery was found without associated iron remains.

If the early dating for bronze working that is indicated by the radiocarbon dates from Non Nok Tha is borne out by complementary dating from other sites in the area, then considerable reorganization of the "Dongson" concept will be required. Also, the presence of a number of the typical "Dongson" geometric designs on the pottery at Non Nok Tha previous to 2000 B.C. requires further rethinking of "Dongson."

PROBLEMS FOR FUTURE RESEARCH

Changes in dating and the several specific changes required in the traditional reconstructions of Southeast Asian prehistory suggest that it is time for a new overall reconstruction to be made to incorporate the new data. Such a new reconstruction should be considered as a hypothesis. In particular, the points of disagreement between the old and the new hypotheses present a challenge: future research must support, refute, or modify the discrepancies in building the new hypothesis.

Salvage archaeology must receive more attention. With rapid and major development going on in many areas in the Philippines and in connection with the Mekong Development Project, large and important areas are going under water, asphalt, or cement, or are being disturbed by irrigation canals or power lines. It is vital that many largely unknown areas being so affected be explored and excavations made before it is too late.

In other parts of the world, a great amount of research has and is being done on the beginnings of a neolithic way of life, the domestication of plants and animals, and all the associated social changes. There are increasing indications that the first domestication of plants and animals took place somewhere in eastern Southeast Asia, probably in association with Hoabinhian culture. It is time that specific attention be paid to these problems in Southeast Asia. A similar problem of major importance to Southeast Asia is the change from slash and burn farming to irrigation and the associated social changes.

Finally, we must recognize that there are many areas that are still virtually unknown archaeologically: northern Luzon, Samar, Panay, and much of Mindanao in the Philippines, as well as much of South Vietnam, southern Laos, Annam, and the portion of eastern Thailand south of the Korat Plateau. All of these areas deserve exploration so that we will at least have some idea of their potential importance. There are, no doubt, still major prehistoric cultures that are completely unknown. Early man was certainly widespread in this area, possibly going back to the early Pleistocene, yet no one is working on this subject in Southeast Asia. There is an exciting and surprising future ahead.

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