The Petchabun Mountains stand in sharp contrast to the nearly level land which comprises most of the Khorat Plateau, northeast Thailand. The forest-clad mountains rise to more than 1500 meters. At the highest elevations, the climate is so much cooler that one may find plants and animals normally found in more northerly lands. In the dry season, while the plateau bakes dry under the hot sun, the mountainous areas remain green, watered by the constant flow of cool, clear streams.

The hill and valley fringes of these mountains, the piedmont, were an archaeologically unknown area of potential importance for our understanding of the prehistory of northeast Thailand. I went there, accompanied by my wife Jo Anne, to conduct an initial archaeological survey of the area as part of my dissertation research directed by the late Chet Gorman. The research was designed as a contribution to the joint Thai Fine Arts Department/University Museum Northeast Thailand Archaeological Project co-directed by Chet and Pisit Charoenwongs. We hoped that the transitional piedmont environment would yield evidence for cultural transitions between mountain-oriented Stone Age Hoabinhian sites and plains-oriented village farming sites like Ban Chiang.

Survey is an arduous and relatively unrewarding facet of archaeological field work, but systematic work in this initial step is vital. One of the principal criticisms of older, erroneous reconstructions of the prehistory of Southeast Asia was that they were based on (often ethnocentric) interpretations of history rather than systematic archaeology. The consensus was that the cultures of Southeast Asia were merely derived from those of India or China and there was no importance in indigenous prehistoric cultures. As Chet and Pisit colorfully phrased it (1978), "...the traditional belief [was] that Java Man's descendants had squatted in their caves until they were taught the rudiments of civilization by more intelligent outsiders." In 1963 Chet was with the Joint Thai Fine Arts Department/University of Hawaii salvage archaeology program which conducted a systematic survey in Thailand. Among the sites which he discovered were Spirit Cave, which he excavated, and Non Nok Tha, later excavated by Solheim, Parker and Bayard. These two sites, and later work by Chet and Pisit at Ban Chiang, were instrumental in revolutionizing Southeast Asian prehistory. They have revealed vigorous and interesting indigenous prehistoric cultures but a great deal of further work is needed to flesh out our knowledge of the prehistory of the region. This survey is part of that work.

If Chet was a good model to follow in
undertaking the strenuous work of survey, he was also a good model for finding pleasure in the experience. His enjoyment of living and working in Thailand is almost legendary. He insisted on language training. With the help of a small grant from University of Pennsylvania Department of Anthropology field funds, I was able to study half-time for two months at the Chiang Mai Language Center in Chiang Mai, north Thailand. Jo Anne, a serious volunteer indeed, paid her own way through the same program. A more formal academic language training program may have advantages, but none could have been more directly applicable. We usually left school for the market to buy our daily food. Food is still the topic on which we are most fluent.

**RECONNAISSANCE**

The first phase of the survey was systematic reconnaissance to locate sites. The reconnaissance team consisted of six of us, two foreigners, Dumprapho Phiramol as guide and interpreter, and Lung Li who watched our camps and answered innumerable questions about the strange foreigner. Lung Li subsequently worked with Joyce White; see pp. 25-32. We set up a series of 10-km. grid squares along the mountains as the survey sample. For each square, we entered every village possible and presented ourselves to the headman with appropriate letter of introduction from government officials. With the headman’s help, or at least permission, we interviewed villagers for any information which might reveal a site. We then followed up on as many leads as possible by visiting the locations of the finds and recording a site if present. This was slow work. We often had to overcome the suspicions of the villagers before they would divulge any important information. The sites were often far from the village in dense vegetation and they were often small and difficult to find.

Each village was a different story archaeologically and personally. In some villages we made exciting finds while in others we found no sites. We remember some villages for sites of tigers, wild animals or plants, one for a glimpse of a rare eagle, and another for finds of fossil bones, possibly a dinosaur, in nearby hills. Our most vivid memory of most villages was the place for bathing. After a hard day’s work in the hot weather, a bath became extremely important. Sometimes we could splash in a clear stream, sometimes we had to share a muddy pond with water buffalo, and sometimes we had to overcome our shyness and bathe at a village pump in front of an audience of amused villagers.

One thing was constant as we traveled from village to village. The survey team was the biggest show in town. Nearly everything we did was accompanied by a somewhat oppressive crowd of curious villagers. Almost always, that is; we were upstaged once by a pestilent medicine salesman with a pair of dancing monkeys. Sitting alone in the wet pavilion that night, we were—well—jealous. Afterwards, we never complained so much about the curious onlookers.

5 Ban Loet, one of the villages surveyed. The name of the village refers to a woodland plant (Xyloglottis) which proved to be tasty in Thai salads.

6 A typical audience for the survey work.

Working in this manner, we covered eleven grid squares from Amphoe Phu Kradung, Chiangwat Loei, south to Amphoe Phu Klien, Chiangwat Chaiyaphum. Forty-five sites were recorded in the survey squares. We also recorded seven other sites, numerous artifacts in the possession of villagers, information about sites in other areas, and other notes. Sixteen of the sites were caves or rock shelters but we found no evidence of Hoabinhin occupation. Where there was occupation, the deposit was generally shallow and yielded only a few sherds or other artifacts. These sites appear to have been temporary camps for people traveling from their villages to hunt or collect forest products. One of
three of the sites located in the reconnaissance. The principal purpose of these excavations was to sample the sites with the aim of establishing their age, stratigraphy, and artifact contents. Later analysis of this data would provide a basis for evaluating the other surveyed sites and for deriving an initial broad picture of the prehistory of the piedmont area.

NON KHOW WONG

This site is located in the valley of the Choen River in the mountain foothills. The site is called a non (mound) following its initial description by villagers. But after inspecting the site location, we interpreted it as a river terrace formation and the low ground between the 'mound' and the river as probably a series of abandoned river channels. The nearby village, Ban Khow Wong, has a quite different history from typical wet rice villages in the area. It was traditionally a temporary village occupied seasonally for planting dry crops (particularly tobacco) by residents of rice-growing villages several kilometers away on the edge of the plains. A road, coupled with expansion of markets for dry crops, has attracted a core of permanent residents, often previously landless laborers from the rice villages. A formal village was being incorporated while we were excavating and we gladly contributed to the construction of the first school in the village.

The crew for the first excavation was the same as for the reconnaissance plus three local residents as laborers. Our residence was a bamboo house with a grass roof.

by a relatively large number of crucible fragments found in the lower levels. A large and deep feature excavated to more than 170 cm. yielded a radiocarbon date around 0 B.C. This feature contained scattered human bone and some fragments of ceramic vessels which may have been grave goods. It had probably been excavated near the end of the occupation and had disturbed an earlier burial. A lid with painted lines from this feature is strikingly similar to lids from Don Klang excavated by Bill Schaffler (Schaffler 1970).

BAN I LOET

The second site was near the village of Ban I Loet in the broad valley of the Phong Ke River northeast of Phu Krading. Phu Krading is a 1200 m. flat topped mountain which is one of Thailand's most famous national parks. Ban I Loet is a relatively poor village. There is less rainfall in the lee of Phu Krading and the rice crop is often poor. We never got to explore the mountain as the park closed; it was closed to the public because of Communist guerrilla activity in the forest area, but we were able to rebuild our bamboo house with a nice view of the mountain.

Duangkheo had left the crew by this time but we were able to manage the excavations in Thai Aan, one of the experienced crew from Non Khow Wong, was along to make sense of some of our strange instructions to the new workers.

Excavation (2x2 m.) again revealed about a meter of deposit with many sherds, bronze, iron, and other artifacts. At the

construction cost was $35. The house and its scenic location looked idyllic but we soon discovered a flaw: the ground was infested with caterpillars which caused intense itching.

The 2x2 m. excavation revealed an approximately one meter thick deposit with numerous sherds and other artifacts. The lower levels contained bronze but no iron and we thought we had found an early site. But radiocarbon dates indicated that the site could be no earlier than about 400 B.C. The distribution of metal is probably the result of the importance of bronze casting early in the occupation. This is confirmed

Looking west across the Choen River valley. The site Non Khow Wong is in the center of the picture.
expected burial. We could see that the feature had been excavated into subsoil but had no clue as to its level of origin. The solution emerged later in the laboratory. When we attempted to reconstruct the vessels they were incomplete. The large pot, in particular, was represented by only the side lying in the feature. Its sherds were so thick that it was impossible that we missed them in reconstruction. The upper levels of the feature had been destroyed, probably by erosion, and there was a hidden gap in the stratigraphy between the feature and the deposit above. The feature may well have been a burial whose bones were destroyed in the erosion. A few small opaque glass beads are tantalizing evidence for this interpretation. Radiocarbon dates confirmed the stratigraphic interpretation; the feature dates to about 700 B.C., while the deposit above begins about 450 B.C.

We left our bamboo house at Ban Loet, donating it to be an addition to the village school to accommodate the extra pupils resulting from a new national law requiring six rather than four years of compulsory education.

**BAN PUAU PHU**

The third site was in Ban Pua Phu, a larger and more prosperous village in a rich rice-growing area overshadowed by sandstone mountains and watered by a stream emanating from nearby limestone formations. The site is north of the village, and near the school where we established our camp. At this site we had no expectation of a deep deposit and opened a 4 x 4 m. pit to examine a wider area. The estimate of depth was accurate; except for a deeper feature, the excavation ended at a hard laterite stratum 70-90 cm. below the datum. The site was rich in artifacts and features. Sherds were very dense. Iron and other artifacts were frequently found. A series of burned clay features was uncovered. They all seemed to be shaped like an igloo with an approximately 25 cm. high dome and a tunnel entrance. The dome had a hole on top on which the object to be heated was probably placed and, presumably, the tunnel provided access for fuel and air. The function of these features is still unknown. Smelting and casting seem to be ruled out by the lack of a significant concentration of slag, crucible fragments, or casting spillage.

They may be involved in some stage of cloth production which was important on the site judging from the number of spindle whorls recovered. Cooking also remains a possibility. A charcoal sample from one of these features dated to approximately 700 B.C. Two simple burials were excavated. Burial 1 had a socketed iron axe and many small opaque glass beads in the burial feature. Burial 2 had a ceramic bowl over the face and also had several small opaque glass beads. Burial 1 yielded a radiocarbon date of approximately 900 B.C. The precise stratigraphy is a complex problem but the data cannot represent an earlier pre-iron level, since none exist at the site. The date supports the idea of quite early iron metallurgy on the Khorat Plateau. We found no historic pottery in the deposit but it is likely to have been associated with more recent disturbances. The site has been used to bury infants who were not cremated under Buddhist practice.
Hoabinhian sites and propose new or revised models for the prehistory of the region.

This data from the piedmont does make an important contribution to studies of iron-using prehistoric periods in Southeast Asia. Iron and the developments associated with it are so important that I have begun thinking in terms of a Southeast Asian Iron Age. The burial date from Ban Puan Phu supports the idea that iron working was established on the Khorat Plateau at some time around 1000 B.C. Charles Higham and Amphan Kijngam (1979) have shown that at Ban Chiang iron is associated with domesticated water buffalo in the development of wet rice agriculture. Review of a growing body of data from Thailand indicates a rapid and widespread expansion of village settlement associated with iron. I would place the end of this period at the beginning of historic times but this is rather an arbitrary ending since many of the key elements of early village life are still important today. These continuities suggest that ethnographic and ethnohistorical research, as well as archaeology, can contribute important data to studies of this period. One of the central theoretical problems of this period is the unique course of state development in Southeast Asia. Simple lack of intelligence on the part of the people is no longer an acceptable solution to the question why states in the region are late and closely linked to influences from India or China. Research on this period promises to provide interesting tests of various general theories about courses of state development. The results of this survey are a significant contribution to such research.

Credit
All photographs by James S. Penny, Jr.

Acknowledgments
I would like to extend my heartfelt thanks to the Expeditions Committee of The University Museum for their support of the fieldwork. Nai Dejo Savanansaa, Director General of the Fine Arts Department of Thailand, was the official host for the research in Thailand. He and members of his staff provided professional and personal assistance to this project. Pisit Charoenwongsa, Thai co-director of the Northeast Thailand Archaeological Project, accepted and encouraged my work as part of the larger joint effort between the Thai Fine Arts Department and The University Museum. Government officials and citizens of the various provinces, districts, and villages where we worked cooperated fully and their hospitality left many fond memories. Numerous other individuals in Bangkok, Philadelphia and elsewhere made contributions to the work. Each is appreciated. Chester Gorman was both personally and professionally the inspiration for my work in Southeast Asian archaeology. My debt to him is immense and I can only hope that my work will carry on some measure of his inspiration.

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