

# PRELIMINARY ARCHAEOLOGICAL INVESTIGATIONS IN EASTERN KHAMMOUAN AND SAVANNAKHET PROVINCES, LAO PEOPLE'S DEMOCRATIC REPUBLIC

Bertell D. Davis

U.S. Army Central Identification Laboratory, Hawaii; 310 Worchester Ave, Hickam Air Force Base, Hawaii, 96853-5530

## ABSTRACT

*Southeast Asia, once seen as a cul de sac in the greater scheme of Asian prehistory and history, has enjoyed considerable archaeological successes over the past several decades. However, although it may be intellectually recognized that the territory now called Laos was part of this larger milieu, relatively little attention has been given to the systematic archaeological investigation of Lao history or prehistory. Recent findings in a portion of eastern Khammouan and Savannakhet provinces drained by the Nam Kok and the Xe Banghiang suggest some promise to correct this state of affairs. Ad hoc canvassing of villages conducted adjunct to non-archaeological activities has started to document a distribution of material culture that seems at least potentially related, and very possibly antecedent, to terraced agricultural systems generally considered atypical for Mainland Southeast Asia, i.e., stone-faced terraces, and stream and spring diversion utilizing rock-lined channels, all very reminiscent of Pacific Island irrigation systems. One of these terraced systems has been radiometrically dated to AD 1470-1640.*

## BACKGROUND

For the past six years the author has been conducting excavations for the U.S. Army Central Identification Laboratory, Hawaii (USACILHI), to recover missing American military and civilian casualties lost as a result of World War II and the Korean and Vietnam conflicts. Much of this work has been in the mountains of southeastern Laos totalling seven months during 1996-1997. Logistical and other operational constraints generally require basing the recovery operations at larger district centres, either at Boualapha in Khammouan Province to the north or Xepon in Savannakhet Province to the south,

and this often further demands helicopter support to access project areas. While such low-altitude air travel facilitates a wider overview of a region, it does not allow much opportunity for closer scrutiny. Actual time spent by the author on the ground, however, proved more than ample to become familiar with a number of localities containing potentially significant archaeological resources and for residents of nearby villages to recognize, usually with certain amusement, the author's interest in stones and broken pottery. It is thanks to so many of these people that disparate field observations have become the basic elements for developing a picture of antecedent human interaction with the highland environment of southeastern Laos. Having said that, it must be emphasized that the following is still quite preliminary and limited in both its empirical scope and its analytical completeness.

## DEFINITION OF THE BROADER ACTIVITY AREA AND GENERAL OBSERVATIONS

Using the aforementioned district towns of Boualapha and Xepon as approximate end points, the research described here covers a northwest to southeast trending area, 90 kilometres long by 15 kilometres wide, along the western slopes of the Annamite Cordillera and straddling the Khammouan/Savannakhet provincial border (Figure 1). This is a karst region dominated by high limestone peaks, many over 1200 metres in elevation, and narrow sinuous valleys to the northeast and by mid-elevation flood plains intermittently bound by karst outliers to the southwest.

Today the flood plains are largely cleared of primary forest and are devoted to a mix of irrigated rice culture, dryland cultivation, and grazing livestock. The surrounding heights are nearly all under deciduous monsoon

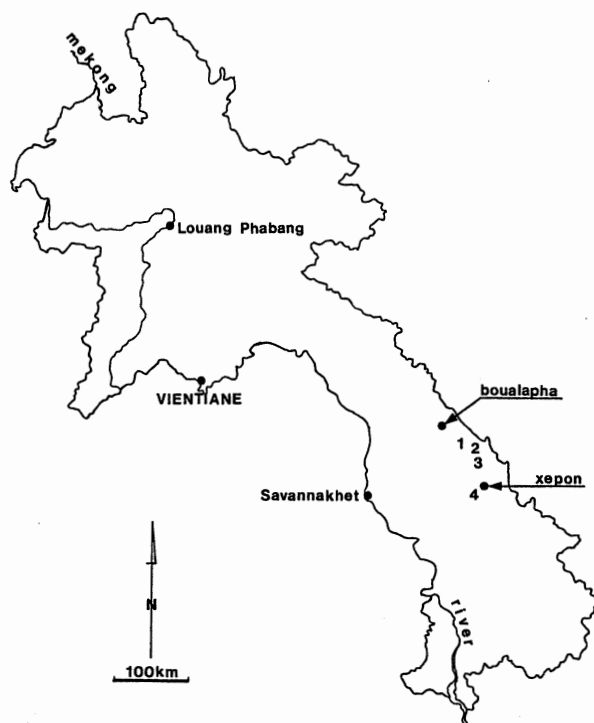


Figure 1. Outline map of Laos showing the location of Localities 1 to 4 in relation to the district towns of Boualapha in Khammouan Province and Xepon in Savannakhet Province.

forests, which are largely dominated by mature dipterocarps. And while there is considerable evidence for systematic exploitation of the uplands in the form of both active and long-abandoned swiddens, the severe degradation of the forest commonly associated with short-fallow swiddening or – all the more so – with over harvesting of hardwood timber, is not particularly evident here. Local climatic conditions generally reflect the Southeast Asian monsoon pattern, with most of the rain coming during the May/June to November/December time frame and drier conditions prevailing the rest of the year. However, whereas distance from the Gulf of Siam and orographic uplift over the Korat Plateau and the Annamite Cordillera combine to relegate central Vietnam, which lies across the divide from the study area, to the arid rain shadow during the summer monsoon, the forested littoral plain of central Vietnam frequently allows winter storms off the Gulf of Tonkin to continue little abated over the divide into Laos. As such, seasonal duality in southeastern Laos is not quite as dichotomous as elsewhere, for instance, in the northern mountains or on the lower flood plain of the Mekong River to the west and south.

Of the more than one dozen elevated outliers, the

Phou Koy/Phou Chang Vong and Phou Pre/Phou Chalat massifs in the northern half of the region were observed from the air over a cumulative 55 hours while supporting recovery operations during 1996-1997. These flights usually followed “most-direct corridors”, nevertheless it was possible to note at least the presence – if not the precise location – of caves and/or rock shelters large enough to suggest some archaeological potential. They were especially apparent around the Phou Chang Vong massif where they typically occurred at the upper margin of the surrounding talus. Major cave/rock-shelter sites, such as Spirit Cave, excavated by Chester Gorman (1969, 1970a, 1970b), Tham Phanchan (personal observation, 1974), and Banyan Valley Cave (Reynolds 1992) in northern Thailand, occupy similar topographic positions and there is little reason to doubt that Phou Chang Vong and other related features may offer comparably significant data.

#### PRIMARY STUDY AREA: BAN KATOK SOUTH TO HOUAY CHALAT

Within the larger flying area described above, on-ground time involved three localities near the Khammouan-Savannakhet border. These are provisionally designated Localities 1 to 3 (Figure 1). They are situated along the interface between the alluvial flats and the adjacent heights. The northernmost of these sites, Locality 1, sits adjacent to the Phou Chang Vong massif. Localities 2 and 3 lie within the middle reaches of the Nam Kok drainage 11 to 13 kilometres to the southeast.

#### LOCALITY 1: THE BAN KATOK FLOOD DEPOSIT

Locality 1 is situated approximately a half-kilometre to the northwest of the relocated (post-1970) village of Ban Katok. It occupies an alluvial terrace, at an elevation of 375 metres above mean sea level, along the right bank of a permanent, southeasterly flowing stream that emerges from the southern flank of Phou Chang Vong, some 1500 metres further to the northwest. The site was initially identified as an air-crash site in which excavations were conducted over a cumulative five-month period. With the exception of crash-related phenomena, trenching over an area measuring approximately 70 by 90 metres revealed no clearly discernible *in situ* cultural deposits. The exposed matrix consisted entirely of flood-deposited alluvium to a depth of at least 110 centimetres below surface. Nevertheless, the excavations yielded a sizable and varied collection of lithic and ceramic materials representing a considerable age range.

The numerically smaller assemblage of lithics included chert flakes and blades and two complete, shaped tools. One tool was a simple adze, lenticular in cross-



*Figure 2. Aerial view of the agricultural system at Locality 2, facing southwest toward Phou Phakat, indicated by the exposed (white) limestone mass in the upper left corner of the photograph.*

section, corresponding to Roger Duff's Type 2G (Duff 1970). The other tool was a bifacially ground axe, also lenticular in cross-section and lacking a distinct hafting device separate from the body of the tool. The bit was bevelled nearly symmetrically but had a decidedly asymmetrical curve to it. Ceramic items include fragments of mould-formed clay smoking pipes, which would postdate AD 1600 and may have been made in Laos itself (cf. Hein et al. 1992), low-fired earthenware sherds with friable sand-tempered paste, high-fired stonewares, and generally poor-quality porcelain "tradewares". Rather subjectively, the porcelains appear to represent the greater bulk of this assemblage; many also appear to be comparatively recent materials. Overall, however, the range of artifacts and the technology they represent im-

ply a time depth from prehistory until at least the historians' "Early Modern Era" (Reid 1993).

The as yet unanswered question is one of provenience. Virtually all of this material was recovered from the surface, either adjacent to the excavation units or as discarded material from screening areas. The few items, all porcelain sherds, for which a secure stratigraphic context can be assigned came nonetheless from fluvially transported sediments. Excluding the steep slopes of Phou Chang Vong to the north of the site and the smaller but still rugged hills to the south, the narrow (150 to 300 metres) catchment extending above Locality 1 would seem to be a logical source area. In all, this represents a potential reconnaissance area slightly less than 40 hectares which merits further investigation.

## LOCALITY 2: THE PHOU PHAKAT IRRIGATION COMPLEX

Locality 2 (Figure 2) is located some 11 kilometres southeast of Ban Katok, in an isolated basin at the foot of an elongated, somewhat crescent-shaped, karst formation called Phou Phakat. Phou Phakat rises like a wall 450 metres above the left (east) bank of the Nam Kok, and Locality 2 lies on the northeast side of the mountain at an elevation of 260 metres above mean sea level. It was found during aerial reconnaissance for a landing zone to accommodate the cumbersome Russian-built helicopters used to support recovery operations at Phou Phakat. This proved to be a fortunate circumstance offering the opportunity to undertake detailed mapping and limited testing of an out-of-use and apparently atypically constructed, terraced agricultural system.

The feature complex comprising Locality 2 was inferred to be an abandoned agricultural system based on its topographic context; the configuration of its principal structural elements, i.e., compartmentalized terrace floors arranged in stair-step fashion, remnant diversion dams, ditches dug along the contour to connect these dams with upper level terraces, and channelled waterways constructed through the system; and the widespread presence of taro (*Colocassia esculenta*). Validation of this hypothesis, at least for more recent times, comes from one villager who said that he cultivated wet rice and collected taro at the site between 1965 and 1985, after which he quit the site because of declining yields. Nobody could offer any further information regarding when or by whom these terraces were built, although there was general unanimity that they were very ancient and that the method of their construction, i.e., with stone walls, was nothing the villagers had either used themselves or could remember hearing of from elsewhere. Nevertheless, several villagers did report that another, smaller system of terraces with stone walls was located near a small conical hill 1500 metres to the southeast of Locality 2.

Approximately 35 terrace units, defined in whole or in part by stone walls or alignments separating floors of different elevations, were mapped. This defined an artificially terraced landscape of approximately 1.4 hectares bounded by more than 1200 metres of stonework. The stone walls dividing one floor level from another consisted of stream-rounded boulders measuring on average 30 by 25 by 25 centimetres. All the walls are of simple, dry-masonry construction in which the stones are stacked lengthwise, i.e., parallel with the terrace line, and generally no more than three stone courses high. Three streams enter the complex from the north, northeast, and east, respectively. Although now much deteriorated, a series

of foundation stones indicates the location of former diversion dams in the north and the east streams. Presumably, these would have functioned to elevate the stream bed by accretion in order to raise the water level to that of ditches excavated from the adjacent bank to the upper terraces of the system. Two such ditches still follow along the contour between the former dams and the upper level terraces on the north and east sides of the site. The third stream enters the upper centre of the system from the northeast and, except for a couple of gates at the top, is channelled between stone alignments all the way to the outflow of the system. Spring water also enters the system through some minor seeps west of the middle stream. The stone-lined channel and a second, shorter channel aligned almost directly downhill from the spring ultimately function as the main outflow for exhaust water leaving the system. From top to bottom the discharge gradient for the entire system is little more than one per cent.

The proximity of Locality 2 to the recovery operation also provided the opportunity to section one of the stone terrace facings and to recover subsurface samples for sedimentary and palynological analysis, and radiometric age determination. A trench was excavated in two of the lowest and apparently least disturbed terraces on the presumption that accumulated downwash would more likely have enhanced preservation of any evidence related to pioneering activities lower in the site, given that the prevailing regime further uphill might be reasonably expected to have been one of net erosion over time. This, of course, also presumes that these lower features are not later additions than those upslope. The exposed section showed the upper soil column to be comparatively free of boulder-sized (20+ centimetres) material to a depth of at least 20 centimetres. Below approximately 25 centimetres, sub-angular to well-rounded boulders dominated the profile. In section, the wall stones separating the two terraces seem to have been simply piled in a loose and haphazard manner, so much so that it would be difficult to conclude this was an intentionally constructed element were it not for the patterned association that the component features exhibit across the site. However, presumptive observations regarding the quality of construction notwithstanding, the wall apparently served its intended function of maintaining two different floor levels, albeit in this location at a difference of only 10 centimetres. And apparently it did so over at least two episodes of building and rebuilding. The data are necessarily limited, but the profile reveals what appear to be two superimposed A-Horizons, each of which is divided horizontally in stepwise fashion by two sets of placed stonework.





*Figure 3. Aerial view of the terrain surrounding Locality 3 (indicated by the white arrow), facing northwest down the Houay Chalat drainage channel toward the Nam Kok seen in the background (upper central portion of the photograph).*

Radiometric analysis of a single charcoal sample collected from a lens at the contact between the upper and lower A-Horizons yielded a  $C^{14}$  age of  $340 \pm 80$  years before present. This calibrates to a calendar age of AD 1470-1640 to the second standard deviation (cf. Stuiver and Kra 1986).

No portable artifacts were observed either while mapping the terrace complex or during the excavation. However, villagers from around the Phou Phakat neighbourhood who provided much of the work force for the recovery operation were in the possession of various objects which they had acquired over the years, either as heirloom pieces or as scattered finds during the course of their activities in field and forest. The most interesting of these items from an archaeological perspective was a

collection of ground and polished stone adzes totalling more than 25 pieces. These were all variations of Duff's (1970) Type 1B and 8A shouldered adze forms made from chert. More emphasis was placed on documenting those items for which the owners could provide at least an approximate location where the pieces were found. The quality of responses, and therefore also their anticipated reliability, varied considerably. Nevertheless, the approximate proveniences for 17 adzes were recorded. Most of these were reportedly found within a one-kilometre area between the southeast end of Phou Phakat and that same afore-mentioned hill near which, as claimed by several of the older villagers, there was a second remnant terrace system with stone wall construction.

### LOCALITY 3: THE HOUAY CHALAT LITHICS STATION

Locality 3 (Figure 3) is located near the Khammouan/Savannakhet border, four kilometres south of Locality 2 and approximately 40 kilometres northwest of Xepon, a major market town on the highway between Savannakhet and Vietnam (Figure 1). Initially it was identified as the possible burial site of a Vietnam-era ground loss. Instead, the two recovery operations documented features comprising a one-time way station for northern Vietnamese troops and material moving along the collective network of roads and trails known as the Ho Chi Minh Trail. The archaeological significance of the area was recognized when, during a second period of recovery excavations, a wide array of stone artifacts was observed eroding from open trenches and piles of back-dirt left from the first excavation.

The site is situated at the lower end of a small drainage channel called Houay Chalat. Houay Chalat is a permanent stream rising from the northwestern quadrant of a karst outlier called Phou Chalat. From the site, it flows another 200 plus metres to the west-north-west where it joins with the Nam Kok near the former (pre-1970) site of Ban Thong Louang. The site occupies a slight rise of ground forming the left bank of the stream, at a nominal elevation of 240 metres above mean sea level. The chief substrate of the site consists of old saprolitic colluvium resting on a mixed limestone/sandstone basement. Overlying soil development varies across the site. On the higher ground the surface soil is crumbly clay-loam little more than 20 centimetres deep, whereas alluvial silty clay loams derived from the above reach a metre and more deep on either side of this rise. Locality 3 underlies a canopy of large trees rising to 10 or more metres above the forest floor. However, this thins quickly to the west where the forest begins to give way to a dense bamboo scrub.

Over the course of three weeks, surface collection yielded 130 items fashioned largely from grey chert. These included 78 flakes, 22 complete blades, 15 partial blades, ten pieces of apparent shatter, a possible core, the probable butt-end of a shouldered adze still in the stage of hammer dressing, a complete shouldered adze preform, and two flaked objects in a shape similar to but larger than a gun flint. No archaeological materials were recovered from the portions of the site excavated during the second period of field work. Both of the adze preforms are roughly lenticular in cross-section, which does not readily fit with Duff's typology for shouldered adzes. However, it seems likely that this is more a reflection of their stage of manufacture rather than their intended final

form, since shouldered adzes in Mainland Southeast Asia seem entirely to be rectangular in cross-section (Bellwood 1978:171-175). Initial analysis of the flake and blade material shows the flake assemblage to consist largely of small pieces measuring under 20 by 25 millimetres, consistent more with debitage than with prepared flake tools. However, although suitable material in the form of stream cobbles apparently could have been easily obtained from the nearby stream bed, the conspicuous lack of cores and flakes still bearing cortical surfaces suggests that Locality 3 probably was not a primary reduction centre. The recovery of adze preforms apparently in the final stages of the reduction process before moving on to the next step of manufacture lends some credence to this interpretation. As for the blade material, little can be said at this point except to note their presence and that they comprise nearly a third of the flake/blade component of this assemblage.

One final item recovered from Locality 3 is of particular interest because of its similarity to material comprising, insofar as the author is aware, an as yet undefined lithic assemblage from a proposed (1964) reservoir site in northeastern Thailand called Lam Pra-phloeng. The item is a rather plain-looking piece of coarse-grained, tabular sandstone. On one edge there is a single lunate bevel formed by tiny step fractures which appear to be the result of the stone having been used in the fashion of a draw-knife or spokeshave. The material from Lam Pra-phloeng, which was collected by Wilhelm G. Solheim II in the mid-1960s, was a similar coarse-grained, quartz sandstone which included both tabular pieces and rather more blocky material bearing the same, usually single, lunate bevels (personal observation, 1975). This material was unsuited for flaking. However, except for the lunate bevels, there was no polishing or other wear patterns to suggest – as might be expected from its graininess – that this material was used for grinding or rubbing stones.

### ADDITIONAL OBSERVATIONS: THE XE BANGHIANG LITHICS SITE, SAVANNAKHET PROVINCE

Another apparent lithics station is located at the far south end of the larger flying area, about 7 kilometres to the south-south-west of the district town of Xepon in Savannakhet Province. It sits on a bluff overlooking the right (west) bank of the Xe Banghiang, across the river from the village of Ban Kenghouapa. Initially believed to be an air-crash site, recovery operations undertaken over two successive missions found serialized parts representing different types of aircraft which identified the site

not as an air-crash site, but rather as one that had been used as a collection and staging point by salvagers. It was during the second field period that the archaeological significance of the site was realized with the discovery of numerous stone and ceramic artifacts.

The excavators describe the site, designated Locality 4 in Figure 1, as sitting on a southeasterly trending ridge that ends at the river bank (Harrington and Webster, personal communication 1998). This ridge is part of a series of small ridges, knolls, and draws which are surrounded in turn on three sides by slightly higher hills. An intermittent, easterly flowing stream defines the southern margin of the ridge and a narrow draw begins on and continues down the northeast-facing slope of the ridge. Vegetation on site consists of a few large trees and bamboo thickets rising over a thick ground cover of tall grass and brush. Tree cover generally increases to the north side of the site, while the high ground south of the intermittent stream is under dryland cultivation. Numerous cut bamboo stumps and root clumps are scattered across the site, the bamboo stalks presumably having been cut to prepare the area for cultivation. Charred wood and soil are also much in evidence on the site. The soil profile over most of the site consists of 5 to 10 centimetres of dark brown, sandy silty loam on a red to reddish-brown saprolitic clay basement. Soil development is thin (less than 5 centimetres) on the more steeply sloping ground and, conversely, much deeper (up to 40 centimetres) along the intermittent stream.

Unfortunately, the excavators did not record the provenience of the archaeological materials, nor was there sufficient opportunity otherwise to examine the exposed sections. Nevertheless, the range of material recovered, which included ground-and-polished adze fragment, a shouldered adze preform, cores, blades, and flake debitage, is comparable to the material recorded at the Houay Chalat site.

## DISCUSSION AND CONCLUSIONS

As noted at the beginning of this paper, the work and its results presented here are still very preliminary. Nevertheless, the present data point to an archaeological region with a number of potential temporal associations with cultures much further afield. The artifact assemblages from the four localities described above arise, at least in part, out of local manifestations of that pan-Mainland Southeast Asian tradition characterized by Gorman (1971) as the Hoabinhian technocomplex. Technologically the Hoabinhian is characterized by flaked pebble tools, accompanied occasionally by grinding along the edges of the pebble tools and cord-marked pottery. The

recurrence of polished (and pre-polished) adzes at the four sites described here, and the historical (middle to late second millennium AD) antiquity of those materials that can be dated, indicate a broadly post-Hoabinhian chronology. The production of polished adzes in Mainland Southeast Asia certainly continued well after bronze became widely available within the last four millennia (e.g. Higham 1989), but it would require a leap of faith to suggest that they continued to be made into historical times. The spatial coincidence of polished adzes and evidently later materials may nonetheless point to concordances in settlement patterns and economic activities. Collectively the four sites in this paper suggest a regional continuity of at least several thousand years and, taken together, only hint at the potential for substantive archaeological research in the highlands of southeastern Laos.

## ACKNOWLEDGEMENTS

The author wishes to acknowledge the U.S. Army Central Identification Laboratory, Hawaii, and Dr Thomas D. Holland, its scientific director, for providing the opportunity leading to the research reported here, and for the support which made its presentation possible. Further recognition goes to Dr Robert Spear and Scientific Consultant Services, of Honolulu, Hawaii, for their contribution toward the radiocarbon age analysis. As always, lapses in critical thinking lie solely with the author.

## REFERENCES

- Bellwood, P. 1978. *Man's Conquest of the Pacific: The Prehistory of Southeast Asia and Oceania*. London: Collins.
- Duff, R. 1970. *Stone Adzes of Southeast Asia*. Canterbury: Canterbury Museum Bulletin.
- Gorman, C.F. 1969. Hoabinhian: A pebble-tool complex with early plant associations in Southeast Asia. *Science* 163:671-673.
- 1970a. Excavations at Spirit Cave, North Thailand: some interim impressions. *Asian Perspectives* 13:79-107.
- 1970b. *Prehistoric Research in Northern Thailand: A Cultural-Chronological Sequence from the Late Pleistocene and Early Recent Periods*. Unpublished PhD dissertation. Honolulu: University of Hawaii-Manoa.
- 1971. The Hoabinhian and after: subsistence patterns in Southeast Asia during the Late Pleistocene and early recent periods. *World Archaeology* 2:300-320.
- Harrington, R. and Webster, A. 1998. Personal communication.
- Hein, D., Barbetti, M. and Sayavongkhamdy, T. 1992. *An Excavation at the Sisattanak Kiln Site, Vientiane, Lao PDR, 1989*. Sydney: The University of Sydney.

DAVIS: ARCHAEOLOGICAL INVESTIGATIONS IN LAO PDR

Higham, C. 1989. *The Archaeology of Mainland Southeast Asia from 10,000 B.C. to the Fall of Angkor*. Cambridge: Cambridge University Press.

Reid, A. (ed.). 1993. *Southeast Asia in the Early Modern Era: Trade, Power and Belief*. Ithaca: Cornell University Press.

Reynolds, T.E.G. 1992. Excavations at Banyan Valley Cave, Northern Thailand: a report on the 1972 season. *Asian Perspectives* 31:77-97.

Stuiver, M. and Kra, R.S. (eds). 1986. Radiocarbon calibration issue. *Radiocarbon* 28 (2B):805-1030.