

Research, Education, and Cultural Resource Management at Angkor Borei, Cambodia

The Kingdom of Cambodia is among the most blessed and cursed of nations in the world of cultural resource management. The Angkor Historical Park houses the world's greatest collection of temples. The complexity, beauty, and quality of the many structures surely warrant assignment of a heritage status second to none. In the area west of the Mekong River are the foundations of Southeast Asian civilization. South into the delta of the Mekong lie ruins as yet unstudied—ruins that bear the evidence of the shift from the Neolithic and Bronze ages into the Hindu and Buddhist kingdoms that are the base of states from southern Vietnam through Burma.

Sadly, however, Cambodia and its heritage are being looted and sold to antiquities traffickers from Thailand and the West. Statuary is carried off or defaced for body parts, temples are dug for hidden gold and figurines, and whole buildings are dismantled. The CRM officials of Cambodia struggle against incredible odds to impede the destruction. The University of Hawai'i and the East-West Center (EWC), both in Honolulu, have developed a joint training and research project that aims to help Cambodia gain a Cultural Resource Management program second to none. This project has grown out of the "Indochina Initiative" of the East-West Center with the cooperation of the University of Hawai'i (UH).

The Indochina Initiative was established in 1992 to focus attention and resources on special-

ized training relevant to the needs of Cambodia, Laos, and Vietnam. Since the beginning of 1994, the Initiative has been emphasizing training in anthropology and archeology, including cultural resource management, to graduates of the Faculty of Archaeology of the Royal University of Fine Arts in Phnom Penh. Included in the program have been the authors, Griffin and Stark of the Department of Anthropology and Ledgerwood of the East-West Center; Professor Nancy Dowling of the University of Hawai'i's Department of Art; Chhanny Sak-Humphry of the Linguistics Department; William Chapman, Director of the University's Historic Preservation Program; Jefferson Fox, a research fellow at the East-West Center; and several graduate students, including Michael Dega and Kyle Latinis, who worked as on-site supervisors during the 1995 summer survey project. Carol Mortland, an independent anthropologist from the State of Washington with long ties to the region, also has participated in the program, the ultimate goal of which is to regenerate indigenous professional capabilities in archeology and preservation that were destroyed by the Khmer Rouge.

Because Cambodia is the home of Angkor Wat and of thousands of smaller precious archeological sites, archeological research and education are central to the understanding and preservation of Khmer culture. After the ravages of war and the Khmer Rouge period, only three Khmer professional archeologists survived. In 1989, Cambodia reopened the Royal University of Fine Arts (RUFA). The Indochina Initiative's Cambodian students, studying at the University of Hawai'i and supported by the East-West Center, were among the first graduating class of the RUFA Faculty of Archaeology since 1975. During the 1994–95 academic year, six students studied at UH as non-degree students, completing English, cultural anthropology, and archeology classes. During the 1995–96 year, five Khmer students are again in residence in Hawai'i, two of them returning from the previous group. A grant from the Henry Luce Foundation will help support these and other students from December 1995. Some of the students will enter the graduate degree program in Anthropology. These students will eventually take up positions as faculty at the University, as profes-

Photos by P. Bion Griffin.

Students excavating.



sional staff at the National Museum, and at the Angkor Conservatory.

In conjunction with the classroom training, the UH/EWC conducted an archeology field training program in Cambodia during the summer of 1995. Training was conducted primarily at the "Funan" site of Angkor Borei. The dual purposes of the summer exercise were to train the Cambodian students in basic archeological field techniques such as excavation and mapping, and to plan future research and preservation. Cooperation with Cambodian authorities exceeded all expectations. The Minister of Culture and Fine Arts, the State Secretariat for Culture, the Governor of the Province of Takeo, and District officials approved the work and visited the operation, bringing

national media coverage several times. Fortunately, the Dean of the Faculty of Archeology and Vice Rector of the University, Professor Chuch Phoeurn, spent considerable time at the site, working closely with the student trainees and acquainting the "novice foreigners" with the intricacies of Cambodian archeology.

Cultural resource management in Cambodia has tended to focus on preservation and restoration of the Ankorian period sites, dating from the founding of the Khmer empire in A.D. 802 through the sacking of the capital city by the Thais in A.D. 1432. During those centuries, the explosion of monumental public architecture construction saw temple building not only in the Siem Reap Province (the location of the Khmer capitals), but

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Angkor Borei

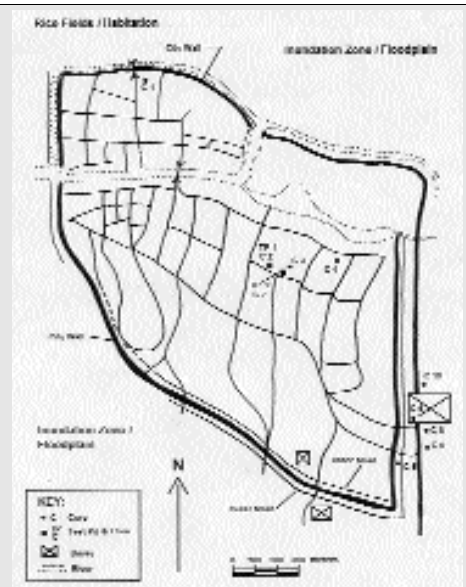
Chinese travellers to Funan in the mid-2nd century A.D., namely K'ang T'ai, reported that the "people of Funan 'live in walled cities, palaces, and houses'." Hall (1985) also notes that "populations lived in houses built on stilts within great earthen ramparts." Louis Malleret, a French archeologist who excavated at Oc-Eo, an early historic site in present-day Vietnam, discovered rectangular moats and ramparts around the town of Oc-Eo measures 3.0 x 1.5 kilometers (approximately 1.865 miles x .932 miles). Importantly, he described this Funanese site as lying behind five ramparts and four moats. Recent research at Angkor Borei also revealed the presence of both walls and moats around the city.

Angkor Borei is, for the most part, a moated settlement, surrounded by a wall that is approximately 6 kilometers (approximately 3.729 miles) long. The wall is composed of a brick foundation with packed earth over the top of the bricks. Sections of the wall profile that are visible due to erosion and modern road cuts through the wall revealed up to 18 layers or courses of large, stacked bricks. The wall itself varied in width between 10 and 20 meters (approximately 10.54 and 21.8 yards) wide and once rose 4-5

meters (approximately 4.37-5.46 yards) above the surrounding terrain. The wall does not completely enclose the ancient city as the Angkor Borei river runs through the middle from the west to the east. The rampart does continue on both sides of the river.

In some places, the city wall is level on top, the flatness intentionally created during original construction. The level character of the top of the wall has become more pronounced by transportation use and the wall's use as a habitational area over the centuries. The even surface creates ideal living areas for present-day occupants as their houses lie above the marshlands present on both sides of the wall. Local villagers now reside, in places, directly on the wall. It was observed that many of the bricks composing the wall were being used in the construction of new houses, garden plots, and small brick-lined water catchments near the dwellings.

Temporally, the construction of the wall may be dated through its similarity with other recognized Funanese walls such as those at Oc-Eo. Also, enclosed settlements were supposedly typical of Funan-period settlements. Thus, the wall was likely constructed between the 2nd and 5th centuries A.D. Several brick samples from the lower portion of the wall are currently being analyzed by thermoluminescence to obtain absolute dates of brick ages to infer wall construction episodes.



Functionally, the wall may have served several purposes. First, as could be called "typical" of a Funan period city, the wall enclosed Angkor Borei, separating the city from the surrounding low-lying floodplain. Second, since Angkor Borei was a major trading center, residents could have efficiently controlled the flow of goods and merchants in and out of the city. Third, water control on the floodplain was necessary as the city lies in an inundation zone and could easily be flooded. Potentially, the river running through the middle of the city could have flooded residential areas, but this seems unlikely as the banks of the river are raised and residential units would lie well above the swollen river. Fourth, the wall served a defensive role as a fortification around the city. Finally, the city

into present day Thailand and Laos. Given the splendor of these sites, it is easy to justify a priority for their conservation. Scholars and preservationists from Japan and France, as well as those associated with the World Monuments Fund, are leading efforts to help Cambodians in this domain. The East-West Center/University of Hawai'i Cambodia anthropology and archeology program, however, in its contributions, looks outside the Siem Reap area and to times earlier than the Khmer empire.

Following the lead of Professor Chuch Phoeurn, the Hawai'i team is concentrating on the prehistory of Cambodia, on prehistoric sites, and on the southern portion of the country. In addition, the terrain along the banks of the Mekong River

are appropriate for Hawai'i scholars and students to explore for sites. "Prehistory" is meant in this context as anything that is "pre-Angkorian," or that dates before the 9th century A.D. The survey is not limited to the Funan age (the first few centuries of the Christian era: the term "Funan" is from Chinese sources and may derive from the Khmer word *phnom*, which means mountain) and its sites of Angkor Borei and Ba Phnom, but may include examinations into the Iron and Bronze ages, the Neolithic, and the Paleolithic. The project has, and will, concentrate on the low southerly regions that are the upper reaches of the Mekong delta and happily transpires in a land and time where and when next to nothing is known.

wall may represent a ritual function that portrays the sector controlled by elites of the area and may also incorporate a representation of the Mandala, the Hindu universe.

Other important features on the landscape are moats. Much like the moats at Oc-Eo, a Funan site in southern Vietnam, yet larger, both an inner and outer moat run along the south, east, and west sides of the city. The inner and outer moats are separated by the city wall. The inner moat runs from the southeast corner of the wall to the west for 1.5 kilometers (approximately .932 miles) and is 22 meters (approximately 24 yards) wide. The outer moat runs from the southeast corner of the wall to the west and north for a distance of 3 kilometers (approximately 1.86 miles). This moat is also 22 meters (approximately 24.06 yards) wide, thus showing a formality in construction. At present, both moats are only 1.23 meters (approximately 4.03 feet) deep and are overgrown with mangrove taxa. More than likely, the moats were much deeper in the past but due to the intense movement of soil in the floodplain region, the moat probably filled rapidly. Analysis of soil samples taken by a Livingstonscorer in the moats should help determine the approximate original depths of the moats. Radiocarbon dates from the moat itself will aid in dating the stratigraphic layers as well as provide a complement to the soil analysis underway to identify building

episodes by stratigraphic analysis. Finally, a network of moats several kilometers beyond the city was discovered. These will be investigated further in the 1996 field season.

A third category of important features documented last summer were barays or reservoirs. Previous residents of Angkor Borei created large water management systems, both to direct the immense amount of water on the floodplain during monsoon seasons and to store water for future use. The reservoirs were probably built mainly to store large amounts of water for the dry season, thus allowing residents to produce multiple rice crops throughout the year. Water from these reservoirs may have been circulated through canals, irrigation channels, and moats to allow for year-round rice production.

Several barays were discovered within the city wall, in less populated zones, while a larger reservoir was recorded just outside the city wall's eastern side (see map). The large baray was rectangular, measuring 200 meters (approximately 218.72 yards) due east-west by 100 meters (approximately 109.36 yards) north-south. A network of small barays was located during the latter part of the field season to the east of Angkor Borei. This network will be investigated during the 1996 field season and should give a more detailed picture of water management systems in and around Angkor Borei.

The population of early historic-period Angkor Borei transformed the difficult floodplain environmental conditions by constructing large walls, moats, barays, and employing an extensive canal system. These features were critical for Angkor Borei's agricultural production and for trade with other economic centers within the Funan domain. Future research involving continued survey and excavations at the early historic city will reveal more about the intensity of agricultural production with respect to its hydraulic systems, and will shed light on the important role that this city played in the development of early Southeast Asian polities.

References

- Hall, Kenneth R. *Maritime Trade and State Development in Early Southeast Asia*. (University of Hawai'i Press, Honolulu, 1985).
- Higham, Charles. *The Archaeology of Mainland Southeast Asia: From 10,000 B.C. to the Fall of Angkor*. (Cambridge, England: Cambridge University Press, 1989).
- Malleret, Louis. *L'Archeologie du Delta du Mekong* (4 Vols.). (Ecole Francaise d'Extreme Orient: Paris, 1959-1963).

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The Paleolithic of Cambodia is limited to speculation; almost certainly sites exist that date to the mid- to late-Pleistocene, but no one has looked for them yet. French archeologists may have excavated Paleolithic caves in the Kampot region, but it was found, in 1995, that only remnants left after destruction through limestone quarrying were visible. The famous Neolithic site of Memot, near the Vietnam border in Kampong Cham Province, is known by word of mouth as the “mother of Neolithic sites.” Excavated but unreported by the illustrious French prehistorian Bernard Groslier, this moated and deeply stratified site warrants further study. It is hoped that the EWC/UH team will excavate there in 1996, if security concerns permit. The Bronze and Iron ages, as reported in Vietnam and Thailand, are unrecorded in Cambodia, but it is believed they also underlie the Funan period deposits at Angkor Borei.

In 1995, the Minister of Culture and Fine Arts, the Honorable Nouth Narang, assigned the site of Angkor Borei to the EWC/UH team. He and his colleagues considered the site of singular importance for the Funan or Pre-Angkorian period, to be accessible, and to be secure from military conflict and unexploded land mines. As a result, training and research efforts were limited to this ancient city. The UH/EWC/RUFA team worked at Angkor Borei for four weeks in mid-1995. The preliminary research begins the process of adding to the admittedly little knowledge built up over nearly two millennia.

What little is known of Angkor Borei comes from Chinese accounts, epigraphy based on stone inscriptions, and colonial French scholarship. The so-called Funan people, according to Chinese traders in the mid-2nd century A.D., lived in walled cities that contained moats, water reservoirs, palaces, and residential areas (see commentary by Michael Dega, this issue). Their accounts suggest that Angkor Borei and Ba Phnom may have been Funan period cities. As Dega reports, Angkor Borei is a walled city (or town, depending on one’s perspective) and was moated. Its importance in the political and economic scene of the first few centuries A.D. is hypothetical, but Kenneth Hall, in his book *Maritime Trade and State Development in Early Southeast Asia*, suggests a pivotal place in regional trade and in the development of social complexity of Cambodian society.

The potential for new knowledge through excavations at Angkor Borei is great; the first modern excavation program, accompanied by high-tech data retrieval and analysis systems, should permit a fine-grained examination of the paleoenvironment, of trade patterns, and of the concentration of economy and political power. It is known from the mapping and coring work already completed that

the city was walled and moated. Thus, it shares characteristics with approximately one dozen other moated settlements through Thailand and Cambodia during this time. It is hypothesized that after the 7th century population dropped, never to regain Funan period levels. It is suggested that with the collapse of the Funan “international” trading complex, power shifted to the north, as other scholars have opined.

Angkor Borei appears to be the archeological remnants of a Funan city. The nearby city of Ba Phnom reveals, even with the most cursory of inspections, archeological remains not only of Funan times, but of much later dates. Angkor Borei, however, has the surface remains of destroyed Pre-Angkorian temples, but no later, larger temples. Unless the preliminary research is mistaken, the foundations of several rather similar Funan temples were located in 1995. Based on size, brick configuration, foundation characteristics, and reported looted artifacts, they are roughly 5th, 6th, and 7th century structures. Except at the nearby sacred hilltop temple site of Phnom Da, no 10th century and later structures were found. Angkor Borei may indeed be a Funan age city, giving investigators a chance to best understand that time without having to sort out later materials. At the same time, excavations suggest that the stratigraphically lower layers of the site predate Funan, extending back into the Bronze Age.

Conservation and preservation at Angkor Borei are as critical as any in Cambodia—from some perspectives even more so. The Funan Period sites are few and are fragile and the most famous site of this period—Oc-Eo, in Vietnam—is largely destroyed. The relative lack of monumental architecture masks the importance of these sites and, in fact, allows improperly minimizing the cultural heritage value of the material. Such sites do have remains of national importance, and these are, at least at Angkor Borei, being lost. During the summer of 1995, six previously unknown temples—all reduced to mounds of brick and all in some state of looting—were located. Local residents in the last few years have searched for the temples, sunk exploratory pits to locate the center, then excavated straight down to recover deeply buried ritual treasures: gold and stone figures, ceramics, and jewelry. Nearly all the temples have already been looted; two were “in progress” during the research period (but villagers suspended digging to avoid notice). Even more deadly is the recent practice of removing temple bricks for the construction of a new temple complex or wat in the town’s center.

Future proposed research places a high priority on excavations that better record the nature of the temples and to devise a means of retarding

their destruction. The Ministry of Culture is dedicated to ensuring their preservation; perhaps with our help this will be realized. The looting problem at Angkor Borei is larger, however, since the very ground of the ancient city and the present town contains gold flecks. Great, gaping holes abound throughout the town. The field team was told that the holes were looters' pits, dug in the pursuit of gold objects, stone statuary, and ceramics. The team wondered what on earth they did with the backdirt until they were told that under the cover of night, baskets of dirt were taken to canoes, then by canoe to sheltered locations where the dirt was panned for gold! One old woman remarked, on observing our use of 1/8" screen in excavating, "What fools they are! They'll miss all the gold with that size mesh."

A serious problem, perhaps the greatest, is that everybody in Angkor Borei believes researchers are there to find gold and objects, and must have the high-tech means of doing so. While Professor Chuch Phoeurn worked long and hard to educate the townspeople, they were clearly convinced that our coring was solely to find treasures.



An exterior moat scene with a modern causeway crossing it in the background.

In fact, the team never excavated where it was thought any valuable material would be found, but chose to work in badly disturbed locations. This was consistent with our overall goals, which were to train Cambodian students and to accomplish simple exploratory research that would enable us to design proper research for 1996 and later years.

The EWC/UH team was in Cambodia to complete the first year of training of Cambodian archeology students. The team returned to Cambodia from Hawai'i with four students and invited an additional six of the last graduating class in archeology at the Royal University of Fine Arts to join us. The team conducted a reconnaissance survey at Angkor Borei, began mapping the entire site, and instituted excavations. The excavations were

designed to give hands-on training to the students and to give the researchers an understanding of the site stratigraphy. Variation over space was unknown but became better understood as the work wore on. Kiln sites with extensive sherd concentrations were located. The quays along the waterway were recovered. High status and ritual areas were pinpointed. An extensive system of moats or water collection areas were explored within the city, and these correlated (in a preliminary fashion) with raised or elevated areas.

Most interesting were the efforts to find a rectangular city wall and its adjacent moats. Team members Nancy Dowling of the University of Hawai'i's Department of Art and Bion Griffin of the University of Hawai'i's Department of Anthropology walked and walked and argued and argued over what the wall situation really was; eventually, with the mapping efforts of Graduate Students Mike Dega, Kyle Latinis, and the Cambodian students, a preliminary map was produced. This map is now being compared with the GPS mapping effort of Nancy Dowling and Jeff Fox of the University of Hawai'i's East-West Center (see map, page 38). Now that these data are in hand and suggestive of the morphology of this Funan city of Angkor Borei, the future design of research and preservation must be put in place. Central to the preservation effort is the building, staffing, and equipping of a museum and heritage center at the town. Few of Angkor Borei's present residents will ever have the time or money to visit the nation's capital, Phnom Penh, and its National Museum. Instead, a focus of local pride, education, and research may be achieved by modest effort in building a structure for housing collections, conserving artifacts, and displaying the materials that represent the heritage of the city. We in Hawai'i have the exciting possibility to participate with Cambodian scholars in this wide-ranging and important legacy. In 1996, the team will return to Angkor Borei as a further step in this direction.

References

- Kenneth R. Hall. *Maritime Trade and State Development in Early South East Asia*. Honolulu: UH Press, 1985.
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