# BRITISH INSTITUTE IN SOUTH-EAST ASIA SINGAPORE

# SOUTH-EAST ASIAN STUDIES, NEWSLETTER

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## Archaeology-History-History of Art-Anthropology

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#### Prehistoric Environment and Subsistence in Northeast Thailand

Excavations and analyses by the Northeast Thailand Archaeological Project have produced evidence of an early rice producing, metallurgical cultural tradition in the Sakon Nakon Basin dating from the fourth millenium B.C. During the course of this pioneering research, many issues have been raised concerning the interpretation of these finds, the significance of which extends beyond the parochial concerns of regional chronology. With regard to the economic aspects, since the Sakon Nakon Basin lies within the theoretical zone of the domestication of many cultigens which now form the staple food base in most of mainland and insular Southeast Asia, including particularly rice and yams, research on the palaeo-economy of this basin can have repercussions in our understanding of the development of agriculture throughout the entire Indo-Pacific.

While a detailed reconstruction of the prehistoric environment and subsistence of the Sakon Nakon Basin can be attained only after several more years of cooperative specialist research and analysis, tentative models have been proffered based on available information (Higham and Kijngam 1979). Because the specialist analyses on the palaeopalynology and palaeobotany are incomplete, and little relevant ethnographic and ecological research from Northeast Thailand has been published, these models have drawn substantially from studies of upland and/or insular areas for ecological models. Owing to the obvious

shortcomings of this approach, this aspect of the Northeast Thailand Archaeological Project was formulated to collect ethnographic and ecological data from the region producing early rice exploiting sites in order that ecological models might be based on data more directly relevant to the region.

#### Research design and fieldwork

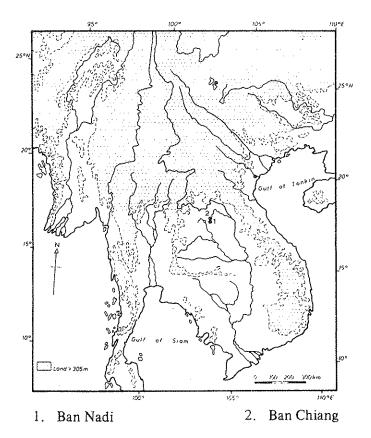
The field research was conducted from October 10 1979 to March 1981 from a base in the village of Ban Chiang situated at the major site excavated by the Thai Fine Arts Department and the University & Museum, University of Pennsylvania. The project was designed to collect information not generally preserved in the archaeological record but integral to the aims of reconstructing and interpreting long term ecological change. Three foci were selected for the field investigation: (a) to inventory \$\mathcal{L}\$ biological resources emphasizing plant foods; (b)  $\overline{z}$  to identify the ecological contexts of those  $\overline{z}$ resources by contemporary inhabitants of the Je region. The specifics of the research design underwent considerable elaboration modification in the field, and several strategies evolved to contribute to each goal. In addition to the information derived from observation and participation in the local life, data collection was organised as follows:

restigate the strategies

Ethnobotanical collection. The collection, drying, and cataloguing of plant specimens served several purposes in addition to providing the resource inventory. First of all, the collection serves as the basis of the assignment of a scientific name to a resource item. Secondly, the collection of seeds and fruits will serve as a comparative collection for archaeological specimens. Thirdly, the catalogue serves as a compendium of both botanical and cultural information on individual resources. This compendium can be used to infer both biological and cultural behaviours that generally do not preserve in archaeological contexts. Data systematically recorded include seasonal availability, parts of plant used and how, preferred environmental locale, methods of propagation, collection, preparation, use, storage, etc. as applicable. Entries in the catalogue are derived in large part from my principal informant, but also from weekly inventories at the village market, surveys of gardens in the vicinity, and reference work done at the base. Over one thousand specimens have been collected, including wild and domesticated yams, legumes, fruits, etc. A separate collection of 43 of both "wild" and cultivated rice varieties was made. Specimens have been sent to the International Research Institute in Manila for study of eco-differentiation and to the ethnobotanist Douglas Yen for comparison with the Ban Chiang archaeological remains.

Ethno-environmental description. The goal of delineating ecological contexts of resources presented a major methodological challenge, yet has proved to be the most rewarding effort. During general questioning, it become evident that local inhabitants employ a system of environmental categorization which combines soil texture, colour, and depth with topography and vegetation to describe distinctive "land" types. Furthermore, it was discovered that areas surrounding modern day villages have specific place names that often refer to the original natural habitat. These land types can be recognized by older inhabitants even in greatly changed landscapes by observing the soils and remnant trees, and often by memory. Thus discussions with informants, in combination with foot surveys and aerial photographs, has allowed considerable reconstruction of the natural vegetation. Environmental maps of the catchments of Ban Chiang and Ban Nadi are currently being drawn by this method. This environmental classification system can be correlated with scientific surveys of soil and vegetation, but has the advantage of being finer than these surveys, which oversimplify subtle ecological differences important to local use of the region. Thus the ethnic environmental system allows a more detailed understanding of the ecological potential of archaeological sites.

Exploitation strategies. Data on exploitation strategies has been sought with emphasis on the following themes: (1) the relationship between the seasonality of resources and the scheduling of economic activities, both gathering and food production; (2) variations in both wet and dry cultivation methods, their rationale, and observed consequences; (3) traditional cultural response to fluctuations in resources due to variability in rainfall. Methods used to collect the data included interviews, water table measurements, market inventories, and garden inventories. This aspect of the research has vielded information useful in the reconstruction of primitive economies, such as when and how yams can be gathered, grown and eaten, how wet rice can be cultivated without water buffalo and ploughs, and how natural resources can systematically "fit" into a cultivation system.



Discussion

The collection of this data has allowed a much fuller understanding of the probable prehistoric environment and subsistence than has heretofore been possible. While a full discussion will be forth-coming in the final report, tentative statements can be made on the work to date. As noted above, it has been possible to examine the modern-day catchments of Ban Chiang and Ban Nadi, and

certain similarities are suggestive of a prehistoric settlement pattern. Both sites are located at comparable points along seasonal streams just upstream from areas of prolonged flooding during the latter half of the rainy season, and a few kilometres downstream from the head drainage area. The land adjacent to the streams at this point is inundated for brief periods (less than 24 hours) following heavy rains in August and September. The natural vegetation on the sandy-clayey soils immediately surrounding the sites was probably comprised of mesic variants of deciduous woodlands, that is, variants of the "mixed deciduous forest" in technical terms. Areas subjected to inundation probably had a very open character with scattered trees and shrubs such as bamboo Bambusa arundinacea. Dipterocarpus intricatus, Terminalia alata. Rising off these low lying areas, the vegetation most likely became denser with thick viney and thorny undergrowth. These later areas, known locally as "din don", are generally high in diverse plant resources, including numerous species of wild yams, legumes, berries, etc. On topographically higher, rapidly drained soils above these mesic woodlands would be xeric woodlands, technically known as dry dipterocarp forests. These are relatively low in plant and animal resources. While the presence of the snail Pila polita in the early Ban Chiang sequence (Higham and Kijngam 1979) argues for the presence of a prehistoric permanent lake in the area, in the recent past only small seasonal lakes have been found in the area. If the distribution of "wild" rice in the present is any guide to the past, "wild" rice may have been present in the vicinity of these sites along stream courses and small lake edges, but not in prodigious quantities. This would suggest that if rice was a major food item for the early settlers of the Sakon Nakon Basin, they would most likely have been planting it - perhaps in those zones along the streams with gentle flooding and sparse vegetation. These areas would have required little forest clearance, and relatively simple water control, and the annual flooding and drainage from higher areas would have helped maintain soil fertility so that it would not have been necessary to move fields owing to soil exhaustion. Tubers, legumes, and other foods from the slightly higher lands could have been gathered as integral food staples, or even cultivated.

The author has since returned to Philadelphia to complete the writeup of this material at the University of Pennsylvania. This writeup is funded by a fellowship from the Association of American University Women. The field research was supported by the University Museum, University of Pennsylvania, and an alumnae fellowship from Oberlin College. Support from the Institute for the

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Reference:

Higham, C.F.W. and A. Kijngam, 1979. 'Ban Chiang and Northeast Thailand; the palaeoenvironment and economy'. *Journal of Archaeological Science* 6:211-233.

#### **CONFERENCES AND SEMINARS**

#### Rattanakosin Bicentennial Celebration: Northern Illinois University

The National Coordinating Committee for the Rattanakosin Bicentennial Celebration for 1982 in the United States (NCCRBC) will sponsor two major conferences in 1982-83. One of these, concerned primarily with current diplomatic and government issues, will be held at the Fletcher School of Law and Diplomacy of Tufts University. The other conference, "200 years of the Chakri dynasty", will be held at NIU under the auspices of the Council on Thai Studies and the NIU Center for Southeast Asian Studies.

The conference at NIU will highlight the role of the current dynasty in the development of modern Thai civilization. It is planned that the proceedings of the NIU conference will result in a major publication on Thai studies. There will be five topics or panels. Each panel will consist of two presenters of papers and two commentators. These participants will include Thais and Americans. Proposed topics all focus on the Chakri monarchy's support of: (1) written history and culture; (2) arts and architecture; (3) literature and music; (4) religion and social development; and (5) government and national economic development. There will be a museum exhibit of Thai culture, an exhibit of Thai art, and a Thai film festival. The conference is scheduled for 11-13 November 1982. All interested in Thai culture and society are welcome to attend. For further information, contact the Center at Northern Illinois University, DeKalb, Illinois 60115, USA.

### XXXIst International Congress of Human Sciences in Asia and North Africa: \*\* Tokyo and Kyoto

The XXXIst International Congress of Human Sciences in Asia and North Africa (CISHAAN)