

# Ethnoarchaeological Research in Asia

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## INTRODUCTION (WGS)

WHEN A PERSON does what he or she considers ethnoarchaeological research there is no particular worry about a definition of ethnoarchaeology. When I write to friends in various countries in Asia asking them about what is going on in ethnoarchaeological research in their countries, I don't define the term. In the few replies I have received, no one has asked me to define the term or has seemed to have misunderstood my request for information. But now that I am writing about "ethnoarchaeology," I have been forced to ask myself, "What is ethnoarchaeology?" I find I am not very sure of an answer. Is it ethnoarchaeology when an archaeologist does ethnography? I suppose that is usually the case. Are archaeologists the only ones who can do ethnoarchaeology? I would think not and would hope not. Can ethnoarchaeology be a library study? While I suspect this is not the purpose we have in mind, I don't see why it can't be. If we agree that ethnoarchaeology can be done in a library, then it could also be done in archives; either way we are overlapping ethnohistory, with no harm done. What is the purpose of ethnoarchaeology? To provide models? To tell us how specific artifacts were made and/or used? To provide data on the functions of material culture, both direct function and social function? I am sure there are many, and multiple, purposes. I suppose ethnoarchaeology became a recognizable, named subdiscipline of archaeology simply because most nonarchaeological anthropologists have stopped doing ethnography in the United States while archaeologists' need for ethnography continues and, in fact, is growing. Certainly many archaeologists were consciously or subconsciously doing a bit of ethnoarchaeology while other anthropologists were still doing ethnography. For my purposes here, I make no attempt to define ethnoarchaeology and only hope that what I include here as ethnoarchaeology will not irritate more than a small minority of my audience.

## AREA SURVEY (WGS)

Asia is a tremendous area with a major portion of two of the largest nations in the world and well over half of the world's population. I have no information for most

of Asia, nothing for Siberia or the rest of the U.S.S.R. in Asia, and only five small notes for China. For these areas, I know only that many old and good ethnographies contain much worthwhile information.

India I do not leave quite as blank. Again there are many old, good ethnographic reports. While I have no details, I know that the Anthropological Survey of India is still alive and active, working from its headquarters in Calcutta, in the India Museum. The survey has carried out at least two major research projects that I would consider ethnoarchaeological in content and possibly even in intent. The first, *Peasant Life in India*, was “a survey of about a dozen items of material culture in order to find out if any regional distinction was present between one portion of India and another” (Saraswati and Behura 1966: vi). The second was *Pottery Techniques in Peasant India* (Saraswati and Behura 1966). Besides the two authors who worked full time for 18 months on this project, five others assisted them.

The first study was limited to pottery manufacture; in the final report the concentration was descriptive. Chapter titles are: “Tools and Implements,” “Techniques: Wheel-thrown Pottery,” “Techniques: Hand-modeled Pottery,” “Techniques of Firing,” “Painted Pottery,” “Aspects of Pottery” (including “forms—surface treatment—use”), and “The Potters” (including “nomenclature—the rank of potters in the caste-system structure—the ritual idiom and fetishism—relationship: potters versus other castes—potters craft of tomorrow”) (p. iii). The study analyzed the distribution of elements of pottery manufacture. The results “tally more or less with the findings based on the distinction of ploughs, oil-presses, and dietary habits as recorded in *Peasant Life in India*.” Two distinct zones were noted: (a) the south and eastern portion of India up through Assam, and (b) the west, north, and northwestern portion (p. vii). When the authors completed the first phase of their work they went on “to examine the social and ritual aspects of pottery and its use. Some forms of pottery are considered useful for sacred, ceremonial purposes, while others are taboo. Black pottery is made by some castes, red ware by others; the two are socially and ritually distinguishable from one another. They do not also intermarry, and occupy unequal ranks in the scale of castes” (p. ix).

The Deccan College in Poona is the only institution in India to have a post in ethnoarchaeology; this is held by Malti Nagar. She has kindly sent me a summary of her work and her bibliography, which I here include in slightly revised form.

Between 1962 and 1965 Malti Nagar carried out an ethnographic study of the rural population in several villages of Mewar with a view to finding affinities, if any, between the second millennium B.C. Ahar chalcolithic culture and the present-day rural culture of the area (Nagar 1966, 1969, 1970, 1973, 1975a). The study was concentrated mainly in the villages around the site of Ahar near the city of Udaipur in Rajasthan. Some 50 sites of the Ahar Culture are known in the valleys of the Banas River and its tributaries. Ahar was a farming culture with copper metallurgy and very limited use of stone technology, plentiful use of painted and incised pottery, and stone and mud architecture.

The population of the villages in this area comprises Bhils and several farming and trading Hindu castes. The economy of the people is based on agriculture and pastoralism, especially breeding of sheep and camels. The study revealed that there had been little change in house types, building materials, and techniques between the prehistoric culture and the present-day society. Some of the pottery forms and techniques of surface treatment like slipping and burnishing are common to prehistoric

and present-day pottery. A most striking affinity is seen in some of the Ahar Culture pottery designs and present-day Bhil clothing designs. The most distinctive Ahar ceramic design is a black-and-red ware with white dotted and linear designs over a black background. Identical designs in white are found on the *odhnis* (an unstitched long piece of printed cloth used for covering the upper part of the body) of Bhil women. The *odhnis* are also printed in black and red and carry printed designs in white on black borders. H. D. Sankalia was so impressed with this resemblance that he christened the pottery Bhil ware.

Since 1973 Nagar has been engaged on a project on the material culture and economic organization of the tribal communities of peninsular India. During 1976 and 1977 she made a study of the material culture, religion, and socioeconomic organization of the Gonds living in villages around the prehistoric site of Bhimbetka in the densely forested Vindhya Hills in the Raisen district of Madhya Pradesh. This study has brought to light two very interesting ethnoarchaeological facts.

1. The chief deity of the Gonds here is Burha Baba who is represented by metal weapons like spearheads and daggers. The weapons are kept hidden in the rocks and are taken out by the chief priest for worship twice a year. An archaeologist coming across these weapons would be likely to interpret them as utilitarian objects because of the lack of archaeological context. But we know that they are actually ritual objects. The copper hoards of the Ganga valley are always found outside of archaeological context. The Bhimbetka evidence suggests that they were ritual rather than utilitarian artifacts.

2. The Gonds in this area raise small stones in memory of their dead. The stones are installed on a stone and mud platform accompanied by an elaborate ceremony. The stones—called Gantha—represent the spirits of the dead ancestors and are worshiped on all auspicious occasions. These ceremonies give us an insight into the psychological reasoning behind the raising of memorial stones during the early Iron Age in various parts of India, especially the south.

The one report that I have from Japan has to do with the processing of acorns. Nuts were eaten prehistorically in all areas of Japan, with acorns apparently particularly common (Watanabe 1974:163–164). Makoto Watanabe was able to locate an old woman who knew how to process acorns, though she had not used them in over thirty years (pp. 165–166). Some kinds of acorns need leaching and others do not, so there were varying methods. He also mentioned the leaching of buckeye and refers to a report by Matsuyama in 1972 on this. I do not have this reference. Both reports were written in Japanese and published in Japanese journals.

Japan has not only archaeological treasures (particularly important archaeological finds that are declared a “national treasure” and protected by the government) and historical treasures, but also “living treasures.” When I was in Tokyo for a congress in the 1960s, Yosihiko Sinoto of the Bishop Museum in Honolulu arranged for a group of us to go to the home of one of these living national treasures. He was an old, well-to-do farmer who had become interested in Jomon pottery. On his own he had studied Jomon pottery and through experimentation had learned how to duplicate a wide variety of this pottery. He demonstrated several stages of the manufacture of different typical Jomon vessels and then took us to one of his fields nearby, where we saw the end of the firing of a number of ordinary, Jomon-like cylindrical jars. We each received one of these as a gift, when they had cooled off. One article with which I am acquainted, in a popular Japanese magazine, reports on this man

and his work (Shiono 1968). This is not typical ethnoarchaeology, but it would be experimental archaeology if the old farmer were an archaeologist instead of a national treasure.

I am sure that if one had the time and could read Chinese, a considerable amount of ethnoarchaeology from China could be located. Two of the reports I mention on China are on material culture. They were not written by or for archaeologists but could be very useful to archaeologists for a number of different purposes. The first of these reports concerns the material culture of Hainan Island, off the south coast of China (Prunner 1966a). This is a report compiled from the literature and museum collections and as such it naturally has many gaps. As there is very little readily available information on Hainan, however, this report is of considerable value. The second report is on Chinese tools and titled *China at Work: An Illustrated Record of the Primitive Industries of China's Masses, Whose Life is Toil and Thus an Account of Chinese Civilization* (Hommel 1937). The chapter titles of this well-illustrated book give a good idea of its contents: "Tools to Make Tools," "Tools for Procuring Food," "Tools for Making Clothing," "Tools for Providing Shelter," and "Tools for Enabling Transport." While these are tools that were being used by the Chinese peasant in the 1930s, for most of them there has probably been little change for hundreds and even thousands of years.

The earlier issues of *Kaogu (Archaeology)* had an occasional article on pottery manufacture. Two of these, which I had translated, were on manufacture from two ethnic groups in Yunnan. The first is an attempt to explain methods of ancient pottery manufacture through observation of present-day methods of the Kava people in Yunnan (*Kaogu* 1959). The author did not have a thorough knowledge of pottery manufacture, and a number of the conclusions are questionable. The second reporter was less ambitious and presented only a description of manufacture, including information on the different types of vessels made and their uses (Chang 1959). This was a simple but good report. I have not noticed this kind of article recently.

A Chinese album picturing porcelain manufacture was discovered in a French museum and published (Huard and Ming 1962–1963). This album, of unknown date and provenience, contained 26 paintings showing the details of porcelain manufacture, from the gathering and processing of the kaolin to the packing and shipping out of the finished product. The text of this article (pp. 3–26) discussed different sources available in French libraries on Chinese porcelain manufacture and then, from these sources, explains in detail what is happening in each of the reproduced paintings (Pl. I–XXVI, pp. 31–56). It appears that the pictures represent manufacture during the eighteenth century A.D., when much porcelain was being exported to Europe (p. 3).

The great majority of the specifically ethnoarchaeological reports and projects that I know of for Southeast Asia is on pottery, which I cover below. The other half of this paper, by PBG, summarizes the only recent nonpottery research in ethnoarchaeology that I know of for Southeast Asia. During and before World War II, there was a Japanese archaeologist-ethnologist-ethnographer, Tadao Kano, who worked in and on Southeast Asia. He worked primarily on Taiwan, and much of his comparative research involved Taiwan and the Philippines, where he served during the war. A large and impressive photo-oriented ethnography of the Yami was published after his death (Kano 1945). Two volumes of short papers were also compiled and published (Kano 1946, 1952). Both volumes are in Japanese and contain a brief

note in English by H. Otley Beyer on Kano and his work. This would still be a very useful pair of books to have in English.

The German tradition of ethnography can often be useful to the archaeologist and so comes close to ethnoarchaeology. Active museums in Germany and Switzerland publish small books on varying subjects in connection with special exhibits, providing an avenue to publish pictures of selected artifacts in the exhibits; the books usually deal with some element of technology or material culture. The coverage of the subject is often worldwide but concentrates on areas from which the museum has good collections. I have a few such publications from the Museum für Völkerkunde und Schweizerische Museum für Völkerkunde (MVSMV) in Basel, Switzerland; the Hamburgisches Museum für Völkerkunde and Vorgeschichte in Hamburg; the Städtischen Museum für Völkerkunde in Frankfurt am Main; and the Staatliches Museum für Völkerkunde (SMVD) in Dresden. The subjects covered in these publications include: the manufacture of stone and shell artifacts, much of this from Melanesia (MVSMV 1962); primitive warfare (MVSMV 1963; SMVD 1965); metalwork (MVSMV 1966); Burmese lacquer (Prunner 1966*b*); textiles, specifically handwoven silk and ikat from India and Indonesia (Buhler, Ramseyer, and Ramseyer-Gygi 1975); batik (Nabholz-Kartaschoff 1970); and barkcloth and techniques of patterning in textiles (Schmitz 1966), including detailed definitions of terms (in German, pp. 10–18). A very useful book for systematic descriptions and illustrations of different methods of weaving comes from the same general source (Seiler-Baldinger 1973).

German doctoral theses in ethnology are often intensive studies of the culture of an area or of a cultural complex within a region, partly for the purpose of prehistoric reconstruction, using libraries and museum collections for the sources of the data. Two examples of this are studies of Kei Island in eastern Indonesia (Nutz 1959) and a study of metalworking in Indonesia (Marschall 1968).

French ethnography is very different from German ethnography but can still be much more oriented to material culture than the anthropology done in the United States. The journal *Asie du Sud-Est et Monde Insulin dien* (ASEMI) often has articles or series of articles that are potentially very useful to archaeologists. Two issues have been published on habitations in Southeast Asia (ASEMI 1974, 1975). The first of these includes, besides papers on specific ethnic groups, a general paper on houses on piles in Southeast Asia (Charpentier and Clement 1974*a*) and a bibliography by the same authors (1974*b*).

To complete this extremely sketchy survey, I am able to mention a specifically ethnoarchaeological project done in 1973. Richard Stamps and Chuan-kun Ho made an ethnographic film of an old Bunun man making stone tools. This was part of a study to identify possible functions of stone artifacts commonly recovered as surface finds from this general area in the mountains of Taiwan (Ho 1977, and personal communication).

#### ETHNOARCHAEOLOGICAL RESEARCH ON POTTERY IN SOUTHEAST ASIA (WGS)

I believe that more ethnoarchaeological research has been conducted on pottery in Southeast Asia than on any other subject. This belief may, of course, result from my own interest in pottery and pottery manufacture so that I noticed and remembered

articles on this subject while passing over papers on other subjects. My first research project on pottery concerned Oceanian pottery manufacture, which included more and more, as time went on, pottery manufacture in Southeast Asia. This led to four different papers on the Oceanian subject (1952*a*, 1952*b*, 1964*a*, 1968), and to seven papers on pottery manufactured by specific potters (1952*c*, 1964*b*, 1967; Solheim and Ap 1977; Solheim and Mansoben 1977; Solheim and Schuler 1963).

I have written two papers partly on the usefulness of ethnographic data on pottery to archaeologists working in and on Southeast Asia. One was concerned with the functions of pottery (1965), and the other reviewed the present uses of pottery by archaeologists and suggested further ways in which pottery could serve as a tool for archaeologists working in Southeast Asia (1974).

Most of the reports that focus on pottery in Southeast Asia have to do either with the pottery manufactured by one potter out of a group or with one potting group. Two somewhat different papers have to do with the decoration of pottery through the use of a carved or bound paddle to form and finish the pots (Colani 1931; Solheim 1952*b*). A very small sample of reports concerned with pottery manufacture includes studies on Kampuchea (Biagini and Mourer 1971); Burma (Sribnai 1976); Thailand (Solheim 1964*b*); Laos (Solheim 1967); Taiwan (Chen 1959; Sung 1957); and the Philippines (Solheim 1952*c*, 1954; Solheim and Schuler 1963; Scheans 1965); as well as a full monograph on Indonesia with a long bibliography (Gasser 1969). Many more references for Southeast Asia will also be found in my paper, "Pottery and the Malayo-Polynesians" (1964*a*).

I know of only three people who have worked with pottery in Southeast Asia who have gone further than a simple view of pottery manufacture. Two of these worked on northeastern Thailand and the third on the Philippines. Mei Mei Burke, a former student of mine at the University of Hawaii, did a study of the variations found in the pottery manufactured by one person over two months and of variations among different potters in the same village (Burke 1970; Solheim 1984:98–100). Angela Calder (1972) wrote her master's thesis for the University of Otago in New Zealand on her research in Thailand "to examine the breakage and distribution patterns of pottery within a village in North-east Thailand." Two procedures were involved: "The first was the collection and collation of ethnographic information to construct hypotheses concerning the breakage and distribution patterns of pottery. The second was the use of archaeological procedures in the form of excavations to test these hypotheses" (Calder 1972:2). The project was a success (Solheim 1984:100–102).

The most ambitious ethnoarchaeological project concerned with pottery in Southern Asia with which I am acquainted was done by Daniel Scheans in the late 1960s. He spent about a year working in several locations in the Philippines to produce a descriptive survey of contemporary Filipino earthenwares, working with market potters only. He studied not only the manufacture of the pottery but also the potters, the economics of pottery manufacture, and the sociocultural characteristics of the potters. The final report was completed, but unfortunately its publication by the National Museum of the Philippines was long delayed (Scheans 1977). Scheans presented a preview of his results in a brief paper written before his research in the field, on the basis of earlier field and library research (Scheans 1966).

A more recent and equally important study is that of Longacre among the Kalinga of the Central Cordillera, northern Luzon. Longacre, a prominent

archaeologist in Arizona, pioneered the "new archaeology" approach to the analysis of ceramics, especially painted designs (Longacre 1970). His concern for the social and cultural contexts of ceramic style led him to ethnoarchaeological studies of Kalinga potters. Longacre explained the development of his research interest (1974) and has written a series of papers, published or in preparation, detailing various aspects of his study (1981, 1983). Longacre's Kalinga data have been partially analyzed in a lengthy and high quality dissertation by Michael Graves (1981). This important document should be considered by all ceramic specialists and by those interested in understanding the sociocultural matrices of production, distribution, and use of pottery among traditional pottery-making societies. Longacre and Graves are continuing their interest in the ethnoarchaeology of ceramics in northern Luzon.

In 1982, the National Museum of the Philippines hosted and conducted the SPAFA (Southeast Asian Ministers of Education Projects in Archaeology and the Fine Arts) training course in ethnoarchaeology. The training course for young professionals was held at Atulu, Iguig, Cagayan, and directed by Wilfredo Ronquillo and Bion Griffin. As yet unpublished except for a photo essay by Hernandez (1983), the project promised insights into the socioeconomics of pottery in a rural hamlet of traditional Itawi farmers and potters.

Dorothea Saligan's "Market System for Earthenware Potteries in Southeastern Negros: A Preliminary Report" (1982) is a broad view of the operation of locally produced pottery in a market system. As such it is a good ethnoarchaeological view of ceramics beyond the context of household manufacture and domestic use. I suspect that several other studies of pottery are in progress in the Philippines, and note that great potential for a wide variety of research foci certainly exists.

## ETHNOARCHAEOLOGY AND SOUTHEAST ASIAN HUNTERS (PBG)

### *A Review of Southeast Asian Hunters*

Only the broadest and barest of outlines of the nature of Asian hunters is possible for this paper. Unquestionably the whole study of Asian cultures, either archaeological or ethnographic, lags well behind that of many other regions. The hunting-collecting peoples still scattered from the Indian subcontinent through the Philippines, when compared with such well-known cultures as the !Kung San of southern Africa, the Eskimo, and the aboriginal Australian, can be said to be known only through ethnographic miscellanies. The very few better studies are noted later in this paper.

Hunters of the ethnographic present, and probably all those still functioning as hunter-gatherers in Asia, may be categorized by two rough cultural-environmental divisions. The first is limited to the Indian subcontinent, including the lower Himalayan mountain range, and includes a portion of India. The second includes all of Southeast Asia. Crosscutting the two environmental divisions and their respective cultural adaptations, we might further divide on the basis of whether groups are frequently or seldom in contact with nonhunting societies.

In the Indian subcontinent, hunters are characterized as being more collector-traders than hunters. They have often and increasingly had to fill the role of low-caste specialists whose ascribed occupation is the collection and processing of animal meats. In addition they usually trade varied forest products for manufactured goods

or peasant-produced food supplements. Certainly economic intercourse with outsiders is the rule. The environments in which these people lived are seasonally arid, generally semitropical forests, and some scrub and grassland, and they are close to settlements of pastoralists, farmers, and specialized craftworkers. Forest peoples include the Birhor (Williams 1974; Sinha 1972), Kadar (Ehrenfels 1952), and Chenchu (Fürer-Heimendorf 1943). In Nepal, according to Navin Rai (pers. comm. 1973), in a mountain forest zone are located one or two nomadic hunting-collecting-trading groups. These hunters of monkey and deer seem to be in the process of settling down.

Perhaps of greater interest are the several cultures still found in the humid tropical jungles of Mainland, Peninsular, and Island Southeast Asia (see also Glover 1972; Dunn 1967). These groups are largely unstudied (with a few exceptions), perhaps due to the political and logistical problems of reaching their home ranges. The small groups of forest collectors, such as the “Yumbri” or Phi Tong Luang on the Thai-Laos border, may have become victims of the last 20 years of military activities; formerly, it could take months to find these group. Little of substance can be said about them except that hunting seems not to have been the major economic activity, being less reliable than plant-food gathering. Bows, arrows, and blowguns were the tools used to kill game. Given recent insights into hunting-collecting adaptations in Southeast Asia, I hesitate to put much weight on the available accounts of the mainland groups.

The mountain interior of peninsular Southeast Asia contains perhaps the best-known cultures. Occupying dense forest, several groups of unsettled Negrito Semang- and Senoi-speaking Orang Asli are still available for study (F. L. Dunn, Terry Rambo, personal communications). A good ethnographic reporting of several of the Semang groups is found in Denton (1968), in Endicott (1977), and in several works of Schebesta (1973, 1952–1957). F. L. Dunn (1975) has recently published the work of greatest interest to archaeologists; he relates ethnographic and archaeological data to an understanding of the nature of exchanges between hunter-gatherers and agriculturalists.

Semang seem as representative of hunters in the humid tropics as any one group, but such extreme variation in cultural adaptation is found that generalizations are difficult to make at this time. Semang are blowgun hunters (Endicott 1969) and forest plant-food collectors who have had sporadic trade relations with nonhunters for perhaps hundreds if not thousands of years. Living in small extended family groups of (usually) fewer than 20 people, they use a tropical montane forest and stream environment, killing small and midrange game animals, including monkey, deer, and wild pig. As Semang live in forest area of seasonal monsoons, adjustments typical of hunters throughout the area are found. Housing, settlement locations, subsistence technology, and hunting techniques appear to vary with the environmental cycle. I will return to these and related points in discussing the construction of a model of hunters in the humid tropics.

Probably the largest groups of hunters still operant are found in insular areas. Best known, but still largely unknown, are the famous Andaman Islanders (Cipriani 1966; Man 1885; Radcliffe-Brown 1964). Today Andamanese Negritos, still completely hunter-gatherers, are located on the main islands (the Jarawa), on Little Andaman (the Onge), and on North Sentinel (these people, numbering fewer than

500, are still hostile and unapproachable). Photographs in my possession taken from offshore of North Sentinel a few years ago indicate a strictly aboriginal technology.

The Philippines have received much publicity of late because of the discovery and description of the Tasaday of Southern Mindanao. These part-time cave dwellers live in one small band of about 29 people, ranging out daily to scrounge harvestable plant and stream products, such as tadpoles and shrimps (Nance 1975; Yen and Nance 1976). Compared to the Tasaday, the early Pleistocene Australopithecines seem like big-game hunters. No Tasaday is believed to have hunted game animals until taught to do so a few years ago. Contrasting with the Tasaday are the many Negrito groups scattered throughout the Philippines (Fox 1952; Fox and Flory 1974; J. T. Peterson 1974; Bennagen 1976; Estioko and Griffin 1975; Garvan 1964). Of these latter peoples, the Agta of northeastern Luzon differ from the Tasaday as much as any other group of hunters in Asia, except possibly those in Nepal. The Agta are bow-and-arrow hunters of deer, wild pig, and monkey. They are perhaps among the least acculturated Negritos left, although less frequently contacted Malay hunters are almost certainly to be found in the more southerly islands. I will discuss the Agta in greater detail later, since they have been the subject of a recent ethnoarchaeological study.

### *Ethnoarchaeological Studies of Asian Hunters*

The archaeology of Asia has not generated much interest in a supportive ethnoarchaeology, especially concerning hunting cultures. Most of the questions asked of archaeological data were directed either toward descriptive or typological efforts, or toward past horticultural and civilized cultures. Some interest in defining palaeolithic materials has been seen, but the study of hunting-gathering groups directly ancestral to early horticulturalists has just begun. Archaeologists have usually assumed that in the humid tropics little can be recovered about forest nomads. Although it is not, properly speaking, ethnoarchaeology but experimental archaeology, the analysis of wear patterns on chipped stone artifacts began new approaches in the questioning and handling of data on Asian hunters (W. Peterson 1974).

I know of only two studies of Asian hunters that could be called ethnoarchaeological—the publication of F. L. Dunn (1975), which is not ethnoarchaeological in intent, and the work of my wife and me among the Agta of the Philippines (Estioko and Griffin 1975; Estioko-Griffin and Griffin 1981*a*, 1981*b*; Griffin and Estioko-Griffin 1978; Griffin 1981). Many bits and pieces of other studies are of use to the archaeologist—scattered discussions of material culture, food-getting techniques, housing and settlement patterns, and so on. These writings are found throughout the literature of Asian anthropology and, as WS notes in the earlier portion of this paper, are best sought in European, especially German and Dutch, reports. The several writings of Schebesta (1952–1957, 1973), Furer-Heimendorf (1943), Ehrenfels (1952), Garvan (1964), and Skeat and Blagden (1906) contain good discussions of the range of hunting-gathering adaptations to semihumid and humid tropics in Asia. Ethnographic miscellanies abound; a representative work is Brandt's (1965) "Southeast Asian Negrito," which contains useful photographs of Semang houses and material culture. A blowpipe and poison dart canister are pictured and stylistic variation in blowpipes among the bands of Semang noted.

I question the value of these sorts of data for ethnoarchaeology. Archaeologists have been poring over such descriptions (although not so much in Southeast Asia) since archaeology became a discipline. In the construction of both specific and general ethnographic analogies, any and all descriptions of material culture, economics, settlements, and so forth, will remain useful. The early call for ethnoarchaeological research (Watson and Kleindienst 1956) argued for a systematic collection of such information by archaeologists. These ethnographically collected data were seen to be useful in better understanding the classification and function of archaeological items. However, as culture history began to change into “process” foci in the 1960s and 1970s, the need increased for an ethnoarchaeology that could explore the nature of material culture, its variations, and the reflection of the non-material in material culture. Ethnoarchaeology has therefore sought to provide both general models of behavior and rules of site formation and configuration.

The Agta ethnoarchaeological project was aimed at attacking several problems in hunter-gatherer archaeology in the humid tropics of Southeast Asia. The project was not designed to discover laws of human behavior as related to archaeological materials or to obtain data for general analogies. Instead, we wanted to build a detailed model of hunter-gatherer adaptation specific to the area, focusing on subsistence, settlement, and environmental behaviors. We hoped that archaeologists would gain insights from our model, insights that would be applicable to designing hypothetical models for further archaeological research. An Agta model should not be applied as an analogy; it should only shape the descriptions gained in the field into a system from which one might isolate material components and offer archaeological predictions.

Furthermore, as in general models transposed from any ethnographic situation to a particular archaeological case, manipulation of the components is expected. Even a cursory glance at the literature on the Semang, the Tasaday, and the Andamanese clearly indicates that Southeast Asian hunters differ greatly. The sense of modeling must lie in understanding systematic interactions of components within one culture's behavior and in environmental and cultural relationship. We suggest that the focus in Agta ethnoarchaeology has permitted adequate description of the organization of Agta subsistence and settlement strategies, or technology, and of social units as they adjust to stability and change in the environment (Estioko and Griffin 1975; Estioko-Griffin and Griffin 1981a; Griffin 1981).

The Agta are seminomadic Negritos, traditionally hunter-gatherers living in the northeastern portions of Luzon, in the Philippines. Today only a few groups or residential units still roam the seacoast and forest interiors as hunters. Many Agta have attempted with varying success to emulate the Malay Christian farmers (“lowlanders”) found on the few fertile drainage areas. At present, then, Agta themselves are highly variable in behavior. A two-hour walk can take one from a semisedentary community of maize cultivators into the small hunting camp of full-time hunters. The ethnoarchaeologist has here an ideal laboratory in which to examine subsistence strategy and settlement as Agta meet the demands of their natural and social environments.

In order to collect the data appropriate to the research, we needed to describe and quantify various aspects of the environment—climate, topography, flora, and fauna—and to place these in the seasonal cycle of eastern Luzon. We devised a procedure that allowed systematic collection of behavioral and material data.

We lived among different groups of Agta for 14 months, locating dry- and rainy-season campsites, recording special activity sites, and mapping occupied and abandoned camps. In order to detail the interaction of human behavior and its material components more closely, we used *activity* as an organizing construct. With the definition and recording of each activity, we noted provenience, time, social unit, artifacts, and spatial arrangement. Since only two to five nuclear families are found in most camps, collection of these data was not especially difficult.

The resultant ethnographic model shows that Agta organization of subsistence and settlement is adjusted to a strongly seasonal climatic cycle. The cycle of monsoon rains, typhoons, and dry hot weather is critical to forest flora composition, which in turn influences game animals. Agta, as hunters, must take advantage of the game potentialities, must reside where game is found, and must organize themselves socially and technologically to have the highest kill rate possible.

In both the rainy and dry seasons, base camps are built that are slightly more substantial than the specialized camps of either season. In the dry season game is widely scattered, is wary and lean, and is best secured in remote areas of light hunting pressure. Hunters, usually male, operate out of base camps placed on dry riverbeds near flowing water. The dry-season dwelling is a one-piece lean-to held up by a stick about six feet long. The nuclear family has its own lean-to, and can be economically independent if so forced. The rainy-season home is larger, stronger, and more protective. Built on four posts it keeps most of the rain and wind off its occupants. A rainy-season settlement is carefully placed since natural hazards are great. Rivers flood well above their banks, covering dry-season campsites by as much as ten feet of water. Because the Agta live in the heart of the Philippine typhoon belt, houses cannot be built where trees are likely to blow down. Furthermore, heavy rains often cause massive landslides. A thorough inspection of local topography allows prediction of settlement locations, since spots where these hazards will not destroy dwellings are scarce.

As exploitation of the forest resources is predicated upon availability, the hunting, gathering, and residence patterns conform to seasonally determined abundance and distribution. Hunting parties travel for up to three days into deep mountains seldom inhabited by any Agta today. On these trips they build crude lean-tos, always close to water, but perhaps hidden from the view of other hunters. Evidence of hunting and gathering is often found at honey-collection camps and other types of specialized campsites. Honey camps are remarkable for their location far up mountain streams, their seasonality, and the paraphernalia associated with honey procurement.

Compared with the specialized camp sites, the base camps differ in size, complexity of debris, and stylistic characteristics. Hunting camps usually are built and occupied by males (except in the remoter regions, where adult women may hunt). Since many hunting trips will likely terminate within one week, little effort is put into shelter construction. Except in the rainy seasons, when overnight trips are infrequent, the crudest of shelters suffices. Hunting camps have other distinguishing features, such as large hearths for smoke-drying meat before it is transported back to the base camp, drying racks, and concentrations of bones selectively discarded as too cumbersome to backpack home. Like honey camps, the rainy-season camps for processing sago (*Caryota cummingii*) are occupied primarily for a single purpose. A sago-like starch is extracted, usually by women, at sites close to slow-moving

streams scattered throughout the less steep sections of the mountains. Debris specific to *Caryota* processing is left at the abandoned camp, showing any passer-by what was the purpose of the camp.

Base camps, however, contain evidence of the multitude of maintenance tasks common to Agta, and they vary in both location and construction materials according to season. As the main residential focus of groups of Agta, they are the site of daily activities as well as of preparations for and results of the specialized subsistence activities carried out elsewhere. For example, most arrow manufacture and repair is done by individual hunters beside the hearths of the lean-tos. Men may join other men in the camp and work together, but each home has, except during the hottest months, the anvil stones used in making arrowheads, as well as the debris associated with that activity. Typical remains include resins, wood, feathers, and metal scraps (arrow points tend to be manufactured from iron).

Women's activities produce quantities of debris and, like men's arrow production, cluster about the front of the lean-to. Basket making, mat weaving, food preparation, and bark-cloth beating all result in associated scatters of remnants, generally mixed somewhat with each other's materials, and with the residues of males' activities. Rainy-season sites, since they are occupied for longer periods than dry-season ones, evidence all the representative base-camp activities.

Agta ethnoarchaeology has allowed us to devise a model of humid tropical hunting-gathering subsistence and settlement strategies, and has suggested how these strategies fit with environmental fluctuations. The project has also indicated that specific activity loci may be observable through patterns of material culture, including those left as "archaeological" debris. The project is also enabling us to gain some insight into how nonmaterial culture is reflected in material objects. A considerable portion of the Agta research was devoted to studying the projectile points Agta hunters use in their daily lives. As sophisticated bow-and-arrow hunters, these people have developed a complex technology around this equipment. Full analysis and reporting of the implications of Agta arrow-point patterns promise to tell archaeologists more about other hunting technologies.

Depending on which informant one asks, the Agta name about 40 "types" of arrow points. The classification of most arrows is governed by the configurations of the head, rather than the immediate function of the point. That is, an arrow designed to kill wild pig is not named on that basis. Although many arrows are constructed for efficiency in killing a certain game animal, the Agta do not carry 40 different arrows about, using each on its appropriate animal. Instead, they divide arrows in general classes, and select from three or four classes when choosing arrows to manufacture or to carry into the forest. While some arrows are specifically designed for wild pig, deer, bats, monkeys, or birds, many types of arrows may be shot at any prey.

The multiplicity of arrow types is accounted for by various behaviors other than game characteristics. Some variation is due to the strength and skill of the hunter. Large adult males can draw a heavier bow and cast an arrow with a large point, while youths are less capable. In the rainy season Agta stalk close to feeding game and are able to use the large-tipped points that have great shocking power. Also, men disagree on the effectiveness of different types of points and on variations found within single types. Additional variation is accounted for by highly divergent skills in point manufacture.

Some of the most interesting results of our attempts to account for arrow-point variation have come from discerning stylistic variations that coincide with sociolinguistic boundaries. For example, in the arrow-point type named *gahaygay*, a steel head with large barbs, points made by Palanan Agta are distinguishable from those made by Dianggu Agta to the north. Any Agta hunter could make the distinction; and metric analysis done with computer assistance has verified the Agta's divisions. While no argument can be made that sociolinguistic boundaries, when they can be drawn, *must* produce similar boundaries in material culture and behavior, archaeological interest in the topic warrants detailed exploration.

In spite of the relative abundance of ethnoarchaeological research among hunter-gatherers, only the barest of starts has been made in the humid tropics of Southeast Asia. Certainly hunter-gatherers should take no priority in future research; the region has an elaborate mosaic of cultures and subsistence strategies. Whatever the archaeological problem, at least in Southeast Asia, we would expect to find a study situation in an ethnographic context that would permit ethnoarchaeological investigation. Many hunter-gatherers still follow traditional ways, little influenced by industrial nations. Other societies are less pristine, yet they offer excellent possibilities for ethnoarchaeology in any of its lines of inquiry. Planned ethnoarchaeological projects include the study of trade among the sea peoples of Island Southeast Asia, the analysis of swidden systems among upland hill tribes, and the study of refuse patterns of cave-dwelling hunter-horticulturalists. Among all these studies, as in recently completed ethnoarchaeological projects, the trend is away from tacking ethnographic descriptions onto archaeological reports, as analogies. Instead, archaeologists are seeking to further their knowledge of human behavior as indicated by material behavior, and to approach these in their contexts of archaeological site-formation processes. From such knowledge more powerful questions may be asked of archaeological resources.

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