ECOLOGICAL DETERMINANTS OF MORTUARY PRACTICES:
THE TEMUAN OF MALAYSIA

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I. Introduction

How people dispose of their dead is a reflection of the socio-cultural system in which they participate. Recent studies have shown that, when approached systematically, these sociocultural processes can be understood (Saxe 1970, 1971; Binford 1971). When understood, archaeologists can use this type of data to reconstruct extinct sociocultural systems and so be able to test evolutionary hypotheses. The major thrust of the research to date has been with ethnographic material since (it was assumed) preservation problems are not as extreme as with archaeological materials. However, ethnographic data is often as spotty as archaeological data. All in all our perusal of the ethnographic record convinces us that the following observation is correct: until the question is asked and its theoretical import understood by the ethnographer, the data is not collected. In other words, once again the data does not speak for itself. The mortuary data presented in this paper was collected by Patricia L. Gall for the specific purpose of testing a number of hypotheses formulated by Arthur A. Saxe (1970) and currently being tested by him for inclusion in a forthcoming volume (1976?). This paper focuses on but one of eight hypotheses. The data and insights into Temuan dynamics are part of a forthcoming ethnology by Patricia L. Gall on the Temuan (1976?).

This paper will proceed in four steps. It will:

1. Present a cross-cultural hypothesis linking mortuary practices with ecology and other sociocultural relationships.

2. Describe the "traditional" Temuan system and mortuary practices as of our starting point in time.

3. Discuss the changes that have occurred in the contemporary ecosystem and the resultant changes in the sociocultural arrangements.

4. Show how the mortuary practices change as predicted by the hypothesis presented.

This study is unique in two ways. (1) It is an ethnographic study whose specific research aim is analyzing social dimensions of
itary practices in an adaptive, ecocultural context. (2) It is longitudinal study; it studies change through time of a single lle's practices in terms that render cross-cultural hypothesis ing possible.

II. The Hypothesis

The hypothesis was first published in 1970 (Saxe:119-21) and a orificial test was published in 1971 (Saxe:50-51). A variant test also published in the same volume in 1971 (Binford:21-22). The final (1970) formulation of the hypothesis is presented here.

Hypothesis #8: To the Degree that Corporate Group Rights to Use and/or Control Crucial but Restricted Resources are Attained and/or Legitimized by Means of Lineal Descent from the Dead (i.e., Lineal Ties to Ancestors), Such Groups will Maintain Formal Disposal Areas for the Exclusive Disposal of Their Dead, and Conversely.

By formal disposal area we mean a permanently specialized, nked territorial area such as a "cemetery." As any of the vari- les decrease, we would expect the formality of the disposal areas decrease. That is, as the importance of lineality or corporate- es decreases, or the resource base shifts to less restricted re- urces, we would expect the disposal areas to become less specia- ed to this one purpose, the area itself to become less tangible the specialized function which it served to bound (to separate om others) disappears.

Special cases of this lack of formality may be found where ortuary ritual destroys corporeal remains prior to disposal (as ommon in band type societies and as among the Kapauku where the ront are disposed of above ground but the deviants are placed ow ground), or where burials occur in fields or "bush" both of hich are shifting as the residents shift.

This hypothesis raises locational questions, i.e., the geographic distribution and treatment of the disposal types in relation to ecosystem variables, some of which, of course, are also cultural.

Meggitt (1965:Chapter IX) stimulated the form of the hypot- thesis; dealing with New Guinea Highland Societies, he has argued that:

. . . where the members of a homogeneous society of orticulturalists distinguish in any consistent fashion between agnates and other relatives, the degree to which social groups are structured in terms of agnatic descent and patrilocality varies with the pressure on available land resources. . . (1965a:279)
and that:

...the people emphasize the importance of the continuity of solidary descent groups which can assert clear titles to the highly valued land. The popular religion is well designed to support these ends... rituals regularly reaffirm the... patrilineal group...

...the dogma in itself implies a title to land by relating living members of the group to a founding ancestor...

(1965a:131)

What Meggitt has done is build a link between ecologic factors and agnation, i.e., effective patrilineality and patrilocality. He then links these factors to rituals which reaffirm the group structure and dogma which legitimize the control of vital resources.

Since effective agnation is a response to ecological factors, and ancestor-centered dogma a reinforcement of agnation, we have hypothesized a direct link between ecosystem factors and treatment of the dead (who are the ancestors) as mediated by cultural practices such as inheritance rules. In order to make the formulation applicable cross-culturally we have changed "land" to vital resources and "agnation" to lineal descent.

The observations generated by this proposition will help account for distribution problems encountered by archaeologists in relation to "burials," the ultimate distribution problem being their absence. The proposition is tested in a cross-cultural ethnological sample.

III. Temuan "Traditional" Ethnography

The Temuan are an egalitarian, swidden agricultural, ethnic group located in the states of Negri Sembilan and Pahang in Malaysia. They occupy the upland at the extreme Southern and Eastern edge of the Pahang River drainage located in the middle of the Malay peninsula.

Land is communally owned by the village. The Temuan reckon descent matrilineally and also tend to reside with the wife's mother and/or other female relatives after marriage. The groups so formed are called "households." This often multi-family group is the minimal economic unit as defined by the pooling of labor and goods.

A group of matrilineally related households tends to form a residential cluster or "kin core" which provides the personnel for many cooperative work groups. These include female weeding groups, men's forest clearing groups, etc. A number of kin cores are found in a village.
All land is held in common by the whole village community. Each household holds and farms (in reciprocity with others) its own section of land within the community swidden areas. Section allocation is decided by the village council which consists of the eldest male or female from each household. Final decisions are formalized by the village headman. The head (male), in order to be headman, must stand as "sister's son" to some headman, somewhere. This makes 90 percent of the males eligible. Anyone can be a shaman although they tend to be older females and headmen. Villages tend to last about four generations before fissioning into daughter villages.

There are four major resource zones in the environment, only three of which are part of the traditional Temuan ecosystem.

There is a small amount of river valley bottom land in the ecotone* between low and highland. Those patches not swamp land are cleared for agriculture. This is not a critical resource however, since other lands are available for farming.

The second zone consists of areas of low rolling forested hills with areas cleared for market or swidden crops. Most of this zone has been farmed before and is used today as a source of secondary forest resources procured through hunting and gathering activities.

High hills occur in the third zone with faster moving water, steeper slopes, and cooler temperatures. This area is usable for agriculture but it is mostly primary jungle (rain forest) with some secondary growth. The flora, fauna, and temperature ranges are stratified by elevation.

The fourth zone consists of hilltop and mountainous areas which have temperate climate. These areas are not part of the Temuan ecosystem.

Most villages have access to all three exploited zones. All villages have access to the important second and third zones. There is no shortage of land resources in the "traditional" Temuan setting. Farming activities (root crops, dry rice, maize, etc.) account for 60 percent of the bulk carbohydrate diet, providing a daily average of over 1,100 calories. The only domesticated animal is the chicken. Procuring of wild foods from the jungle and streams supplements the diet, providing more than twice the minimum requirement for high quality protein. It also supplies some items for trade: honey, rattan, wild game are a few examples.

In summary, there is no shortage of land, no restricted resources therefore and, as the hypothesis would predict, there are no lineages that possess corporate functions with respect to spatially restricted

*An ecotone is a boundary area between two types of environment.

resources. As is also predicted in the hypothesis, the mortuary prac-
tices exhibit no spatially localized area specialized to disposal of
the dead which we might call a "cemetery."

Infants and deviants, culturally defined non-persons, are dis-
pensed of the same way as garbage; they are buried unceremoniously un-
der the house of residence, but the house is not burnt as it is when
any other social personality dies. There is no disruption of social
activities when they die.

Children are buried under the house steps; girls under the front
steps and boys near the rear (an area irrelevant to important activi-
ties). The death of a child merely disrupts the family of procrea-
tion and its household but a child's social personality is not yet
large enough to affect the village as a whole. It is a different
story for adults.

Adults are laid out in their houses of residence (both male
and female even though the males tend to be "outsiders" in the
village) prior to burning the house. The village is then deserted
for a new one. The villages tend to move every other year as trig-
gered by deaths, and bad luck, but they never move very far. There
is no great investment of labor or materials in these three or four
walled platform houses. The emic belief in "malevolent spirits" is
probably a great boon to sanitation and domestic pest control.

In short, the traditional Temuan data support the hypotheses.
The three variables: (1) unrestricted crucial resources, (2) the lack
of lineages with corporate functions, and (3) the lack of a spatially
specialized area for disposal of the dead, do indeed covary. Let us
now test the hypothesis through time.

Events since the second World War have created new circumstances
which the Temuan are adapting to. The parameters of their ecosystem
have changed and thus their sociocultural arrangements are undergoing
systemic change, otherwise known as evolution. The opportunity to ob-
serve this evolution also presents us with an opportunity to test our
hypothesis longitudinally (i.e., observe one system through time).
This is an ideal testing situation since a true hypothesis tests re-
lationships between variables.

IV. Temuan "Contemporary" Ethnography

During the second World War, the Temuan fought as highland guer-
rillas against the Japanese and lost many men. After the war the Malay
elite landholders and the Chinese businessmen formed a government
which emically was labeled as "anti-communist." Those excluded from
power took to the hills beginning the ten year postwar period known
as "The Emergency." The government built roads to supplement the
rubber estate road system to isolate and otherwise "handle" and "pac-
ify" interior districts. This was generally successful. The British,
in good divide and conquer tactics, had earlier driven religious, etc.,
wedges between Malays and Chinese. The aborigines (Orang Asli or "original men" in Malay) were caught in the middle. Populations were put behind barbed wire with a few days food. There were sophisticated informer systems. The Department of Aborigines was set up as a paramilitary bureaucracy. Populations not moved into camps found themselves in free fire zones. Medical facilities were set up in the camps to induce the aborigines to move in.

The government of Malaysia established four categories of land: land reserved for Malays, land for other ethnic groups (Chinese, Hindi), aborigine (Orang Asli) land, and state (government) land.

Part of what was traditionally Temuan land is now part of Malay and other ethnic group land reserves. Even unoccupied state land is severely restricted for Temuan use. Lands which have tin resources have been administratively redefined as non-Temuan in at least one case. Other lands have been gazetted as non-Temuan. Much government money has been poured into the area for "Orang Asli uplift" and in spite of much bribery the medical services and communications to the outside world are good.

The net effect of these changes has been to create a shortage of crucial resources for the Temuan, where previously there was none. Use of forest lands was cut most severely. This restricted wild sources of animal protein, and vegetable resources used for both consumption and market exchange. Predation on domesticated crops such as rice has increased as wild populations such as monkeys increase in number in certain areas where they are no longer human prey.

Villages, traditionally located near streams on non-agricultural land, can no longer be routinely burned and casually moved; since this type of land is increasingly scarce, government control also demands village stability.

Population is increasing rapidly because of the lowered death rate due to the introduction of modern medicine. The scarcity of older males (35-50 years of age) lost in the war years combined with the fecundity of the women, all of whom survived, makes for an incredible population explosion of 3.5 percent per year.

As population numbers increase there is increased pressure on the decreased amount of available swidden land which, relatively speaking, is getting even scarcer as population grows. In fact, a population in a traditional village of 75-80 people would push the land system out of balance and into Imperata grassland (lalang).

One answer to this scarcity from those not familiar with the Temuan ecosystem, in this case the government bureaucrats, is to push them to expand their agricultural practices into the growth of wet rice which as Geertz (1963) and others have noted is capable
of responding positively to the intensification of labor input. But land suitable to wet rice cultivation is limited in occurrence to the small patches of bottom land, and even if there were more land available to be cleared and irrigated there are other problems to be met.

There are problems of numbers, organization, and scheduling of activities.

In order to open wet rice land (prepare fields, set seedbeds, prepare dikes) if one is already doing swidden agriculture one must do it when swidden activities are minimal. But these times are the dry times when the Temuan are engaged in procuring wild forest and river products so essential to their dietary and trading needs. Swidden and wild resource procurement conflict minimally. The addition of wet rice, however, sets up year-round scheduling conflicts which become most extreme in their conflict with the traditional dry season activities.

The best way to increase the subsistence payoff on all these strategies, since one cannot be in two places at the same time, is to increase the number of persons in your corporate subsistence unit so that: (1) there are enough hands to do all of them with minimal scheduling conflicts, and (2) the number of reciprocal links to other corporate subsistence units are increased.

The number of persons available in a given household is a function of the domestic cycle (Goody 1958) and where a given household is in the cycle at a given time. The moment of maximum available labor for the Temuan occurs when the children are grown and there are a number of outside men ("son-in-laws") performing bride service in the household. Since land within the village is allocated on the principle of "from each according to his labor to each according to his need" the household with a larger labor base would get more land and also face fewer scheduling problems. Kinship cores, those cooperating groups of households between whom regular generalized reciprocities exist, would get even more land and face even fewer scheduling conflicts as they get larger. In addition, such units if they could be given permanency, would tend to minimize the scheduling problems that occur during the labor-deficient part of the domestic cycle; problems which were less significant under the old ecosystem and did not require larger and more permanent corporate group entities.

Thus, the changes wrought in the ecosystem of the Temuan by the politically dominant Malaysian state have precipitated new adaptive problems for the Temuan. What is emerging are larger labor groups with increasingly corporate functions which, with all due caution, we may label "proto-lineages." They operate, as kin cores always have, as factions in the village fissioning process. They increasing function as competitors giving their numbers differential access to increasingly scarce resources. We suspect we may be seeing the beginning of a positive feedback system (Maruyana's morphogenesis) the end state of which may be the appearance of non-egalitarian, agriculturally-involved Temuan, functioning as a
specialized segment of a larger state economy.

V. Changes in the Mortuary Practices

In the older system the location of an individual's remains was a function of certain attributes of the person's social personality. The attributes deemed relevant by the living were age, sex, and in the case of deviants, personal characteristics. These were used to determine the location in relation to the household and whether or not the house was to be burned and the village moved.

The contemporary Temuan no longer burn down a house and move a village upon the occasion of death. In the cases observed they have established cemeteries in locations that are not suitable for agriculture or anything else. These are located in small plots near the villages on the margins of the forest (forests are full of danger for agricultural peoples) which have been taken over by Imperata grass (lalang).*

The treatment of individual social personae has not changed. This is expectable since they are still egalitarian. The way individuals are grouped in the burial area, however, does reflect the emerging supra-household social groupings. In one village that fissioned, each of the two factions had spatially distinct areas within which kin cores were also spatially distinct. In another village not yet undergoing fission as such, the factions were not yet spatially distinct but the kin cores within each faction were. We may expect the formality and exclusivity of the cemetery area to increase as the corporate functions of "lineages" with respect to restricted resources develop and increase. This ethnographic situation, by itself, does not constitute a test of the hypothesis. A single case never does. The data, however, does contribute support for the formulations published by Saxe in 1970 and Binford in 1971.

Mortuary practices constitute a body of data often available to archaeologists.

As our understandings of mortuary practices grow we may expect ever more accurate reconstructions of the cultural and ecological conditions that produced them. Hopefully, the day is not distant when we shall be able to test hypotheses concerning cultural evolution in the past... and do it well.

VI. A Postscript... in Fairness

It may be argued that the Islamic ethnocentrism of the Malaysian government may have pushed the Temuan away from cremation in

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*Imperata grass increases as soil exhaustion increases. Both are part of the new ecosystem.
houses and into burial in the flesh. This may be true, but it does not explain the fact the Temuan do it even in the absence of government officials. Islamic government officials also feel that wet rice land should be inherited patrilineally rather than matrilineally but the Temuan do not accept this. In addition, infants, whose shallow social personae reflect the fact that they are only of concern to their families, and who were traditionally disposed of in the trash heap (with deviants) illustrate the case in point. It is only when government officials are present that they are placed in the cemetery. Otherwise the younger infants continue to be placed in the garbage area or if they are older children, somewhere around the house. In other words, in terms of an older argument, the assertion of diffusion (description) does not explain why the traits are incorporated into the sociocultural retinue of behavior nor the selectivity of traits. We feel our hypothesis does.
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