THE PILGRIMAGE-FAIR AND THE CLASSIC MAYA

VARIATIONS ON A THEME

by

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ABSTRACT

The pilgrimage-fair model was originally proposed by Freidel (1981) as one way to account for the Maya pattern of dispersed residence and production in a socially and economically complex society. This study expands on that proposal by looking at the Maya situation in more detail, by adding a cross-cultural perspective, and by stressing the integrative aspects of the concept. The general suitability and explanatory potential of the model are reviewed using three different modes of inquiry: (1) an archaeological, ethnohistorical, and ethnographical reconstruction of Classic Maya civilization; (2) comparative analogy with three other early civilizations--the Khmer of Southeast Asia, the Yoruba of West Africa, and the Tibetans of Central Asia; and (3) settlement pattern analyses of eight subregions within the Maya area.

The cultural traditions that we call Classic Maya civilization extended over a large part of Mesoamerica and persisted for many centuries. However, there was very little centralization of political authority, settlement, or pro-

duction, in spite of the presence of characteristics that usually exert centralizing pressures (e.g., intensive agriculture, social stratification, specialization). The pilgrimage-fair, with its intrinsic coalesence of religion and economics, contributed to this unusual configuration. Pilgrimages and fairs both required travel to central places, or focal points, at regular intervals, one for spiritual purposes and the other for material ones. When the pilgrim was also a trader, the conjunction of sacred and secular motives, goals, and benefits had profound consequences. It discouraged regionalism, promoted economic interdependence, and effected wide distribution of culture traits including language, art and architecture, and cosmology. A high degree of integration was attained without a central authority to impose or enforce it. The persuasive power of sanctification, added to the satisfaction of material needs, was sufficient.

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A. PRELUDE

> - In the past, the development of human culture and cultures has often been seen primarily in material terms . . . or primarily in spiritual terms. . . . Recently the relationship between these two arbitrarily separated areas has been more fully appreciated, as we have become aware of their total and integral interdependence.
>
> - Colin Renfrew, 1975

The basic objective of this study is to explore some possible relationships between religion and trade among the Classic Maya, especially the pilgrimage-fair concept and cultural integration in early civilizations (Freidel 1981; Willey 1981; Vogt 1983). It is proposed that: (1) a well-established system of pilgrimage and trading networks was an important factor in promoting and maintaining cultural cohesion among the Classic Maya, and (2) under certain conditions a similar relationship was characteristic of other early civilizations.

The particular relationship between religion and trade that is examined is what Freidel (1981) has called the pilgrimage-fair. "This model has two main aspects: the regulated circulation of people structured by religious

sanction [the pilgrimage] and a means of integrating social groups through the exchange of goods and services [the fair]" (Freidel 1981:378). A widely-dispersed population is thus linked by a network of centers that serve as pilgrimage shrines and central places for exchange of goods and information. A well-organized, complex society develops without urbanization and without a state form of social organization. The various areas, in spite of regional differences, are culturally integrated; that is, the people share a basic world view and pattern for living. They have similar technologies and subsistence strategies as well as social organization, beliefs, and values. Commonalities outweigh differences and they view themselves as "a people."

Basic conditions necessary for the functioning of this model are:

- A demanding physical environment, containing substantially different ecological subsystems.
- A population that is more dispersed than nucleated.
- Generally poor conditions for travel and communication.
- An active exchange system.
- A conditional state level of cultural organization, that is, neither a highly developed chiefdom nor an early state. Such societies are "almost exactly like

> small states in all ways except that they lack a reliable source of force" and so obedience to the leadership is conditional rather than enforced by coercive power (Webb 1975:164).

The nature of the study is exploratory--to seek a better understanding of the potential applicability and possible ramifications of the pilgrimage-fair model, and to identify some testable hypotheses. It expands on existing treatments of the concept (Freidel 1981;Vogt 1983) by looking at the Classic Maya situation in more depth and by adding a cross-cultural perspective.

Theory

The theoretical orientation is rooted in the premise that material, social and ideological aspects of culture are closely articulated and the tools and techniques of archaeology can be used to study their interrelationships (Willey 1977; 1980; Renfrew 1975). Material and nonmaterial concepts are not viewed as antithetical, but as complementary. Ideology is not "epiphenomenal to the more material or mundane concerns of subsistence, settlement patterns, and socio-political organisation. . . . [It] has

a formative role in cultural development and is linked to all phases of it" (Willey 1980:261).

The approach is a holistic one in the sense that all cultural subsystems are seen as interacting, inseparable parts of the cultural whole (Steward 1955; Willey 1977a, 1977b, 1980). It is a variant of the "new archaeology" which (1) includes goals of both the culture-as-history and culture-as-process schools; (2) is closely aligned with ethnology; (3) borrows readily from other disciplines when appropriate; and (4) is fundamentally positivistic (Binford 1962; Willey and Sabloff 1980). It is based on the postulate that there is pattern and predictability in human behavior and therefore questions arising from the study of mankind can be answered in a scientific manner. Its uniqueness lies in "theoretical attitudes about the data and methodological procedures for handling them," as summarized in the following four principles (Willey 1977a:81):

(1) All human societies are integrated, coherent systems of reciprocally-interacting material and ideological subsystems.

(2) Analogies with historical and/or contemporary societies are essential for understanding prehistoric societies.

(3) Archaeology's principal goal is to discover general principles relating to the processes of change in society and culture.

(4) Procedures should include development of models and deductive testing of hypotheses.

The pilgrimage-fair model fits well into this overall theoretical framework. Economic and religious cultural subsystems in some ways epitomize the materialist/idealist dichotomy and are often treated separately for purposes of study and analysis. This was inevitable during the earlier phases of American archaeology, when the greatest need was to gather data from little-known and fast-disappearing groups and sites. But now archaeologists are equipped with data, techniques, and theory that enable them to address more complex issues relating to the interactions of cultural subsystems. The traditional direction of archaeological analysis--from the material to the nonmaterial--is being modified and enriched by excursions into ideology at all stages of the process (Willey 1980).

The model also draws on theoretical concepts from economic anthropology, religious anthropology, and geography (locational theory as modified by archaeologists).

Locational analysis and its underlying theory are particularly suited to the holistic approach because the fundamental unit, the settlement, is a good example of the culture/environment interface. The environment provides opportunities and imposes limits on settlement decisions,

but within the range of options that it presents specific choices are influenced by social and ideological factors. Locational analyses are also appropriate in regard to trade because settlements are the locale of much exchange activity, and in regard to religion because the ceremonial complex was the core, the "heart," of many prehistoric cities (Wheatley 1971).

Central place theory is a particular subset of locational theory that relates settlement patterns to service functions (economic, religious, administrative) rather than to natural environment (Flannery 1976). It replaces traditional settlement categories such as "cities" and "towns" with a hierarchy of "centers," thus avoiding the contentious issue of prehistoric urbanization. "Classic" central place theory rests on some very unrealistic assumptions, for example: a featureless landscape with an even distribution of population, resources, and purchasing power; all decisions made on the basis of economic maximization; a hierarchy of settlements equidistant from others on the same level, with regular hexagonal tributary areas. It is recognized that these conditions will not be found in the real world; the model functions as an ideal against which to measure and assess a real pattern.

Economic Anthropology

The economic element of this study is trade in its broadest sense, encompassing all types of exchange: reciprocity, redistribution, and markets; local, regional, and long-distance; movement of information and people as well as of goods. These many faces of exchange are an integral part of the total social matrix in prehistoric societies, but they do not necessarily correlate with specific sociocultural variables or evolutionary stages. On the contrary, all known societies employ more than one mode of exchange and the types present in any given society, at any given time, depend on its own particular history and circumstances (Polanyi et al 1957; Sahlins 1972; Renfrew 1975).

Economic anthropology has little generally-accepted theory and suffers from a prolonged debate between formalists and substantivists, "the first contending that the principles of economics are fully applicable to the conditions of primitive life, the second that they are almost wholly inapplicable" (Posner 1980:608). But the debate is growing stale "for all but the most persevering" (Geertz 1978:28). The opposing premises and positions are being questioned by both anthropologists and economists (Adams 1974; North 1977, 1981; Geertz 1978; Posner 1980). The two schools of thought are finding that they have much in com-

mon and that theories and concepts developed by each have much to contribute to the other's studies. Most important, there is growing acceptance in both camps that "market" refers to any form of voluntary contractual exchange, not just to a particular type of institution for determining terms of exchange, and that "economics" is the science of rational choice, not just of a particular manifestation of that choice (Posner 1980). However, both make spurious separations between cultural subsystems and underestimate the effects of ideologies.

A third theoretical position is held by the neo-Marxists who argue that the mode-of-production concept has universal applicability in economic analysis (Dalton 1975; Lee 1981).

The theoretical foundation for the economic aspect of this study must be compatible with the overall holistic approach and appropriate for cross-cultural comparisons. None of the above positions satisfies these requirements completely, although the substantivist comes closest to doing so.

An economic historian (North 1981) has proposed an alternative that is more suitable. North suggests that the fundamental elements of economic analysis for any society are (1) the reciprocal interactions of institutions and (2) the transaction costs of economic activities.

"Institutions" are defined as "a set of rules, compliance procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals" (North 1981:201). "Transaction costs" include all costs incurred in production and allocation of resources. They apply to all kinds of exchange (reciprocal, redistributive, market) and to all economic decision-makers (households, markets, voluntary organizations, governments). This flexible and comprehensive framework recognizes that economic choices and decisions are influenced by social and psychological factors, and that the ideology of the group must legitimize the economic system. This is important in the development and maintenance of an economic system: for example, legitimization through sanctification can reduce enforcement costs by very powerful constraints on behavior that in turn reduce transaction costs. North's theoretical position clearly bridges the gap between economics and religion.

Religion and Ritual

It is axiomatic that religion, like economics, is thoroughly embedded in the social organization, politics, and subsistence of prehistoric societies (Rappaport 1971; Turner 1974; Flannery 1976). To archaeologists, it presents a paradox. There is a temptation to label everything "religious" for which there is not an obvious practical

use. Yet there is also a reluctance to leave the relatively safe shores of material and mundane concerns for the thin ice of spiritual, or ideological ones. The holistic approach reminds us that "ideologies and images of the mind are not random creations out of nothing, spinning along in independence from other aspects of life. They are designs which articulate . . . with a real and material world" (Willey 1980:263).

In this paper "religion" means "sacred beliefs held in common by groups of people and . . . more or less standard actions (rituals) that are undertaken with respect to these beliefs" (Rappaport 1971:25). "Rituals" are conventional acts or displays, which transmit information to participants and observers. They can be either private or public, sacred or secular, or some combination of these variables. The presence or absence of material corroboration is the critical difference between the sacred and the secular. Something that is sacred has no material referents and so cannot be verified or falsified by empirical evidence--it is accepted on faith, and often with a passionate conviction of its truthfulness.

The idea of sacred legitimization of secular power and authority is basic to this study (Flannery 1972; Wheatley 1971; Netting 1972; Webb 1973, 1975; Webster 1976; North 1981). Rappaport's elaboration of this concept is also

important (Rappaport 1971). He discusses in detail the essential part played by "the sacred" in human adaptation and evolution. He argues that sanctification hides the arbitrariness of social conventions "in a cloak of seeming necessity [so that they] seem not to be mere conventions, but reflections of human nature, and those who flaunt them seem less than human" (Rappaport 1971.:36). Authority is based on faith, not force. This links religion to social organization, politics, economics and subsistence, rather than leaving it on an "ephemeral plane of mental activity" (Flannery 1976:331). It is an appropriate framework for exploring pilgrimages in general and the pilgrimage-fair concept in particular.

Pilgrimages are a form of religious ritual that temporarily separates the individual from his normal world and identities and places him in a different world, where he has different identities (Turner 1974). Journeying together to a shrine or sacred place is both an act of religious devotion and a form of communication. Fellow pilgrims share a sense of common purpose. A social bond is established, a strong feeling of community identification with a larger universe.

Fairs could be called secular rituals: they involve conventional actions and information exchange; they, too, put the participant temporarily into a different world and give

him yet another identity. Other characteristics of this kind of ritual behavior are:

(1) there is a modification (but not an elimination) of class and caste distinctions;

(2) theoretically the decision to undertake a pilgrimage or attend a fair is a voluntary one, but actually a strong sense of obligation is exerted by sacred, social, and pragmatic forces;

(3) the sites are ranked and form a network that links different areas;

(4) it is not a haphazard activity--there is much behind-the-scenes organization and planning to keep the system operating smoothly (Turner 1974).

Either phenomenon (pilgrimages or fairs) has important sociocultural consequences. If they occur in tandem, and are planned and regularly-scheduled, they become the pilgrimage-fair, where people from many regions and levels of society come together for material and ideological purposes under supernatural sanctions. This blend of the sacred and the secular has more profound consequences than either could have on its own (Wheatley 1971; Netting 1972; Turner 1974; Freidel 1981). The circulation of people and goods is accompanied by circulation of information, ideas, beliefs, values; a communications network is established; linguistic and cultural ties are maintained across great

distances; economic interdependence is fostered. In sum, there is a high degree of cultural integration over an area where it is neither essential for survival nor a result of coercion.

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The theoretical foundations of this study come from anthropology (including archaeology), economics, and geography but they are complementary and fit comfortably under the holistic "umbrella."

Method

The proposed relationship between economics and religion will be explored from three perspectives: (1) the Classic Maya civilization; (2) analogies with other early civilizations; (3) settlement pattern analysis.

A capsule description of Classic Maya civilization will be constructed. The data base is primarily archaeological material, which will be supplemented by ethnohistory and ethnography. Because archaeology's perennial uncertainties

about sampling and dating are aggravated in the Maya area by the vast, still-unsurveyed areas and the extraordinary camouflaging abilities of the tropical jungle, and because data from excavations are accumulating rapidly but often are not being analyzed or published for many years, it is prudent to follow Thompson's advice and "not permit archaeology, like some nineteenth-century prima donna at a recital, to be the sole performer" (Thompson 1970:xx). Therefore, history and ethnography will also have important parts to play. The objective will be to see if the model is compatible with what we know of Classic Maya civilization.

Specific comparative analogies will be used to look for cross-cultural applicability of the pilgrimage-fair model and for further indications of its relevance to Classic Maya civilization.

Settlement archaeology will be used to assess the probability of the model by analyzing settlement distributions and hierarchies. Concepts and techniques that were originally developed by economic geographers to analyze geographic/demographic/economic interactions in contemporary, market-oriented societies are gaining credibility as a tool for archaeological analysis (Skinner 1964; Flannery 1972; Hodder 1972; Hammond 1974; Johnson 1975, 1977; Renfrew 1975; Adams 1981). Several recent studies in the

Maya area have focused on distribution and ranking of settlements (Hammond 1974; Marcus 1973, 1976; Turner et al 1981; Adams 1981). Others have used central place models to identify "territories" of lowland Maya ceremonial centers or of early states (Flannery 1972; Hammond 1972; Renfrew 1975). These will provide a foundation for my analysis.

B. THE CLASSIC MAYA

> - Archaeologists are irresistibly drawn to the flamboyant elites, ignoring the drab majority. As a result, we know a great deal about the privileged few, but very little about what life was like for the general public. It is these masses, however, which are the fiber of all societies, ancient and modern.
>
> - William L. Rathje, 1983

Environment

The Maya culture area lies in the tropical jungles, plains, and mountains of southern Mexico and Central America. It includes all of Guatemala, Belize, and the Yucatan Peninsula, plus parts of the Mexican states of Tabasco and Chiapas, and the westernmost parts of El Salvador and Honduras (Figure B-1). The basic geographical sectors are the southern highlands, southern lowlands, and northern lowlands. All are within the tropical monsoon area and have distinct wet-dry seasons with high temperatures year round (with allowance for differences in altitude and latitude). Other general characteristics that they share include a lack of metals and of animals suited

for domestication (for purposes of food or labor), and a physical environment (topography, climate, and vegetation) that make transportation and communication difficult. There are also significant interregional differences. Some of the major environmental ones, grossly simplified, are:

The highlands (southern Guatemala and parts of El Salvador and the Mexican state of Chiapas) are dominated by a range of volcanic mountains with peaks as high as 4,000 meters, turbulent rivers, deep ravines, and broad, high-altitude plateaus and valleys where most settlements were located. Vegetation is mixed forests and grasslands, a tropical highlands savannah. There are a variety of soil types well suited to swidden cultivation, and abundant supplies of obsidian and granite.

The southern and northern lowlands together are a great limestone shelf surrounded on east, north, and west by the waters of the Caribbean and the Gulf of Mexico. The total area is some 250,000 square kilometers (Adams 1981) and includes the Peten department of Guatemala, adjacent portions of the Mexican states of Chiapas and Tabasco, the entire Yucatan Peninsula, Belize, and a small part of western Honduras.

In the northern lowlands (basically, the Yucatan Peninsula) the terrain is very flat with virtually no sur-

face water, and shallow, limestone-derived soils. Natural vegetation is a dense, thorny jungle which becomes xerophytic scrub in the northernmost parts. Rainfall is still heavy and seasonal but not as abundant or as dependable as in the other zones. Bishop Landa, writing in the sixteenth century, graphically described the water and soil of northern Yucatan as follows:

> Nature worked so differently in this country in the matter of rivers and springs, which in all the rest of the world run on top of the land, that here in this country all run and flow through secret passages under it. . . . On land God provided openings in the rock, which the Indians call cenotes, which reach down to the water through the cut in the living rock. In some of these there are such very furious currents that cattle (which) fall into them are carried away (Landa 1966:187-8).

> Yucatan is the country with the least earth that I have seen, since all of it is one living rock. . . . It is marvellous that the fertility of this land is so great on top of and between the stones, so that everything that there is and that grows in it grows better and more abundantly amongst the rocks than in the earth, because on the earth which happens to be in some parts, neither do trees grow nor are there any, nor do the Indians sow their seeds in it, nor is there anything except grass. And among the stones and over them they sow and all their seeds spring up and all the trees grow and some so large and beautiful that they are marvellous to see. The cause of this is, I believe, that there is more moisture and it is preserved more in the rocks than in the earth (Landa 1966:186).

The southern lowlands are the most-studied, visited, and photographed part of the Classic Maya world. This is where the early explorers and travellers were astounded to find immense temple/pyramid complexes buried deep in the tropi-

cal jungle. The region is geologically older than the northern lowlands and there has been much folding, faulting, and erosion of the limestone base resulting in a rougher, more uneven landscape of plains, hills, river valleys, swampy areas on parts of the coastal plain, and some mountains with elevations up to 1,200 meters. The dominant vegetation is dense tropical forest interspersed with savannah. There is a well-developed river system in the peripheral areas,* rainfall is heavy, and there is a wide variety of soil types. In spite of their differences, both the northern and southern lowlands are karstic landscapes and share many problems relating to water and soils. In the southern area these problems are less apparent and so have received less attention from researchers. Siemens (1978) argues that this is a serious oversight which may be adversely affecting our ability to understand the ancient Maya way of life.

Much environmental research remains to be done before there will be a comprehensive base for ecological hypotheses. It is important to remember that this one culture area and its three environmental zones included an unknown number of microenvironments, or ecological niches; this encouraged, even demanded, many variations in adaptive

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* The lack of rivers in the central (Peten) area, where some of the greatest centers were built, has long puzzled Mayanists. Recent surveys suggest that canals and other water control devices may have extended the natural river system well into this region (Siemens 1978).

strategies (Culbert 1973; Harrison and Turner 1978; Ashmore 1981).

The environmental differences were of course accompanied by cultural ones, in agricultural techniques, architectural styles, manufactured items, and dialects, but the similarities far outweigh the differences (Adams and Culbert 1977). There is no doubt that this was one culture area even though the Maya seem never to have recognized one central authority. At one time it was thought that the southern lowlands played the dominant role in developments leading to the Classic period but this hypothesis is not supported by recent research. As more excavations are undertaken in the southern highlands and northern lowlands, more evidence is emerging for early and complex development in both of those regions as well as in the better-known southern lowlands.

History

The Maya have inhabited this area for at least 4,000 years, possibly much longer (Willey 1982). They have shown remarkable linguistic and cultural cohesion and persistence, through what archaeologists have labelled their "collapse," and in spite of conquest, introduced diseases, missionaries, colonists, and twentieth century "progress."

There are still some two million people in Belize, Mexico and Guatemala who, in language and culture, are Maya (Coe 1980).

The Classic period of Maya prehistory has been defined as "that span during which the lowland Maya were using the Long Count calendar on their monuments" (Coe 1980:61). This places it between A.D. 292 and A.D. 889, which are the earliest and latest dates on any known lowland dated stelae. Sometime before the end of the third century, then, the hallmarks of Maya civilization were in place--the unique architecture, art, and systems of writing, calendrics, and numeration. Presumably the social and ideological concomitants were also present in a formative, if not fully-developed stage. There is much speculation about origins and development, but all that can be said with certainty is that there was both borrowing from neighbors and indigenous development, and all was somehow integrated into what we know as Maya civilization (Adams 1977; Willey 1982).

Cultural complexity and population increased until about A.D. 800, except for a brief hiatus in the sixth century when there was a sharp and unexplained decrease in numbers of stelae erected. In the ninth century construction at major centers in the southern lowlands virtually ceased and population declined significantly. By the time the last

known dated stela was erected (A.D. 889) most major centers were largely abandoned. The area as a whole, however, was not depopulated. Substantial numbers of people continued to live in and around the smaller centers, and in some places more modest construction projects were continued or undertaken. This is the so-called "collapse," about which there are many unanswered questions regarding causes and consequences (Culbert 1973).

Most Maya cultural chronologies show the ninth and tenth centuries as a transitional period, and date the Postclassic from about A.D. 1000, when Chichen Itza was renamed and rebuilt by immigrants or invaders from central Mexico, possibly Toltecs. In the Postclassic, the center of Maya civilization shifted to the northern lowlands, where existing centers were enlarged and new ones were built. External contacts increased as long-distance trade routes became more important. These were mostly water routes, extending from the Laguna de Terminos on the Gulf of Mexico, around the Yucatan Peninsula and down the Caribbean coast to Honduras or beyond, with ports of trade at intermediate points such as Isla de Cozumel and Bahia de Chetumal. The Postclassic in the northern lowlands has long been viewed as a kind of decadent sequel to the Classic period in the southern lowlands. Andrews (1973) argues that this may be a distorted view of Maya culture as

a whole. He believes that while Classic Maya civilization was "withering on the stem" in the southern lowlands, there was "a cultural upsurge in the north in no way less impressive than that which seems to have occurred in the southern area more than half a millennium before" (Andrews 1973:245).

According to Bishop Landa, the first Europeans to reach Yucatan were the Spanish captain Valdivia with about a dozen shipwrecked sailors. The year was 1511. The reception was not propitious. About half were promptly sacrificed; the others escaped only to be enslaved by another "ruler" who gave them refuge (Landa 1966). In 1517 and 1518 expeditions led by de Corboda, Grijalva, and Cortes arrived at Cozumel Island and a new era began in earnest.

In some ways the Maya suffered less from the European conquest than other New World peoples because they had little in the way of land or resources that attracted large numbers of adventurers or settlers. But there were still the demands of government and church: all new lands must be claimed and retained for the glory of king and country, and all new souls must be brought into the Church. Efforts to reach these objectives led to much destruction and virtual extermination of some groups (Thompson 1970; Hellmuth 1977). There are two schools of thought about the extent to which postcontact events changed Maya culture and soci-

ety. They lead to different conclusions about the relevance of ethnographic analogy and of some ethnohistoric materials. One school believes that the Maya "deliberately conserved the past" whenever they could, clinging to traditional language and culture, going "underground" with their religion, and thus diminishing "the danger of error in interpreting past history from colonial or present-day practices" (Thompson 1970:xvi). The other maintains that "the Spanish Conquest completely obliterated the native lowland Maya way of life . . . , forced certain agricultural changes, most notably a dependence on maize and beans" and resettled the surviving populations according to the preferences of administrators and priests. Therefore, modern populations "have but dubious relation to the ancient Maya of the same region" (Hellmuth 1977:444). My position is that ethnographic and ethnohistoric materials must be used, for the clues they can provide to prehistoric behavior, but used with caution and due consideration of possible irrelevancies.

Archaeology

The Maya area has received much attention from explorers and archaeologists, but efforts to decipher the archaeological record have been strongly affected by its dramatic and puzzling nature. Most excavators and interpreters focused

on the spectacular and unique--the monumental architecture; the elaborate but equivocal hieroglyphs, calendrics, and artwork; the mysteries surrounding the origin, development, spread, and decline of Maya civilization. The mundane aspects of the lives of ordinary people could not compete. House mounds were tedious and routine but temple excavations were like panning for gold--one never knew what the next shovelful might turn up.

Maya archaeology has a long and chequered history, dominated at times by some very strong personalities. It can be divided into four periods (Adams 1969; Adams and Culbert 1977; Becker 1979; Hammond 1983):

(1) Early Explorer (1760-1840);

(2) Great Explorer (1840-1924);

(3) Carnegie Period (1924-1957);

(4) Multi-institutional (1957-present).

An even earlier period could be included which, though not "archaeology," has much to contribute to archaeological research. It started with Cortes' march through the lowlands in 1525 and continued for some 200 years. "The Spaniards were fanatical writers and field commanders sent back to their headquarters long eyewitness reports" on all aspects of Maya life (Hellmuth 1977:423). These voluminous manuscripts are in Spanish and Guatemalan archives. They contain a wealth of ethnohistorical material that has been little used to date.

(1) During the Early Explorer period the Spanish kings began to encourage exploration of ancient sites for historical purposes. (Previous exploration had been motivated by politics and economics.) It was taken for granted that the remarkable structures hidden so deep in the jungle could not have been the work of native Americans, and conjecture about origins ran rampant; nominations included Egyptians, the lost tribes of Israel, and the lost continent of Atlantis.

(2) The Great Explorer period (or Scientific Explorers and Major Scholars) saw the search for unknown sites taking precedence over the descriptions of known ones. John Lloyd Stephens' books about his travels in Maya territory, beautifully illustrated by Frederick Catherwood, brought the Maya ruins to public attention (Stephens 1961, 1969). Stephens was one of the first to argue for an indigenous origin for this vanished civilization. Field archaeology, under such men as Alfred Maudslay and Teobert Maler, reached new heights of meticulous and competent description, but there was little interpretation. This was particularly true after the turn of the century, when most archaeologists in the area were North Americans, "intellectually influenced by the dominant [American] anthropologist of the time, Franz Boas," and his concentration on data-gathering (Adams 1969:4; Hammond 1983).

(3) Archaeology was preoccupied with ceremonial centers, classifications, and chronologies for most of the Carnegie Period. A wider assortment of opinions about Maya civilization were taking shape, but theory did not keep up with excavation and speculation. A.V. Kidder, Chairman of the Carnegie Institution's Division of Historical Research from 1930 to 1950, used his powerful position to support excavation and discourage theorizing (Adams 1969). J. E. S. Thompson exerted great influence on both the academic world and the general public, with an impressive list of scholarly and general interest publications, a very readable and persuasive style, and an absolute commitment to the priest/peasant, empty ceremonial center view of Maya society (Becker 1979; Hammond 1983).

(4) The Multi-institutional period inherited a "diverse and unintegrated morass" of opinions and ideas from the Carnegie era (Adams and Culbert 1977:12). The core of the legacy was the assumption that the Maya were maize-oriented swidden-dependent farmers with a moderate and dispersed population, a social structure resting on a priest/peasant dichotomy, power and authority vested in a relatively benevolent theocracy, and ceremonial centers reserved for religious and administrative purposes. They were also seen as relative newcomers to the area. Reliance on stelae for dating and distinguishing between "periods" made it seem

"that the traits of Maya Classic culture emerged almost overnight at the time of the first dated inscriptions" (Adams and Culbert 1977:15).

In the 1950s, new population estimates, and new techniques for dating and analyzing archaeological materials produced results that could not be reconciled with these assumptions. Artifacts and osteological remains were subjected to rigorous tests; ancient climates and subsistence patterns were reconstructed; more comprehensive surveys were undertaken on both macro and micro levels. Maya archaeology became more adept at extracting relevant information from hieroglyphs, linguistics, ethnohistory, and ethnology (Willey 1982). It is now generally agreed that the Maya had a sophisticated and complex culture with long antecedents in the area of its apogee. However, although the earlier model has been laid to rest, it does not have an acknowledged successor. There are, instead, many contending models and assumptions. The following assumptions have relatively wide acceptance and are the fundamental premises of this study:

- The economic base was diversified agriculture--extensive cultivation of maize supplemented by intensive cultivation of various plant foods appropriate to regional ecosystems and needs.

- Population densities varied but probably did not exceed the overall carrying capacity of the area.
- The settlement pattern was dispersed, with a hierarchy of communities but none qualifying as a true "city."
- Regional differences in resources, productivity, and population density were sufficient to support active exchange networks.
- The level of sociocultural organization was a "conditional state."

New perspectives on Maya culture have opened up a whole new vista of avenues to explore. Trade and religion, the foci of this study, are two of these, but to put them in context, some discussion of subsistence and settlements is in order.

Subsistence

Knowledge about Maya agriculture is changing so rapidly that anything written about it should be taken as a progress report, far from finalization. The following summary, written with this caveat in mind, is based on: Turner 1974; Hellmuth 1977; Netting 1977; Harrison and Turner 1978; Flannery 1982; Willey 1982.

Classic Maya subsistence was a complex system of crops and agricultural techniques constructed upon a base of

swidden farming of maize. Crops included beans, squash, manioc, sweet potatoes, chili, tomatoes, avocado, guava, papaya, and other vegetables, fruits, and nuts. Since there were no metals or draft animals, farming relied on the digging stick, some stone implements, and people-power. Techniques included kitchen gardens; fertilizing, mulching, and composting; multi-cropping, intercropping, and rotating of crops; arboriculture; and water control devices such as terracing, canals, and raised fields. The specific pattern of crops and techniques varied temporally and spatially and was modified to adapt to changing conditions. This was true for nonagricultural foodstuffs also. Hunting, fishing, and gathering of wild foods supplemented the diet everywhere but was of more consequence in some regions and in some seasons. Because the postcontact Maya had no domesticated animals, it is usually assumed that their predecessors had none, but there are indications that they "raised turkeys and other birds, probably bees, and possibly rabbits" (Hellmuth 1977:437).

Cotton, tobacco and cacao were also important crops, the latter being a medium of exchange throughout Mesoamerica as well as a popular drink. Natural resources of all kinds were used efficiently for manufactures, construction, medicines, and other purposes. Utilitarian and luxury items were produced in abundance for all personal and household needs.

There was certainly some craft specialization, but production remained basically a household responsibility. There is evidence that production was sometimes concentrated in certain settlements or neighborhoods (for example, workshops at Colha where chert tools and weapons were produced in huge quantities (Willey 1982)), but no evidence that this was a common practice, as in the highly-specialized cities of central Mexico. In the fine arts and in the more esoteric fields of knowledge there were doubtless full-time specialists. But these are not really subsistence activities even though there is no hard and fast line to separate the two.

Settlements

Many models of the Classic Maya settlement system have been proposed, but no single one has met with general acceptance. It is a controversial topic that is closely related to the issue of urbanism, the subject of some of the liveliest debates in Maya studies today. For most of the history of Maya archaeology this was not an issue. It was assumed that there was an elite/peasant social dichotomy and that this was mirrored in settlements, the elite living in ceremonial centers and the peasants in scattered villages and hamlets.

The first systematic efforts to put Maya settlements into a more realistic perspective occurred less than thirty years ago when Bullard and Willey attempted to identify types and patterns. Bullard (1960) developed a three-level typology--house ruins, minor ceremonial centers, and major ceremonial centers, corresponding to clusters, zones, and districts. Willey (1956) proposed three "ideal" patterns that could be used to analyze the spatial distribution of settlements--nucleated, dispersed, and clustered.

Since then, settlement archaeology has become one of the main thrusts of Maya research but progress has been hampered by a misplaced search for one overall pattern when actually there are many possible patterns, and by the old Procrustean habit of creating categories first and then looking for data to fit them (Sabloff 1983). Also, the data base is growing rapidly but analysis and publication of findings often lag behind by many years.

The following is a general synopsis of current thinking about Classic Maya settlements, drawn mainly from Andrews (1975), Ashmore (1981) and Vogt and Leventhal (1983).

Maya settlements, from the largest centers to the smallest household clusters, consist of two very fundamental kinds of space: (1) open spaces, leveled and paved, surrounded on three or four sides by (2) enclosed spaces, usu-

ally set on raised platforms of earth and stone. This pattern, especially the ubiquitous raised platforms, or mounds, is the core of settlement surveys and has often been used for population estimates. Without excavation and/or dating, however, care must be exercised in drawing conclusions from house mound counts because contemporaneity of occupation is an unknown. But they are a useful indicator of patterns of settlement and of relative population densities in different places. (It has recently been pointed out that many families may have lived in a very simple residence, with no mound or recognizable surfacing (Hill 1982). These would be extremely difficult to identify archaeologically, and this possibility has serious implications for all assumptions and models respecting Maya population.)

The basic building block of Maya settlements was a single residential unit, usually built of pole and thatch. Since walls and roofs were highly perishable, archaeological evidence consists almost entirely of house mounds and associated middens, or sometimes ground-level floor areas defined by post holes and some kind of surfacing. Two, three, or four of these units, plus some associated non-residential structures, were grouped around an open area and are usually referred to as a "patio group." Residential units are distinguished archaeologically from

non-residential structures (storage places, kitchens, workshops, and shrines) by architectural features, location, and associated artifacts.

Patio groups are often found in clusters of five to twelve, with one group or structure being larger and more elaborate. The patio groups within the cluster group (hamlet? village?) are not arranged in any discernable pattern and are separated from each other by irregular open spaces. This apparently haphazard arrangement is typical of the distribution of units within Maya settlements. It is one of the arguments used by those who maintain that Maya settlements were not urban; that is, there are no grids or other regularities in layout to indicate cities as we know them. This is true in the immediate environs of the largest centers as well as in more isolated, low density areas. Figure B-2 illustrates this seemingly random distribution of residential groups around Tikal, one of the best-excavated major centers.

After the residential unit, the patio group, and the cluster group, the next most comprehensive units of Maya settlements are what we now call simply "centers."*

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* Participants in the 1977 seminar on lowland Maya settlement patterns agreed that the traditional "ceremonial center" is inappropriate, and alternatives such as "political," "civic," or "administrative" centers could be just as misleading (Ashmore 1981).

These were not totally different in kind. Centers contained some residences, ranging from the single-room pole and thatch type to large, elaborate stone structures known as "palaces." And the plaza and cluster groups contained some special purpose structures. The important distinction between a residential site and a center was the presence in the latter of at least one pyramid/temple/palace complex with large stone special-purpose structures and a large open space or plaza. Centers varied considerably in size,

> from relatively small single-plaza or single-architectural-complex units, covering no more than fifty square meters of ground, to mammoth agglomerations such as Tikal, with major architectural features disposed over several square kilometers. Usually, although not always, architectural adornment, monumental art, and hieroglyphic inscriptions--all features of Maya elite society--have a positive correlation with center size, linking elaboration with greatness and massiveness (Willey 1981:393).

It is agreed that there are major and minor centers but there is much uncertainty about how to distinguish correctly between them and determine their respective roles and relationships. To twentieth century archaeologists, size seems an appropriate measure, but would size have had the same significance to the Maya people? There is even more uncertainty and conjecture about the relationship between the different major centers. (These questions will be raised again in Section D, Settlement Pattern Analysis.)

In general, residential units and groups were dispersed throughout the sustaining area of a major center, with some

concentration of population toward the core. Within the peripheral zone there was some clustering of population around minor centers, which occupied a middle position in the hierarchy. On the basis of ethnohistoric accounts and epigraphic analysis, it seems that intracommunity ties were strong, first to one's residence group (probably lineage-based), then to a minor center, and last but not least to a major center (Scholes and Roys 1968; Marcus 1976). Distances between centers were not great; lowland settlement studies suggest a five to six kilometer radius as an average between minor centers and about twice that between major ones (Willey 1981).

Trade

Until recently, economics has not been a major concern in Maya prehistory (Adams 1975; Culbert 1977; Lee 1978) although a few archaeologists have seen it as a significant factor in both the development and "collapse" of this enigmatic civilization (Webb 1973; Rathje 1973). With a basically homogeneous environment, no roads or wheeled vehicles or beasts of burden, no evidence of a merchant class, and a terrain that presented many obstacles to the traveller, what advantages were to be gained from trading? To which the "old model" answered: very few. The new models are reexamining questions about Maya trade, stimulated by new

information on microenvironmental differences and water-based transportation routes, and by more precise methods of analyzing materials and their sources (Rands 1967; Willey and Shimkin 1973; Webb 1975; Sidrys 1977; Turner and Harrison 1978; Price 1978; Jones, Coe and Haviland 1981; Freidel 1981; Voorhies 1982).

There is now evidence of extensive exchange within the Maya area, from some of the earliest dated sites (ca. 2000 B.C. at Cuello) to historic times (Willey and Shimkin 1973; Freidel 1978; Hammond et al 1979). The principal archaeological evidence is provided by highland jade, obsidian, pyrites and other stones and minerals which are found throughout the lowlands, in both their raw states and as manufactured items. Coastal/hinterland exchange is shown by the wide distribution of marine shells from both the Pacific and Caribbean coasts. Cacao and salt, both restricted as to place of origin, are found in sites throughout the Maya area (Figure B-3).

Lowland commodities are not as often found in highland sites. Tropical forest exports are not likely to be preserved in the archaeological record, so the question of what the lowlands traded for their highland imports is still a matter of much speculation. Two attempts to answer this question illustrate the range of possibilities. Rathje assumes that the lowlands had very little in the way

of natural resources with any exchange value while at the same time their lack of certain essential resources made trade an imperative. This resulted in lowland exports of an ideological and ceremonial nature--the dogma and paraphernalia of the ceremonial center cult (Rathje 1971; Molloy and Rathje 1974; Phillips and Rathje 1977). In contrast, Voorhies argues that the tropical rain forest environment contained an extensive inventory of commodities that could have been in demand in highland areas. These were organic, highly-perishable, mainly non-essential items, such as plant materials, feathers, skins, and shells, which were used for medicines, oils, scents, dyes, spices, clothing, decorations, adornments, etc. (Voorhies 1982).

In any event, the frequent presence of highland materials in lowland sites is sufficient to assume that exchange between these two zones was characteristic of Maya life. Quantity, variety and distribution rule out the factor of chance alone. The evidence that we have suggests that imports were largely prestige or symbolic items, with social or political significance, rather than utilitarian ones (Tourtellot and Sabloff 1972). However, if perishable items were also available for study, the picture could be quite different. It is possible that even maize was traded over relatively long distances, from areas of surplus pro-

duction to those with insufficient productivity (Eaton 1975; Puleston 1978).

Most investigations into Maya trade have used some combination of archaeological data, ethnohistoric writings, settlement pattern surveys, and ethnographic analogies to develop hypotheses and/or models (Scholes and Roys 1968; Thompson 1970; Rathje 1971; Renfrew 1975; Culbert 1977; Price 1978). A few empirical studies have also been done. These include Rands' (1967) analysis of ceramics from Palenque and neighboring settlements; Sidrys' (1977) research into the importation of obsidian artifacts; and the Tourtellot and Sabloff (1972) comparison of relative frequency of practical and prestige imports.

Long distance trading expeditions were noted by the first Spaniards (Scholes and Roys 1948; Chapman 1957; Thompson 1970). Were these also a feature of Classic Maya times, some 600 years earlier? The Cozumel Project is addressing this question archaeologically, and is finding indications of extensive and early maritime trade around the Yucatan Peninsula and along the eastern coast of Central America (e.g., Sabloff and Rathje 1975a; Sabloff et al 1974; Sabloff and Freidel 1975), but evidence for long distance trade in the Classic period is still preliminary.

As the evidence for internal trade accumulates, its advantages are also becoming apparent. Microenvironmental differences are now known to have been substantial, even within the lowlands, and certainly resulted in uneven production of foodstuffs. The areas of greatest population density were not always the most productive ones. Agricultural exchange could have redistributed both staple and supplementary foodstuffs (Turner and Harrison 1978; Willey 1982). It would also have been more cost effective if people specialized in crops that could be grown "relatively cheaply" in their particular ecosystem. The same principle applies to nonagricultural items. For example, sometimes there were marked differences in the nature and quantity of materials available locally for making pottery. This affected both the utility and aesthetics of the product, encouraging exchange for both practical and preferential reasons (Rands 1967; McVicker 1978). Even minor differences in distribution of resources could cause enough disparity to make specialization and exchange both profitable and practical (Phillips and Rathje 1977; Price 1978).

We may never know whether the major impetus for Classic Maya trade was need or want. Obsidian and igneous rocks are most often cited as evidence that trade between highland and lowland communities was a necessity. Certainly these materials are found in quantity in lowland sites, and

obsidian makes sharper tools and granite makes more durable metates than can be made from local materials. However, chert and limestone do fulfill the same purposes and are readily available throughout the lowlands. It can be argued that importation of these exotic materials was a luxury, not a necessity (Puleston 1978).

But resource variables and differences in supply and demand were not the only stimuli for trade. Status differences ensured a market for luxury items and slaves, social and political alliances involved exchange of women by marriage, and the common cultural matrix required regular exchange of information.

Sociocultural implications. Because trade involves social organization and values as well as commodities, it offers "a practical way of investigating the organization of society in social terms as well as purely in economic ones" (Renfrew 1975:4). Trade and specialization are usually accompanied by more productivity and less competition for scarce resources. As a consequence, a population/productivity cycle is set in motion and many social, economic and political changes can occur (Price 1978). One of these is an increase in social stratification which, judging from individual differences as revealed by differences in grave goods, was well-established during the Classic Maya period (Willey and Shimkin 1973). Another change of

considerable consequence is an increase in cultural solidarity. Exchange networks, especially when they include people (as in marriage and slavery), facilitate exchange of ideas and customs and help to fuse diverse regions into a cultural whole when there is no overall political authority to impose such a fusion (Thompson 1970; Renfrew 1975).

Structure and organization. Most information to date about trade routes, facilities and personnel comes from ethnohistoric and ethnographic sources, which must be used with care. At best they convey a general impression of what might have been. At worst they mislead with inaccuracies that cannot be tested empirically.

One well-developed regional exchange network has been traced archaeologically as well as historically in central Chiapas, where distinctively different microenvironments occur in close proximity (McVicker 1978). "Ceremonial centers," the nodes in this network, provided places for intraregional trade to take place and served as points of interchange for a limited amount of long distance trade. In this relatively isolated, inland area the river valley routes were used extensively for moving goods. Another ancient route joins the southern highland area around Coban to the southeastern flanks of the Maya mountains, also following river valleys (Hammond 1978).

Maya terrain and topography show many such valleys, penetrating well into the interior from the Gulf of Mexico, the Caribbean, and the highlands in the south. In many cases the rivers were navigable, in other cases the river valleys were more suitable as transport routes. In some places the terrain was modified to form canals (Turner and Harrison 1978), or sacbeob served as routes between sites. Sacbeob, or causeways, are from six to twenty meters wide, one to six meters in height, and cover distances up to 100 kilometers. They are most common in areas that are not well endowed with river valleys (for example, the Yucatan Peninsula and Central Peten), and they are far larger than necessary to accommodate traffic of a people with neither domesticated animals nor wheeled vehicles. This could have been for utility (to delay encroachment by the jungle) or for ceremonial purposes. Whatever the reason for their dimensions, sacbeob would have been fine routes for travellers of any kind (Landa 1941; Thompson 1970; Mathewson 1977; Kurjack and Garza T. 1981).

As for merchants, the hypothesis presented by Chapman (1957) has not been seriously challenged. She found no evidence for a Maya merchant class in connection with long-distance trading ventures and concluded that trade was one of the prerogatives of the elite. The literature is virtually silent regarding merchants and either intra- or

interregional trade except for some brief references to merchants and pilgrim shrines (Thompson 1970; Scholes and Roys 1948).

Market places present a similar problem. Their treatment in the literature is largely limited to ports of trade (again, for long-distance trading) in the Postclassic. However, recent findings at Tikal may stimulate more research. It is reported that

> excavation of a probable marketplace and other architectural groups unique to Tikal has brought us to ponder whether or not Tikal might have dominated a major trade route from the southeast through to Central Mexico. The importance of trade in the planning of Late Classic Tikal and the strategic nature of its location might therefore provide us with a plausible economic reason for its early and long-lived dominance over the rest of the Classic Maya area (Jones et al 1981:307).

In summary, exchange offered many advantages to the Classic Maya. It encouraged specialization and thus made better use of resources which resulted in greater efficiency of production and more satisfaction for the consumer, most directly in more variety, lower costs, and/or higher quality. This is true for the production of ideas and information as well as for material goods. Most important, it improved communication and had a unifying effect on a scattered population which might otherwise have diverged significantly.

Religion

In one sense, religion has received more than its fair share of attention from Maya archaeologists. The pyramid/temple complexes and elaborate burials and inscriptions have led to abundant speculations about a sacerdotal elite and the theocratic nature of Maya civilization. At the same time, the role of religion in everyday Maya life is seldom discussed. This imbalance is a legacy from the priest/peasant dichotomy of the "old model." One looked for the sacred in connection with "ceremonial centers" and for the secular when excavating ordinary house mounds. Fortunately this is changing with the new models and their broader perspectives.

The traditional focus was also a reaction to the available sources of information on prehistoric Maya religion, which are limited to:

(1) material remains, dominated by the monumental architecture and handicapped by the conundrum of the carvings and glyphs;

(2) three hieroglyphic books dating from the Postclassic;

(3) a few documents written by Yucatecan Maya, in European script, during the colonial period;

(4) the writings of Spanish priests and conquistadores;

(5) religious beliefs and practices of contemporary Maya.

Most archaeologists have been reluctant to undertake any comprehensive explanations of Classic Maya religion with such a motley and dubious assortment of information, but there was one who accepted the difficult challenge with enthusiasm. This was J.E.S. Thompson (1954;1970)* whose Maya History and Religion (1970) remains the most complete published source of information about Maya religion. Subsequent research has revealed more details about specifics such as sacrifices, ancestor worship, and use of drugs, but has not produced any serious challenges to Thompson's basic reconstruction of the Maya spiritual world.

The following brief outline of Maya religion is extrapolated from Thompson (1970), Marcus (1973), Coggins (1979), Hammond (1982), Leventhal (1983), and Pohl (1983). It attempts to view religion from the bottom of the pyramid, as a village family might see it. The view from the top probably differed more in externals than in basic concepts.

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* He says, in Maya History and Religion: "I do not belong to the 'Let the facts speak for themselves' school. In a book such as this there is not room for all the facts, let alone the hints and whispers of facts which outnumber certainties in most Maya sources. Having spent my working life trying to sort them out, I feel I should have a claim to pick for the reader the most pertinent. Prejudice may lead to a wrong deduction now and again, but such errors are better than bogging down in an unbounded welter of pros and cons. History without a little prejudice is dull as ditchwater; naturally, if you oversalt the dish you ruin it" (Thompson 1970:xxv).

There is no indication that the remarkable architecture, scientific achievements (especially in astronomy and calendrics), sculpture, and inscriptions are matched by anything very remarkable or unique in Maya religion. Theology and mythology were similar to those found in many parts of the world, especially among agriculturalists who lived closely attuned to a productive but eccentric environment. The most notable feature was the extraordinary importance of time and all temporal concepts. This was more than a wish to have an accurate calendar, more than a close association between the supernatural and the cycles of the natural world. It was a "societal near obsession" that resulted in "elaborate interlocking calendars involving sun and moon cycles as well as the observation of stars and planets" (Cornell 1981:30). Seasonal cycles were marked by elaborate ceremonies and historical events were continually being added to the inventory of cycles that demanded regular commemoration. Other characteristics of note in Maya religion were the multiplicity of deities and the practical, contract-like relationship between men and gods.

The Maya world was a flat square block with heavens above and underworlds beneath. A giant ceiba tree stood in the exact center, its roots extending down into the underworlds, its branches reaching up through the skies. A hierarchy of gods was headed by Izam Na, the creator of the

universe; it included other major and minor deities associated with natural phenomena, subsistence, and the life cycle. The four bacabs supported the skies at the four points of the compass. Each bacab was associated with a particular color and set of rites relating to the seasons of the year. The jaguar god was important, as he was throughout much of Mesoamerica, but his place in the hierarchy is uncertain. Other animals, especially birds, amphibians, snakes and fishes had important symbolic associations and played essential roles on ritual occasions.

The lesser gods were of more immediate interest and importance to villagers. These were sometimes associated with cults and special shrines and included gods of merchants, hunting, fishing, cacao, balche (a drink made from fermented honey), medicine and curing, war, poetry, music, tatooing, and the ball game. Villages had shrines for deities of local importance, and many household plaza groupings included a small non-domestic structure which is generally assumed to be a family shrine. Religion was directed to practical ends, to buying the favor and goodwill of the spirits and deities by constant propitiation with prayers and libations. There is some indication that ancestors were venerated and perhaps had a role as intermediaries with the spirit world. There is convincing evidence (from burials and inscriptions) that rulers and heads of important families were venerated if not worshipped.

The hierarchy of the supernatural world was replicated in the natural world by a hierarchy of people and places with religious functions. Village families were involved at all levels of this hierarchy, from household to major center. Each level was much like the others, with more refinements, scope, and power as one moved up the scale. Each had a strong influence on family fortunes, but it was at the major center that the prophesies of major deities were revealed and the overall economic welfare of the populace was affected. Here there were full-time, high-ranking priests who served as intermediaries and interpreters between the natural and supernatural worlds. Their pronouncements and directives were enveloped in ritual and ceremony and had the strength and surety of sanctification.

Even if the major centers only combined practical prognostication with pomp and pageantry, there would have been strong motivation for regular visits from villagers. If pilgrimages provided additional religious incentives and fairs additional economic ones, substantial circulation of people and goods would have resulted.

The Pilgrimage-Fair

It is suggested that the two streams, trade and religion, came together in the pilgrimage-fair. People, commodities, and ideas were set in motion by economic and religious needs and wants. They met and interacted in local and regional centers where these objectives were satisfied. Because there was no distinct merchant class among the Maya, the craftsmen, artisans, farmers, and others with goods or services to exchange used pilgrimages as opportunities for trading. "Ceremonial centers" and shrines doubled as market places, and the people who planned and administered them had both religious and economic roles and functions (Freidel 1981).

This model of the Classic period Maya is supported by bits and pieces of historical, ethnographic, and archaeological data. For example, merchant/pilgrims from Tabasco, Xicalango and Campeche regularly visited the shrine of the goddess Ix Chel on Cozumel Island (Landa 1941; Scholes and Roys 1968; Thompson 1970; Sabloff and Rathje 1975). At Esquipulas, the great Central American pilgrimage center in the heart of the Maya highlands, Stephens reported (in the 1840s) that as many as 80,000 people would gather "to barter and pay homage" (Stephens 1969:169). In the highlands of Guatemala/Chiapas, small groups of travelling merchants carry a patron saint with them and visit each village

church as though it were a shrine on a pilgrimage route, generally acting in a way that suggests close association between religion and commerce (Navarrete 1978). In some areas, a regular network of patron saint exchange visits links the various settlements; local products travel with the saint to be exchanged at the fair that accompanies the fiesta (Vogt 1983). Pilgrimages were important throughout Mesoamerica at time of conquest and have remained so to this day. Religious festivals are traditionally occasions for exchanging goods and services, and central plazas are the usual locale.

The difference between the foregoing examples and the pilgrimage-fair model is one of degree. In the model, the pilgrimage and the fair become a single institution; it is a synergistic relationship, not just a symbiotic one. Together, they are not only a mechanism for general cultural integration but also a means of effective distribution in a society characterized by dispersion of residence and production; a stimulus to economic interdependence; a method of social control by consensus and shared ideology rather than by force; and a constant reminder to the populace that religion has important functions in both the natural and the supernatural worlds. The interractions of these factors could set in motion a series of positive feedbacks that may account for the lack of centralization

in spite of intensive agriculture, social stratification, and specialization, all factors that are usually conducive to nucleation and central authority. As Freidel explains it:

> If all Maya centers functioned as pilgrimage shrines, way stations, or termini in a pan-Maya network, then the public festivals held in them would not only provide local integration, but would also integrate the local community with some fragment of the larger regional network. . . . If such festivals were regularly accompanied by fairs and the pilgrim-visitors came prepared to participate in these fairs, then the distribution of goods above the local level could be channeled through centers under religious sanction. . . . both production and distribution of goods could be maintained in a predictable manner (Freidel 1981:378)

The elite would be in a position to control and tax this redistribution of goods if they wished to do so, but such prerogatives would be limited to the flow of commodities through the center(s) with which each family was associated. In this model there is not one dominant center in the Maya area; there are numerous centers at each level of the settlement hierarchy, and at the village and family level redistribution through kinship ties would still be important.

There is additional support for the model in Maya architecture. The plaza arrangement, with several structures bounding an open area, is suitable for economic and religious purposes at all levels in the hierarchy of settlements and society. The household plaza, where a family

honored its deities and pooled the fruits of its labor, was the prototype for similar sacred and secular functions at each level. At the top of the hierarchy the major centers drew people from far and near for major ceremonies and markets.

The pilgrimage-fair model, then, is physically feasible and congruent with customs of Postclassic and contemporary Maya. The sociocultural consequences would be a high degree of cultural integration over an area that had few other reasons for cohesion and yet developed what was probably the most dense and continuous symbol system (art, calendrics, hieroglyphics) in the New World (Freidel 1981; Willey 1981). This must have come about in various ways, for example, military alliances, marriages, "maybe even conclaves of priestly scholars" (Willey 1981:414). But the pilgrimage-fair concept

> would have been an ideal addition for sociopolitical and ideological integration. In a scheduled manner, representatives of all levels of society could have been brought together for material and non-material interchanges under benevolent sanctions. It helps explain much; among other things, it helps explain trade (Willey 1981:414).

And trade apparently did flourish, but without merchants or markets as such.

C. COMPARATIVE ANALOGIES

> - I must resort to the suspect and much-maligned use of ethnographic analogy. I take heart from the fact that even archaeologists in good standing have sought comparisons as far away as Cambodia . . . and that as a garden-variety ethnographer who has never set foot in Mesoamerica, nothing more substantive could be expected from me. I make no claims to illuminate authoritatively the darkness at the heart of tropical ecosystems but rather offer some might-have-been alternatives to the just-so stories of the Maya milpa.
>
> -Robert McC. Netting, 1977

Analogy is a kind of cross-cultural comparison that extends the limits of a field of study and brings new insights to it. In many cases it is essential for a balanced interpretation of archaeological data. Without it, archaeology would oscillate between lists of facts and flights of fancy. But it is important to recognize the limitations of analogy, which vary according to the kind being used.

The first and most common is <u>specific historical analogy</u> (Willey 1977), a genetic model. A contemporary or historic society is used as an analog for a prehistoric one on the assumption that the two are related in some sense, either

spatially or culturally. If this relationship cannot be demonstrated convincingly, if it is at all uncertain, "the legitimacy of inferences drawn on the basis of the comparison is rendered dubious" (Price 1974:448). Because this technique is particularistic, it is of limited comparative or cross-cultural value. Furthermore, it cannot distinguish between historical continuity and the very different processes of parallelism and convergence. This is not to say that specific historical analogy is useless. With due care and critical analysis of the situation, it is a "potentially fruitful approach," especially for generating hypotheses that are subsequently to be tested archaeologically (Price 1974:446; Willey 1977).

General comparative analogy, a generic model, is so basic that it is often used almost unconsciously. Based on our general knowledge of life and living, it provides fundamental principles and categories for ordering and interpreting data. Its major weakness is its generality. Another problem is subjectivity; because a hypothetical model is constructed of bits and pieces "randomly drawn from space, time, and cultural tradition, the design of the model must be either very 'loose-jointed' or else one that stands in very great danger of being influenced by personal or doctrinal predispositions" (Willey 1977:86).

A third kind of analogy, with a long tradition among historians and philosophers, is proving useful and appropriate for archaeology also. Specific comparative analogy uses a society with no known connection to the target society, but with some similarities of organization, development, or environment. It provides a broader perspective than specific historical analogy and avoids the latter's need to establish interconnections, and it offers a more focused, structured framework than general comparative analogy although it runs the same risk of subjectivity. "Not the least of its merits is that it forces archaeologists to be less immersed in their own narrow interests. When they return to their particular bailiwick, after a comparative look at cultures . . . unrelated to their own immediate research concerns, they are often able to look at what has grown familiar to them with a new and discerning eye" (Willey 1977:89). Specific comparative analogy can be used to develop models, to generate hypotheses, or to test hypotheses. In this paper it will be used to broaden the perspective and look for cross-cultural possibilities in the pilgrimage-fair concept.

If the analagous society has no known connections with the archaeological one, by what criteria is it deemed appropriate? In the final analysis, each case must be considered and judged individually, but certain parameters

should guide such decisions. Price (1974) suggests that these should be fundamental similarities in (1) the environment, (2) methods of exploiting the environment, (3) density and distribution of population, and (4) structure and function of institutions. These guidelines were used in selecting analogs for this study, but because of the uncertainty about the institutional specifics of Maya civilization, the fourth criterion has been modified to: fundamental similarities in sociopolitical organization. This translates, in general terms, into tropical forest agricultural civilizations with dense but dispersed populations and a conditional state level of organization (that is, somewhere between advanced chiefdom and early state).

We know that complex civilizations, as a type of culture, developed in the tropical forests of such farflung parts of the globe as West Africa and Southeast Asia as well as Mesoamerica, but there are few cross-cultural studies. There is one that compares the Khmer site of Angkor with some Maya sites, focussing on environment and urbanization (Coe 1957, 1961). Coe argues that both were indigenous, nonurban civilizations. Their different regions were culturally integrated through direct support (by tribute and labor) of royal and/or religious cults as represented by "ceremonial centers," or religious communities. Another study analyzes and compares, in some detail, the environ-

ment and productive potential of four tropical civilizations: Maya, Khmer, Javanese and Sinhalese (Bronson 1978). The results show that tropical forests were not an obstacle to growth and development of civilization. Actually, they can be more suitable for human habitation than some of the temperate and desert areas that supported major prehistoric cities and states. For example, the soils and climate of central Java are superior to southern Mesopotamia from the standpoint of "intrinsic demographic capacity" (Bronson 1978:292).

One Southeast Asian civilization will be used for comparison in this study, the Khmer Empire of Cambodia. Others are taken from western Africa and central Asia. The Yoruba of Nigeria lacked monumental architecture but resembled the Maya in other important ways (Netting 1977), and the Tibetan civilization bears comparison with the Maya in spite of its very different environmental context because religion and trade were so closely linked and firmly embedded in the social fabric that the pattern found there cannot be ignored in discussing the pilgrimage-fair concept.

Other societies that were considered as possibly appropriate included the Sinhalese, Balinese, Javanese, and Ibo. The main reason for not including these was the paucity of appropriate source material. There was also a need to choose between using more analogs and doing a more cursory

comparison, or using fewer analogs and looking a little deeper. I chose the latter.

The Khmer of Cambodia

> - In Asia . . . there are several ancient societies that bear striking similarities to the Maya in most important respects: in gross environmental setting, in societal and political complexity, and even in partiality to monuments. The parallels have long been recognized. Yet these Asian cases have only occasionally been brought into discussions of Maya subsistence.
>
> - Bennet Bronson, 1978

The following sketch of Khmer civilization is compiled from a number of sources which will not be cited individually except where a quote or claim is used that is specific to that author. Almost all of the sources that I used cited as their sources the same limited number of references with Briggs (1951), which is basically a dynastic and architectural history, being the principal English one. Most archaeological and historical material on Cambodia is in French, and much of it is taken from ancient Chinese and Sanskrit writings. Very little archaeology has been done in the area since the 1950s, so contemporary studies are scarce, and are largely based on data that were gathered some time ago. My main references are: Briggs 1951; Coe 1957 and 1961; Shimkin 1973; K.R. Hall 1975; Wheatley 1975; Bronson 1978; Mazzeo and Antonini 1978; D.G.E. Hall 1981.

Environment

The Khmer Empire and the Classic Maya civilization developed in very similar environments: lowland tropical forests interspersed with savannahs; major river systems, though some areas lacked surface water; an important central lake; distinct annual wet/dry seasons; difficult conditions of transportation and communication; variable soils; and more microenvironmental variations than are immediately apparent. Yet there were also important differences. In Cambodia, the "lake" was actually a seasonal slough which delivered great quantities of fish and fertilizer annually.* The Khmer also had a variety of domestic animals to augment their food supply and sources of energy, and they had metals and an extensive system of water conservation and utilization. In spite of such differences, this land had more in common with the Maya lowlands than randomly-selected tropical locations would have had; the two areas were similar enough "to dispel serious doubts about the validity of comparing them" (Bronson 1978:270).

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* The intensity of fish production in the Tonle Sap is the highest in the world; the volume for a given surface area is ten times that of the North Atlantic or North Sea. Its seasonal variation is immense; the overall area varies annually from about 2,600 to over 10,000 square kilometers and depths vary from one and one-half to fifteen meters. It serves as a reservoir for the Mekong River during the monsoon, averting the dangers of lowland flooding but contributing to brackish, marshy conditions along the lower parts of the river. Navigational potential is limited by seasonal shallowness and year-round rapids (Briggs 1951; Coe 1961).

Archaeology

Archaeologically the Khmer civilization, like the Maya, has suffered from preoccupation with monumental architecture, and so with sites that seem likely to yield the most spectacular finds. The environment is, of course, partially responsible; the usual hazards and handicaps of archaeology in the tropics are compounded by the Khmer use of perishable materials for all secular construction, even palaces. However, they did leave written records in stone, using a Hindu alphabet, and many inscriptions have been deciphered. But such sources are typically fragmentary and equivocal; their original purpose is not likely to have been an objective chronicle of events, but a validation or glorification of some historical occasion. Thus the picture that they paint is certainly not a balanced one.

History

The earliest written information about the peoples of Cambodia is from the Funan and Chenla periods (ca. A.D. 50 to 650 and A.D. 650 to 800 respectively), and is found in Chinese dynastic histories. Funan and Chenla are both names given to people of this area by the Chinese. We do not know what the people called themselves until the Khmer period (A.D. 802) when inscriptions first use the terms

Kambuja and Kambujadesa. During the Funan period settlements were mainly along the coast, on the maritime highway between India and China. The people became maritime traders in the sense that they traded with passing ships, but they apparently did not develop an indigenous merchant class or market system. The mechanics of the trade were left to Chinese and Indian merchants. During the Chenla period the population expanded inland and by the beginning of the Khmer, or Classic, period (A.D. 800) it was firmly established in the interior of the peninsula, occupying the lower Mekong basin and much of modern Thailand (Figures C-1 and C-2).

The Khmer and Maya civilizations had similar life spans of about 600 years. The Classic period of the Khmer Empire is dated from about A.D. 800 to 1431; the Classic Maya from about A.D. 300 to 889. After this time, there was a relatively abrupt cessation of architectural and artistic activities, and relatively rapid abandonment of many of the major centers in both cases.

Subsistence

Most of the Khmer population were farmers, living in hamlets and villages scattered throughout the countryside. Rice was the staple food, supplemented with taro, sago, various fruits and vegetables, and possibly millets. Fish were the basic source of animal protein, supplemented by cattle, sheep, pigs, and chickens. Irrigation was critical in most areas. New techniques of archaeology, especially aerial photography, have revealed that there were large, well-organized systems of water storage and disbursements, with canals which were used for transportation routes as well as for agricultural and household purposes. There were also areas where swidden farming was the only feasible subsistence technique. Agricultural practices were no doubt tailored to microenvironmental specifics.

Population estimates are virtually impossible since nothing remains of the settlements except structures of a religious nature. It is thought that substantial numbers of people lived in or about the major and minor centers, but that the population was strung out along the causeways and waterways rather than concentrated in an urban hub (Hall 1981). The general consensus is that the temple complexes were not "cities" and the settlement pattern was not a nucleated one; population was dense but dispersed.

Settlements

The following view of the Khmer "city," as summarized by Coe, sounds remarkably like the definition of Maya "ceremonial centers" that is now undergoing substantial revision:

> The Khmer center of the Angkor Period was, then, not a city with a dense mercantile population, but the locus of royal administration and royal cult. Through a strong bureaucratic system operating from the provincial capitals, all of Cambodia was organized into a kind of machine for the support by rice and corvee labor of the cult centers. With the king and the royal family at the summit, then the nobles and priests, with the mass of the village people below, it may have been that rare phenomenon, a truly pyramidal society (Coe 1961:73).

One wonders how this definition will stand the test of time and a resurgence of archaeological activity in Cambodia, but it is the generally-accepted position at present.

Sites were selected by the rulers, but no one knows on what basis. At the start of his reign, each king would found a new "city" where he built a temple to house the sacred symbol of his authority while he lived, and his ashes when he died. These sites are not usually well-situated in regard to trade routes or resources. Bronson (1978) found this to be a characteristic of all four of the tropical forest civilizations that he compared. He concludes that this is because the large centers were not urban, and so were not subject to the locational requirements of urbanization. (If he is correct, then many loca-

tional analysis concepts are not applicable to nonurban societies.)

In addition to the major temple complex of the reigning king, there were at least ninety provincial capitals (Coe 1961) and thousands of lesser villages, each with its own temple, and each fitting into a structured relationship with the temples (and settlements) above and below it in the hierarchy. Temples were the property (or prerogative) of members of the royal family or of other noble families. The smaller ones paid taxes and tithes to the larger, and received certain ceremonial privileges in return. Temples controlled land, manpower, and output. They could amass substantial economic resources which could be called upon to assist with construction projects and military needs. This close relationship between religion and economics put much power, firmly supported by religious sanctions, in the hands of a few families.

Religion

Khmer religion was a blend of indigenous animism and ancestor worship, elements of Hinduism, and, in the later centuries, Buddhism. Starting with Jayavarman II, who declared independence from Java in 802, the cult of the devaraja became the official religion, the king became a

god-king, his family became hereditary rulers, and the families of major religious functionaries became a hereditary "sacerdotal hierarchy" (Briggs 1951:90). All political and religious authority rested ultimately with the king. He was "the intermediary between men and the divine powers, the upholder of the established order, . . . and the creator and director of the public works designed to ensure prosperity" (Hall 1981:145).

The population as a whole may have preferred their traditional religious beliefs and practices and may have continued the familiar ways in their houses and villages. But they were soon being conscripted in vast numbers to help build temples, shrines, and monasteries, to serve in the military, to work for the household of a royal or noble family, or to labor on public works projects. It is unlikely that their indigenous ideology could remain intact under such circumstances. "Surely the peasants . . . could not have returned home totally ignorant of Indian iconography. And there is no doubt that . . . they often adopted the gods of that tradition in modified form into the pantheon of the village" (Wheatley 1975:249).

Hinduism is more than a religion; it is a total way of life. The Indian merchants did not just bring new religious beliefs to Southeast Asia, they brought superior administrative techniques, "central to which was the trans-

formation from consensual to hereditary charismatic authority" (Wheatley 1975:247). But Hinduism is also remarkably flexible. It does not impose a rigid structure of beliefs or practices, but bends and molds itself to existing idiosyncracies of the host society and to subsequent events. Thus the Khmer version of Hinduism was shaped by preceding indigenous religious concepts and by the later influence of Buddhist philosophy.

As for social organization, it is generally assumed that the tribal structure of the Funan period was gradually replaced by a four-tiered caste-like social structure, but neither Chinese texts nor Cambodian epigraphs give a comprehensive picture. Their subject matter is "important" people and events. As Briggs explains it, power and authority were sanctified by association with the gods. Land and labor "belonged" to deities, who were represented by royal and noble families. Descent determined status. It was possible to enhance one's status by a special ability to communicate with deities, design a splendid temple, or engineer an effective water control system. But in general such accomplishments could only be attained by those born at an appropriate level of the pyramid.

Judging by the number of monasteries, the monastic life was an important element in the social structure but there is no information about the proportion of men who chose

this option. It is not clear whether monasteries were "independent" or, like the temples, were the property of a royal or noble family. In either case, they had some educational responsibilities, provided shelter, food, and medicine for travellers, and were a part of the network of holy places regularly visited by pilgrims.

The extent of pilgrimages during the Khmer Empire is uncertain but there is reason to believe that it was considerable. Some grounds for this belief are the importance of pilgrimage in the Hindu and Buddhist traditions, and the many rest houses for pilgrims along the roads to holy places. (Since these rest houses were built of stone or laterite, like other religious structures, they are part of the archaeological record.) Temple inscriptions often include long lists of items brought by travellers although it is not certain whether the purpose was donation, trade, taxes, or tithes. Most of the goods mentioned are luxuries and/or exotics. It is not surprising that carvers did not immortalize in stone the kinds of exchange in which the populace would have participated; this does not mean that it did not take place.

Trade

Information about trade is scarce, confusing, and conflicting. Some effort has been made to identify trade goods and the routes over which they might have travelled, but only nominal attention has been paid to facilities for exchange, modes of exchange, or the manner in which these articulated with political, administrative, social, religious, or other institutions (Wheatley 1975).

Coe believes that external trade, for luxury items, was important but remained in the hands of Chinese traders. As for internal trade, he claims there was no incentive because there was "essentially a single food crop which was harvested everywhere at the same time," and these two factors precluded development of commerce or indigenous merchants (Coe 1961:79). While this conclusion may be valid, it is difficult to accept the reasoning on which it is based. In this complex society and environment there must have been some specialists in goods and services, some areas and years with differential productivity of foodstuffs, and some desires (if not needs) for goods not available locally. Exchange must have occurred at village and regional levels.

According to K. Hall (1975), trade was an integral part of the hierarchical social structure. There were two kinds

of merchants--itinerent merchants from foreign lands who were concerned with long-distance, external trade, and resident merchants who mediated local exchanges. Both had connections with noble families and performed services for them, receiving some exemption from taxation in return.

Wheatley (1975) has made a detailed examination of modes of exchange in prehistoric Southeast Asia, especially Cambodia, and how these were affected by the introduction of Hinduism. He concludes that external trade, especially with India, had immense sociopolitical consequences. "Ultimately the societies concerned were transformed from congeries of tribal groups into polities so thoroughly permeated and imbued with Indian values that the earliest Western travelers . . . referred to them as Further India or the East Indies" (Wheatley 1975:257). But in spite of an impressive amount of research, Wheatly had problems finding information on internal exchange among ordinary people. He attributes this to

> biases in the records, whether archaeological, epigraphic, literary, mythological, or folk. Because, generally speaking, these records preserve the deeds and values of elites, they emphasize those institutions that were devised for ritual, administrative, governmental, and, to some extent educative, purposes. Consequently their information is more relevant to the study of the redistributive and mobilizative modes of exchange than to reciprocity and marketing systems (Wheatley 1975:258).

Certainly trade, as defined in this paper, is a universal phenomenon. The object is not to show that it existed in a certain society, but to identify its distinguishing characteristics. Wheatley (1975) concludes that Khmer trade had become primarily redistributive by the time of the Empire. This put it in the hands of the elite, and concentrated it at the temples and monasteries, which were a prominent feature on the landscape and a practical venue for local and regional exchange. Redistribution requires a central storage area, for exchange is likely to be delayed rather than immediate. It also requires the presence of someone with redistributive rights, or his authorized representative. A temple meets both requirements.

Similarities and Differences

This section began with some of the environmental similarities and differences between Khmer and Maya territory. Other resemblances have emerged from the succeeding glimpses of the Khmer world. These include: a civilization without cities; a hierarchical network of religious/administrative centers; a dense but dispersed population of agriculturalists; a fusion of religious and political authority that affected all cultural subsystems; probably a conditional state level of sociopolitical organization; a poorly-developed commercial system--that is, lacking people

and places (merchants and markets) dedicated exclusively to the business of exchange.

There are also a surprising number of likenesses in art and architecture. These include vast pyramid-temple complexes which incorporate large open spaces; similar structural details in roofs, arches, and columms; comparable styles and symbols for decoration and iconography; and shared customs such as temple burials and rebuilding larger and grander structures over preceding ones (Jett 1978). But these are not necessarily of any greater significance than are the suggested similarities in settlement pattern, in sociopolitical organization, in economics and religion, in "rise" and "collapse" of the civilization (Coe 1961; Shimkin 1973).

The major differences are related to resources: metals and draft animals gave the Khmer a substantial edge over the Maya in energy available for agriculture, transportation, and construction.

The Yoruba of West Africa

> - The Nigerian landscape stretches from the wet, humid mosaics of creeks and deltas of the coast to the hot, dry fringe of the Sahara, covering all the various vegetational types in between. Man's ability not only to exist and to continue to eke out a living in vegetational zones as varied as these, but also his success in founding settlements and cities comparable in size and organisation to any in the total human history is a profound manifestation of his capacity for adaptation.
>
> - David Aradeon (in Biobaku), 1976

In the tropical forests and savannah of west Africa the Yoruba developed a complex civilization that was thriving by A.D. 1000. These were swidden agriculturalists, at a level of sociopolitical organization somewhere between advanced chiefdom and early state, with large settlements which have ignited another urban/nonurban debate. There were accomplished craftsmen and artists, and active traders. As far as we know, there was no monumental architecture to compare with that of Mesoamerica or Southeast Asia, but it is possible that "comparable edifices, built unfortunately with less permanent materials, crumbled during the wave of destruction precipitated by slavery--internal, continental and overseas--and were buried . . . by the physical condition of the country" (Ojo 1966a:129).

It is difficult to generalize about "the Yoruba" because their cultural and linguistic uniformity is overlaid with

many differences between groups. "Almost any general statement can be countered with contrary evidence from one area or another" (Eades 1980:ix). The use of one general term to refer to these kingdoms is relatively recent. "Yoruba" was the Hausa word for the Oyo kingdom and was first used as a generic term for these culturally, linguistically, and historically related peoples by nineteenth century missionaries. We do not know to what extent the diversities may be a result of the postcontact period, with its four centuries of conflict and social disruption and its twentieth century efforts at nation-building. In any event, it is generally agreed that there is sufficient underlying cultural and linguistic unity to consider the Yoruba a single ethnic group.

Sources of information about twentieth century Yorubaland are abundant. As a rapidly-changing third-world nation, Nigeria has received considerable attention from Western and Nigerian social scientists and historians, particularly in regard to problems of industrialization and urbanization. Most studies of the earlier postcontact period (the sixteenth to nineteenth centuries) rely on ethnographic analogy, the sketchy accounts of early traders and explorers, and the Reverend Samuel Johnson's "classic" History of the Yorubas (written around 1890; published in 1921). Johnson, a Yoruba and an Anglican priest, has writ-

ten "a masterly narrative based on tradition and related in majestic English prose," but handicapped by lack of references, religious determinism, and preoccupation with one kingdom--the Oyo (Smith 1976:xiv). Nevertheless, it is the basic reference for many subsequent studies.

For the precontact era, which is most relevant to this paper, there is only a limited amount of archaeological and linguistic data, plus oral history and traditions, and specific historical analogy. The situation differs from that in Mesoamerica and Cambodia in at least two important ways. First, Yoruba culture did not reach a peak and "collapse," like the Maya and the Khmer.

> Though it has descended from the peak of its traditional greatness, [Yoruba culture] has not disintegrated like many others. It has withstood the upheavals and turmoils of slave-raiding and internal, civil wars . . . [and] machine-backed Western culture, absorbing numerous new cultural traits and breathing into them new life from the old traditional culture (Ojo 1966a;272).

Second, the fundamental configuration and characteristics of Yoruba settlements have "survived into the 20th century and [their] functioning, though greatly modified, can therefore be observed at first hand" (Wheatley 1971:238). Major sources for the following brief synthesis include: Lloyd 1962, 1965; Ojo 1966a, 1966b; Mabogunje 1968; Bascom 1969; Smith 1976; Awolalu 1979; Eades 1980.

Archaeology

In the 1960s, archaeology was described as still "in its infancy in Nigeria" (Ojo 1966a; Bascom 1969). The situation is much the same in the 1980s. There has been very little archaeological surveying or mapping, and excavations are concentrated at a few sites. Some of the greatest archaeological discoveries have been accidental. "In a country like Nigeria where tens of millions of people are turning the soil as they cultivate their farms or dig foundations for their houses, it is only to be expected that they will make more spectacular discoveries than will a handful of archaeologists" (Willett 1967:31).

The tropical forest again presents major problems, exacerbated by west African building materials and techniques. Mud walls and thatched roofs are not long-lived under the best of circumstances. What climate has not destroyed, man has often altered beyond recognition, especially by rebuilding over old sites using the "puddling mud" process. Wood has somewhat greater endurance, especially some of the hard woods of west Africa, and the Yoruba used wood extensively for architectural, religious, and domestic purposes. But even the hardest woods cannot withstand indefinitely the destructive power of constant humidity, seasonal rains, termites, and frequent fires.

Circumstances have combined to focus archaeological attention on Ife, the most ancient known settlement, and especially on the works of art that have been found there. Archaeologists were drawn to Ife by the remarkable and unique brass and terracotta heads first brought to light by Leo Frobenius in 1910, but archaeology remained uncoordinated and opportunistic until about 1940, when the Department of Antiquities was formed to organize more systematic investigations. Three kinds of sculptures have been found: terracotta human and animal figures, quite natural, perhaps portraits; brasscastings, mostly human heads, a blend of naturalism and stylization; and stone items (quartz, granite), mainly stools and animal figures, although there is one very large monolith. There are also magnificent wood carvings. There may be equivalent or finer collections elsewhere in Yorubaland (there are elaborate carvings in all palaces and shrines as well as in many residential compounds), but no other known site can match the quantity and quality of art works at Ife.

Environment

The homeland of Yoruba-speaking peoples is an area of some 117,000 square kilometers on the Gulf of Guinea in western Africa. The core area is the southwestern part of present-day Nigeria, with some enclaves farther west in the Benin Republic (formerly Dahomey) and Togo (Figure C-3).

The northern and eastern limits generally coincide with the Niger and Osse rivers. Exact boundaries have fluctuated over the centuries but the general area has remained the same, possibly for some 700 to 1000 years.

Like the Maya area, this is a tropical environment with consistently high temperatures and humidity; distinct wet-dry seasons; several different ecological zones ranging from coastal lowlands through rain forest to savannah/ grassland; variable soil types; extensive river systems; and few (if any) animals suitable for the plow or the pack. Unlike the Maya area, there is a belt of coastal lowlands with swamps, lagoons and mangrove forests extending inland as far as 60 kilometers in some places and providing a natural barrier between sea and interior; the rivers are not generally navigable, being too swollen and swift during the rains and too shallow and swampy during the dry season; and accessible sources of metals permitted early development of metallurgy, a technology with practical, social, and aesthetic consequences.

Origins and History

There is little evidence and much speculation about the origins of the Yoruba. Did they emigrate from east, west, or north? Were they perhaps Etruscans, Egyptians, Sudanese, or one of the "lost tribes" of Israel? Are they an amalgamation of successive migrations? Did the culture evolve in situ, from Palaeolithic hunter-gatherers? We know little more than that Ife was a settlement of considerable size and complexity between A.D. 1000 and 1400, the Classic period as judged by known works of art (Bascom 1969; Eades 1980). But facts about origins are so meagre that we must turn to the myths for clues to what might have been.

According to Yoruba creation myths, the Supreme Being directed that the earth and all living things be created at the site of the Yoruba town of Ife. The deity Oduduwa carried out these directions and became the first king of Ife, from whom all Yoruba are descended. The other kingdoms were subsequently founded by his 16 sons who went out from Ife to establish other settlements. Thus the ruling lineages were established; their kings retain, even today, semi-divine status because of their direct descent from Oduduwa.

There are many different versions of this legend, but the underlying resemblances suggest strongly that the ancestors of the Yoruba were a group of people and a revered leader who came to the area, probably from the north, and settled at Ife, from whence other groups of emigres later left to form new settlements, always honoring Ife "as the centre of authority and legitimacy" (Smith 1976:114). As to when this happened, radiocarbon dating has established only that Ife was thriving by the ninth century. Royal genealogies that link present rulers with the founder of their kingdom do not accurately record all intervening rulers, nor the length of their reigns. "Traditions are related in an almost timeless vacuum" (Smith 1976:117), in marked contrast to the Maya near-obsession with dates and chronologies.

The European slave traders entered the area in the fifteenth century, but because the Yoruba were basically an inland people (the swamps and shifting sandbars of their coastline did not encourage towns or ports) their contacts with the traders were indirect. They participated in the slave trade, but through other peoples, such as the Dahomeans, who had better access to the sea. Sporadic warfare was endemic to the area, objectives being primarily tribute (slaves) rather than territory, but the sixteenth to nineteenth centuries were a period of escalating vio-

lence as the race to procure bodies for European traders became ever more intense.

From 1817 to 1893, the Yoruba kingdoms endured the devastating effects of a prolonged period of bitter internecine conflict. In 1893, treaties with Great Britain brought a degree of stability, along with British commercial interests. Other consequences of the long period of civil wars included substantial changes to traditional boundaries and population distribution, and unknown cultural changes. The significance for the present study is as a reminder that many parts of the precontact culture may have been destroyed or drastically altered and we do not know which parts, nor how they have changed. Although this reconstruction is based on the best available information, it is inevitably more supposition than fact.

Subsistence

Traditional Yoruba subsistence was based on swidden farming. Yams were the staple crop, supplemented with a variety of vegetables and fruits, and some hunting and fishing. Trees such as the kola nut and oil palm were spared (when clearing land) and encouraged, but not actually cultivated. Mixed cropping, and succession planting and harvesting were practised, but there was no irrigation

or terracing, which could have increased production. The natural rainfall was sufficient to provide for the population and there was no motivation to change the traditional pattern of wet and dry season activities.

The Yoruba had one distinct advantage over the Maya when it came to farming. They had iron implements which, though crude by our standards, were an improvement over stone tools. However, they did not have plows (soils were unsuitable and draft animals unavailable) and the effectiveness of iron hoes, like digging sticks, depends entirely on human energy.

Most hunting occurred during the dry season, when farming activities were minimal. The objectives of the hunt were usually modest--squirrel, monkey, porcupine, antelope and the like--but occasionally included larger and more dangerous prey such as the lion, leopard and buffalo. Ojo (1966a) suggests that the indirect benefits of hunting may have outweighed the direct ones. For example, teams of hunters accumulated a valuable store of knowledge about the forest, brought back news from different settlements, acted as unofficial "border guards," and were important sources of information when hostilities broke out.

Fishing was sporadic and limited, the objective being occasional variety more than sustenance. The Yoruba were

basically inland agriculturalists, avoiding the coastal area with its swamps and malaria. So fishing was confined to rivers, where the most common technique was simply to drain shallow pools and depressions during the dry season until the fish were exposed in the mud and could be scooped up. Why face the dangers of turbulent wet season rivers for a non-essential dietary supplement?

Many people worked at a wide variety of crafts. Some were utilitarian, such as blacksmithing, pottery making, and the spinning, weaving, and dyeing of cloth. Others were of less practical use but no less essential to the Yoruba: these included wood carving, bead work, and brass-casting. Craft specialization was well developed, for both men and women, but remained a secondary subsistence activity of the basic production unit, the family. Only a few particularly adept or gifted individuals became full-time specialists. The fundamental responsibilities were farming for the men, food preparation and family for the women. Variations in the pattern only occurred after these basic expectations were met.

Settlements

The Yoruba settlement pattern has been described as urban, as rural, as an anomaly that fits no existing model, and as an early phase of urbanization. The purpose here is to describe the traditional pattern as it is understood from available evidence, not to enter the debates of urban sociologists and cultural geographers.

Judged by size and permanency, Yoruba settlements were "cities"; judged by structure they were "villages" (Lloyd 1965). They were populated by farmers who traveled back and forth regularly between their farmland and their houses in town. Status depended on membership in a lineage that held rights to land and a compound within a town, and also to farmland outside the walls of the settlement. It is generally agreed that this form of town living is an ancient institution among the Yoruba, extending some thousand years into the past. Particular towns have come and gone while others have been remarkably stable and long-lived, and there has been phenomenal growth in urban populations in the twentieth century. But these are changes in particulars, not in the fundamental pattern (Figure C-4).

> The classical plan of a Yoruba town resembles a wheel: the oba's palace [afin]*

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* An "oba" is one of the semi-divine kings who traditionally claimed descent from Oduduwa or one of his sons. An "afin" is an oba's walled palace and grounds.

> being the hub, the town walls the rim, and the spokes a series of roads radiating out from the palace and linking the town to other centres. Beyond the walls lie the farmplots . . . merging imperceptibly with [those] of the next town (Krapf-Askari 1969:39).

The afin was surrounded by massive mud walls (eight to eighteen feet high, three to six feet wide). It consisted of many compounds and courtyards for the oba, his wives, servants, and other functionaries; temples and shrines for his worship and rituals; and usually a large forested area that might contain sacred groves and a mausoleum for previous obas. The town's major public marketplace was just outside the main gate of the afin. Just inside this gate was a large courtyard where public ceremonies and festivals were held. The afin was built and maintained by the populace of the town and of surrounding settlements owing allegiance to the oba. Contributions of labor, building materials and other supplies for the "royal household" were clearly assigned and obligatory (Figure C-5).

Surrounding the afin, and oriented toward it when topography permitted, were clearly-demarcated neighborhoods, or wards, containing the compounds of the various lineages and their chiefs. Within a ward there was a hierarchy of lineages, but between wards there was a general equivalency. There were no sections set aside for certain manufactures or crafts. These activities took place within the family compounds or in open areas. A town was not a solid mass of

dwellings, but consisted of scattered clusters of compounds, interspersed with substantial amounts of open land. The whole was solidly walled, sometimes double walled with a moat between, and with guarded gateways where tolls were collected from travellers.

There was an overall four-tiered hierarchy of settlements. At the top was Ife, whose oba claimed direct descent from Oduduwa. Next came the towns founded by Oduduwa's sons when they left Ife to colonize the land and establish their own kingdoms. These were the "crowned" cities--their obas had the right to wear a beaded crown. Third were subordinate settlements headed by uncrowned obas, more accurately called bales. Over time, many of the third-ranked towns became the hub of a separate kingdom, each largely going its own way and looking after its own affairs. There is no Yoruba word to distinguish between them--all are "ilu," an organized settlement with an oba and chiefs. The fourth kind of settlement is an "aba," a place where people lived temporarily while tending farms too distant for daily commuting to their ilu. Here there were family compounds, and recognized rights and responsibilities, but no chiefs.

In sum, each kingdom had a principal town, from which it took its name, plus a ranked series of subordinate towns. Each town had its own oba or bale and lesser chiefs, and

had jurisdiction over its own affairs as long as it fulfilled its obligations to the principal oba. "The relationship was not as between vassals and king but as between senior and junior leaders of communities accepting a common historical origin or association" (Mabogunje 1962:8). Population was certainly clustered, but it was also dispersed, exhibiting some characteristics of both urban and rural societies.

A similar paradox is found in Yoruba social structure and religious beliefs. For example, in theory the oba, as the visible symbol of the Supreme Being, was the repository of all sacred and secular authority. In actuality he shared power with diviners and councils of chiefs and leaders of age-grade sets and guilds. Even succession was not a birth right. All sons of an oba were eligible and most obas had many wives and many sons. A successor was chosen by the council of town chiefs only after a ruling oba had died. Hierarchical and democratic elements coexisted in this stratified society, neither tribal nor state as usually defined.

Religion

The Supreme Being (Oldumare) was responsible for the creation and maintenance of heaven and earth, of men and women, and of the lesser deities and spirits who were his functionaries in the supernatural world and his intermediaries in the natural one. He was omnipresent, omnipotent, and omniscient, the ultimate king and judge, rewarder and punisher, on earth and in the hereafter. There were hundreds of other deities (primordial, ancestral, and spirits of natural forces and phenomena) but all were accountable to Oldumare. He was not worshipped directly; there were no priests or temples dedicated to him, no statues or pictures of him. "He is too great and awesome to be pictured or formed into a concrete mould" (Awolalu 1979:4). But he was easy to communicate with, through one of the other deities, using the languages of divination and sacrifice. By divination, one asked questions and received messages from supernatural sources. By sacrifice, one offered something to a deity to avert misfortune or assure good fortune. These were constant, indispensable parts of daily life, varying in intensity and purpose with cycles and circumstances.

There were no mighty temples to glorify the gods (the afin has been called "a temple of temples" because of the divine status of the oba (Ojo 1962:76) but it was not a

place of public worship) and there was no priestly class to direct worship, although there were a few priests (religious specialists may be more accurate) associated with a particular deity or shrine. There were a multitude of these shrines, or sacred places, mostly very simple. They were a place to take offerings or to house the symbols of a deity, for example, a small mud-and-thatch structure, a mound of earth or pile of rocks, a pool or waterfall. The most sacred were natural, secluded clearings in groves of trees. (Much of the finest Yoruba art has been found in these sacred groves.) The diviner-priests were the most important religious specialists; their link was with Orunmila, the oracle deity, and their job of interpreting between men and gods was an absolutely essential one.

Religion, like settlements and social structure, was both hierarchical and dispersed. A Supreme Being was at the apex for all Yoruba, but was approached only through other gods and spirits. They were so abundant and ubiquitous that there was no need for centralization of worship. Local religious observances were sufficient. These began at the household level with daily offerings, and progressed to neighborhood, town, and kingdom levels. There are no reports of all-Yoruba religious events.

Trade

Yoruba compounds have traditionally been largely self-sufficient production units, especially for food and other basic household needs, but probably few, if any, were ever completely so.

> The exchange of goods on a very local scale and internal exchange between different parts of Yorubaland have for long been characteristic features of the economy (Hodder and Ukwu 1969:17).

Evidence for precontact trading networks is inferential but convincing. For example:

- The earliest European accounts mention well-established markets and active trading.
- The urban style of living and extent of craft specialization would have made total self-sufficiency very unlikely.
- Environmental differences would have meant some local inequalities in basic foodstuffs and other essential products such as cotton and salt.
- Some exotic items and materials must have "trickled through from faraway trade routes" to create demand and stimulate trading ventures (Obayemi 1976:258).
- Perhaps most significant is the almost invariable association of marketplace and afin, at the hub of each Yoruba town.

Extrapolating from historic accounts, there were two levels of trade:

(1) Daily local exchange between townspeople, held in the marketplace adjacent to the afin and, in larger towns, in smaller neighborhood markets also.

(2) Periodic regional exchanges of three kinds:
   - provincial, usually every fourth day, for neighboring towns;*
   - interprovincial, usually every eighth day, at a small frontier town, for people from farther afield including adjacent kingdoms;
   - long-distance trade at certain locations along main trade routes, most often at contact points such as between forest and savannah, coast and hinterland, Yoruba and Dahomey territories.

Local and regional exchanges were mainly the womens' responsibility. Long-distance trading was a male specialization. It was not "a haphazard occupation in which any person might engage" (Mabogunje 1968:90). There were innumerable taxes to pay and chances to take. Travel was by caravan, on foot, and rarely with beasts of burden. Headloading was the conventional way to transport goods and slaves were the usual vehicle. Where towns were relatively close, roads were sometimes wide and well-kept, but more

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* The Yoruba calendar is thirteen lunar months, each consisting of seven four-day weeks.

often they were mere footpaths through the jungle. Rivers were not navigable and presented major obstacles, especially during the wet season. There was constant danger of raids from hostile groups.

The idea of trafficking in human beings was not introduced by the Europeans. According to myth and legend, slave trading was a long-established tradition in west Africa. In precontact times this meant much insecurity and insularity, but also regular infusions of new blood and new ideas. Slaves often had knowledge, skills, and abilities which were wisely utilized by their owners. It was even possible for a slave to rise to a position of prominence and influence and establish a respected lineage among his captors (Obayemi 1976). But the fear of capture was ever-present, effectively maintaining barriers between Yoruba speakers and their neighbors and even between the different Yoruba kingdoms.

Similarities and Differences

In spite of many fundamental similarities, the Yoruba differ from the Maya in some important ways. To recapitulate: Similarities include an underlying cultural uniformity with marked regional variations; tropical forest environment; swidden agriculture with no plows or draft

animals (but, unlike the Maya, with no water control devices); the family as the basic unit of production; an urban-rural distribution of population that defies conventional urban theories; a stratified society; an active exchange system; a hierarchy of settlements; a conditional state level of sociopolitical organization; unique and highly-developed art forms.

The differences include architecture and certain characteristics of art; religion; organization of exchange; and degree of internal aggression. To elaborate briefly on the differences: The Yoruba did not erect monumental stone structures but they constructed extensive and elaborate palaces and massive mud walls around everything--family compounds, wards, afins, towns--demonstrating skillful use of available materials and an ability to organize for large-scale public works. Much Maya art was not only ornamental but it also told a story, recorded events, was a form of writing. Yoruba art was mainly decorative, often with a commemorative or religious component, but not communicative in the same sense. Religion pervaded both societies but the Maya had a centralized religion with priests and temples while the Yoruba, in spite of their divine obas, had a more dispersed village-folk religion with easy access to a multitude of deities. Exchange was not a game for everyone in Yorubaland, except at the local level.

Beyond this it was a hazardous and specialized occupation, with a relatively regularized market network.

Environmental challenges to travel were augmented by the ever-present danger of raiding parties. Hostilities were not confined to aggressive neighbors such as the Dahomey and Ashanti. Relations between the Yoruba kingdoms were characterized by "a loose and shifting system of wars and alliances" with many changes over time in relative positions of dominance and subordination (Krapf-Askari 1969:2).

The Tibetans of Central Asia

> - In winter, dark storms and brilliant sunshine shuttle across the landscape, alternately shrouding it with gray menace and revealing a pattern of dazzling snow fields, white against slopes all yellow with stands of winter hay. . . . Frozen lakes reflect the blue of the sky above, and . . . the great mountains, far and near, seem ever standing on guard, their peaks and glaciers high against the sky. In summer, storms again drop moving curtains of rain and hail on mountain meadows, green, purple, and russet under the summer sun, and in those broad pastures, flowers of every color and form grow everywhere. . . .
>
> - Robert Ekvall, 1968

Tibet may seem an odd addition to the trio of tropical civilizations already discussed. Actually, it has much to make it an appropriate analog, for example, the fundamental nature of the environment and especially its habitability; the production-consumption-distribution cycle; demographics; and level of sociopolitical organization. Other similarities and differences will become apparent as the discussion proceeds.

Tibetan civilization has been uncommonly stable and resistant to change. European incursions were successfully discouraged long after they were reluctantly conceded to be an historical inevitability in most of Asia. Its fundamental elements have remained essentially the same for at least a thousand years and written records are available, though not abundant, for that whole time period.

Therefore, this capsule description relies more on written materials than on archaeology or ethnography.

The earliest references to Tibet are in Chinese documents written about A.D. 600. These were followed soon by dynastic histories and traditional epics and myths recorded for the first time in the newly-developed Tibetan script. Most twentieth century writers draw on translations of these sources, plus accounts of travellers and explorers. The emphasis is on history, religion, and philosophy.

Robert Ekvall's descriptions and analyses are notably clear, comprehensive, and informative. Ekvall, who was born in China to missionary parents, lived in Tibet for nearly eight years in the 1920s and 1930s, as missionary, explorer, and ethnographer. He has subsequently been associated with Asian studies at several universities and has published numerous books and articles "to interpret Tibet and its subcultures to the Western world before it is too late" (Ekvall 1968:vi, also 1964, 1972). Other sources that I found useful are: Bell 1924, 1931; Lattimore 1962; Downs and Ekvall 1965; Norbu and Turnbull 1968; Stein 1972; Tucci 1973, 1980.

History

The origins of the people of Tibet are yet to be determined. Physical anthropology, linguistics, and mythology all suggest that the Tibetans who first emerged during the seventh century as "a people," playing a role in Asian history, were an amalgam of many different peoples and migrations. Widely-scattered over a huge and forbidding territory and often at loggerheads with each other, even at that early date they exhibited great cultural homogeneity and were "unequivocally Tibetan in important aspects of culture--language, religion, and a sense of a common history" (Ekvall 1972:269-70).

The path of Tibetan civilization has been strongly influenced by: (1) the "almost impassable and almost impenetrable" terrain (Lattimore 1962:206); (2) Tibet's location vis-a-vis powerful and competing Asian neighbors; and (3) the immense role that religion has played in secular as well as sacred affairs. Its history can be divided into four periods:

(1) A period of relatively independent regional growth and development, preceding the introduction of Buddhism and centralized royal authority.

(2) Introduction of Buddhism and establishment of the monarchy at Lhasa by Songsten Gampo (A.D. 630 - 850). This

was a period of territorial expansion, political consolidation, and intellectual achievements, but the most momentous event for Tibetan people and culture was the adoption of Buddhism as the official state religion. The Tibetan variant of Mahayana Buddhism incorporated elements of the older Bon and folk religions and quickly gained wide acceptance. Its unifying precepts enabled the king to achieve a new degree of political integration of the different regions and their ruling families. Songsten Gampo further advanced the cause of unification by marriage to three women from three rival Tibetan families, and he strengthened Tibet's external relationships by taking a Nepalese and a Chinese wife. He appreciated the value of education and writing and sent young men to study in China and to develop a Tibetan alphabet, script, and grammar. He died in A.D. 649 or 650 but the course that he had charted was followed by his successors for about 200 years, until a king came to power who renounced Buddhism and tried to reinstate the Bon religion.

(3) Tibet's "Dark Ages" (A.D. 850 - 1000) were a period of territorial retraction and political and religious chaos, with royal assassinations, persecution of monks, and destruction of monasteries. But "the church was not destroyed. On the contrary, it was the kingdom that fell" (Lattimore 1961:225). The reversion to a mosaic of minor

principalities and noble families had paved the way for a centralized ecclesiastical state to replace the monarchical one.

(4) "When the curtain lifts once more and a few gleams of light fall on the scene, Tibetan civilization is definitely taking on the aspect it has retained till modern times. History is no longer concerned with kings but with monasteries and religious orders" (Stein 1972:70) and Tibet is no longer independent politically, but subject to alien overlords, principally Chinese. The Mongol emperors established suzerainty over Tibet in A.D. 1206 and influenced its internal affairs by recognizing the paramount status of one sect or another for about 500 years. As the fortunes of the Mongol dynasties waxed and waned, so did the fortunes of the different sects of Tibetan Buddhism, but the preeminance of religious functionaries over the secular nobility was never again seriously challenged.

In the eighteenth century the balance of power shifted from the Mongols to the Manchus and overlordship of Tibet shifted accordingly. By this time the political structure of the country had crystallized into an ecclesiastical state with a supreme pontiff, the Dalai Lama, a secondary pontiff, the Panchan Lama, and several thousand monasteries, each with a head lama. Succession, throughout the monastic hierarchy, was determined by reincarnation, thus

introducing an element of unpredictability that made it difficult for any single family to acquire and retain disproportionate amounts of wealth and power. This did not make an egalitarian society, but it did mean that the regions and lineages were more evenly balanced than might have been the case with hereditary successions.

Environment

Tibet includes some 3,800,000 square kilometers of very high plateaus and mountains lying north of the Indian subcontinent and south of the deserts and mountains of central Asia (Figure C-6). Inhabited areas range from 2,500 to over 5,200 meters in altitude, and are almost completely encircled by the awesome peaks of the Himalaya, Karakoram, and Kunlun mountain ranges. Through a gap in this circle, on the east, flow three great rivers of southeast Asia and China--the Mekong, Salween, and Yangtse. The appellation, Land of Snows, is both apt and misleading. Much of the land has very little precipitation of any kind, although it is well-watered by melting snows and ice from the perennially snow-capped surrounding peaks. Other regions get the typical monsoon rains of southeast Asia. Climate varies with latitude, altitude and topography; extremes are the only characteristic shared by all regions. These include extremes:

- of temperature, the average diurnal range being 40 to 60 degrees Fahrenheit with recorded changes of as much as 100 degrees Fahrenheit in a day;
- of solar radiation (due to altitude);
- in patterns of precipitation, which include extended dry spells, torrential downpours, fierce hailstorms (with hailstones as big as tennis balls), and great quantities of snow at some altitudes;
- in the violence of winds, which can blow riders from their horses;
- in the rapidity with which weather conditions can change.

These conditions, plus the great distances and the sparse settlement, made travel a hazardous undertaking and communication a real challenge. Until the 1950s all travel was on foot, either human or animal. The wheel was not practical in such rough terrain and yaks were a dependable but very slow-moving means of transport. Rivers were seldom used for transportation because they were only navigable for short distances and then usually only in one direction--downstream.

An important environmental feature is the two very distinct ecological zones: the high pasturelands, suitable only for grazing, and the relatively lower valley lands where agriculture was possible. These are not coterminous

or internally uniform, but are determined primarily by altitude and contain many microenvironments. So areas of farmland alternate with areas of grazing land, corresponding roughly to topography. This fundamental ecological dichotomy has an important social corollary in two distinct subsistence strategies and two distinct (but interdependent) sectors of the population, or subcultures. Between them, they have successfully exploited this formidable physical environment for well over a millennium.

Population has always been moderate in relation to the potential productivity of the land. In the high country especially, much good pasturage is unused. It is not certain whether this is a cultural or physiological adaptation. It could be a cultural response to severe surroundings, or a result of the negative effects of extreme altitude on birthrate, or even a side effect of having one quarter of the male population in religious orders. In any event, the best estimates of mid-twentieth century population are between three and four million, and ancient sources indicate that it was only slightly greater in the ninth century, at the peak of Tibet's expansionary period.

Subsistence

The two major subcultures, from a subsistence standpoint, were sedentary agriculturalists and nomadic pastoralists. Their lifestyles were strikingly different.

Sedentary agriculturalists planted cereals and vegetables (barley and turnips were basic) and grazed some yak, cattle, mDZo (a cattle-yak hybrid), horses, and sheep in plains and valleys from 2,500 to 4,500 meters, depending on latitude and insolation. The animals were important but supplementary; the subsistence base was agriculture. In most places the fields were rocky, the soil thin, and the yield undependable but sufficient for basic needs. The fields were lightly plowed before planting and carefully weeded and irrigated during the growing season. Spirits of the soil do not like their domain to be disturbed so plowing and digging were kept to a minimum and lamas conducted rites of propitiation before planting and harvesting.

Nomadic pastoralists tended livestock exclusively, in mountain steppes and meadows at altitudes of 3,000 to over 5,000 meters. There may have been some gathering of wild plant foods, but the subsistence base was the herds. Yak, sheep, horses, and the mDZo were the most important animals. Harvests included milk, blood, wool, hair, dung, meat, and fat--all of the absolute necessities for self-

sufficiency. Only the latter two required killing and thus a compromise between the ethics of Buddhism and the demands of survival. Pasturage was ample and varied, and production was usually well beyond the minimum needed for subsistence.

Both subcultures hunted to supplement their supply of meat and skins. Hunting was contrary to the teachings of Buddhism, but as a custom it predated that religion and since it was both utilitarian and enjoyed by the men it was rationalized as a necessity for survival. Wild yak and sheep, antelope, and gazelle were hunted for meat; wolf, fox, bear, and lynx for pelts; stag for antlers.

The horse (a sturdy, tough, pony-sized animal) was important to both groups for herding, raiding, and defensive action against raiders, a constant danger. The yak, however, was the absolutely essential factor in the Tibetan equation. "Without yak it is questionable whether or not nomadic pastoralism in Tibet could exist" (Ekvall 1968:12) and without the pastoralists it is doubtful that the agriculturalists could exist. Their symbiotic relationship is an ancient one. Each was largely, but not totally, self-sufficient; years with unusually harsh or erratic weather could be devastating. Their products were complementary and they took advantage of this fact by exchanging foodstuffs and manufactured goods.

The basic economic unit in both subcultures was the household (or tenthold), an extended family that cooperated in production, processing, and consumption. The primary social distinctions were between those who owned land or animals and those who worked the fields or tended the animals. At the peak of the hierarchy was the Dalai Lama, who embodied all sacred and secular power and authority. At the next level were the head lamas of the monasteries. These religious communities were a third major subculture and an exceedingly important one. They were the major landholders, horizontally linked to landed families in their region. Then there were the peasants, some owning a little land or a few animals. The levels were linked vertically, with tribute in the form of taxes, goods or services moving up the pyramid in exchange for religious benefits and, perhaps, for benefits similar to those a feudal lord might grant to his serfs.

Settlements

The typical farmer's house was made of stone or big, oblong, sun-baked bricks set on a foundation of rocks. The poorest houses were only one storey; most were two or more, depending on the status of the family. All were rectangular, flat-roofed, built around an inner courtyard and strongly resembling a fortress which, in many cases, they

were. All permanent structures followed this general plan but there were tremendous variations in size, height, and ornamentation.

Houses were clustered together in small hamlets and villages, limited in size by the extent and quality of cultivable land, but the "sedentary agriculturalists" were sedentary only in comparison to their nomadic neighbors. Mobility is, to some extent, characteristic of all Tibetans. Kings and nobles often left their massive fortified palaces to travel about and set up camp for some weeks or months in huge, elaborate, stockaded tent cities. Many lamas spent years of their lives on quests or pilgrimages. Itinerent professionals and craftsmen spent much of their time on the road and farmers travelled extensively on pilgrimages and trading ventures.

The "houses" of the nomads were tents made of yak hair spun into thread and woven into cloth. They averaged nine to ten meters on a side and were about two meters high in the center and were made in two sections, to be joined by toggles and loops and supported by poles and guy ropes. Each section was a full yak load. Again, differences in size and ornamentation denoted differences in status and wealth. The finest tents, for the really affluent, were of felt made from sheep wool.

The mobility of the nomads was more patterned and continuous than that of the "settled" folk. They stayed for several months of each year in winter camps. In the spring they started a series of moves to grazing-cycle campsites, following the maturing pasturage in three to eight moves that would bring them back to their winter site some eight or nine months later. Several families would make the circuit together, enough to meet needs of mutual aid and defense while not exceeding the carrying capacity of the land.

None of the small residential agglomerations, whether permanent or temporary, would rate above "village" on a settlement ranking scale. The closest approximation to "towns" and "cities" were the religious communities, or monasteries. Lhasa was the largest of these. It included "an aggregation of ecclesiastical and governmental dignitaries--including the nobility--and their retinues, a large population of monks, and a trading community" (Ekvall 1964:224). Around this nucleus a transient population of pilgrims ebbed and flowed according to the exigencies of the religious calendar. The total population never seems to have been more than 40,000.

Trade

Trade was a hallmark of Tibetan life in all regions and at all levels of the social hierarchy. There was no separate class of people who were merchants or traders because every Tibetan, in addition to whatever other roles he played, was also a trader. The nomad made annual trips to farming areas to exchange the products and crafts of the steppe for those of the "lowlands." Farmers undertook long journeys to other regions, usually in caravans, to indulge in interregional trading. Monasteries were focal points for such caravans and monks were involved in exchanges of goods and services as organizers, facilitators, and principals. The nobility were as enthusiastic about commercial ventures as the peasants, finding them a welcome diversion and income supplement. Trade to modern Tibetans is psychologically satisfying as well as economically advantageous, and it seems that the "commercial instinct" is an ancient and deep-rooted one (Bell 1931; Downs and Ekvall 1965; Tucci 1973).

In addition to exchanges between the two major ecosystems, there was exchange between districts that were noted for certain skills and products such as iron implements, leather products, cloth, or ornamental items, and exchange for imports from China, India, Nepal, and Mongolia. Imports included tea, grains, fine fabrics, and manufac-

tured items. Exports included wool, musk, furs, rock salt and borax.

The logistics of trade were a challenge to the ingenuity of such a scattered population. Here the religious input had important consequences for the evolution of Tibetan culture.

Religion

Since the conversion of Tibet to Buddhism (ninth century or earlier), religion has been so intimately a part of social structure that neither can be discussed separately--the marriage of the secular and the sacred was a total commitment. Religious communities soon became a third major subdivision of society, with its own intra- and inter-monastery hierarchies.

Initially, monasteries were centers of learning, for teaching the arts, sciences, and technologies as well as religion and philosophy. Seen as an effective mechanism of cultural and economic development, they were supported and encouraged by royal donations and decrees. By assuming responsibility for a monastery a noble family became exempt from obligations to the king (taxes, military service) and its members earned credits toward future incarnations and eventual entry into paradise. But the special prerogatives

given to monasteries (for example, exemption from taxation) enabled them to grow strong at the expense of the monarchy and the old aristocracy, and eventually they became preeminent in politics and economics as well as in religion.

The cornerstone of Tibetan Buddhism was the belief that birth, life, death, and rebirth follow each other in unending cycles, determined by karma of previous lives, and with the ultimate objective of final liberation in nirvana. To the peasant, farmer or herder, the sacred world was very close and real. He made daily offerings to household gods (Buddhism had absorbed a large pantheon of deities borrowed from Hinduism, Bon, and the ancient Tibetan folk religions) but his role in many sacred rituals was restricted to that of a spectator. Only lamas could conduct the rites that were absolutely essential for well-being, those connected with such things as weddings, funerals, sickness, crops, or herds. But all believers, laymen and specialists alike, were expected to demonstrate their commitment to the Buddhist doctrine in the following ways:

- the attitude of faith;
- verbal recitation of certain formulaic expressions, assisted by devices such as prayer flags and wheels and sometimes accompanied by meditation;
- material offerings to the deities, ranging from a pinch of tsamba at the start of a meal to donations of money or goods or a son to a monastery;

- performing salutations, ritualized gestures or postures indicating reverence of some sacred place or object;
- participating in circumambulations, moving in a prescribed way toward and around a place or object of religious significance.

The last two of these expectations can only be met fully by going on pilgrimage to holy places, an obligation that Tibetans willingly fulfill.

> It may be said that every Tibetan, like every Moslem, is a committed pilgrim. In the Tibetan case, however, the pilgrim does not have a single destination. He visits many national and local religious centers. In the course of visiting the many monasteries, shrines, or religious personages, a devout Tibetan may well visit almost every part of Tibet. Nor, for the devout, are such pilgrimages a once-in-a-lifetime requirement, for they are constantly repeated to acquire merit and receive particular blessings. Thus Tibetan religion makes travel mandatory (Downs and Ekvall 1965:171).

Journeys were also a pleasure, even if the process of travelling was not. They satisfied the desire for mobility, and at the end of the trail was a religious center where friendships were to be made or renewed, and where the color and excitement of ceremonial and festive events furnished a pleasing counterpoint to the routine and isolation of ordinary life. And pilgrimages clearly had commercial overtones--the circulation of such large numbers of people was an excellent opportunity for peaceful and profitable exchange of goods, services, and information. In a land

with much raiding and robbing, pilgrims enjoyed a relative immunity from brigands, the holy places themselves were neutral ground, and circumambulation paths were sanctuaries. Thus spiritual, psychological, and material needs could be satisfied by the same activity, that is, by combining pilgrimages with trading activities.

Similarities and Differences

Two Tibetan characteristics that are particularly reminiscent of the Maya area are: (1) civilization flourished for many centuries without urbanization, and (2) commerce prospered without a specialized merchant class. Urban centers were not needed because religious communities effectively served as focal points for pilgrimages and commercial activities, with monks often playing a dual role as religious functionaries and facilitators of trade among pilgrims. In some cases a trading community grew up adjacent to a monastery but large, permanent, secular cities did not appear. A separate merchant class did not develop because there was no need for one as long as every Tibetan remained committed to trading, travelling, and pilgrimages.

Also, the level of sociopolitical organization was a conditional state (ecclesiastical). There was a monastic hierarchy, as there had been an aristocratic hierarchy

before Buddhism, but the balance of power shifted about among the stronger monastic communities. None of them were strong enough to gain control and hold it for long, so accommodation between rival factions was essential. Even the Dalai Lama's paramount position was achieved and maintained by faith rather than by force.

Other features of Tibetan civilization that are germane to this study include:

- Cultural integration of a dispersed population which occupied a variety of microenvironments.
- Religious centers and functionaries that were multi-purpose: religious, commercial, political.
- Pilgrimages to local centers were frequent and were occasions for exchange of products and news from different parts of the district.
- Pilgrimages to larger, more distant sacred places allowed exchange of a wider range of goods and services.
- Centers were supported by the settlements within a tributary area, with taxes, labor, and produce, in exchange for spiritual and economic benefits.

As for differences, the most apparent are the vastly different natural environments of central Asia and Mesoamerica, but this is not as significant as it may seem. The extreme severity of both environments and the serious

obstacles that this presented to human habitation and communication are more important. Other features of Tibetan civilization that do not have a Mesoamerican counterpart are: (1) two major ecological zones, requiring two distinctly different subsistence strategies; (2) sparse population and large unoccupied areas; and (3) animals as supplementary sources of energy.

Analysis

What do these three civilizations reveal about the cross-cultural applicability of the pilgrimage-fair model? Do they help us to understand the Classic Maya? Figure C-7 is a brief recapitulation of some of the salient findings, on which the following generalizations are based:

All the natural environments presented serious obstacles to human habitation and communication. The many different ecosystems in each culture area required different adaptive strategies but conferred the advantages of a relatively complete and versatile resource base. Travel was mainly by foot, sometimes by boat, always slow and hazardous.

Subsistence was sedentary agriculture except for the Tibetan pastoralists. Basic cereal and root crops were supplemented by a variety of other crops and some hunting and fishing. Only the Yoruba practiced no water control at all; the others all had effective (but relatively small-scale) means of improving on the supply and/or distribution of water. It might seem that the Maya had inferior agricultural techniques, with no draft animals or metal implements, but this may be a "culture-centric prejudice" (Bronson 1978:295). Digging sticks, hoes, and plows can only be scaled as to agricultural efficiency in the context of particular environmental circumstances. Any attempt to

compare these four civilizations on a universal scale of technological efficiency would be quite meaningless. The important thing is that each produced adequate food for its populace plus enough surplus to support a complex and sophisticated cultural superstructure.

Population was dense in three of these culture areas--less so in Tibet, where altitude was probably a factor. An unusual mixture of agglomeration and dispersal of population is found in all four, with most of the people in a loosely-structured residence pattern but with clearly-defined allegiances to the nuclei in the settlement network. A hierarchy of settlements was another shared characteristic, but the constituents of the hierarchy and their relationships are clearly understood only in Yorubaland, where they can still be observed in operation.

The commonalities with respect to religion include an intimate daily interaction with minor deities and an amalgamation of sacred and secular power and authority at the top of the sociopolitical hierarchy, with some degree of divinity accorded to the ruler(s). Many different specifics elaborate and expand on these motifs, but one with particular significance for this study is the distribution of sacred places. Many temples and other focal points for worship were a prominent feature of religion for the Khmer, Tibetans, and Maya. This was not the case for the Yoruba,

whose relationship with the supernatural was more direct and less dependent on special persons or places.

These were all active trading societies; exchange was important to their growth and development. None had a merchant "class," although Yoruba trade seems to have been more organized as to time, place, and personnel. If everyone was involved, to some degree, in trade, and if the volume of exchange was not sufficient to warrant permanent markets or warehouses, then some kind of multipurpose facility would be an ideal solution. What could be better suited than the sacred places (temples, monasteries, shrines) that dotted the countryside? They would provide places where buyers and sellers could meet safely and store surpluses temporarily, and they would have some permanent residents who could lend assistance as needed. There is a long history of close associations between the sacred and the profane in many societies. The grandeur of sacred architecture in places like Mesoamerica, Cambodia, and Tibet does not mean that these civilizations are immune from this tradition. As Hammond says (1974:329), "A ceremonial centre is after all a service centre for a population in much the same way as a modern shopping/civic centre/church complex is."

This kind of arrangement is a long and honored tradition in Tibet, where the close interrelationship between reli-

gion, trade, and pleasure has countered the centrifugal tendencies of physical isolation, social divisions, and historic rivalries and has established instead a firm sense of group identity which has had remarkable persistence over time.

There is nothing to suggest anything similar in Yorubaland, where there was little movement of people except for town-to-farm commuting; weekly regional markets; hunting, trading, or raiding expeditions; and the forced relocation of slaves. Neither religion nor trade required circulation of large numbers of people. Neither natural nor sociocultural environments encouraged it. The pilgrimage-fair was not a factor in cultural integration of the Yoruba kingdoms although other close associations between religion and economics are suggested by the traditional conjunction of marketplace and afin.

In Cambodia there is strong indirect evidence that pilgrimages were an important religious obligation and that temple/palace complexes performed double duty--they were redistributive as well as religious focal points. There were many occasions for journeying to a particular sacred place for rituals and festivals marking important points of the annual cycle and it is likely that these journeys incorporated some exchange activities. It is difficult to say whether or not this coalesced into pilgrimage-fair net-

works, but it is probable that cultural integration was strengthened and sanctioned by some blend of economic and religious factors.

This cross-cultural comparison shows that the pilgrimage-fair concepts have some cross-cultural validity in complex, nonurban civilizations at a conditional state level of sociopolitical organization, and it reinforces the conclusions stemming from the more detailed review of Classic Maya civilization. The evidence, though circumstantial, suggests that the model illustrates an important mechanism of cultural integration, one in which trade and religion are both means and ends in a chain of reciprocal causality. (It is tempting to speculate about the differences noted for the Yoruba, but that is another topic deserving a more thorough assessment of possible variables.)

D. SETTLEMENT PATTERN ANALYSIS

> - Locational theory has considerable potential for analysis of archaeological settlement pattern data if both excessive zeal and excessive skepticism can be avoided.
>
> - Gregory A. Johnson, 1975

Locational analysis models are "simplified and understandable abstractions which seem to have real world analogs. They furnish a frame of reference for analysis and interpretation of field data" (Johnson 1975:290). In archaeology they are most useful for generating hypotheses and spotting regularities or irregularities that might otherwise be overlooked. They are a way to look for some evidence that the pilgrimage-fair model was physically possible given Maya population distribution and environment. Certain principles of central place theory, for example, suggest settlement characteristics that could be expected to accompany a pilgrimage-fair behavior pattern.

A hierarchy of centers where local, regional, and interregional exchange can take place is a structural essential for the model. Regularities in their distribution and spacing would be an added advantage because it

would facilitate the circulation of people and goods. The model would be supported by a settlement pattern with sites that can be ranked into at least three levels, with the centers at each level being relatively similar in size and distance from each other. This pattern would be repeated many times over the entire area to reflect the degree of economic independence and political autonomy that the model assumes. There would not be one center that is clearly superordinate to all others. The settlement hierarchy would resemble a truncated pyramid rather than a true one.

Ideally, the settlement patterns of each of the civilizations discussed in the previous section would be analyzed but this is impossible because appropriate data are not available. So this settlement pattern analysis is confined to the Maya area and is based on simple and straightforward application of three locational analysis concepts borrowed from economic geography. All have been used by archaeologists in prehistoric contexts, including Maya studies (Flannery 1972, 1976; Hammond 1972, 1976; Hodder 1972; Marcus 1973, 1976; Johnson 1975; Renfrew 1975; Michels 1979). They are: (1) the macropattern, or spatial distribution of settlements (centers and residences) on the landscape; (2) settlement hierarchy, or ranking of sites; and (3) central place models.

One important difference between the settlement studies of geography (or ethnography) and archaeology is that the former have entire settlement patterns to work with while the latter have only remnant settlement patterns, those bits that have survived and are identifiable (Rouse 1972). Another important difference is that in geography and ethnography the temporal and demographic dimensions are known or can be determined empirically, while in archaeology these important pieces in the puzzle depend on inference (Chang 1972). Nevertheless, settlement archaeology can be a useful heuristic device and that is its purpose here (Parsons 1972; Rouse 1972; Vogt and Leventhal 1983).

Procedure

The three major regions of the Maya culture area consist of many subregions and these are the unit of analysis in this section. The following eight will be discussed:

- Northern Lowlands
    1. The Puuc (Yucatan-Campeche)
    2. Dzibilchaltun (northern plains)
    3. Southern Quintana Roo (east coast)
- Southern Lowlands
    4. Lubaantun (eastern periphery)
    5. Pasion drainage (central)

6. Belize River Valley

7. The Southern Lowlands

- Southern Highlands

8. Kaminaljuyu (Valley of Guatemala)

Their general locations in relation to the whole Maya culture area are shown in Figure D-1. These eight were chosen because they represent a broad range of environmental and subcultural zones, and some settlement survey data were available for each. Although labelled "subregions," they are not homogeneous or discrete entities. Each contains a number of ecosystems and has some idiosyncratic characteristics as well as shared ones.

The time period is a generalized Late Classic, that is, from about A.D. 700 to 900, the period for which most settlement data are available. Little attention has been given to more precise dating in Maya surveys because they seldom produce anything that is datable. This is especially true and especially serious in macropattern studies. It is not only apples and oranges that are in danger of being lumped together, but chitterlings and champagne, too. In his summary of the recent Maya settlement pattern conference Willey says (1981:408), "In this review of macropatterns we have been aware of the problem of chronology, but at this stage of investigation have been more or less forced to ignore it. Eventually it must be taken into

account." Until some means of doing so is devised, the reliability and validity of survey results will be very uncertain.

Other problems are encountered in ranking the sites, determining boundaries, identifying units of analysis, and comparing subregions.

Ranking, like dating, is often based more on intuition than on facts. There is as yet no standard scale or nomenclature, no general consensus about what is meant by primary, secondary, and tertiary sites. Some of the problems are illustrated by Adams' (1981) discussion of site ranking in the central Yucatan-southern Campeche area. He compares the results obtained by three different methods:

(1) monument counts, which include stelae, altars, friezes, and lintels;

(2) courtyard-acropolis counts, which reflect the level of architectural skills and the amount of labor and resources devoted to community projects; and

(3) volumetric and areal assessment (Turner et al 1981), a complex statistical measure that takes account of space, formal architecture, and special site features.

The results obtained by the different methods only correlate when the sites being ranked are all within one subregion, such as Rio Bec or Puuc. When all sites in a region (for example, central Yucatan) are being considered

together, the different methods produce results that only correlate at the top and bottom of the hierarchy, that is, the very large and the very small sites (Adams 1981).

Another method of ranking Maya settlements has been proposed by Marcus (1973, 1976). It is based on epigraphic and iconographic analysis, especially of the emblem glyphs that are believed to represent the different centers. This model avoids imposing the archaeologist's standards of importance such as area, mass, and complexity, but it requires inscriptions, which are not present at all Maya sites, and the ability to decipher them, which is a very specialized branch of Maya archaeology.

Determining the boundaries of Maya sites and regions is another unsolved puzzle. Some centers are so complex and the macrodensity of settlement is so great that determination of boundaries between sites, of sustaining areas, and of major-minor center relationships is often impossible with present data (Hammond 1975; Kurjack 1979; Pollock 1980; Willey 1981).

Identifying the appropriate unit of analysis also requires difficult choices. For example, a study of "Classic Tikal" could mean

> the central nucleus (63 square kilometers), the territory enclosed by the earthworks and bajos (approximately 120 square kilometers), the Thiessen polygon enclosing all points nearer to Tikal than to any other high-ranking center (596 square kilometers), or

> the highest-order polygon of all, the sphere of influence marked by the distribution of the Tikal emblem glyph (about 26,000 square kilometers). These entities may or may not equate with the Tikal "site," "state," "service area," and "empire," respectively. Or they may have been completely irrelevant to the ancient Maya inhabitants of Tikal (Bray 1983:173).

Using data from diverse sources raises questions about comparability at any time. When so many subjective decisions are involved the problem becomes more acute, but it cannot be avoided in this study. The material is about dissimilar areas and it has been gathered and interpreted by different archaeologists, with different objectives, over a period of several decades. I have tried to minimize the effects of these circumstances but it is not possible to obliterate them.

Analysis and comparison of macropatterns is perhaps "the most difficult aspect of lowland Maya settlement study. The potential data are vast and most of them still shrouded with jungle growth; those actually surveyed and carefully examined are few" (Willey 1981:407).

The third locational analysis concept, central place theory, uses spatial distributions and site hierarchies to interpret settlement interrelationships. The basic tenets of the theory are that the settlement macropattern will show a hierarchy of sites and a regular and predictable distribution reflecting the needs of markets, transporta-

tion, and administration. Comparison of actual settlement patterns to the "ideal" central place model or one of its variants should reveal the degree to which service functions (economic, administrative, religious) predominate over natural environment in site selection and growth.

Description

Following are brief comments about environment and settlement in each of the eight Maya subregions.

The Puuc Area

This subregion of the northern lowlands includes some 7,000 square kilometers just south of the Puuc range, "a chain of low hills no more than a few hundred feet high strung out like an inverted 'V' across northern Campeche and south-western Yucatan" (Coe 1980:15). The undulating landscape is forested and the soil is fairly rich but rainfall is the only natural source of water. Even cenotes, the natural wells of the northern plains, are not found here. Existence is absolutely dependent on artificial means of storing water and in prehistoric times this was accomplished mainly by construction of chultunes, under-

ground reservoirs hollowed out of the limestone and lined with an impermeable substance.

Architecture and ceramics tell us that the Puuc sites were a distinct subregion of the northern lowlands with close ties to neighboring regions. The almost unbroken chain of Late Classic settlements suggests that this was "one of the most densely populated districts within the entire Maya expanse" (Andrews 1975:271) in spite of very difficult environmental conditions. The Puuc area is not well known archaeologically. Only a few of the better-known sites have been mapped, and then usually only the central zones. The major source of data is a survey that focussed on "ceremonial centers" rather than residential structures or settlements. When it was undertaken, in the 1930s, "the study of the simple houses of the Maya was envisioned as quite separate" from the study of monumental architecture (Pollock 1980:xxiii).

The survey noted about 140 sites in total but more than half of these are only dots on the map--no information is given other than a name and locational coordinates (Figure D-2). There are, however, four "Great Cities" that stand out from the others, and at least another five very large sites. The "Great Cities" are Sayil, Kabah, Uxmal, and Oxkintok. The next largest sites are Labna, Xcalumkin, Xculoc, Itzimte, and Nohpat. When these are plotted on a

map (Figure D-3) they form two clusters of four sites, plus three isolates. Distances between the centers of these clusters and the more isolated sites average 28 kilometers. This is very similar to Harrison's findings in Quintana Roo (see below) but not significant because the data are so incomplete. All that can be concluded for now is that there are several very large centers, many lesser ones, and a multitude of mounds and small ruins "in seemingly endless array," suggesting a high population density and presenting another example of the difficulty of determining the limits of a site (Pollock 1980:140).

Dzibilchaltun

Some of the flattest and driest of the Maya lands are north and a bit east of the Puuc sites, between those hills and the Gulf of Mexico. A large population successfully exploited this inhospitable environment, building elaborate centers, "probably more numerous than elsewhere in the entire Mesoamerican area" and certainly equivalent in size and grandeur to anything in the better-known southern lowlands (Andrews IV 1973:245). Settlement data come from excavations at Dzibilchaltun and ground surveys and aerial reconnaissance in the area around that major center (Kurjack 1979). Evidence of late Classic occupation is found everywhere except on the coastal plain, which extends

inland some ten kilometers on the north and west, is dry and rocky, and has virtually no agricultural potential. Settlement is especially dense around Dzibilchaltun itself, which had "a strongly nucleated core and a number of outlying architectural clusters [plus] many small satellite communities" (Kurjack 1979:12).

There are no mountains, rivers, or lakes here. From the air the northern plains look like a "featureless green carpet" (Coe 1980:15), but on the ground one is faced with a rugged, pitted, inhospitable karstic terrain. Water supplies are severely restricted by geomorphology and rainfall, which averages 500 to 1,000 millimeters annually compared to a 1,500 to 2,500 millimeter average in regions to the south, but aguadas and cenotes and caverns provide relatively dependable sources of fresh water. Pockets of deep, fertile soils are interspersed with large sectors of thin soils and much exposed bedrock.

The macrosettlement pattern in this northwestern part of the Yucatan Peninsula was dominated by four huge sites--Dzibilchaltun, Thoo (now somewhere beneath the modern city of Merida), Uci, and Izamal--and included several other very large ones. Their distribution as shown by Kurjack (1979) defies explanation by any of the principles of locational analysis and does not resemble patterns found in any of the other subregions (Figure D-4). Since the

sites have not been ranked by quantitative measures as in parts of the southern lowlands, only very gross hierarchical distinctions can be made.

Quintana Roo

Survey data for some 4,500 square kilometers in the southeastern part of the northern lowlands have been analyzed and the Late Classic sites have been classified by a "simple method of site ranking" into small, medium, and large based upon area, mounds, and structures (Harrison 1981). Harrison does not present the data or his rankings, but uses them as a basis for discussion of population densities, structural patterns and styles, and settlement distribution and characteristics.

This is a very damp, lowlying part of the limestone lowlands. Only about half of it is dry enough for human habitation today. Much of this is now covered with dense secondary growth, although in prehistoric times it may have been a more typical humid tropical forest environment. Preferred settlement sites were at or near the edges of permanent or seasonal water sources, which are mainly marshes or bajos. In contrast to other parts of the Maya lowlands, there are clusters of smaller sites instead of single large ones. The five largest centers--Tzibanche,

Margarita Maza de Juarez, Chacchoben, Lagartera, and Uomuul--each have a major nucleation of "ceremonial" structures, plus surrounding smaller nucleations clustered around the main site (Figures D-5 and D-6).

The distribution of settlements "shows a remarkable degree of uniformity" in spacing that cannot be explained by natural environment alone (Harrison 1981:174). Simple measurement of distances between sites shows that large centers are all spaced about 26 kilometers apart and medium centers about 13, with variations no greater than one to two kilometers regardless of terrain (Figure D-6).

Lubaantun

Some 350 kilometers further south, Hammond (1972, 1976) has analyzed and interpreted the settlement pattern of Lubaantun and its neighboring centers, focussing on interrelationships without attempting to rank the sites. He identifies six Late Classic centers distributed around the southern flanks of the Maya mountains at altitudes of from 50 to 500 meters (Figure D-7). The average distance between adjoining sites is 31 kilometers. Each is on or near one of the major rivers that drain the massif. Lubaantun, Pusilha, and Quebrado de Oro have direct access downriver to the coastal plain and the Caribbean; Ixcun and

Caracol are on branches of the Belize River, giving them access to the northeast Peten and Belize Valley as well as the Caribbean; Poptun is on a tributary of the Pasion/Usumacinta drainage system that traverses much of the southern lowlands on its way to the Gulf of Mexico. This was a relatively benign environment (for a tropical jungle), with a variety of landforms, microenvironments, and resources. It was clearly capable of self-sufficiency given estimated levels of Classic period population, but still maintained close ties to the rest of the Maya area.

Lines drawn at the midpoint between each of the centers suggest that each had a region of control (i.e., an area in which that center was the sole member of the top rank of a hierarchy of sites) of some 1,600 square kilometers. Ethnographic, ethnohistoric, and archaeological materials indicate that there were two major commmunications networks linking these regions to each other and to other Maya areas: one was "a sea and river network along the Caribbean coast, the other an overland network along the flanks of the Maya mountains" (Hammond 1972:791). The coastal route connected at many points with the inland network of river routes and trails.

There are many lesser sites in this area. Most are not known well enough to allow comprehensive ranking and mapping, but the concentration of mounds "is as dense as the

topography will allow--it is rare to find a suitable location that lacks house platforms" (Hammond 1976:86).

Pasion Drainage

To the west, in the heart of the southern lowlands, is the Rio Pasion region, with a very different landscape and pattern of site distribution. The land is relatively level, with altitudes ranging from 125 to 250 meters, and an extensive network of rivers (Figure D-8 shows only some of the major ones) dominated by the Rio de la Pasion, Rio Salinas, and Rio Usumacinta. It is well-watered and fertile, but somewhat circumscribed, being bounded by mountains to the east and south, an especially broad river to the west, and an increasingly rugged karstic landscape to the north. The riverine locations of all major and minor sites would facilitate intraregional communication and commerce, and the riverine/peripheral locations of the primary center and the two nearest to it in size suggest that interregional networks were also important.

In this area of some 5,600 square kilometers a number of centers are dominated by one that is substantially larger than any of the others, according to Adams' composite rankings of sites by region (Adams 1981:240). He assigns Seibal a size/importance factor of 23; the next most impor-

tant site, Altar de Sacrificios, gets 8; Dos Pilas and Aguateca each get a 5, and the other sites 3, 2, or 1. I have included Machaquila in this region on the basis of topography and drainage although Hammond includes it in his Maya mountain discussions and Adams places it in his central Peten group, where he gives it a factor of 10. Neither Seibal, Altar de Sacrificios, nor Machaquila are anywhere near the center of this subregion (Figure D-8). The macropattern is a dendritic one, with a series of branches radiating out from a "primate center" rather than an interconnected grid (Bray 1983). Spacing between centers is irregular; location on or near a river seems to have been more important than absolute distances. The pattern suggests vertical rather than horizontal integration. Again, residence mounds and plaza groups are found wherever topography permits.

Belize Valley

The Belize River Valley represents one of the major Maya ecosystems--a navigable river with rich, deep alluvial terraces and thick tropical forest. Rainfall is seasonal and dependable and the water supply is adequate for year-round needs. Judging by the abundant house mounds, this subregion was densely occupied in Classic times.

A comprehensive settlement study, which included excavation as well as survey and mapping, defined and identified a three-tiered hierarchy of Late Classic sites (Willey et al 1965). These are major ceremonial centers, minor ceremonial centers, and house mound groups. Three major centers and six minor ones were located in the survey area, a 50+ kilometer stretch of the river valley (Figure D-9). As the map shows, the settlement pattern is linear; that is, sites are strung out in a fashion similar to the strip development that occurs along our major highways. If the equidistant spacing principle of locational analysis applies to linear patterns, the distances between these major and minor centers should show a predictable regularity, with major sites about 10 kilometers apart and minor ones distributed evenly in between. The actual pattern is "remarkably close" to this prediction, as shown in Figure D-10 (Flannery 1976:175).

Southern Lowlands

A study of the southern lowlands as a whole (Marcus 1973, 1976), including all its subregions and ecosystems, has identified a four-way division of the entire region with four predominant centers and a four-tiered settlement hierarchy consisting of the regional capital plus secondary, tertiary, and quarternary centers. (This corresponds

to the quadripartite characteristics of Maya cosmology.) Marcus used settlement survey and emblem glyph data to analyze historic relationships between Maya centers and ruling families. She concluded that the location of the four capitals (Figure D-11) was a function of politics, alliances, and tradition, and could change over time as the fortunes of powerful families changed.

The overall pattern of settlement, however, was relatively stable. In the territory around each regional capital were regularly-spaced secondary centers that were linked to it politically as well as geographically. In some cases a similar pattern of tertiary centers occurred around a secondary site, but the analysis could rarely be carried to tertiary levels because of insufficient data. Figure D-12 shows this macropattern around two major centers (Tikal and Calakmul) and one secondary center (Naranjo). This is the best approximation of the hexagonal lattices of "classic" central place theory that has been found in the Maya area (Flannery 1972; Marcus 1973;1976).

Kaminaljuyu

The southern highlands are different from the lowlands in natural environment, history (more Mexican influence), and some cultural characteristics (water control, architecture, ceramics). They also have most of the known sources of Maya jade and obsidian (Figure B-3). But fundamental similarities leave no doubt that this was part of the Maya culture area.

The Valley of Guatemala is an intermontane plateau with an altitude range of 1,200 to 1,800 meters. It is broad and flat or gently sloping, with good soils. The many streams provide permanent water but require water control devices in some places, to control erosion and ensure supply. The natural vegetation in prehistoric times was apparently pine-oak woodland. The location of this subregion, between the Pacific coastal plains and the southern lowlands, gave the highland Maya access to a wide variety of resource zones.

The area around Kaminaljuyu is more thoroughly surveyed and studied than any other part of the highlands because of the rush to forestall the destruction resulting from Guatemala City's insatiable appetite for land and building materials (Figure D-13). Even so, the settlements in the central highlands cannot yet be ranked reliably; the Valley

of Guatemala survey data "have not been analyzed sufficiently" (Michels 1979:48). But Michels has divided them into "paramount" and "dependent" centers to produce a basic two-level hierarchy of central places.

The macropattern exhibits a decided clustering of sites that can only be sorted out when more precise dating and boundary identification is possible. Michels suggests that this problem can be avoided if clusters of sites are treated as a unit, a central place zone rather than a central place (Figure D-14). He assumes that the clusters include chronologically different sites which, though not built directly over a preceding site as was often done by the Maya, represent a similar phenomenon. The densest clusters will indicate the central zones of most longevity and importance, especially if they also contain significant architectural features. (This principle might help to explain some of the clustering observed in other regions.)

Using settlement survey data supplemented with archaeological evidence of obsidian sources and distribution, Michels finds that settlement in the central highlands was oriented around three "chiefdoms" (Figure D-15). Each of these territories had a core area where paramount centers were clustered, and a sphere of influence containing dependent centers. Two of the chiefdoms were surprisingly close together: their central cores were only 12 kilometers

apart, putting the paramount centers "in tight corners of their respective administrative realms" instead of in a central position relative to dependent territories (Michels 1979:62). Their relationship to communication routes may have been more important than equidistance. Amatitlan was placed to control the route to the Pacific coastal plain and had access to Maya lowland centers via the Motagua Valley and Rio Copan areas. Kaminaljuyu controlled the most direct route to the lowlands via the Motagua, and to other highland centers north and northwest of this central region.

Analysis

The major impediment to analyzing the foregoing and forming conclusions is inconsistencies in the data. One could deal with the gaps and uncertainties if there was a commonality of method, focus, and interpretation. Lacking this, the analysis is a superficial one, the summary is very general, and conclusions are tentative at best.

The two settlement characteristics mentioned most often were:

(1) the ever-present house mound, telling of a denser population than would be estimated from the agglomerated areas alone, and of a populace living close to the land and not very concerned with the "benefits" of urbanization;

(2) a hierarchy of sites, although there is no standard nomenclature or means of ranking or categorizing them.

The spacing principle observed most often was equidistance between centers of similar rank. This was curious in some subregions, such as Quintana Roo, where it would seem that environmental idiosyncracies and topographic variations were sufficient to override cultural factors in determining settlement regularities (Harrison 1981). It was to be expected in others, such as the Lubaantun subregion, where river valleys occur at conveniently-spaced intervals and a variety of resources is accessible to all.

Figure D-16 shows the salient information for the eight subregions in very abbreviated form. If the data were more comparable and complete, these findings could yield some testable propositions about relationships between environment, settlement, and human decision-making. Since the data do not meet these qualifications, one can only say that they suggest a possible correlation between the rigor of the natural environment in respect to human habitation

and the degree to which that environment dominates human decision-making, especially settlement location. This is hardly a new or surprising proposition.

However, the inconclusive nature of the findings could be due to the concepts used or the level of analysis as well as to the data. These locational analysis concepts may be inappropriate for a tropical forest environment, for such dispersed populations, or for nonurban societies. These possibilities need to be examined, especially in view of the increasing use of central place models in a wide variety of contexts. The concepts may also be inappropriate at the subregional, or middle-range, level of analysis. The two studies that were, respectively, more limited and more comprehensive in scope (Willey et al 1965; Marcus 1973, 1976) found the clearest examples of macropattern regularities associated with a settlement hierarchy.

The pilgrimage-fair model is neither supported nor refuted by this locational analysis. According to central place theory, it would have been supported if regularity of spacing was the predominant feature of site location; this would indicate that the influence of human decision-makers was substantially greater than that of the natural environment. It would have been refuted if site location was clearly and predominantly a response to natural environments. But both factors were apparently operating. Even

in the subregions where the data accord with the polygons or concentric circles of central place models, the fit is not so perfect that an alternative could not be argued. Given the wild and wonderful topography and vegetation of the Maya lands, it is perhaps significant that there is any correspondence at all to the hypothetical models.

E. FINALE

> - I see no very useful nor meaningful line separating 'science' and 'humanism' in archaeology. Instead, there is a challenge to understand the dialectic that exists between the tangible creations of the material world and the more abstract creations of the mind. To do this, archaeology, too, must be holistic.
>
> - Gordon R. Willey, 1980

The pilgrimage-fair model is an ideological and organizational construct, a simple, descriptive diagram of what might have been. It does not purport to explain process or causality and it can, perhaps, never be proven for a prehistoric people. Even assessing its probability is an equivocal undertaking. This study has taken only one small preliminary step in that direction by showing that the model (1) is congruent with present views about Classic Maya civilization; (2) has some provocative parallels in contemporary Maya communities; and (3) may have some cross-cultural relevance. As originally proposed by Freidel (1981), it is obligatory and regulated by the elite strata of society, a system of social and economic control in a complex and decentralized civilization. It could as well be an informal, self-regulating behavior pattern which

evolved in response to material and ideological needs, as it seems to have done in Tibet. Or it could develop out of some combination of both patterns.

As more complete and comparable data become available, some findings that would provide support for the pilgrimage-fair model are:

- Three- or four-tiered regional hierarchies of settlements, with only one center at the highest rank within a region.
- Relatively equidistant spacing of centers at each level of the hierarchy.
- Repetition of this pattern over the entire Maya area.
- A status hierarchy that is similar to the settlement hierarchy, with a high degree of consolidation of sacred and secular positions of authority.
- Higher relative frequencies and varieties of known trade goods at higher order settlements.
- Glyphs and inscriptions that connect religious places and functionaries with market places and trading activities on a regular basis.

The pilgrimage-fair would have significant economic, social, and religious consequences. Many of these have already been discussed. The most important ones are:

(1) Stimulation of trade and concomitant increases in specialization, productivity, confidence that sub-

sistence needs will be met, and consumer satisfaction.

(2) Reduction of the centrifugal tendencies arising from demography and subsistence, and a corresponding increase in opportunities for social and ideological exchanges.

(3) Strengthening of the ecclesiastical element of society, as greater reliance is placed on sacred persons, places, and activities to ensure well-being and avert misfortune in all endeavors.

These consequences would interact in a circular, self-reinforcing manner for some time, but not indefinitely. There must have been demographic, organizational, or environmental limits to the effectiveness of such a behavior pattern but this is another issue, beyond the scope of this paper.

One of the results of this study is that we can now hypothesize the existence of a cross-cultural type as represented by the pilgrimage-fair model. Necessary (but not sufficient) conditions for its existence include:

- a lack of urbanization in spite of a significant amount of stratification and specialization;
- a relatively even distribution of centers (allowing for geographical idiosyncracies), facilitating regular circulation of a population with limited means of transportation;

- an exacting physical environment that includes a variety of ecological subsystems;
- a conditional state form of social organization, where leadership relies more on persuasion, obligation, and sanctification than on coercion;
- a strong religious obligation to go on pilgrimage.

Some associated characteristics that this cross-cultural type can be expected to exhibit are:

- lack of a specialized merchant class;
- conjunction of sacred and secular functions in the same persons and places;
- ecclesiastical social organization;
- substantial exchange activity within a context of family production units and residential dispersion;
- notable and persistent cultural uniformities without political centralization.

It should be possible to test these conditions and variables eventually, as present deficiencies in the data are rectified. Problems with data from the Maya area have been noted in other sections of this paper. They include preservation, sampling, and standards for categorizing and analyzing. They are widely-recognized and efforts to improve the situation are underway. The kinds of studies that are most needed (for Maya research in general and certainly for this topic) include the following:

- Precise reconstructions of microenvironments and subsistence/settlement systems.
- Detailed settlement analyses, especially of smaller centers and residential areas, with more attention to chronology.
- Careful evaluation of the applicability of locational analysis concepts to archaeology; development and testing of modifications that might improve their usefulness.
- Inventories of trade goods and the routes over which they travelled.
- Better indicators of status differences and the degree to which sacred and secular roles and functions converged.
- More consideration of warfare, the slave trade, and intergroup hostilities--a much neglected topic to date.
- In-depth investigations of manpower and resource requirements and assignment of responsibilities for constructing and maintaining the centers at the various levels of the site hierarchy.

One of the puzzling questions in Maya archaeology is how labor was mobilized and resources were allocated for the construction and maintenance of the many temple/palace complexes. We have seen that public works of monumental pro-

portions were built and maintained in Cambodia, Africa, and Tibet by a chain of responsibilities in which the people provided labor and materials to the center(s) above them in the hierarchy. A similar system could have existed in the Maya area, as part of a positive feedback loop associated with the proposed model. The blend of religious and economic benefits found in the pilgrimage-fair would have been a powerful incentive to support it by contributing labor and materials to the multipurpose centers.

The coming together of many people, to work on projects in which they have a common stake, would also further strengthen their common bonds. Whether this would contribute mainly to regional solidarity or to overall cultural integration depends on many variables, but the two are not necessarily incompatible. A certain amount of regionalism might be balanced by an interregional pilgrimage-fair network that encouraged wider circulation of people and a certain amount of healthy competition between centers for visitors (pilgrims, traders, tourists) because they were good for business and for prestige (Culbert 1977).

Thus far ideology has been discussed mainly in the guise of religion, but ideology as "an interconnected comprehensive view of the world" (North 1981:52) is also very much a part of this model and study. This is a people-based model that calls attention to ideas and purposes behind behavior.

It raises questions that cannot be answered with a materialist approach alone, for example, questions about the sacred and the secular, cooperation and competition, compliance and coercion. It also asks about more pragmatic concerns like means and routes of transportation, ecological relationships, modes of production. Above all it calls attention to the fact that cultural subsystems are irrevocably linked to one another and much is lost by arbitrarily separating them. It is "modern society [that] insists on compartmentalizing life. Ancient peoples had no such prohibitions: All of life was intertwined" (Cornell 1981:124).

This is especially true in regard to the natural and supernatural worlds, and more apparent in ecclesiastical societies. The separation of subsistence, science, and technology from the supernatural world is a relatively recent development and certainly not one that is universally accepted even today. The idea that sanctification is for sacred or self-serving purposes only, such as communicating with deities or legitimizing a status hierarchy, is similarly unrealistic. Religious sanctions have very pragmatic, adaptive purposes. In ecclesiastical societies, the elite perform the same managerial functions as in a secular society, with some exaggeration of the ceremonial side of things. Their power and authority are based on faith rather than force, but their responsibilities and prerogatives span both worlds.

Many of these artificial, analytical dichotomies are employed to bring some order to the morass of material that confronts the student of human behavior. They are useful aids--heuristic devices--but nothing more.

Finally, we do ourselves and archaeology a disservice when we do not look beyond the outward manifestations of the lives of prehistoric peoples, when we do not seek to understand their views of reality, and do not include conscious, purposive action as a factor in our analyses. Even if the obstacles to understanding their ideologies seem insurmountable, it is very important to make the effort. Willey (1977b) faces the issue honestly and clearly:

> Is it worthwhile even to attempt to struggle with this dimension of civilization, given the archaeological methods and means available for the study of the Maya past? Should we not, instead, simply assume that ideological content is a constant, that it is not very important, and that we should turn our efforts to the more tangible systems that we can cope with more readily? Some archaeologists appear to think so; I do not. I realize, however, that it is incumbent upon me, and upon those who think similarly, to demonstrate how ideology may be "reconstructed" from the archaeological record. So far, it is fair to say, we have not done so (Willey 1977b:417).

This is one of the major challenges facing archaeology today.

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APPENDIX: FIGURES

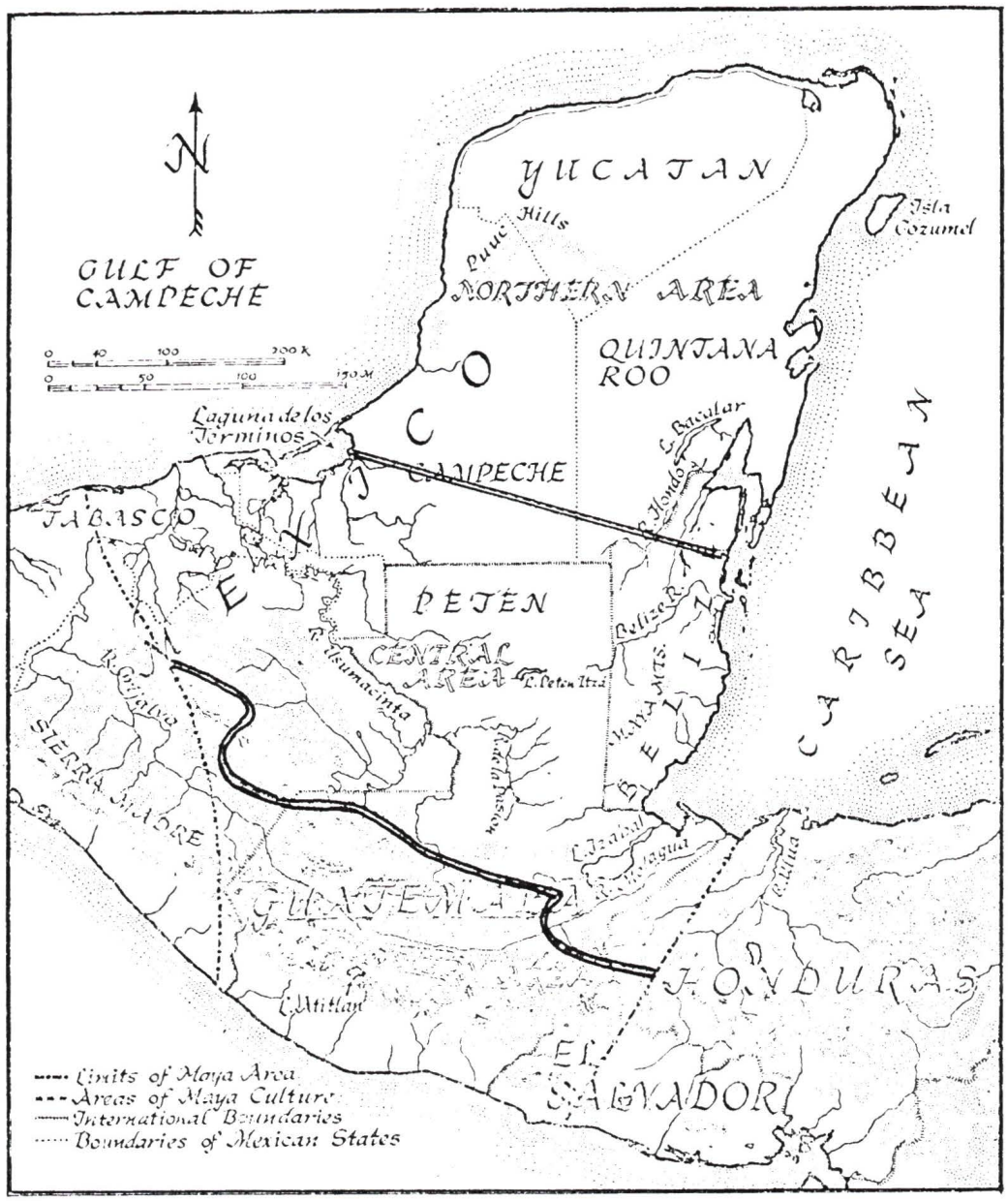

Figure B-1. The Maya area showing major cultural and geographic zones and present international boundaries. (Coe 1980)

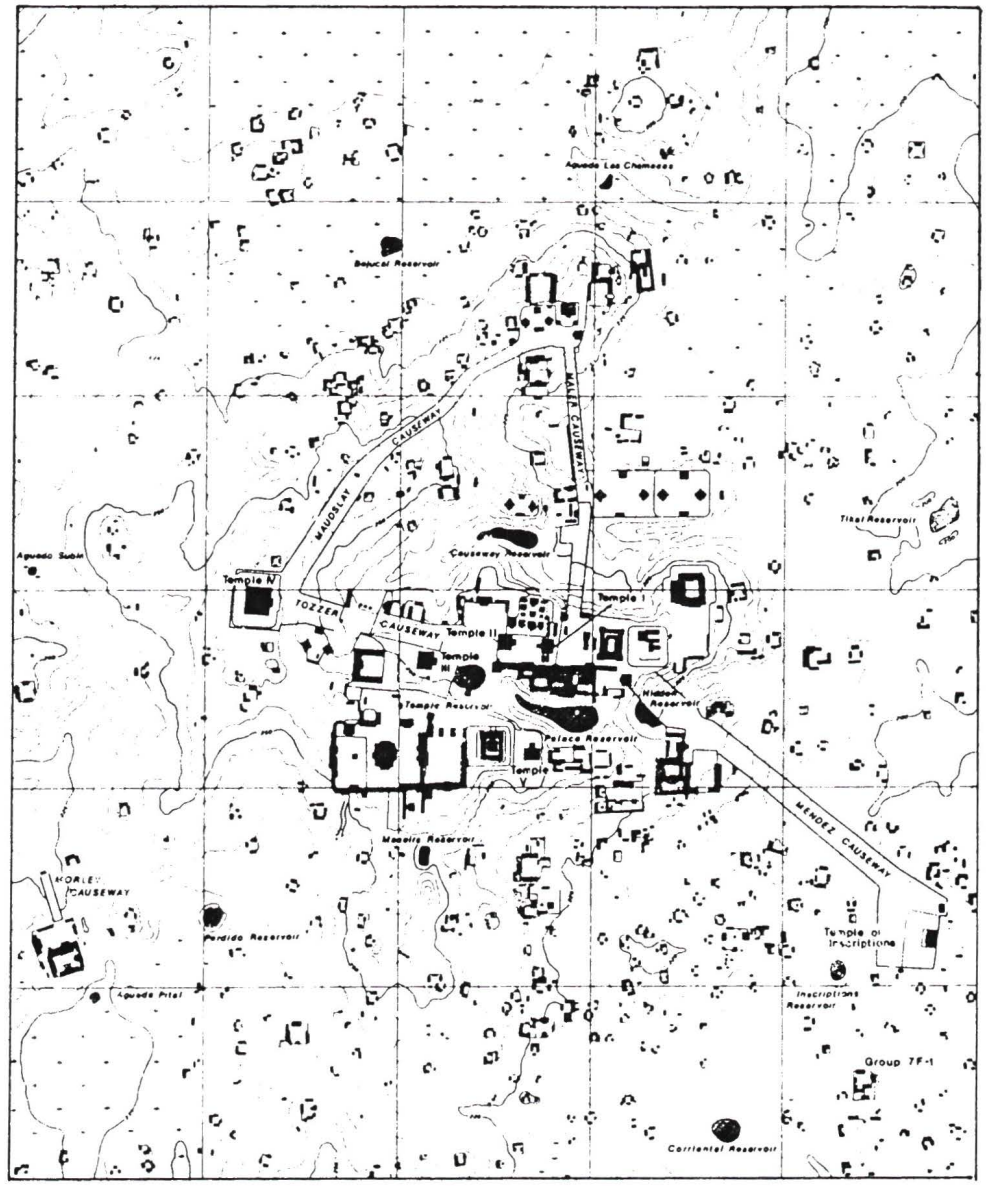

Figure B-2. Map of the central 16 square kilometers of Tikal. (Ashmore 1981)

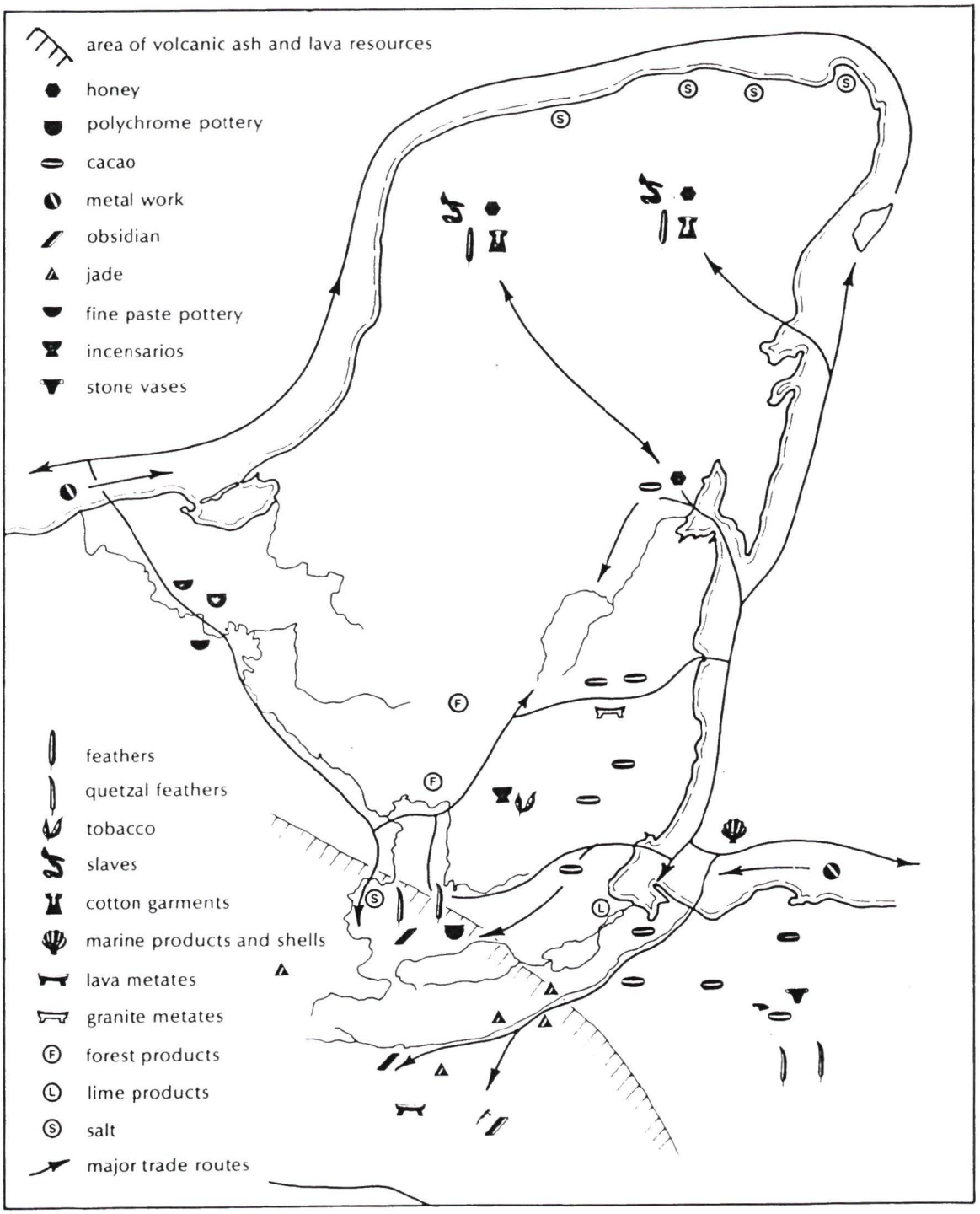

Figure B-3. Some Late Classic Maya trade routes and commodities. (Hammond 1982)

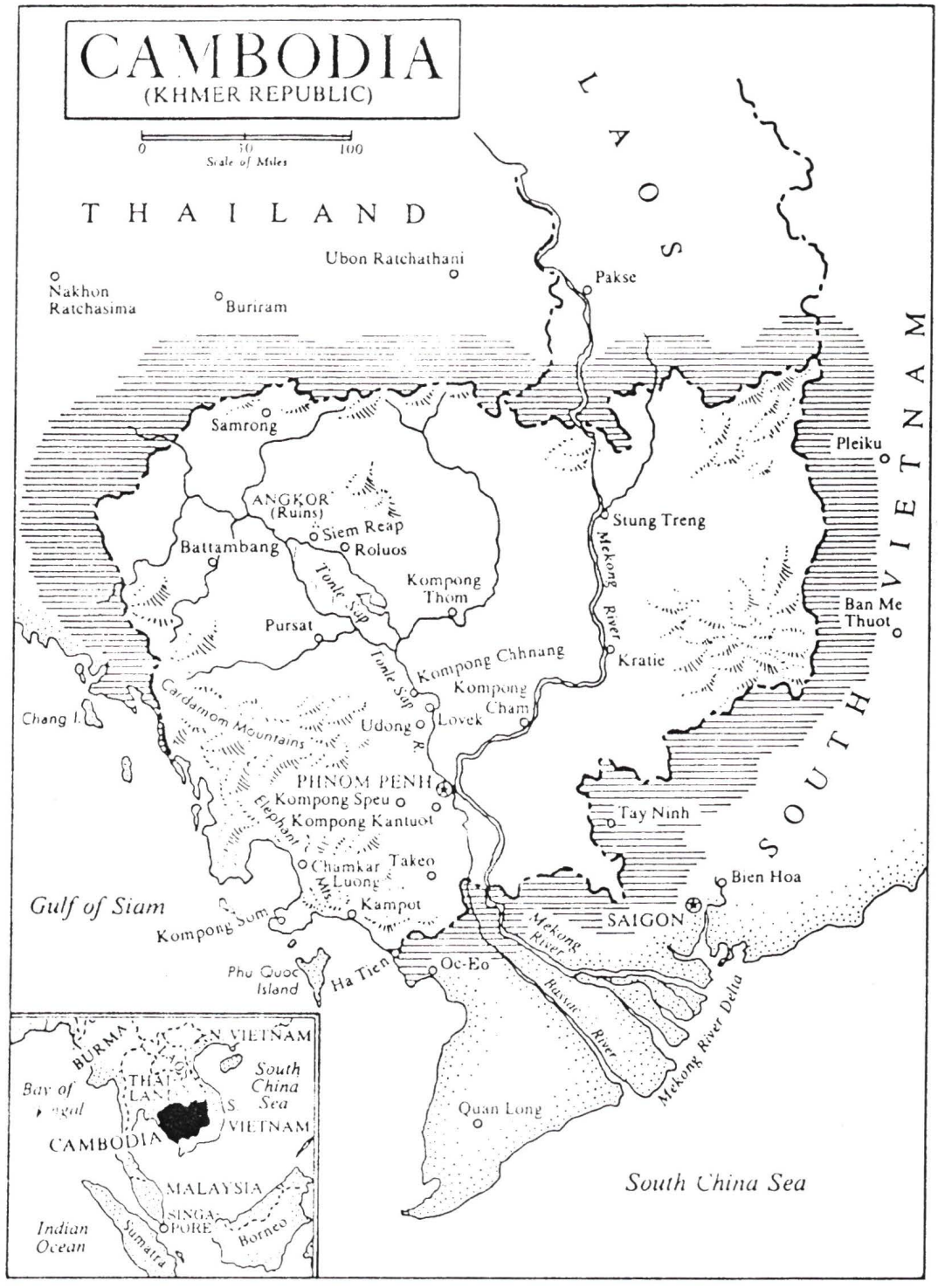

Figure 3-1. Present political divisions of ancient Kambujadesa. (Chandler 1972)

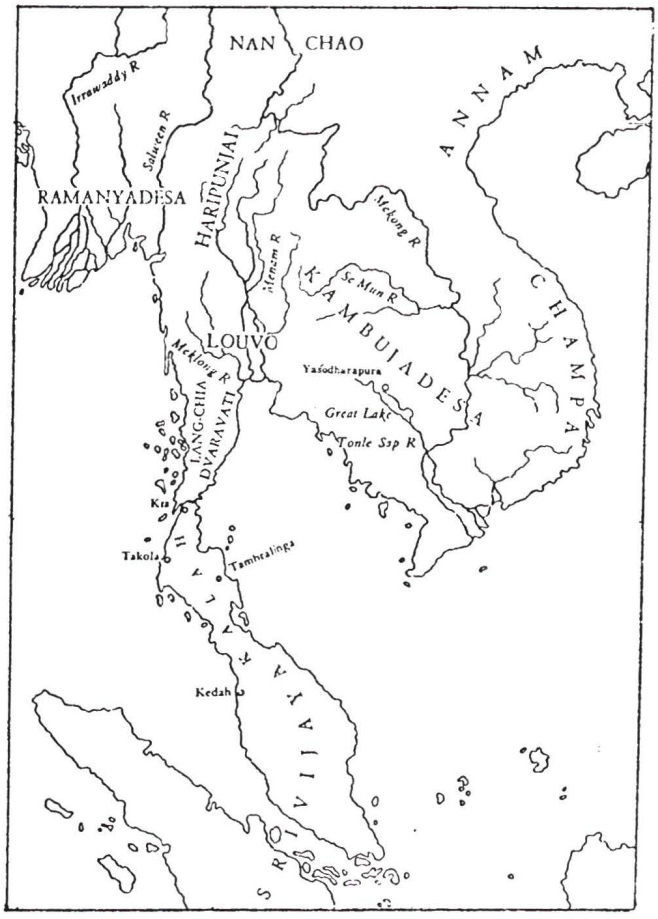

Figure C-2. The Khmer Empire in the Thirteenth Century. (Briggs 1951)

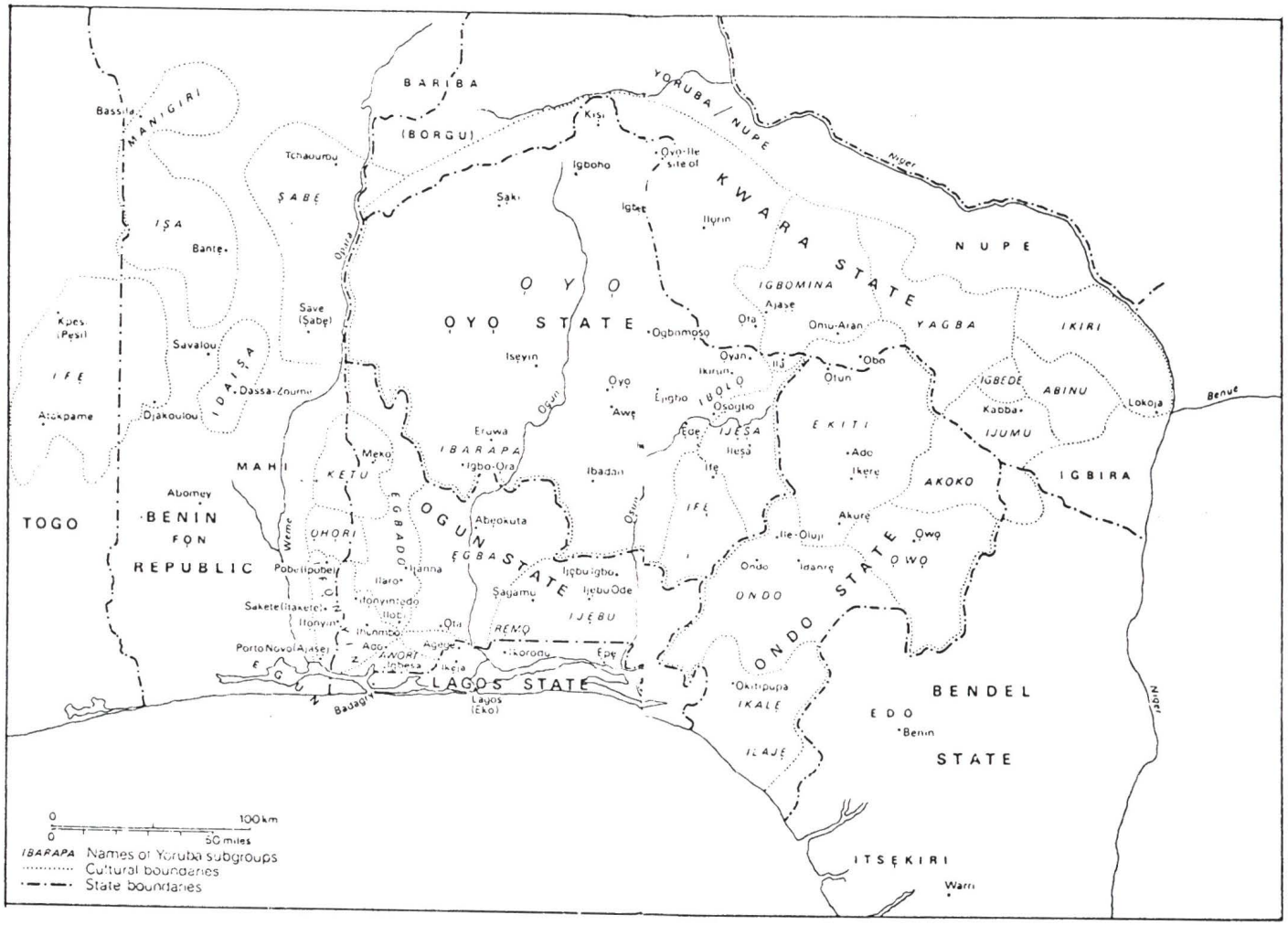

Figure C-3. Yorubaland, showing kingdoms and present international boundaries. (Eades 1980)

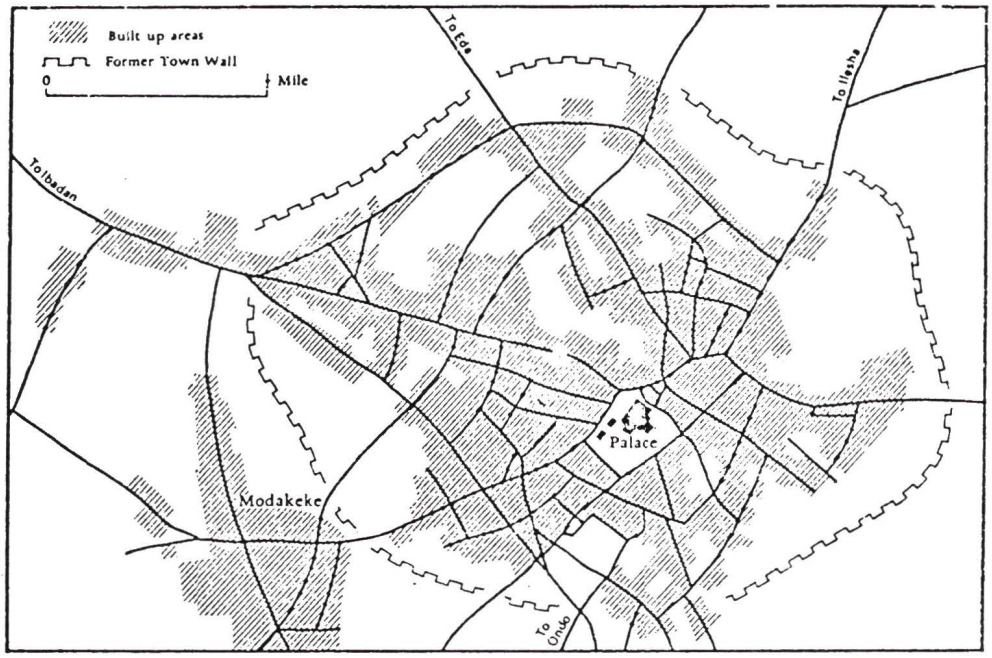

Figure C-4. Town plan of Ife, a major Yoruba capital. (Krapf-Askari 1969)

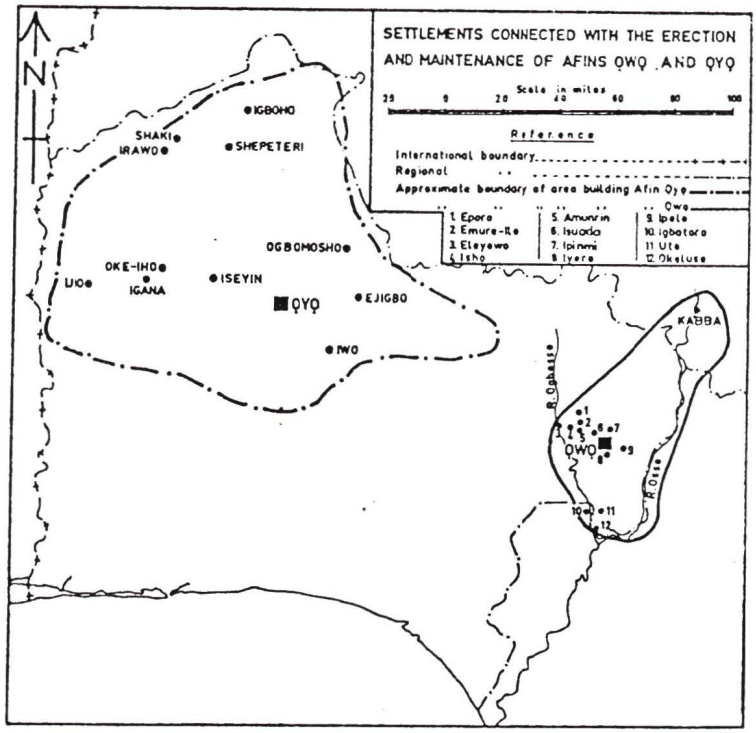

Figure C-5. Distribution of settlements in sustaining areas of two major Yoruba centers. (Ojo 1966B)

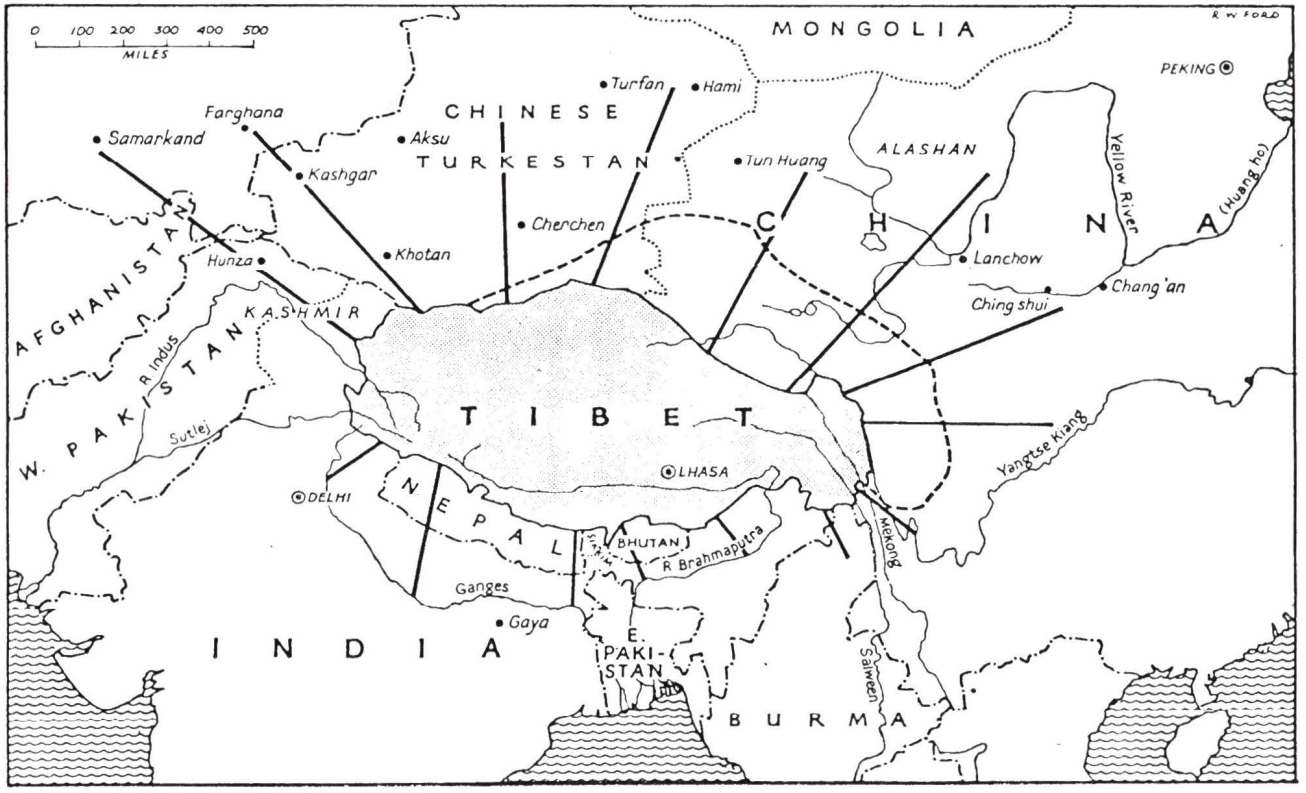

Figure C-6. Tibet and its Neighbors: Political and Ethnographic. Shaded area, political Tibet; broken line, ethnographic Tibet; radiating lines, extent of Tibetan influence in sixth to tenth centuries. (Richardson 1962)

	CULTURE AREAS			
	MAYA	KHMER	YORUBA	TIBET
Subsistence	Swidden agriculture	Plow agriculture	Swidden agriculture	1) Plow agriculture
	Basic crop: maize	Basic crop: rice	Basic crop: yams	Basic crops: barley, turnips
	Other crops & techniques	Other crops & techniques	Other crops & techniques	2) Nomadic herding
	Very little animal protein	Some animal protein	Some animal protein	Milk, blood, meat
	Varied water controls	Irrigation, flood control	No water control	Some irrigation
Production unit	Patio group	Extended family	Lineage compound	1) Household 2) Tenthold
Population density	Predominantly high	Moderate to high	High	Moderate
Settlements	Regional hierarchies of centers	Hierarchy of palace/temple complexes and associated settlements	Hierarchy of towns within each kingdom	Fluctuating hierarchy of monasteries and associated settlements
	Dispersed residence pattern	Dispersed residence pattern	Agglomerated and dispersed	1) Dispersed 2) Nomadic
Religion	Indigenous	Basically Hindu	Indigenous	Basically Buddhist
	?	Priest-king (Hereditary)	Semi-divine king (hereditary within many possible lineages)	Divine ruler (indirect reincarnation)
	Hierarchy of priests?	Hierarchy of priests	No priests; diviners most important after oba	Lamas important religious intermediaries
	Many "ceremonial" centers	Many palace/temple complexes	No temples; only afins and wayside shrines	Many monasteries and and temples
	Some evidence of pilgrimages	Some evidence of pilgrimages	Pilgrimages not likely	Pilgrimages essential
Trade and Transport	Trade important	Trade important	Trade important	Trade essential
	No merchant class	No merchant class	Some trader specialists	Everyone a trader
	Plazas as markets?	Temples redistributive centers?	Market places and days	Monasteries informal markets; monks expeditors
	Travel by foot or boat; no draft animals; difficult environment	Travel by foot (human or animal) or by boat (in season); difficult environment	Travel by foot; no draft animals; difficult environment; hostile people	Travel by foot (human or animal); very difficult environment; some intergroup hostility

Figure C-7. Summary of selected features from Maya, Khmer, Yoruba and Tibet Culture Areas

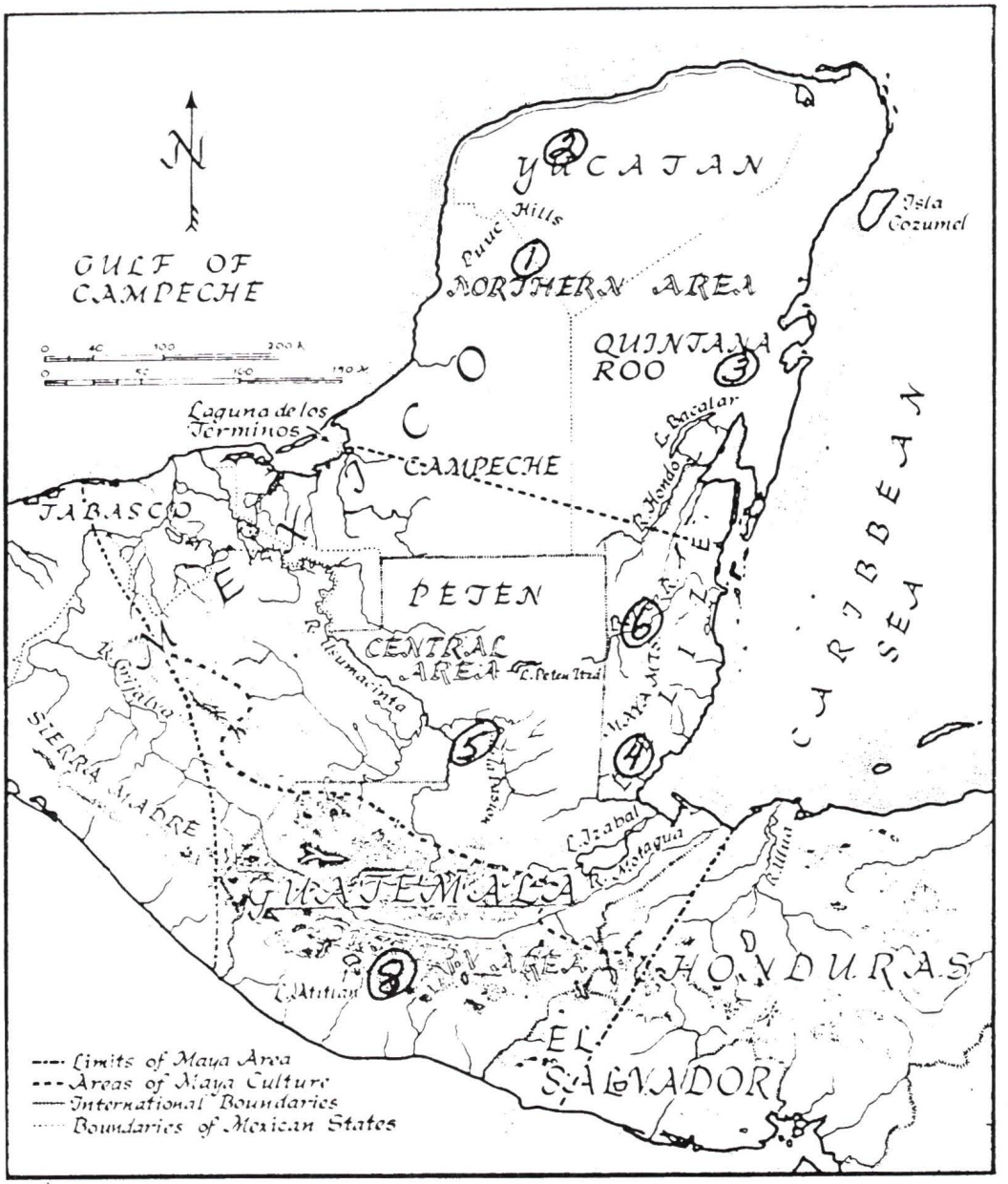

Figure D-1. General locations of the eight Maya subregions: (1) The Puuc; (2) Dzibilchaltun; (3) Quintana Roo; (4) Lubaantun; (5) Pasion Drainage; (6) Belize River Valley; (7) The Southern Lowlands; (8) Kaminaljuyu.

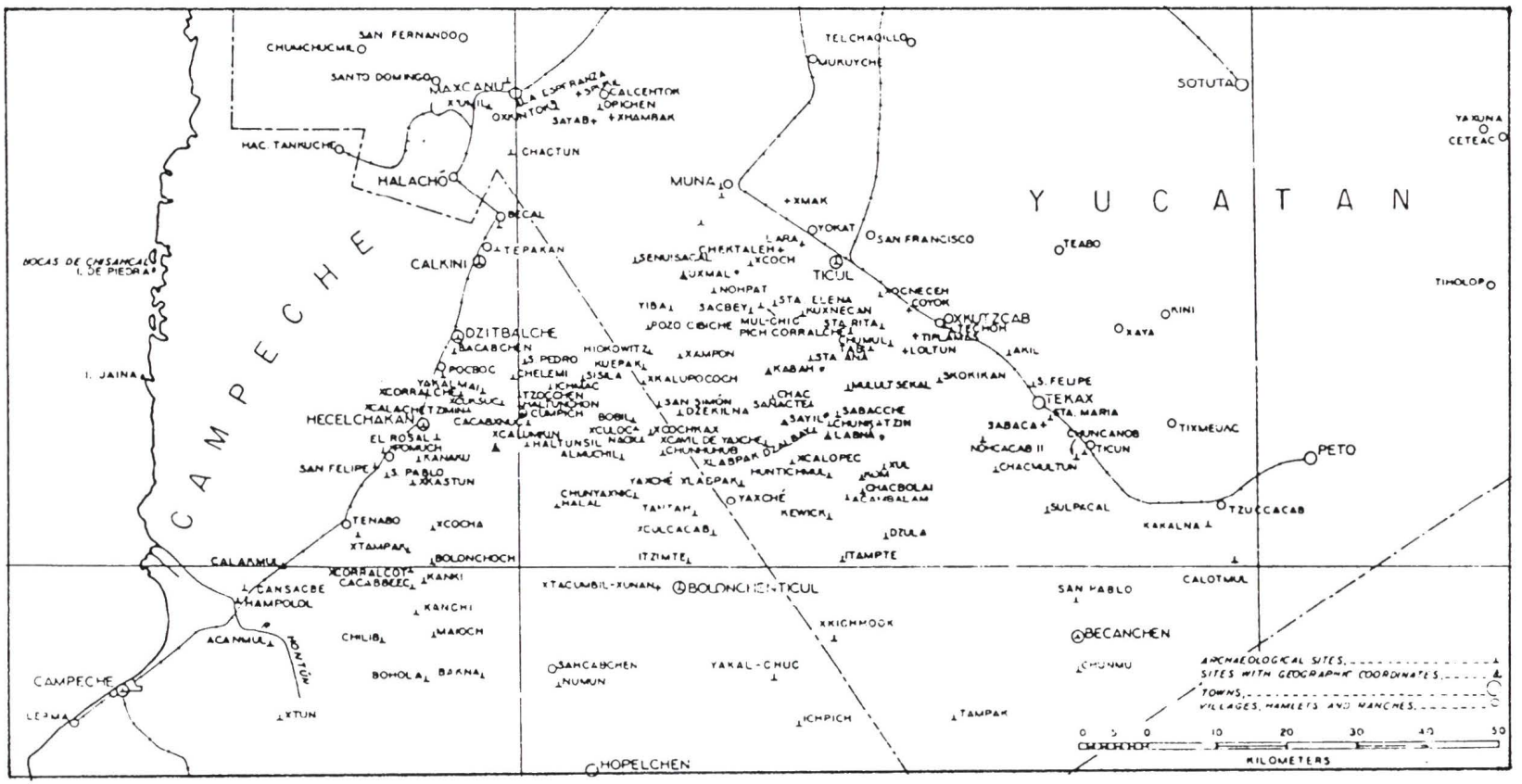

Figure D-2. Archaeological map of the Puuc area showing 140 sites located during survey. (Pollock 1980)

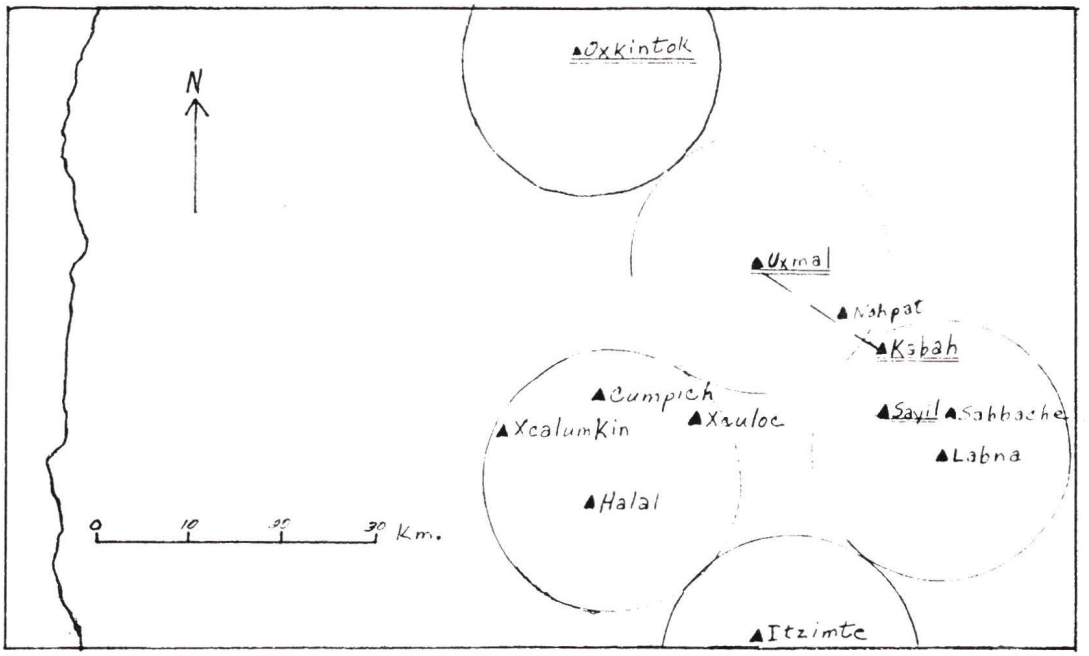

Figure D-3. "Great" and "large" centers in the Puuc area. (Pollock 1980)

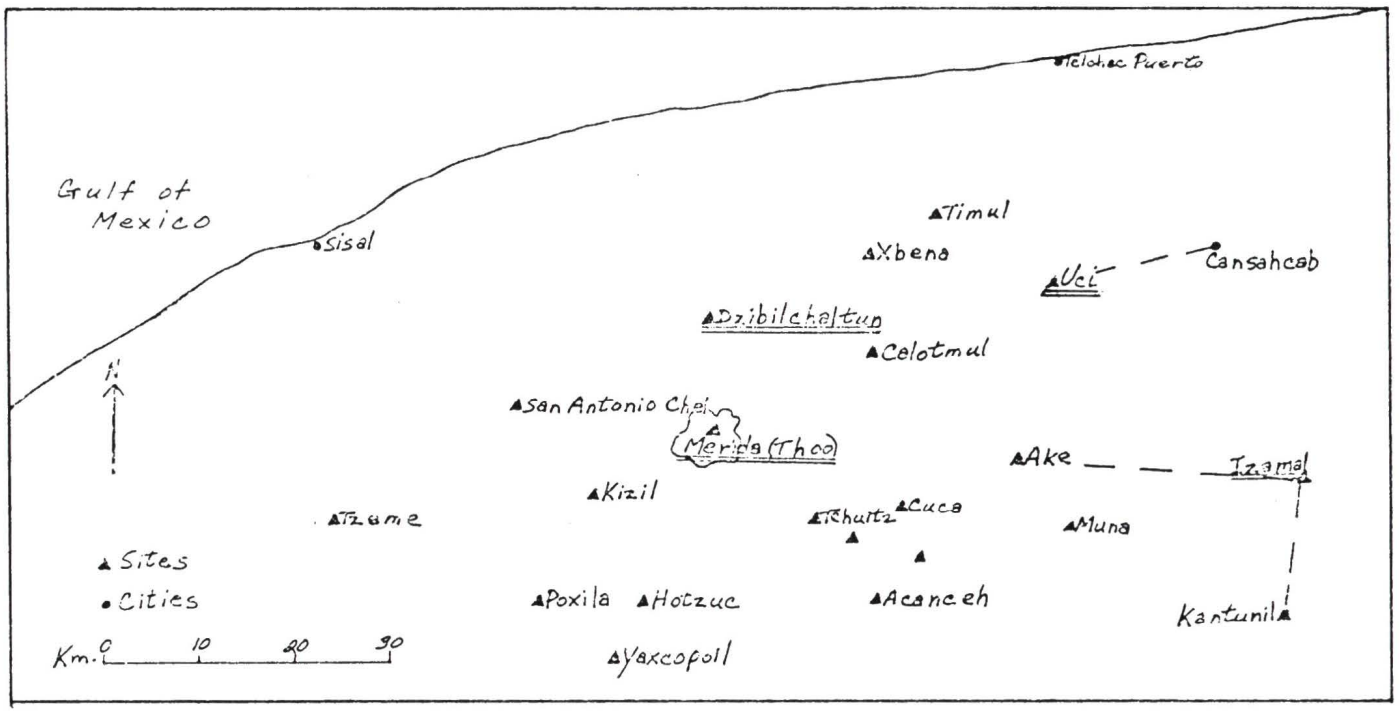

Figure D-4. Maya centers in Dzibilchaltun area of Northern Plains. (Kurjack 1979)

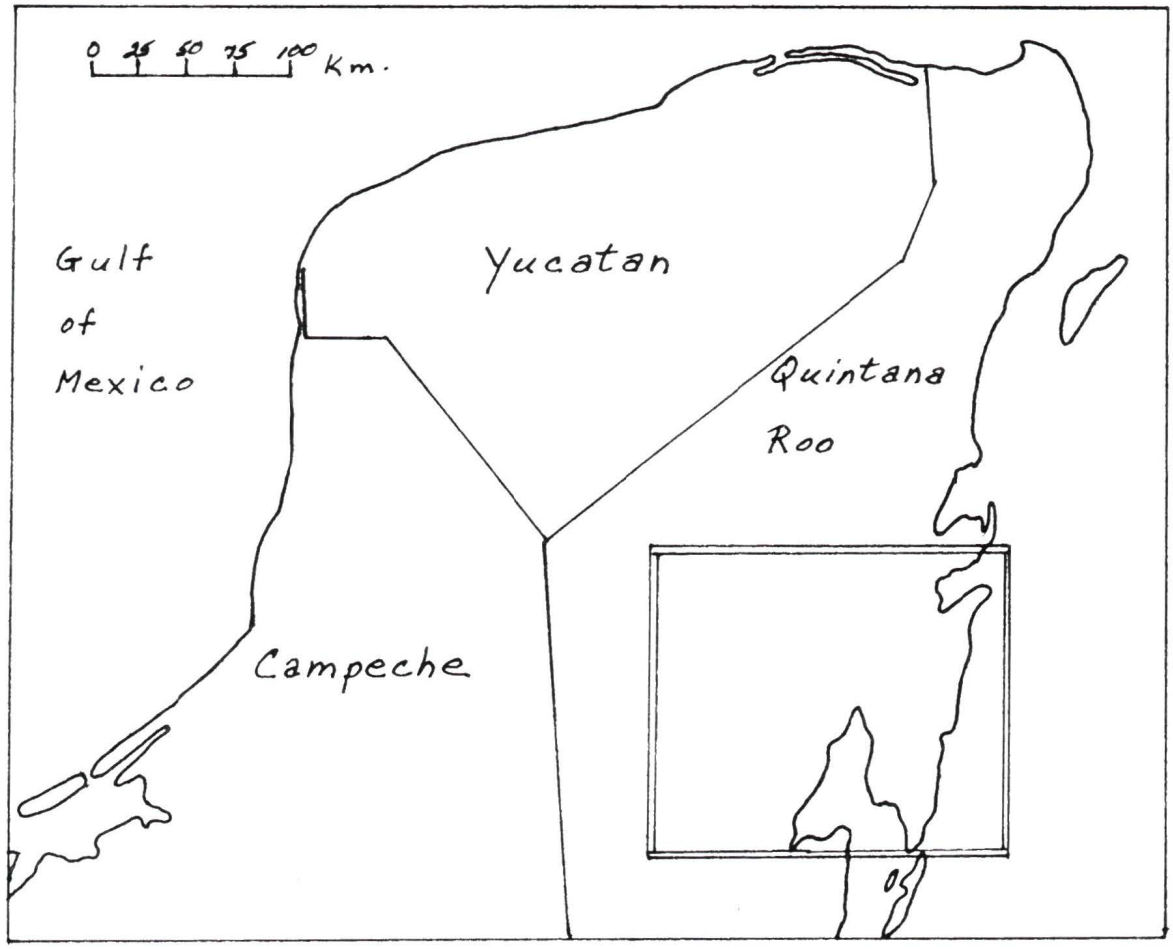

Figure D-5. Inset shows area covered by Figure D-6.

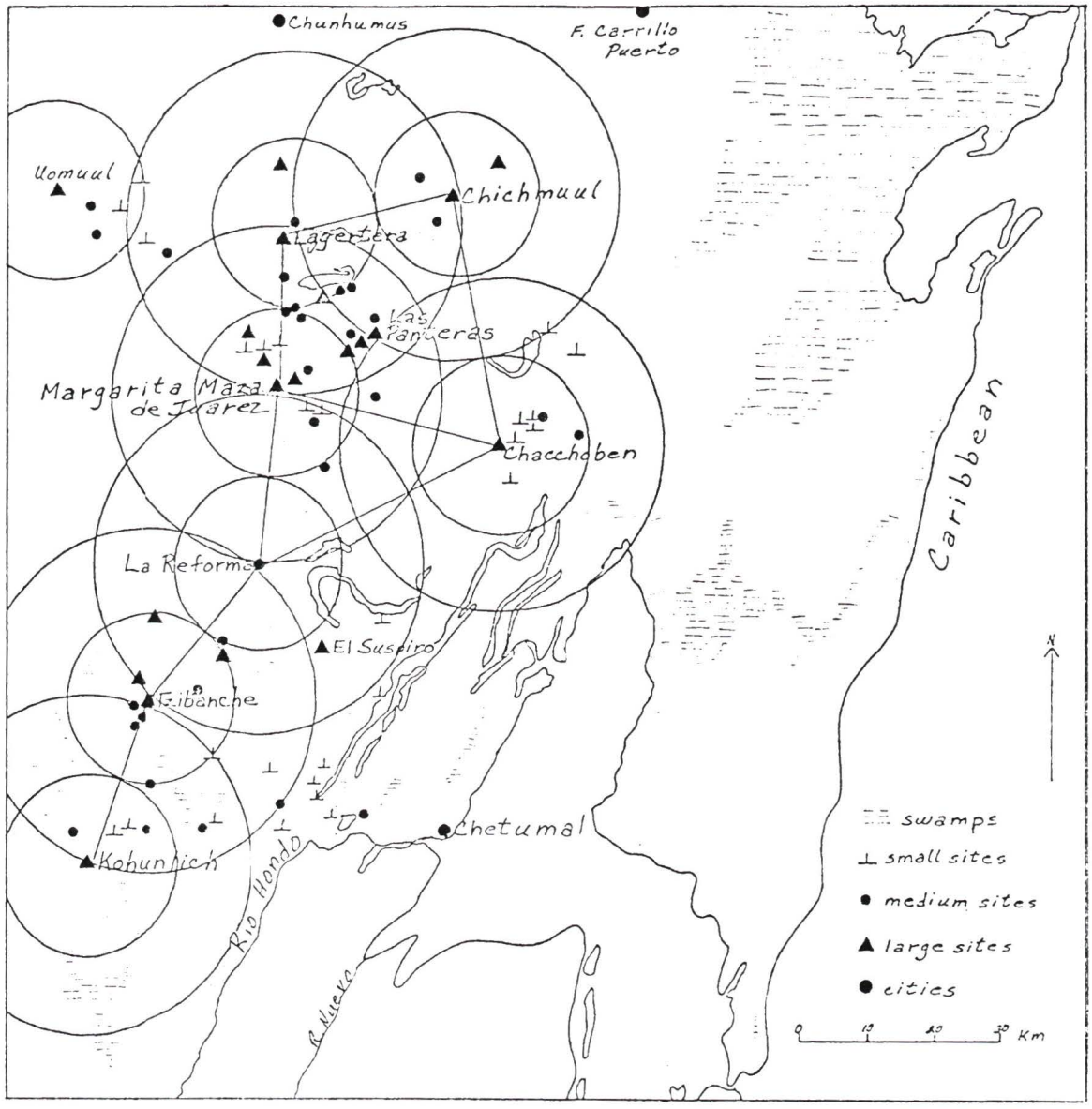

Figure D-5. Small, medium, and large centers in Quintana Roo. (Harrison 1980)

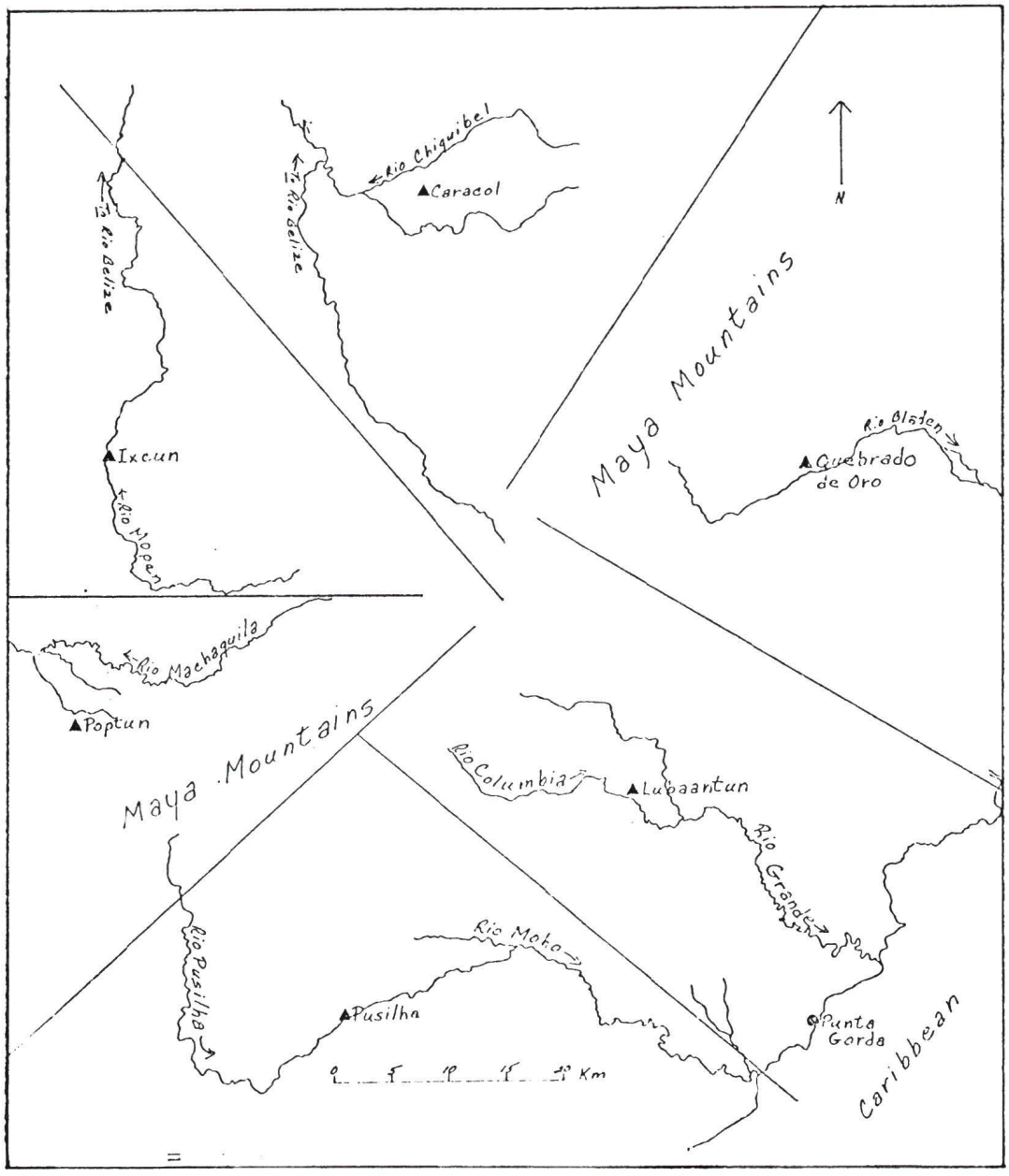

Figure D-7. Six Late Classic centers in Lubaantan area and their "regions of control."

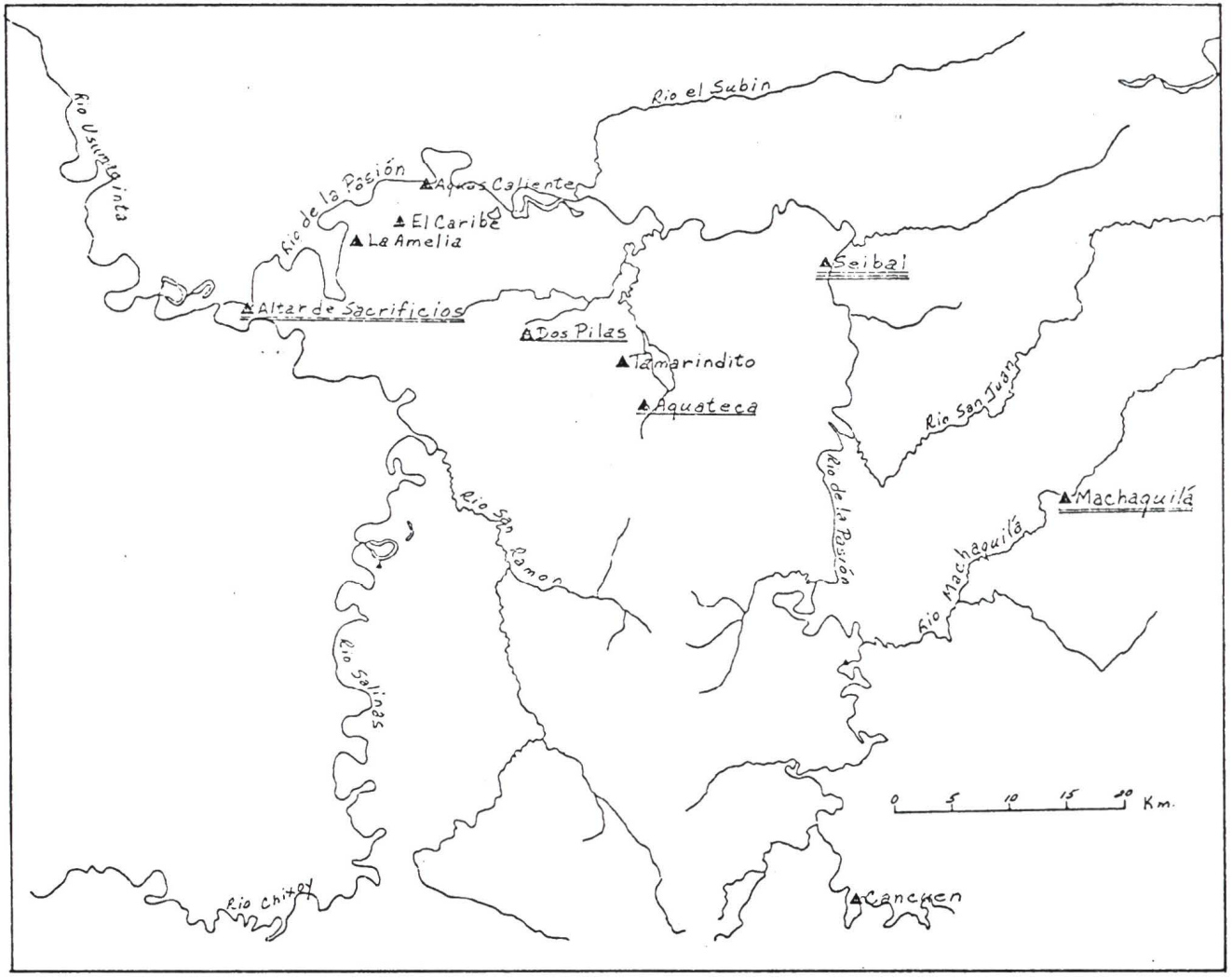

Figure D-8. Maya centers in the Pasion Drainage, dominated by one "primate" center, Seibal.

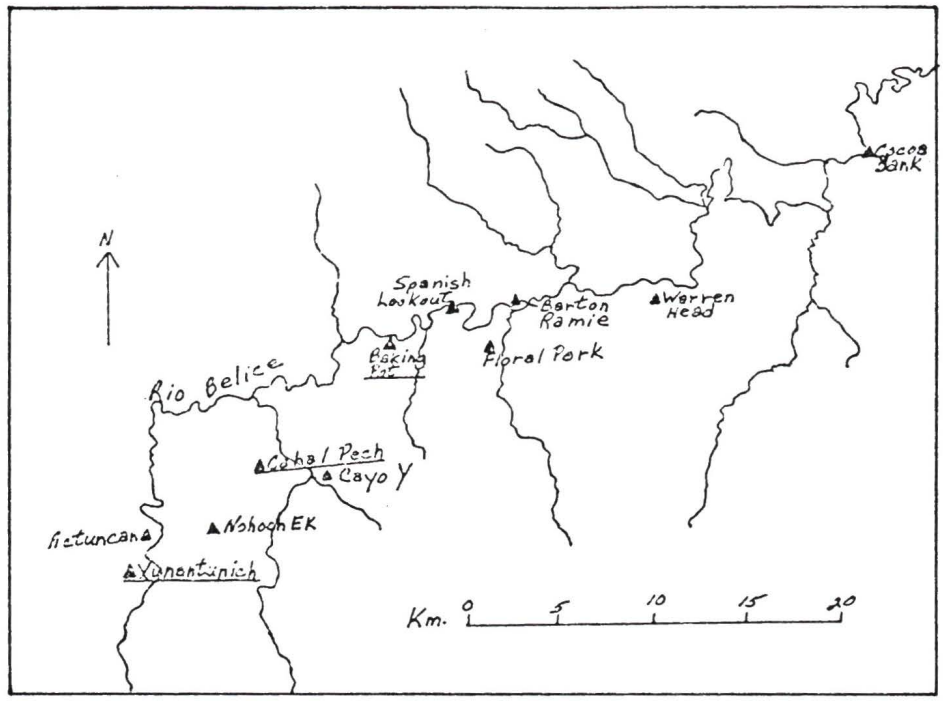

Figure D-9. Late Classic major and minor centers in Belize River Valley.

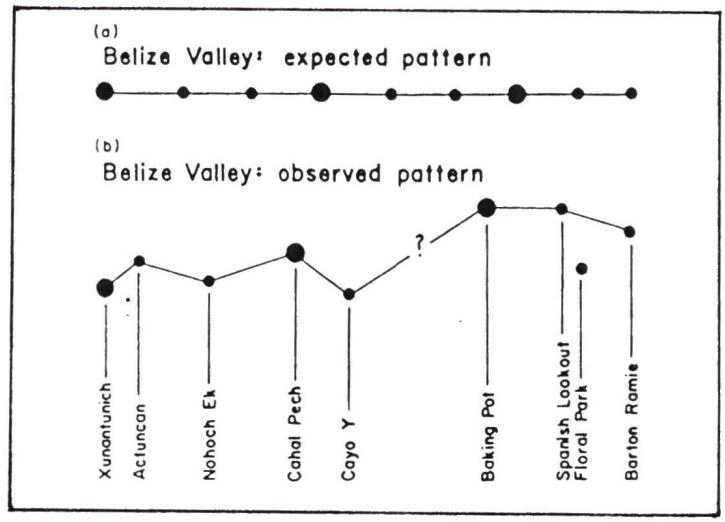

Figure D-10. Belize River Valley settlement. (a) The expected pattern of major and minor centers based on central place theory. (b) The observed pattern. (Flannery 1976)

Figure D-11. Four Southern Lowlands "Regional capitals." (Marcus 1976)

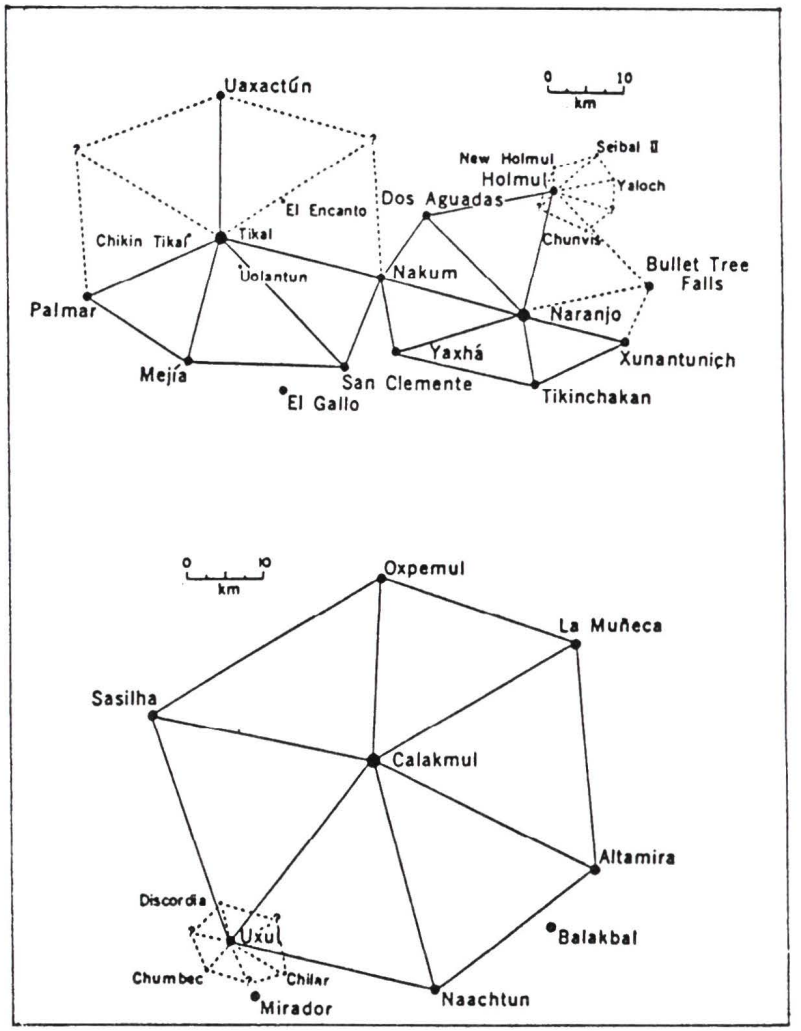

Figure D-12. Hexagonal settlement patterns around two primary centers and one secondary center (Naranjo). (Marcus 1976)

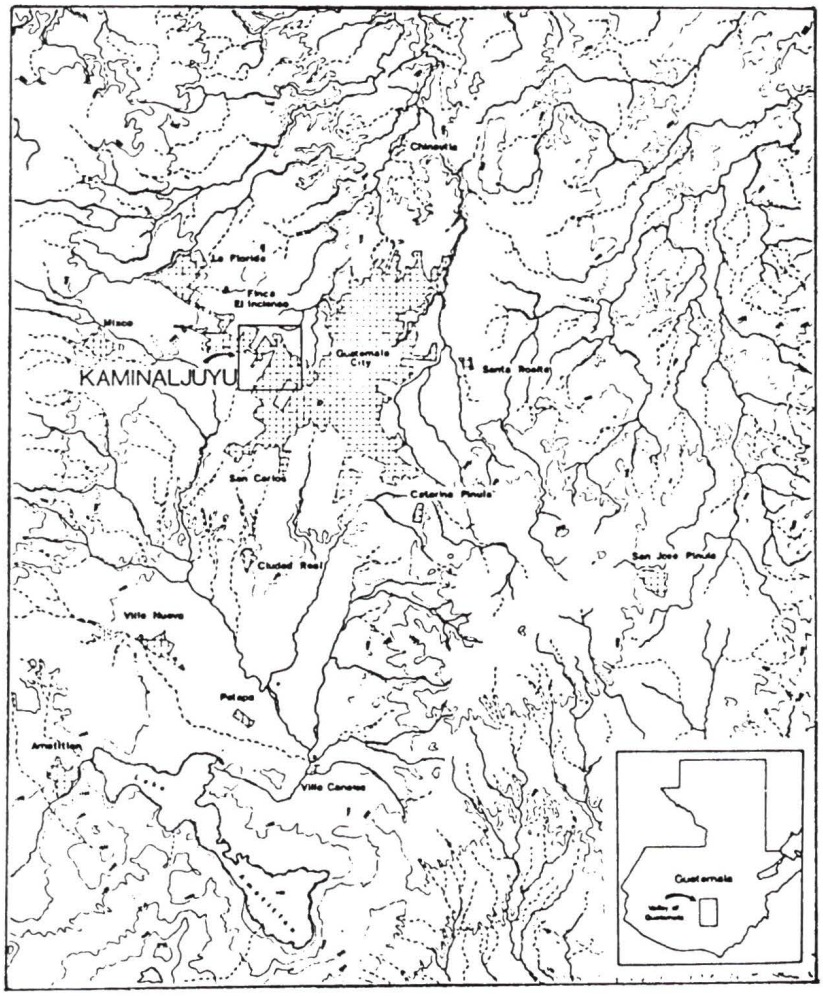

Figure D-13. Site of Kaminaljuyu in relation to Guatemala City. (Michels 1979)

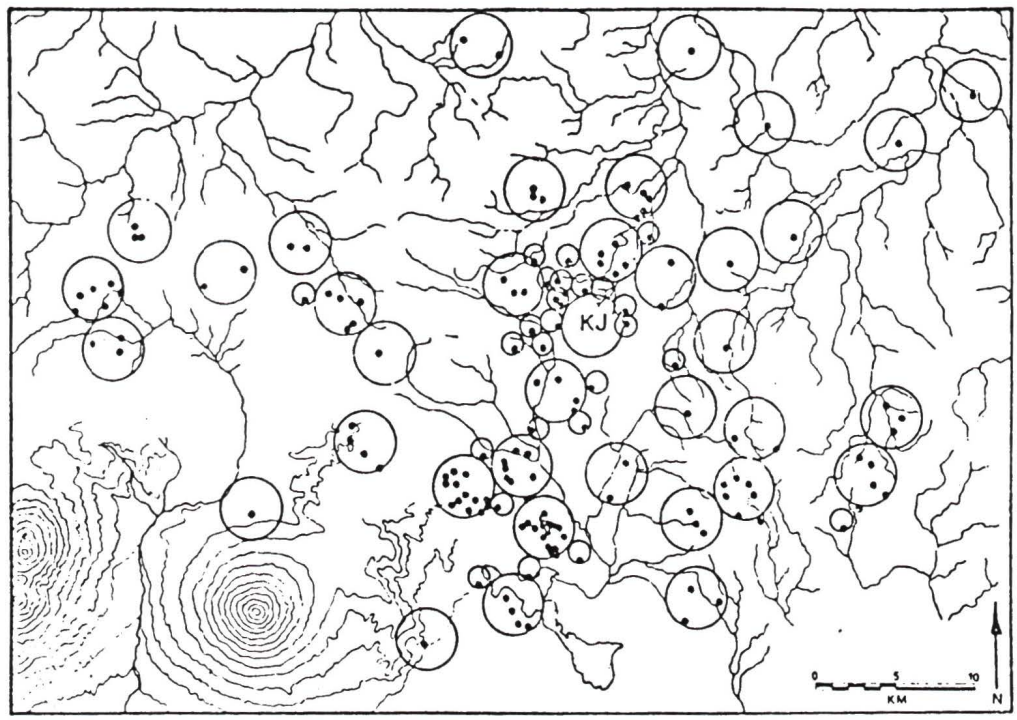

Figure D-14. Clustering of centers in Kaminaljuyu area. (Michels 1979)

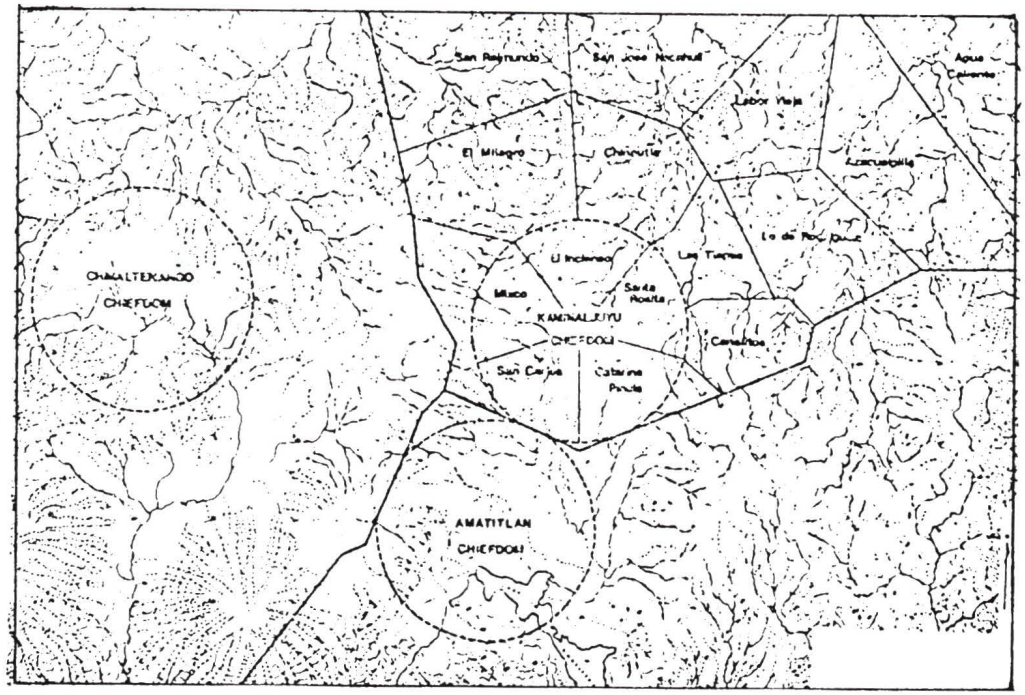

Figure D-15. Three "paramount" centers in Kaminaljuyu area. (Michels 1979)

SUBREGION	SOURCE	ARE SITES RANKED?	MACROPATTERN	SPACING	ENVIRONMENT--GENERAL
Northern Lowlands					
The Puuc	Pollock 1980	No; 4"great" and 5 "large" are identified	Continuous chain; no discernable pattern	Insufficient data	Hilly, dry karstic lowlands
Dzibilchaltun	Kurjack 1979	No; 4 "huge" identified; many other large sites	Settlement everywhere; no discernable pattern	Seems random	Flat, rocky, dry karstic lowlands
Quintana Roo	Harrison 1981	Small, medium, large sites; only 5 largest identified	Clusters of sites	Equidistant	Swampy lowlands
Southern Lowlands					
Lubaantun	Hammond 1972, 1976	No; all sites treated as equal	Riverine locations controlling similar territories	Equidistant	Lowland jungle--hills, plains, rivers, cays
Pasion Drainage	Adams 1981	One primate center; several minor ones	Riverine locations; dendritic pattern	Irregular	Lowland interior jungle
Belize Valley	Willey et al 1965	Major centers, minor centers, house mound clusters	Riverine locations; linear pattern	Equidistant	Major lowland river valley
Southern Lowlands (general)	Marcus 1973, 1976	Regional capitals, secondary, tertiary, quaternary centers	Hexagonal lattices	Secondary sites equidistant; capitals asymmetrical	Many tropical lowland microenvironments
Highlands					
Kaminaljuyu	Michels 1979	No; only "paramount" and "dependent" identified	Clusters of dependent sites around paramount ones	Asymmetrical	Highland plateau

Figure D-16. Summary of settlement information on eight Maya subregions

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VARIATIONS ON A THEME

Author [redacted]
Thelma Landon

Date August 1, 1984