

THE UNIVERSITY OF CALGARY

A Tree for All Reasons: The Maya and the 'Sacred' Ceiba

by

Gregory Stephen Guest

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF MASTER OF ARTS

DEPARTMENT OF ANTHROPOLOGY

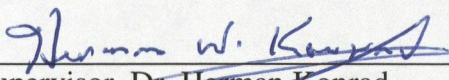
CALGARY, ALBERTA

APRIL, 1995

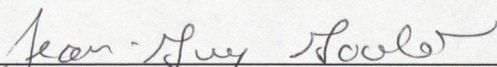
© Gregory Stephen Guest 1995

THE UNIVERSITY OF CALGARY
FACULTY OF GRADUATE STUDIES

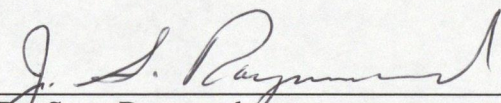
The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "A Tree for All Reasons: The Maya and the 'Sacred' Ceiba" submitted by Gregory Stephen Guest in partial fulfillment of the requirements for the degree of Master of Arts.



Supervisor, Dr. Herman Konrad
Department of Anthropology



Dr. Jean-Guy Goulet
Department of Anthropology



Dr. Scott Raymond
Department of Archaeology

April 24, 1995
(Date)

"Man can and does communicate with plant life. Plants are living objects, sensitive, rooted in space. They may be blind, deaf and dumb in the human sense, but there is no doubt in my mind that they are extremely sensitive."

Marcel Vogel

ABSTRACT

The *Ceiba pentandra*, a large neotropical tree, has figured prominently in the cosmology of the Maya since antiquity. Its elevated province is documented in Preclassic stela, Postclassic codices, colonial manuscripts, and contemporary field studies. A multi-theoretical approach, incorporating structuralism, materialism, and neo-Marxism, is taken in searching for possible origins of, and reasons for, the ceiba's sanctity, and to a lesser degree, sacred trees in general. Data obtained from four months of fieldwork in the Yucatan peninsula - in the form of interviews, botanical surveys, and a questionnaire - is compared with documentary accounts of this species. Findings indicate that no single factor can account for its 'sacred' role, and that industrialization of the Yucatan has had a substantial effect on the way in which the ceiba, and other traditional Maya concepts, are perceived. The material, ethereal, and political import attached to this species is changing concordantly.

ACKNOWLEDGMENTS

I would first like to thank my supervisor and mentor, Herman Konrad, for convincing me to hop aboard a summer field trip to Mexico several years ago, where this endeavor began. His support and guidance have been invaluable to both my personal and academic development throughout my graduate career. Thanks are also due to Denise Brown, whose instruction and dynamic personality were an inspiration.

I would also like to express my gratitude to the faculty and support staff in the Anthropology department at the University of Calgary for consistently being supportive and helpful. It is a pleasure to work in such a warm and friendly environment.

While the hardships of fieldwork in a foreign country can never be eliminated, they can certainly be minimized. I am deeply grateful to the people of the Yucatan for their sincere kindness, and ever-so-patient disposition (which I am sure I tested more than a few times). Their good nature made intolerable days seem tolerable and good days feel even better. I would especially like to thank my many informants, particularly those in Hopelchen and Xcupil; for without their cooperation and selfless contribution none of this would have been possible.

Finally, I offer thanks to Ute Schüren and Wolfgang Gabbert, whose friendship provided both academic and moral support while in the field.

DEDICATION

This thesis is dedicated to my mother, Joy, and to the memory of my late father, Glen.

Thank you for having faith in me, and giving me the freedom to choose my own destiny.

TABLE OF CONTENTS

FRONT PAGES	Page Number
Title Page	i
Approval Page	ii
Abstract	iii
Acknowledgments	iv
Dedication	v
Table of Contents	vi
List of Tables	vii
List of Figures	viii
 CHAPTER ONE: INTRODUCTION	 1
Theoretical Considerations	5
Methodology	13
 CHAPTER TWO: THE SACRED CENTER	 18
Universal Patterns	18
The Mesoamerican Center	22
Maya Cosmology	26
The Ceiba in Perspective	28
 CHAPTER THREE: THE SECULAR	 32
Physical Geography of the Yucatan Peninsula	32
Maya Agriculture	33
Biology of the Ceiba Pentandra	37
 CHAPTER FOUR: THE STRUCTURE OF THINGS	 40
 CHAPTER FIVE: THE MATERIAL CEIBA	 50
Utility of the Ceiba	53
Shade	54
Wood	54
Fruit	55
Medicine	56
Agriculture	56
Water	59
To Link or Not to Link	61
 CHAPTER SIX: THE POLITICAL CEIBA	 63
 CHAPTER SEVEN: SOCIAL CHANGE	 73
 CONCLUSION	 85
 BIBLIOGRAPHY	 94
 APPENDIX I - QUESTIONNAIRE	 104
 APPENDIX II - TRANSCRIPT	 105

LIST OF TABLES

Page Number

Table 1 Medicinal Uses of the Ceiba

57

Table 2 Questionnaire Results

74

LIST OF FIGURES

Page Number

Figure 1	The Yucatan Peninsula
Figure 2	The Maya Area
Figure 3	Images of the Ceiba

15

24

29

CHAPTER ONE: INTRODUCTION

The *ceiba** tree has historically held a distinguished position within the Maya universe. For decades archaeologists and anthropologists have questioned the role of the *Ceiba pentandra* in the Maya world, both past and present. Its religious significance has been pieced together from a myriad of sources - such as stelae, historical works, and 20th century ethnographies - and woven into the complex cosmology of the Maya. Other researchers, such as biologists or ethnobotanists, have surveyed its secular utility and biological aspects, and incorporated this data into large ethnobotanical works concentrating on a given geographical region.

Until recently, ethnobotanical studies have been primarily concerned with cataloging uses of plant species by indigenous cultures (Furst, 1977). Traditional works generally consisted of information to the effect that X-people use Y-plants for Z-purposes. It was not until the last two decades that ethnobotany as a discipline began to look deeper into the relationship between humankind and plant life. Some studies, such as the early works of Brent Berlin et. al. (1974), delved into the linguistic character and classificatory schemes of cultural groups, while others, like those of Janis Alcorn (1984), investigated cognitive aspects of plant management. In the tradition of these works I have attempted to ascertain a multi-level picture which encompasses cognitive, social, and ecological variables in addition to utilitarian factors. It is the purpose of this study to examine the relationship between the external natural environment and worldview of a society using the ceiba tree and the Maya as a foundation from which to expand to general theoretical issues in both religion and ethnobotany, as well as more specific issues involving Maya ethnology.

* Only first time usage of non-english words will be italicized.

In order to determine the sanctity of a given entity one must first have a working definition of "sacred". Although something may be quoted as being 'sacred', it is often unclear as to what this term implies in a general sense, what contextual constraints there may be, or by whom in a society it is perceived as such. Using Durkheim's (1915) demarcation, sacredness is distinguished from the secular or profane by "superiority in dignity and power" (37), and the absoluteness of the separation itself between these two bipolar worlds in the beliefs and actions of a society. Using this definition it becomes apparent that all natural phenomena in the prehispanic Maya world were sacred in some aspect, as natural elements (e.g. flora and fauna) were usually represented by deities and/or in a sanctified manner. In light of this, the term "sacred" in the following text, with respect to the ceiba, refers to its sanctity not only in the Durkheimian sense, but also to its elevated status over and above other plant species.

Another consideration is the difficulty in eliciting ethnobotanical information from indigenous peoples. The extremely accurate and comprehensive botanical knowledge non-industrial societies have demonstrated is well documented (Conklin, 1957; Berlin and Berlin, 1983; Posey, 1985). What is not so apparent is the explicit awareness of such knowledge. Janis Alcorn (1989) observes the tacit nature of knowledge in the discourse of the Bora of Peru and the Huastec Maya of Mexico. She applies the notion of "scripts", which she defines as the habitual and routine carrying out of activities in absence of constant interpretation or thinking about these events (Alcorn, 1989:65), to these societies. Thus, for many small-scale societies, a plant may have, by a Western definition, a purpose, but this utility is often not explicitly perceived by the actors themselves, because it is such an integral part of everyday life that it is not discerned as being unique or particularly useful. It just *is*.

In Alcorn's (1984) research on the contemporary Huasteca Maya of Veracruz this implicit quality is observed, hence she stresses that "in order to understand the peasant's

plant use decisions, we must understand the peasant's environmental context, his perception of the world, his daily activities, his opinions and his adaptive strategy into whose schemes plant resources can make their contribution" (254). This may seem an obvious statement in post-modern times, but as is the case with much of the earlier ethnobotanical studies, the cognitive component was absent, negligible at best. The important point here is that it is not always easy to define or extract indigenous knowledge.

Equally challenging is discerning sacred entities from profane ones, particularly with the pre-conquest Maya whose gods and sacred symbols often had several identities, each associated with different secular phenomena (Thompson, 1970:198). It is therefore one of the tasks of this study to examine the precise nature of the Ceiba pentandra in terms of its position within the religious and secular realms of the Maya world, and to determine those factors which make it distinct, both cosmologically and ecologically, when compared with other trees native to the Maya world.

One difficulty inherent in this endeavor is the diachronic nature of the analysis. The study begins with Preclassic times (1000 B.C. - 1 A.D.) and continues into a contemporary field study, spanning nearly 3000 years of history. This in itself is problematic, and the Maya of different epochs can not be assumed to be one continuous and homogeneous group, sharing a common thought process and worldview. Notwithstanding this qualification, some similarities can be detected across time. Some practices, such as burning *copal* (an incense made of resin from the *Copal protium*) as an offering to a supernatural being, is recorded for the Classic era (Freidel et. al., 1993:101), was witnessed by the first Spaniards in the early 16th century (Díaz del Castillo, 1963), and is still carried out today. Although the name of the deity and some of the actual instruments used have changed over the course of a millennia, the nature and form of the act seem to be timeless.

Undoubtedly, the 'Christianization' of the post-conquest Maya has had a substantial impact on religious ideology and behavior, creating a syncretic mixture of prehispanic animism and European Catholicism (Madsen, 1964:369), yet some Mayanists, such as Inga Clendinnen (1980:375) and Herman Konrad (1991), feel that this 'incorporation' is at a very superficial level and consequently many religious practices which appear outwardly Catholic - such as the pronounced veneration for saints - are really surviving traditional gods under the guise of Catholic names and icons. This issue, however, will not be dealt with in detail here, as it is a subject which would require much more space than is available. It is sufficient for the purposes of this project to acknowledge the gray nature of cognitive analysis, and the position taken throughout is one of caution. The section which examines the ceiba tree as it appears in the archaeological and historical records should, therefore, be viewed as a search for the origin of the ceiba's place in the ancient Maya world, and not as being analogous to the present day situation in the Maya area. To complicate matters further, Mexico has undergone an enormous amount of industrialization over the last fifty years (King, 1964:512), creating an entirely different, more 'Westernized', type of belief system. Some movements, formal and informal, have emerged in an attempt to save the traditional knowledge and customs of the Maya, but they seem to be fighting an uphill battle with the powers of modernization, and their success in the long-term is doubtful. The topic of modernization and its implications is taken up in chapter seven.

One of the key questions involved in the present research, and which hinges upon larger theoretical concerns, is, why was the Ceiba pentandra species chosen to represent a special place in the Maya cosmogram and belief system? Of the thousands of tree species existing in the Maya area - many playing a significant part in the day to day survival of these people - what qualities, if any, predisposed this tree over others such as the *chicozapote*, *jabin* or mahogany, to be held in such distinction? This question, of course,

opens discourse having ramifications which entail looking at certain, often conflicting, theoretical paradigms within anthropological theory. Arguing for a more flexible and less exclusive approach to studying religious phenomena, I will attempt to illustrate that the often taken for granted conflicting nature of given paradigms does not necessarily have to be so. Using the data collected from the field and the historical record of sacred trees - the ceiba in particular - I will propose that there are some benefits to be gained from a multi-paradigm approach to the study of social phenomena, such as sacred symbols.

The structure of this work is such that the level of inquiry moves from the general to the specific, progressively applying theory to data. The second chapter looks at the connection between trees and religion in an historical context, highlighting the similarity of patterns across cultures, and providing a frame of reference from which to draw upon. The physical world of the Maya is outlined in chapter three. The following three chapters analyze the ceiba's role in the Maya region, each from a different theoretical perspective. Chapter four deals with structuralism and its applicability to the subject matter. In chapter five a material approach is taken which outlines the ecological and utilitarian significance of the Ceiba pentandra. A neo-Marxist perspective is assumed in chapter six, and focuses on the manner in which the ceiba tree and its image have been used for political purposes. Chapter seven discusses the issue of social change within the Yucatan Peninsula, and the effects modernization continues to have on the belief system of its people, particularly those beliefs engendered in religion and ecology.

Theoretical Considerations

To determine the reasons for the sacred status of a particular object or symbol (if there are any to be found) requires a discussion of the nature of symbols and their relationship to social structure and cognitive environment. In this regard, several important

questions arise. Are religious beliefs and symbols (and social structure in general) a reflection of an internal structure within the human psyche (i.e. the unconscious and/or the central nervous system) or of existing conditions external to the individual? Conversely, are they an arbitrary phenomenon, randomly incorporated into the daily repertoire of a particular social group? It is my position that the apparently incompatible theoretical views constructed upon these fundamental questions - which in essence are a function of which position is taken with respect to the materialist/idealist debate* - do not necessarily have to hold an antagonistic relationship to one another but, on the contrary, can be complementary. Before this problem is expanded upon, however, it is necessary to give a basic outline of the historical progression of the anthropological study of religion.

When looking for origins of cultural patterns there are essentially three possibilities - the human psyche, the external environment, or a combination of the two. The earlier of the so-called psychological theories typically entailed the unconscious as the prime mover in creating cultural patterns. Freud's (1950) basic premise was that religious practices are an expression of unconscious psychological forces and are homologous with neurotic symptoms. Carl Jung (1959:4) suggested that some facets of culture, religious phenomena in particular, stem from genetic codes in the unconscious, and that these express themselves similarly cross-culturally. Following this line of research, Joseph Campbell (1949) emphasized the universality of certain religious themes, both geographically and temporally, reflecting relatively constant cosmic realities arising from a transpersonal unconscious. Other theories in the psychological bent include Max Müller's "awe theory" (Lessa and Vogt, 1972:8) and Bronislaw Malinowski's "confidence theory" (1948:90). The former states that religious experience is associated with intense emotional states, thus giving it a degree of specialness. The latter proposes that religion and ritual reduce the anxieties of life by instilling confidence in its practitioners. In the 1960's Lévi-Strauss

* For a summary of this discussion, see Peoples and Bailey (1994:79).

paved the way for what was to later be called "Structuralism". In his work he expresses the commonalities among cultures in terms of perceptual organization and allocates a biological factor for this. Accordingly, humans categorize and separate objects because of the inherent nature of the objects themselves and the innate propensity of the mind to perceive things in a relatively consistent manner (Lévi-Strauss, 1963a).

While the above theories focus on an internal component - emotive, unconscious or neurological - others, in the materialist genre, approach the issue by examining external realities in their search for the primordial link between humankind and religious expression. While Durkheim (1915:103) - whose work focused primarily on social order - noted the predominance of natural totemic representations among small-scale societies, it was Radcliffe-Browne (1952:130) who elaborated on this theme, and further postulated that nature is a *part* of the social order, as opposed to being separate from it. As a result, Radcliffe-Brown offered an utilitarian argument for religious symbols by suggesting that these icons are selected because they contribute to the survival of a given society. The road was thus paved for an ensuing line of theorists promoting an ecologically influenced social structure.

Leslie White's energy law (1949:368) and Julian Steward's (1977) ecologically-induced evolution of culture are attempts to link ecology and natural environment with social structure, particularly political systems. Also looking for causal explanations, Roy Rappaport (1968:3) observed the manner in which ritual affects the external environment. Acknowledging the possible social and psychological functions imputed to ritual by authors such as Homans (1941:172), Rappaport (1968) further suggests external tangible results of ritual are of considerable importance, and goes on to say that, "ritual not only expresses symbolically the relationships of a congregation to components of its environment but also enters into these relationships in empirically measurable ways" (3). For Rappaport, ritual

does something tangible and practical, and contains information about current states of the participants (1979:179).

Keeping with this material focus, is the "Cultural Materialism" championed by Marvin Harris (1979). Expanding on Marx's concept of material factors (mainly the mode of production) determining social structure and ideology, Harris adds the emic/etic distinction and the "behavioral mode of reproduction" (51). In short, according to this perspective, religion and cosmological conceptions are an indirect manifestation of the existing infrastructure, which includes all environmental forces.

Many researchers, in an effort to distance anthropological theory from the etic explanation of cultural processes, which is extant in materialist or structuralist perspectives, look to meaning and emic symbolic interpretation as an alternative. Victor Turner, in his seminal work *The Forest of Symbols* (1967), makes a partial transition to the interpretive school. Following in the steps of Seigfried Nadel (1954) and Monica Wilson (1957), Turner recognizes the need for emic input. His departure from functionalism and the etic is only partial, however, as he still retains a degree of irony in assuming that there exist some ritual goals not made explicit by informants, and that it is the task of the anthropologist to explain these (Turner, 1967:43).

Using a different methodology - historical and literary analysis - Mary Douglas (1966) looks at the role of symbols in the development and maintenance of social structure and, in Durkheimian tradition, suggests religiously significant phenomena are a part of the social structure, embedded in it according to their place in the overall categorizing scheme of a given society. In Douglas' theory, an object is taboo because it is anomalous relative to the existing, socially created, religious and linguistic frameworks. Her argument stems from the assertion that dirt is material out of place (1966:2), and hence, it is aberrative objects or concepts that become taboo.

Expanding on linguistic analysis and moving more into semiotics, Clifford Geertz (1973) hypothesizes that cultural patterns are embedded in language and the meaning of symbols. For him, society is a complex network of interconnected meanings transmitted by, and contained within, language. Through what he calls "thick description", he suggests it is the observer's task to intelligently describe culture as conveyed by the actors. In his words:

The concept of culture I espouse . . . is essentially a semiotic one. Believing, with Max Weber that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning (Geertz, 1973:5).

Geertz' methodology has been criticized for many reasons by so-called 'empiricists' (for a summary of these see Watson, 1991:73). The main fault with interpretive anthropology, they claim, is the committing of too many excesses in the way of subjective interpretation. Ironically, Geertz has also been attacked for not committing *enough* excesses by the ethnomethodologists (Watson, 1991:73). They postulate that interpretive scholars do not take into account the contextual component and the diachronic nature of meaning (Moerman, 1988:90). According to Graham Watson (1991:75), ethnomethodology "asks not why but how", and is interested in how social realities are constructed. He states:

[W]hile ethnomethodologists take as their principal puzzle the comprehensibility of society, rather than the fact that people act in stable and regular ways, they have no difficulty in accounting for either structures or constraints. They insist that structures and constraints exist only in the practices of participants. To them structure is not an agent; it is not external to social encounters and it does not constrain them; rather it is located *in* them (75).

It is argued by Harris (1979:192) that the above paradigms, which look to the social structure for an explanation, are tautological, whereby religious phenomena are expressed

in such a form because the social structure molds them that way. The social structure is perceived as a given, and the focus of its origin is rarely given attention by these authors. When it is addressed, a psychological force, usually the unconscious, is inferred (e.g. Turner, 1967:33; Douglas, 1982:166).

In the interpretive and ethnomethodological camps the need to explicate the nature of society is overtly dismissed (Sharrock and Anderson, 1986:101), while other commentators, such as Ruth Benedict, (cited in Harris, 1974:4) merely accept cultural differences as divinely determined. It is my view of that, although the aforementioned theoretical perspectives have merit and utility in understanding the complexities of the social world, it is the role of the social scientist to look for the most logical solutions to the social enigmas which he/she perceives. If we are to understand the very nature of social phenomena we must look outside of the entity which we are trying to explain. George Homans (1964), in arguing for the role of science in the social, puts it this way, "If sociology is a science, it must take seriously one of the jobs of any science, which is that of providing explanations for the empirical relations it discovers" (818).

This study takes the epistemological position in favor of the post-positivist method which looks for "approximate truth" (Miller, 1987:177) as opposed to absolute veracity. The author also concurs in Adam Kuper's (1994) assertion that the object of anthropology "must be to confront models in the social sciences with the experiences and models of our subjects. . . [and] need not be restricted to the interpretation of symbol systems, while we wait for Parsons to come back and put it all together again" (551). In other words, and in the context of this paper's theme, if sacred objects are chosen for a purpose, it is the task of the anthropologist to understand the reasons for these choices.

Of course, there is the possibility that sacred entities are arbitrary manifestations, initiated by a chance pairing similar to the conditioned response seen in experimental psychology. But even this 'social conditioning' would have some kind of preceding and

traceable stimulus - one which would presumably have to be experienced on a large enough scale or by a powerful enough individual to maintain its social momentum. Moreover, to assume that social patterns are mere random occurrences, in effect, negates the need for explicating social behavior, and nullifies the positivist method engendered in social science. In the author's opinion, it seems more constructive to look for consistent or exceptionally powerful agents when searching for explication of social patterns such as religious symbols.

The above position does not in itself promote a strict functionalist position. Nor does it imply that in looking for explication, one is also looking for universal truths. Active social agents and functions are not always discernible. Furthermore, the function and significance of social entities often change as the context in which they are perceived is altered. What is an important object for the survival of one society may be in fact be of no use to another. More importantly, a social phenomenon may have a multiplicity of functions within a social group; thus, to search for only one is to limit the totality of a study. This thesis, in espousing the usefulness of a multiplicity of theories, does not argue for a single social truth or theoretical approach, but rather an explanation which utilizes several of the aforementioned theories, in an attempt to find a reasonable explanation for the subject in question.

It also focuses on a specific phenomenon within limited cultural and temporal parameters, taking into consideration the contextual nature of social activity. This is not to deny the possible existence of a prime mover. Rather, it is an acknowledgment that motivating and causal agents must be examined in context, as they themselves vary with time and other factors. If in some cases there is a particular function for a given object, its origin may be discernible if enough evidence is available.

An example of the insight functionalist inquiry can offer may be made of an everyday behavior in contemporary industrialized society. In agreement with Lévi-Strauss'

(1963b:) assertion that "an individual is rarely capable of assigning a cause to [his/her] conformity" (70), I would predict that if an anthropologist were to ask Canadian subjects the reason for engaging in a handshake he/she would probably receive an answer to the effect of, "it is custom . . . it represents trust and friendship". Without access to historical record, how many informants would know of its medieval origins in which the handshake served to occupy one's swordhand while assessing a stranger's intentions (Hall and Spencer Hall, 1983:251)? The trust element has remained (although its significance and context have changed), but the practical reasons have not. Even behavior stemming from current forces sometimes may not be discernible to those involved, as it is often difficult to see the entire picture while inside of it. In the words of Marvin Harris (1974): "Everyday consciousness . . . cannot explain itself. It owes its very existence to a developed capacity to deny the facts that explain its existence" (6).

In the obverse, a purely functional approach can lend itself to gross misinterpretation and an incomplete analysis of social realities which occur within a given society. While some sacred objects may indeed have an utilitarian underpinning, some do not. As Geertz (1968:403) points out, certain Australian tribes worship vomit. One would be hard pressed to find the survival value of this substance. Returning to the handshake example, one could not assume that its function is constant between groups or that it serves only one function.

Considering the shortcomings of any one theoretical approach, it is suggested in this thesis that several methods and perspectives can, in conjunction, prove to be useful, contingent upon the nature and goal of one's inquiry. This premise will be gradually elucidated as individual theories are discussed in greater depth and successively applied to the question at hand - which is to ascertain the nature of, and reasons for, the ceiba tree's special status in the Maya world, and to examine how this relationship has changed over the course of 3000 years.

In searching for the reasons behind the ceiba tree's elevated sanctity, it is essential to look back to early Mesoamerican cosmological worldviews. This is somewhat problematic, as much of the culture has been lost to a combination of time, the elements, and outside intervention. Furthermore, the evidence that does exist from the formative era and which is to be presented here is largely circumstantial. Hence, necessity dictates that some clues be extracted from other areas of the world, and that evidence which is obtained from the Maya region at times be applied anachronically. In both cases, this is done with as much caution as the task at hand will allow without compromising the argument which it is intended to support. Before I move on to this discussion, some mention should be made of the methodology employed.

Methodology

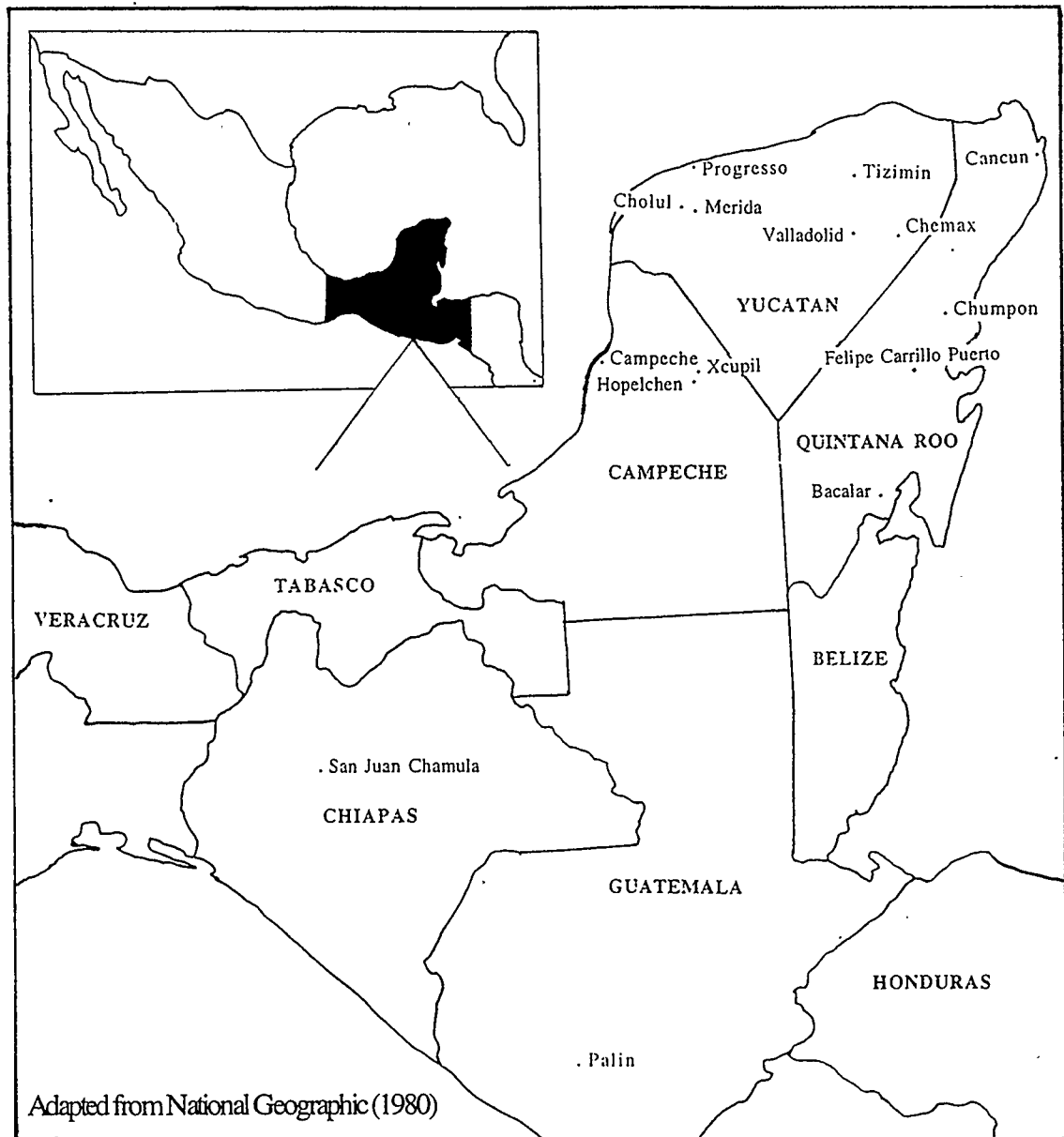
The original intention upon entering the field was to establish some sort of connection between ecological processes and the beliefs surrounding the sacred ceiba. Admittedly, I was at first hopeful that my original hypothesis of an environmentally determined sanctity would prove to be true and that some sort of previously undiscovered tacit property of this species would be illuminated, exposing the sought after relationship. As most anthropologists find, however, theory and practice rarely meet in the field, and this case was certainly no different. Rather than a consolidated mass of data converging into the assumed theoretical paradigm, what was found was a heterogeneity that was at first overwhelming. In accordance with this diversity, the original hypothesis was abandoned and the focus shifted to process - the process of social change. This is not to say that the etic description was no longer given credence or that no interesting correlations could be discerned; for indeed the etic view was often used to compliment data from interviews and when comparing different geographical areas.

In summary, a perspective combining both the etic and emic was taken. An integration of both concepts was practiced in most aspects of the investigation, and when conflicting information arose, new inquiries were initiated to determine the source of, and reasons for, the disparity observed. In a sense, the etic and emic were bounced off each other in a feedback system, continually refining and revising information until a solution was found. It should be noted that this cognitive intermeshing was not only practiced by the researcher. Many Yucatecans also must deal with the conflicting worldviews presented to them daily by traditional and non-traditional sectors. What is more, is that this syncretism can be intentionally skewed to one system or another to suit a given situation and provide an advantage for an actor.*

As was already mentioned, in the initial stage of the fieldwork an ecological perspective was taken. One reason for this was to get an overall idea of the ecological habitat occupied by the tree in question; for if indeed a botanical factor were in some way involved in the evolution of the ceiba's cosmological status, the different ecological niches - which include climate and land classification - needed to be assayed, at least at a cursory level, and related to differences in usage and symbolic meaning. For this reason, the first six weeks were occupied gathering information, in the form of observation and interviews, from the states of Chiapas, Quintana Roo, Yucatan and Campeche (Figure 1). Surveys were done of home gardens in three towns (Cholul, Chemax and Bacalar) and of *zocalos* (town centers) in 25 settlements.

Satisfied that no one coherent perception of the ceiba existed, the search for process and operating mechanisms was initiated, and I settled in to the town of Hopelchen, Campeche, a community of 6000 inhabitants of mixed ethnic background. This town was chosen for several reasons. First, Hopelchen is a town undergoing modernization, situated within an active agricultural area consisting of both modern mechanized farms and

* For a theoretical discussion of the dynamic nature of ethnicity, see Edmund Leach (1977:Ch. 1) and Fredrik Barth (1970).

Figure 1: The Yucatan Peninsula

traditional slash and burn cornfields. Thus, it provided a diverse sample of informants, varying in socio-economic status and degree of acceptance of industrialization and corresponding belief system. A second consideration was that both urban and rural communities are easily accessible by road from Hopelchen.

The majority of data procured was in the form of semi-structured interviews with a diverse sample of the population, and although no formal demographic analysis was conducted, every effort was made on the part of the researcher to question subjects from a variety of occupations and age groups. Although a conscious effort was made to have an equal representation of males and females, it was difficult to interview women, especially in the smaller centers. It seemed that men were out in public more often and hence more accessible for interviewing than women. Women also tended to be less talkative than their male counterparts, at least when in the presence of the researcher. An attempt was made to compensate for this demographic bias, but the final sample is still dominated by the male contingent and must be taken into consideration when analyzing the results.

The interviews were at first directed at extracting specific information pertinent to the mundane uses for, and general perceptions of, the ceiba tree, and were often conducted in the presence of a specimen as to avoid confusion of identification, and to allow for a visual cue for the interviewee. Once enough specific data had been obtained, more general views regarding cosmology and ecology were sought at a deeper level. These latter interviews, although directed to a certain degree by the researcher, were of necessity less structured than the previous, and often took the form of casual conversation. In several instances in which the interviewee did not speak Spanish, a Maya interpreter was employed, which added an air of formality. Verbatim transcripts of interviews were not made due to logistical constraints and the nature of the investigation. One exception is an interview with an organizer of a village fiesta who told of the significance of the ceiba tree to the fiesta being observed. A transcript of this is included in Appendix II.

Finally, a questionnaire was administered to 79 respondents in the *ejido* (an agricultural community linked by communal land tenure) of Xcupil, a community of 800 people, five kilometers from Hopelchen. It was written in both Spanish and Maya and given by a bilingual speaker. A double-blind design was used in the sense that the assistant was given no information regarding what information was being sought: he was only instructed to distribute the questionnaire to as many age-groups as possible within the community and to keep a 50/50 ratio of women to men across all age groups. The content of the survey was kept to a minimal three questions for the sake of simplicity and to avoid boredom on the part of those surveyed. The questions themselves were purposely made very general as they were to assess differences in attitudes between sexes and age-groups towards the utility of trees. It was reasoned by the researcher that if there were any ambiguities or inaccuracies inherent within the questionnaire they would affect the respondents equally, and, therefore, would not compromise the intended objective.

Since the present investigation is partly concerned with the origin of a given social reality, an historical analysis composed an important aspect of the research process. This entailed literature sourcing and document-analysis as well as actual visits to several Maya archaeological sites. The historical aspect of this study is contained in the next chapter.

CHAPTER TWO: THE SACRED CENTER

Universal Patterns

If the notion of the sacred tree is ancient, the concept which it represents and embodies is even older - that of the sacred center, where life is born and the supernatural world becomes one with the mundane. Religion historian Mircea Eliade suggests that there are many similarities, almost universal in nature, which are shared by a majority of the world's great religions, as well as smaller, which he calls "archaic", belief systems. For the archaic societies, and later, civilizations, argues Eliade (1991:37), the world is seen as a microcosm, outside of which is the unknown realm of the spirits and the dead. Within this microcosm is a central reference point, an area which is held distinct from the profane. It is sacred, mythic geography says Eliade (1991:39), the effectual "real" space which encompasses all that is important. All religious, and hence significant, life operates within its domain.

It must be remembered, however, that this 'center' is a symbolic one, and unlike in a true circle or sphere, there often exist several centers in a given space. In the words of Eliade (1991:39):

All the Oriental civilisations - Mesopotamia, India, China, etc. - recognised an unlimited number of "Centers". Moreover, each one of these "Centers" was considered and even literally called the "Center of the World". The place in question being a "sacred space", consecrated by a hierophany, or ritually constructed, and not a profane, homogeneous, geometrical space, the plurality of "Centers of the Earth" within a single inhabited region presented no difficulty.

The 'center' is essentially a metaphor for the sacred, and is associated with the supramundane. The distinction between the metaphorical and the geometrical conceptions

of the center is an important one, for it theoretically allows for more than one center, and hence sacred spots, to simultaneously coexist.

Another cosmological aspect which consistently appears throughout many cultures, and which is related to the above, is a three layered cosmos, one which incorporates the heavens, the mundane, and the underworld. This is exemplified in such small-scale societies as the Semang pygmies of Malaysia and other larger cultures such as those of Babylonia, Rome, and China, to name a few (Eliade, 1991:41). A common characteristic of this type of cosmic construction is the notion of a connecting device of sorts whose purpose is to provide a link between the separate worlds. This device can take the form of a rock or mountain, as is the case with the Semang pygmies who visualize an enormous rock as the gateway to the underworld and the heavens (40), or of a man-made nature such as in the Roman culture where the Italic temple was the intersecting axis connecting the divine, the earthly and the infernal worlds (Eliade, 1954:13).

In the Maya world the natural and artificial were fused into one concept in which the sacred center existed, among other places, in the majestic temples, which in turn were symbolic representations of mountains (Lowe et. al., 1982:271; Schele and Freidel, 1990:71). The central point, thus, is a significant reference point, both geographically and symbolically, for it not only gives an actual area at which to perform certain rituals, it is also an integral part of mythology and the conceptualization of humankind within the universe.

The creation myth is a commonly seen example of this relationship. Eliade gives us as examples the Mesopotamian tradition, which sees man as fashioned at the navel of the earth (1991:43), and the Judaic Midrash, specifying Adam was created upon Golgotha, the center of the world (1958:378). Of the several symbols representing the center, and corresponding transcendental properties, Eliade maintains that the tree is the most widely distributed of these, exhibited in Vedic India, ancient China, Germanic mythology and

"primitive" religions (1991:44). Although the versions may vary, it is typically perceived as stretching from the underworld to the sky, its branches spreading throughout the heavens and its roots reaching into the depths of the underworld. Because of its position as *axis mundi*, the tree (and other similar representations such as stakes or carved poles) serves the purpose of a cosmic transmitter, able to transcend the boundaries between the secular and the holy, thus allowing entry into normally inaccessible realms.

The theme of ascension is observed in connection with the sacred center and cosmic tree, and is evident in a diverse array of cultures. In Genesis (28:12-13) we read of Jacob's dream: "and behold a ladder set up on the earth, and the top of it reached to the heaven: and behold the angels of God ascending and descending on it. And behold, the Lord stood above it . . .". Ethnologists Spencer and Gillen (1927) report a like theme among the Arunta of Central Australia. A sacred pole, fashioned out of a gumtree by the creator god Numbakula, stood in the center of their world and was the means by which Numbakula climbed up into the sky-world. The Navajo conceive of the axis mundi as being a reed, through which their mythical ancestors ascended through the four underworlds to the terrestrial. It also grows upward in the form of a corn plant serving as a "path of blessing" or "sacred pollen path" (Cook, 1974:17).

The cosmic or sacred tree is also considered as analogous to the preservation or sustaining of life. Consider the words of Black Elk, a Sioux holy man:

Then I was standing on the highest mountain of them all, and round about beneath me was the whole hoop of the world. And while I stood there I saw more than I can tell and I understood more than I saw; for I was seeing in a sacred manner the shapes of all things in the spirit, and the shape of all shapes as they must live together like one being. And I saw the sacred hoop of my people was one of the many hoops that made one circle, wide as daylight and as starlight, and in the center grew one mighty flowering tree to shelter all the children of one mother and one father. And I saw that it was holy (Neihardt, 1979:43).

The tree of life is also seen in biblical scriptures (Genesis, 2-3) as well as in the Scandinavian Eddas (Cook, 1974:11). The sacred tree, axis mundi and symbol of life, is pervasive throughout history and geography. It has represented, and continues to represent, a means of communication with the heavens and creation of life in many societies.

The world axis does not always take the form of the tree. Often man-made structures serve to reach the heavens and promote dialogue with the deities who dwell there. Eliade (1991:52) gives us the example of the Indian *mandala* (a circular diagram drawn on the ground with colored rice powder or thread) to demonstrate this symbolism, and further suggests that Indian temples and houses are constructed as a representation of the same. Both, he says, enable believers to find their individual centers, which in essence is a manifestation of the power embodied in the cosmic center (Eliade, 1991:53). If one looks west to the Americas a similar pattern can be observed in North American Indian medicine wheels, and in numerous Mesoamerican traditions and architectural designs.

Though the themes of world axis and provider of life are related in a number of respects, they can not be considered to be the same or to be derived from identical processes. It is therefore important to clarify this demarcation now, as it will be argued in a subsequent chapter that the reasons for the symbolic integration of particular objects (including different species) vary according to a number of factors, contingent upon the function being served.

I would argue that although in some cases the two elements mentioned are enveloped in one thematic conception, they do not always necessarily appear together, and in many instances one is represented in absence of the other. Furthermore, their structure and function are often disparate. The axis mundi is a tangible vertical structure which has a real function and is utilized as such in ritual activity. It serves as a cosmic transmitter and relays messages to higher beings. In short, it has a physical presence, is vertical in nature,

and can take the form of man-made pillars or temples. Its function is derived from a physical characteristic, the ability to reach high into the heavens and down to the depths beneath the earth. Conversely, the tree as a symbol of life reflects a different theme - one of process. It incorporates such themes as growth, sustenance and nourishment and is derived from these very attributes observed in the life cycle of trees and vegetation in general. It is, I would suggest, a metaphorical connection between nature and man, and is of a different nature than that of axis mundi.

Despite the above demarcation, the two interpretations are often connected. The center, represented by the world axis, is frequently seen as being the source of life. Undoubtedly, they are both associated with the godhead, but the axis mundi is a means to reach this source as opposed to actually being the life force. Thus, a stone temple could be perceived as an axis mundi whose function it is to bring the priests closer to supramundane powers, but it would be inaccurate to say that it also represents life itself. In the obverse, it can be argued that although a particular plant, such as *maize* (corn) or sweet grass is a symbol of life, it does not also serve the same function as a cosmic axis would. The two components, though related, are distinct in terms of form, function and thematic representation.

The Mesoamerican Center

The ubiquitous nature of the sacred center and cosmic tree has been delineated. Both appear to reach into almost every corner of the world, and Mesoamerica is no exception to this pattern. This is clearly illustrated throughout Mary Miller's, *The Art of Mesoamerica from Olmec to Aztec* (1986), in which example after example of tree symbolism and concentric themes are shown. The Aztec sun stone, for example - a circular tablet 2 meters in diameter - has as its central point the sun god emerging from the

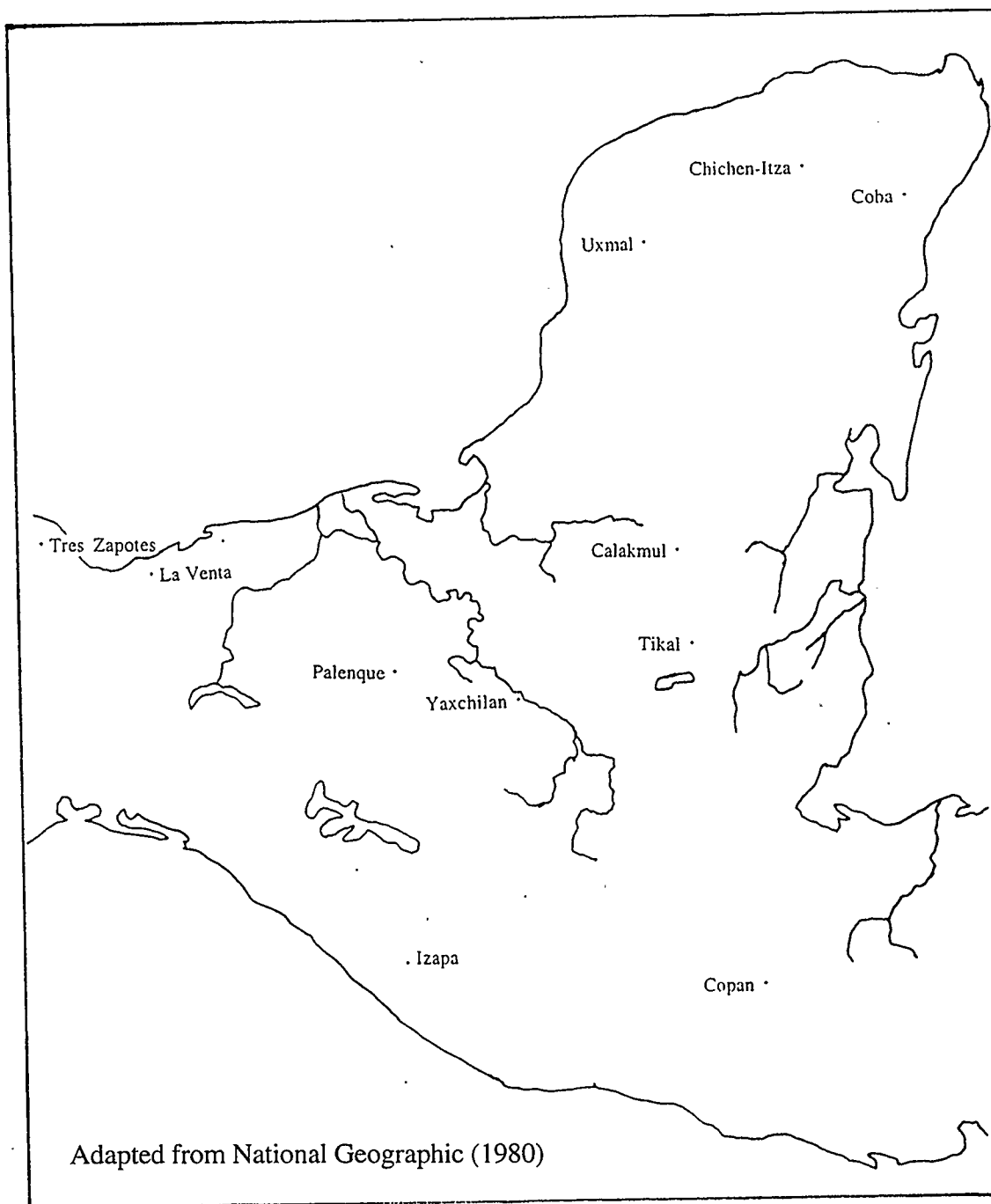
underworld (Weaver, 1981:440). Moreover, all of the prehispanic Mesoamerican religious centers were constructed in a such a way that the ceremonial center, usually in the form of a temple and where the majority of important rituals were conducted, stood in the center of the plaza.

The concept of sacred trees was certainly no stranger to Mesoamerica either. The Aztec *ahuehuete* tree (Durazo and Farvolden, 1989), and the numerous tree-birth myths are just a few of the many examples. One such tree-birth tradition is evident in Mixtec mythology, and is chronicled by Jill Furst (1977), in which she provides several visual, ethnographic, and textual examples of this tradition throughout Mesoamerica. Although the mythical accounts vary slightly in detail, they represent a single theme centered on the sanctity and life-giving properties of the cosmic tree.

Space constraints prohibit an elaboration of the numerous Mesoamerican cosmologies, but before an analysis of the Maya world is to begin, it is necessary to search for the first traces of tree symbolism in Mesoamerica - at least as far as archaeological investigation will allow. Thus, it is to the Olmec that I turn next, for it is from the Olmec that Maya and other Mesoamerican cosmologies are believed to have descended (Lowe et. al., 1982:1).

The early Olmec sites at La Venta and Tres Zapotes (see Figure 2), dating from 1500 B.C., although home to the impressive and enigmatic 'jaguar-type heads', offer little to date in the way of inscriptions and relief carvings. It is not until the later site of Izapa, dating from 500-300 B.C. (Lowe et. al., 1982:1), that one can see Olmec art begin to flourish. Here, at least six representations of sacred trees can be found carved in stone, depicted in some sort of ritual act (Norman, 1973; Lowe et. al., 1982). Stela 5 shows the *ramón* (breadnut tree) as the tree of life, symbolizing a cosmological road (Norman, 1973:plate 9), as well as the first day in the Mesoamerican calendar and almanac (Lowe et. al., 1982:305). A winged deity is seen in stela 2 descending on a calabash tree as two

Figure 2: The Maya Area



human figures at the top of the tree look on (Norman, 1973:plate 3). One of the most interesting carvings is stela 25 in which an alligator-styled tree and a pair of twins are shown together (Figure 3:A).

The association of the earth with a crocodile is prevalent throughout Mesoamerica and finds its way into cosmological schemes in which the earth is represented by a serpent or monster type head, on which often sits a sacred object of some sort, in many cases a tree. According to Lowe et. al. (1982:275), it is the tree at Izapa which connects the sky and sun with the earth or underworld. As one progresses chronologically into the Classic Maya era the same theme and symbolism are still extant. Well preserved examples are the panels in the Cross Group and the sarcophagus cover at Palenque, a lowland Maya site which prospered from 300 - 700 A.D.

In the above examples, a stylized tree and theme of ascension are present. On the sarcophagus cover at Palenque the tree rises from the depths of the underworld through the Sun Monster and into the heavens, where a celestial bird awaits, perched on the top branch (Robertson, 1991:25). On the Panel of the Foliated Cross there seems to be agreement that the 'cross' represents a maize plant (Thompson, 1970:208; Robertson, 1991:26; Mathews, personal communication); however, the 'cross' depicted in the Panel of the Cross (Figure 3:B) is less defined and hence the identity of tree is open to debate. Although it is inferred by some epigraphers (e.g. Thompson, 1970; Freidel et. al., 1993) that this is the ceiba, it must be remembered that the evidence for this claim is circumstantial.

All three representations at Palenque are examples of the aforementioned theme of sacred transcendence from one world to another. Robertson (1991) explains the function of the deity on which these crosses stand: "The quadripartite God is of all three Maya worlds: He is of the Underworld and of the Middle World and is the vehicle for connections to the Upper World, or the heavens." (26) As in the other examples given earlier, the tree at Palenque is a cosmic ladder, utilized in inscriptions to denote a tripartite

link between the three worlds. It is no coincidence then that the function of the monuments in which these tablets are found is related to cosmic transcendence in one form or another. The sarcophagus cover presumably was intended to help carry Pakal, the 7th century king entombed underneath, to the Upper World. In the Panels of the Cross and Foliated Cross, the inscriptions tell us of the ascension of Chan Baklum to the throne (Coe, 1993:112). In the Maya world the political was never separate from the religious, and royalty had to legitimize its status with ritual and the subsequent approval of the gods. The tablets, thus, are a sanctification of an otherwise secular process, placing the king at the center, in the realm of the holy.

The positioning of the tablets further supports this interpretation. Both are inside enclosed rooms at the top of a temple. According to Peter Mathews (personal communication), these rooms were likely constructed to emulate the form of natural caves, a geographic formation associated with the underworld and held sacred by the lowland Maya. On one spot there are, *de facto*, three worlds present in one sacred center, and it was these centers (for there are several temples in most ceremonial centers) that contained the power and were the primary location for religious ritual. The reasons for these rituals were often, if not always, political, raising the question, by whom were these belief systems created, and for what purpose? How far removed was the peasantry from the religious/political process in terms of influence and actual adherence? These questions will be looked at more closely in chapter six.

Maya Cosmology

The world was seen by the classic Maya as a flat sphere with skies above and an underworld beneath. At the four cardinal directions, on the horizons, were four iguanas, each holding up his own quadrant of the world. These directions were also associated with

world trees and colors (red-east; white-north; black-west; yellow-south), and which circumscribed the center (the fifth direction), which was green and penetrated by a vertical tree. This tree was known as the *yaxche*, (the Maya name for the ceiba) the "first" or "green" tree (Thompson, 1970:195-96). The skies were considered sacred places and divided into 13 vertical layers (sometimes seven layers if they are viewed as occurring in pairs with the seventh layer being the topmost), each layer housing one or more deities; while the underworld consisted of nine layers (or five), also providing residence for spirits of an evil nature. Some evidence suggests that the creator god lived in the uppermost layer and the death god in the bottommost, and, although not conclusive, it is likely that the entire world was envisioned to reside on the back of a crocodile floating on water - much like in the cosmology of the peoples of the Mexican plateau (Thompson, 1970: 196).

The importance of the sacred center is dominant throughout many levels of Maya experience. The centering principle is evident in many of the daily routines and rituals performed by the peasant as well as in the esoteric world of scribes and priests. The practice of constructing a ritual center among contemporary Maya can be observed in the private home (Vogt, 1976:58), in maize fields (Hanks, 1990:363) and in rain ceremonies (Freidel et. al., 1993:31).

Historical works, such as Bernal-Díaz' (1963:71) account of the Cortés expeditions in the early 16th century, or Nuñez de la Vega's travels of 1706 (cited by Barrera-Vásquez and Rendón, 1948:181), note the occurrence of a ceiba tree in village centers. The significance of this practice becomes clear if the classic Maya cosmological ideas are considered. In the *Dresden Codex*, an agricultural almanac of an uncertain date (roughly between 1300 A.D. - 1600 A.D.), there are several references to the four *chacs* (rain deities) and world directions, partitioned around a central green direction (Thompson, 1970:196). The *Chilam Balams*, a collection of manuscripts thought to be transcribed from a sixteenth century prophet's writings, also mention the world directions and the center

inhabited by a ceiba tree (Roys, 1967:100). A more lucid description of this cosmogram can be found in Alfred Tozzer's 1907 ethnography, *A Comparative Study of the Maya and the Lacandon*, in which the Maya cosmos is described as follows:

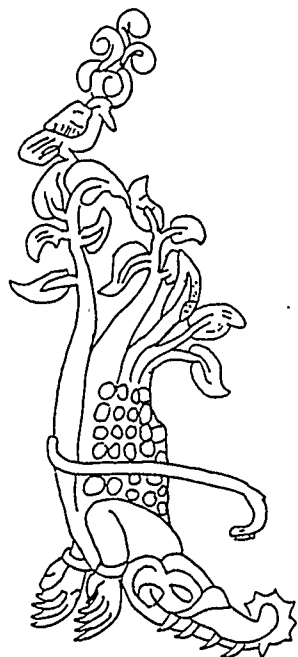
According to the natives of the Yucatan, there are seven heavens above the earth, each of which has a hole in the center, one directly above the other. According to one idea, a giant ceiba [yaxche], growing in the exact center of the earth, rears its branches through the successive holes in the heavens until it reaches the seventh, where "El Gran Dios" of the Spaniards lives. It is by means of this tree that the dead spirits ascend from one world to the other until they reach the topmost one, where they finally remain (Tozzer, 1907:154).

The Ceiba in Perspective

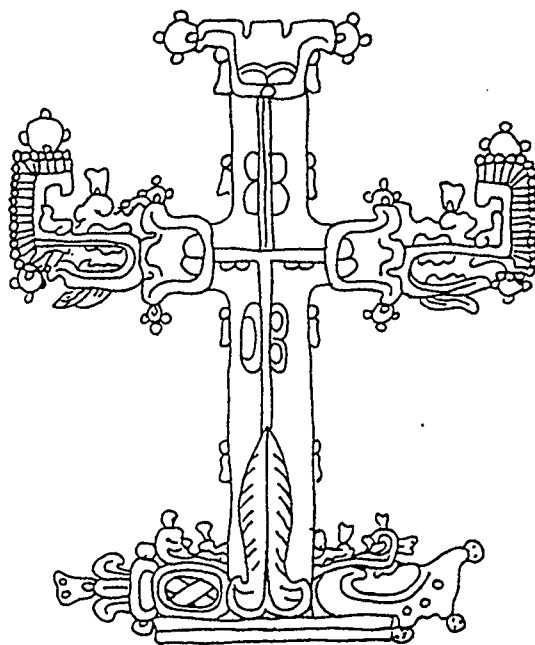
Although many contemporary authors assume the Maya cosmic tree is the Ceiba pentandra, the evidence for such a claim, strong as it may be, is circumstantial, and other species, such as the cedar (Roys, 1931:280), the breadnut, and copal trees, sometimes enter into the picture. One of the problems in identifying tree species in the iconographic record is that often the representations are highly stylized and a written record is absent. Thus, iconographers do not always agree in their interpretations. As a result, many of the early representations of sacred trees, such as at the Preclassic site of Izapa or the Classic Palenque, are still open for debate as to their significance and symbolic meaning. Given this limitation, the record must be waded through with caution.

The earliest possible carving of the ceiba tree in a sacred context is arguably stela 25 at Izapa (Figure 3:A), dated between 300 and 50 B.C. (Lowe et. al., 1982:23), in which a crocodile is seen with its head to the ground and tail sprouting leaves and with a celestial bird on top. According to Mary Miller and Karl Taube (1993:49) this is "probably" the ceiba because it "has a green spiny trunk reminiscent of the caiman". Conversely, Lowe

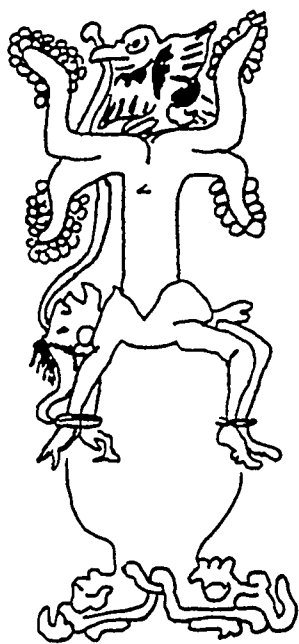
Figure 3: Images of the Ceiba



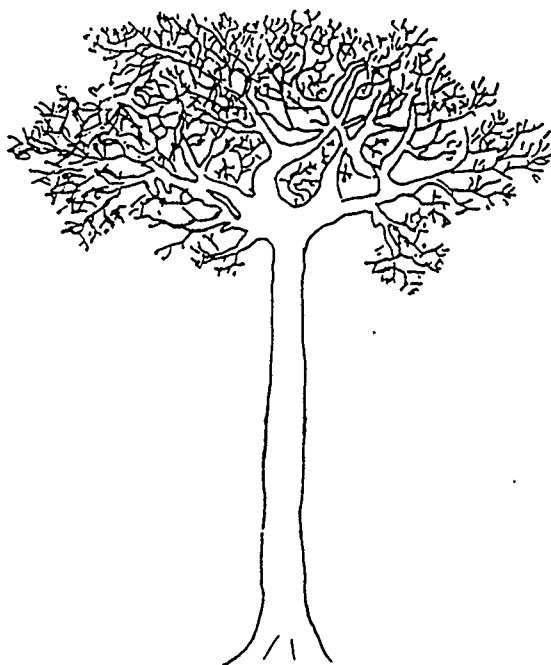
A: Stela 25 - Izapa
(adapted from Norman, 1973)



B: Panel of the Cross - Palenque
(adapted from Robertson, 1991)



C: Page 3 - Dresden Codex
(adapted from Thompson, 1972)



D: Ceiba Pentandra - Tall Phenotype
(adapted from Kricher, 1989)

et. al. (1982:297) claim that the leaves as carved do not resemble those of a ceiba but rather those of a tropical fig. Such is the impasse of interpretation. The same dilemma is encountered at Palenque with respect to the identity of the 'tree' represented in Panel of the Cross.

To further complicate matters, more recent interpretations of these panels (Coe, 1993:190) suggest a cosmic association with certain planetary and other celestial bodies. These interpretations do not concern the present inquiry; for if indeed these are celestial representations they are still in the form of vegetation, thus suggesting an epiphenomenal position of the stars relative to the ground. Furthermore, in the cyclical Maya world in which sacred entities assume various forms, the exact nature of the central axis is ever changing and not a fixed concept.

The ceiba does not become a distinct and clearly defined axis mundi until the *Dresden Codex*. Here it is named as the *yaxche* (Ceiba pentandra) (Thompson, 1972:84), and is depicted with a celestial bird perched on top (Figure 3:C). In the *Chilam Balam of Chumayel* (Roys, 1967:64) the four "ceiba trees of abundance" are described in accordance with their respective colors and cardinal directions. The "yax cheel cab", or "first tree of the world", was also represented in the form of a stone column, and worshipped by the Itza Maya elite in the late 17th century. This 'tree' was said to be the tree whose fruit their "first father" ate (Avendano, 1987:32). In later ethnographies (Redfield and Villa-Rojas, 1964:205; Vogt, 1976:58), this link with cardinal directions is evident, but the ceiba is not unequivocally placed in the center of the cosmogram until Tozzer's (1907) seminal work, and is envisaged as a means of transcending world boundaries. The ceiba is additionally configured in the Maya heaven. According to Diego de Landa (1990:79), a sixteenth century Spanish priest infamous for his persecution of the Native Yucatecans, and modern folk tales (Abreu-Gómez, 1993:47), there exists in paradise a ceiba tree under whose shade men rest from their toils and tribulations.

Associated with these cosmological themes is the ceiba's prominence in traditional fiestas of certain small towns. In one ceremony, described in detail by Robert Redfield in 1936, it is 'planted', decorated and then 'cleansed' with sacred alcohol in the center of the bullring, and remains so until the festival is over (Redfield, 1936). This ceremony is still carried out today in some parts of the Yucatan, and is described in more detail in chapter six.

Some researchers have also written of a proscription forbidding the cutting of this large tree (the believed consequence being a loss of the groundwater thought to be at its feet) (Alcorn, 1984:588; Standley and Steyermark, 1949:392), and against sleeping under its branches (Alcorn, 1984:587). Other supramundane aspects of this species include reports of burning sacred incense at its feet (Nuñez de la Vega, cited by Barrera-Vázquez and Rendón, 1948:181; Standley and Steyermark, 1949:392), and its housing of a female phantasm called the *Ixtabay* (Redfield, 1941:275; Kintz, 1990:125).

Since the arrival of the Spanish, the entire Maya religion has undergone numerous changes. It has syncretized with Catholicism to produce an uniquely Maya version of Christianity, evidence for which can be seen in some modern accounts of cosmological conceptions in which the ceiba has been replaced at the symbolic level with the Christian cross (Villa-Rojas, 1945:97; Freidel et. al., 1993:39). It is likely then that other religious notions have survived from antiquity as well, and some of these will be examined in chapter seven which deals with social change. It is necessary to first discuss the mundane world inhabited and created by the Maya.

CHAPTER THREE: THE SECULAR

Physical Geography of the Yucatan Peninsula

The Yucatan Peninsula can essentially be divided into two relatively distinct geographic regions - the north and the south. The peninsula is composed of a karst limestone shelf which gently rises in elevation, from a few meters above sea level in the north to 130 meters in the south (Folan et. al., 1983:22). The northern part (arbitrarily defined as the southern part of Campeche northward) has almost no surface water and receives less rainfall (Aw on the Köppen scale*) than the southern region (classified as Am), which has surface drainage and numerous large lakes (1983:32). In the eastern portion of the peninsula one finds low limestone ridges and wetland areas. The northern coast, also characterized by wetlands (tidal), has extensive lagoons and barrier beaches.

The drier climate, porous bedrock, and flat relief of the north has produced the mollisols typical of the area. The northwestern part is covered mostly by the *Terra Rossa* variety, while Rendzina soils cover the flat limestone platform (Isphording, 1975). In the southern regions, characterized by tropical rainforest and limestone ridges, soil types are generally calcimorphic and hydromorphic interspersed with lithosols. In riverine environments, such as along the Usumacinta River, fertile alluvial soils are more common (Folan et. al., 1983:27-31).

Though there are some general climatic patterns, there is also a large degree of variability within the peninsula. Rainfall not only varies geographically within the pattern mentioned, but also from year to year. Lundell (1934:261-262), for example, recorded as much as a fourfold annual variation of total rainfall for a given region. Water table levels

* The mean annual rainfall increases from 500 millimeters, in the northwestern tip, to over 2000 mm in the southern part of the peninsula. For a more detailed description of the Köppen scale, refer to John Griffiths (1976:36).

have also been reported to fluctuate both seasonally and annually (Matheny, 1976:188-191). The implications of this variability for settlement and survival of the ancient Maya are significant, since appropriate technology and cultural adaptations had to be adopted to adjust to the erratic hydrographic patterns.

In the north, *cenotes*, or sinkholes, were the main source of water for the Maya. These breaks in the limestone shelf, often in the form of a deep pool, have provided the people of the Yucatan with potable water for centuries, and it is not until recent times, through government projects aimed at bringing water into villages, that these waterholes are being replaced by drilled wells. In other regions, clay-lined depressions (some natural and some man-made) called *aguadas* and forged subterranean tanks (*chultunes*) served as primary water collection and storage facilities.

The above geographic generalizations should be qualified somewhat, as the peninsula, though appearing relatively flat and homogenous, is composed of a myriad of geographic microcosms, each with distinct climatic and geological characteristics. The landscape, and associated soil quality, can vary between regions only a few meters apart. An example of this micro-diversity is reflected in some of the techniques used in traditional Maya agriculture. Even the smallest of geomorphological detail, such as the position of short (4 cm) rock ledges, is considered by *campesinos* (peasants) when sowing their cornfield. Given this geographic heterogeneity, it is necessary to consider local conditions when discussing ethnobotanical, and other similarly affected, issues.

Maya Agriculture

Archaeological evidence indicates that agricultural activity, primarily maize production, in the Maya area first occurred in the period between 2000 B.C. and 1500 B.C. (Weaver, 1981:39). Some authors believe that these ancient Maya practiced swidden

agriculture exclusively, and throughout the first half of this century the swidden thesis was the one generally accepted (Turner, 1978:13). This theory holds that Maya civilization was primarily sustained by slash and burn agriculture, and has been the cornerstone of several arguments with respect to the Maya of antiquity, their growth and demise (Meggers, 1954; Morley, 1956:71; Dumond, 1961; Rathje, 1973). Evidence presented for this position is composed of Maya frescos and codices, but according to Turner (1978:13), the swidden hypothesis is only an interpretation of this information. His contention, shared by other Mayanists (see Gómez-Pompa, 1987), is that this is much too simplistic a conclusion and that several other variables must be taken into account. Turner (1978) gives evidence for a varied model of agriculture - that includes terracing, raised-fields, home gardens and silviculture - in which cultivation techniques differed spatially and temporally throughout the prehispanic lowlands (14). The system of silviculture utilized by the Maya was sophisticated, and incorporated numerous techniques of tree management, including the introduction of new species, selective planting and felling, and conservation (Gómez-Pompa, 1987:6).

Irrespective of the varied model argument, it is certain that the ancient Maya practiced swidden agriculture to a certain degree. Moreover, their knowledge of, and connection with, the natural environment was undoubtedly comprehensive and finely tuned, being developed over several millennia worth of experimentation. The concept of rotation farming was thus well embedded in the social structure long before the period of conquest.

To understand swidden agriculture as practiced by the Maya, it is necessary to discuss the Mesoamerican concept of the *milpa*, a Spanish word traditionally meaning a patch of land where maize is grown, with beans and squash customarily completing the triad of produce (Alcorn, 1984:334). The milpa system varies slightly with regional custom and climate, but some general principles can be extracted. Ordinarily, an area of

forest is felled with an ax and machete in the beginning of the dry season and the debris is left to dry until spring (usually April or May). At this point the dried vegetation is burned just before the first major rains of the season, and planting is scheduled so that germination occurs with the first heavy rainfall (Smith and Cameron, 1977). Maize is the staple crop, usually grown in conjunction with beans and squash, but this can vary according to local economic, climatic, and soil conditions, and can also include peppers, cucumbers and tomatoes. Most plots are farmed for only two years - due to weeds and the limited fertility and volatile nature of the tropical soil - and left to fallow for approximately seven years (Smith and Cameron, 1977; Bruce and Perera, 1982). Often 'new' sites are in fact old fallowed sites, as it takes less effort to clear secondary forest than primary forest (Alcorn, 1984:372). In Janis Alcorn's (1989:64) terms, the milpa strategy utilizes successional process as a resource and natural methods to protect and renew the soil. Sylvanus Morley (1956:129) delineates an eleven stage process of milpa agriculture, which divides the system into the following successive segments: 1) locating the field; 2) felling the forest and bush; 3) burning the dried bush; 4) fencing the field; 5) planting the field; 6) weeding the field; 7) bending the cornstalks; 8) harvesting the field; 9) storing the corn; 10) shelling the corn; 11) hauling the corn to the village.

The milpa system, based on the slash and burn strategy, has been a cornerstone of Maya subsistence for centuries, and, according to Morley (1956:128), has remained unchanged for three thousand years. Although recent development projects and associated cash-cropping have altered the milpa structure somewhat since Morley's research (Bruce and Perera, 1982:178), the basic principles engendered in the milpa system have survived.

In the written record, the importance of the milpa was acknowledged as early as the 16th century (Sahagún, 1956; Landa, 1990). Its continued eminence is documented further by numerous other authors (Villa-Rojas, 1945:56; Bruce and Perera, 1982; Alcorn, 1984:334), and is still the primary method of subsistence for the rural Maya of the Yucatan

peninsula (Alcorn, 1984; Villa-Rojas, 1945; Nations and Nigh, 1980; Bruce and Perera, 1982; Smith and Cameron, 1977). The nature of this relationship is summed up nicely by Robert Redfield and Alfonso Villa-Rojas (1962) in their description of the Yucatec Maya:

Maize is their food, their work and their prayer . . . To abandon one's milpa is to forsake the very roots of life; tradition and religion conspire with economic necessity to make agriculture inevitable. [Thus] . . . to live is to make milpa (32,51).

Maize, the traditional staple of the Maya (and other prehispanic societies of the Americas), was also incorporated into cosmological concepts. Its significance is illustrated in the *Popol Vuh*, a pre-contact document from the Guatemalan highlands which narrates the creation of the Maya world and its people. Here, modern humankind (and by modern I refer to the present stage of creation as believed by the authors) is born from a maize plant (Abreu-Gómez, 1992:16). According to this script, life and birth are symbolized by maize - a logical metaphor considering its import. Maize is also represented in a similar sacred fashion in the Panel of the Foliated Cross at Palenque. Standing between king Pakal and his son as the seat of power is transferred (Coe, 1993:112), a maize plant, depicted in a cross motif, serves to preside over and sanctify the transaction.

The metaphorical and material connection of maize and the life process, encased in the ecological and sublime knowledge of the Maya, extends to the Ceiba pentandra as well. Its placement within the ecological cycle, and relationship to other natural processes, may provide clues to its special station within the ethereal world. Its biology, morphology, and phytogeography, therefore - the subjects of the next section - will be delineated before a theoretical analysis is embarked upon.

Biology of the Ceiba Pentandra

The *Ceiba pentandra* (L. Gaertn.), or yaxche, is one of the largest and fastest growing neo-tropical trees (Baker, 1983:135), sometimes rising to a height of 80 meters at a rate of 4 meters per year (Chipp, 1927). It often has large buttresses at the base (Standley, 1920:791), and a green trunk until the age of about twelve years (Flores, personal communication). Also extant in its youth are conical spines (Baker, 1983:212), likely a protective mechanism evolved to prevent herbivores, such as *jabili* (wild pig) and deer, from eating its soft bark.

The ceiba is a species which demands a lot of light and is therefore often found on forest edges, as a pioneer in secondary successions, and as an emergent species in the forest canopy (Baker, 1983:212). In urban settings it is extant in a myriad of places, including roadsides, parks and cemeteries. The yaxche is deciduous, flowers irregularly (sometimes having a 5-10 year interim), and does not produce seeds at elevations over 1500 feet or in areas where night temperatures fall below 20 degrees centigrade (Baker, 1965).

Although the month is contingent upon the region, flowering and fruiting occur in early spring, after the leaves fall. In the Yucatan this occurs in the months of March and April (Sosa and Flores, 1993:65). The flowers, which are white or pink, consist of five petals (hence the name pentandra), only bud in trees older than four years, and are pollinated largely by bats at night (Baker and Harris, 1959; Carvalho, 1960). This night time pollination is due to the fact that the ceiba's flowers only open at this time.

Other animals have also been observed to visit the ceiba. Victor Toledo (1977), for example, reports that this species in Veracruz, Mexico is frequented by all types of animals including hummingbirds, passerines, bees, beetles, squirrels, and opossums. In the

Yucatan, observation revealed other animals which commonly patronize this tree to be ants, magpies, and woodpeckers, in addition to the aforementioned.

Although it is also found in Africa and Southeast Asia under cultivation, the *Ceiba pentandra* is indigenous to the New World, ranging from Southern Mexico to the Amazon Basin (Baker, 1965). Many of its features remain constant throughout this range, but, as one would expect, certain processes and morphological traits vary regionally. One of the most marked of these differences is observed in the 'natural'* distribution and frequency of this species. In a general sense, the density of distribution increases with precipitation, so as one moves south and east along the peninsula the frequency of ceiba trees also increases (Flores, personal communication), although never to the extent of living in groves.

Another variable characteristic is morphology. In the Yucatan peninsula, the northern part in particular, the ceiba tends to exhibit more breadth and less height than in areas such as Chiapas or Veracruz. Specimens of over 80 meters can be seen in these latter regions (refer to Figure 3:D), whereas in the Yucatan, ceibas of similar ages rarely reach over 25 meters. This shorter variety usually has a much wider crown relative to height, and has more branches on the lower portion of the trunk. Two factors, in addition to precipitation patterns, which may account for these differences are soil type and local floral conditions. According to a forestry engineer at the Secretariat de Agricultura y Recursos Hidrolicos (SARH), the volcanic soils found in lowland Veracruz, Chiapas, and most of Tabasco are more fertile than the limestone of the Yucatan and Campeche, and hence produce larger trees. The second factor is the amount of available direct sunlight in a given spot. In areas where growth in general is rapid, the light-hungry ceiba will grow upwards quickly in an effort to reach above its competitors to capture sunlight, and indeed has the genetic ability to do so. In naturally less fertile areas, or in cases where other species are

* Here the term 'natural' is put in quotation marks because the extent of human intervention in the distribution of plant species in this area is relatively unknown. The Yucatan has sustained large populations for over 3000 years. It is very likely, therefore, that much of the landscape today has, throughout the course of time, been altered in some way (Gómez-Pompa, 1987:12).

prevented from competing for light, it is advantageous for a large tree, such as the yaxche, to grow outward rather than up. This maximizes efficiency by increasing the amount of chlorophyll exposed to the sun's energy. A given tree therefore will grow only as high as is necessary to achieve its survival and maintenance, within the limits of its genetic make-up.

The height and general morphology of the yaxche, particularly in relation to other neighboring tree species, is a quality (one of several which I will propose) which can perhaps be implicated in its cosmological station. It is possible that the structural appearance of the ceiba offers a linkage to the supramundane, via an internal psychological component and/or the ability of humankind to discern external structure. This thesis is elaborated upon in chapter four.

CHAPTER FOUR: THE STRUCTURE OF THINGS

I believe it to be a fruitful methodology to view human behavior in context, both culturally and situationally, yet this does not exclude the possible utility of other approaches which advocate a more structural universal component to social phenomena, especially if supported by data. One such approach is that of structuralism. Here I use the term not only in the sense of French Structuralism pioneered by Claude Lévi-Strauss, but also include theoretical perspectives which promote the general idea of universality in the structure of thought. Apropos the topic at hand - sacred trees and the ceiba tree in particular - several such perspectives can offer insight into the riddles presented.

One of the earlier contemporary theorists to propose a common psychological link amongst humankind was a German ethnologist named Adolf Bastian. Bastian espoused the concept of "elementary ideas", a common psychic unity for humankind. He believed that this psychological link is common to all individuals and is the primary source of cultural expression - developing differently in individual societies under the influence of external surroundings (Baldus, 1968:23).

The influence of Bastian's "elementary ideas" on the academic community of the age can be detected in the subsequent works of Carl Jung (Baldus, 1968:24). Jung detected certain themes which kept arising in the dreams and spontaneous thought process of his patients, leading him to theorize that there is a collective yet unconscious component inherent in the psyche of humanity.

This deeper layer I call the 'collective unconscious'. I have chosen the term 'collective' because this part of the unconscious is not individual but universal; in contrast to the personal psyche, it has contents and modes of behavior that are more or less the same everywhere and in all individuals. It is, in other words, identical in all men and thus constitutes a common psychic substrate of a suprapersonal nature which is present in every one of us (Jung, 1959:3).

For Jung (1959), the collective unconscious is endowed with "archetypes", primordial "universal images that have existed since the remotest times" (5). These archetypes continually express themselves in myths, which, according to Jung (1959:6), are symbolic expressions of the inner collective self, and are passed on from one generation to the next (279).

One of Jung's archetypes is the tree symbol which is associated with growth, life, development and maternity (Jung, 1967:272). It is an ancient symbol representing the life of man (1967:273ft.). As was delineated in the second chapter, the tree has universally been held in esteem and associated with the above themes. Whether in the deserts of the American Southwest or the tropical forests of India, the life-giving tree myth and the cosmic tree show themselves repeatedly. Even the Inuit of North America, who have lived in a treeless environment for over 1000 years, have a 'life-giving tree' myth (Furst, 1977). The centering principle and three-tiered cosmos (consisting of subterranean, terrestrial and celestial dimensions) also appear to be universal in scope, and ancient in nature.

Given the ubiquity of the sacred tree theme across time and space, it is not unreasonable to accept the presence of some type of archetype embodying this symbol, a universal link at an implicit yet expressible level. A diffusionary counter-argument could be posited to account for the similarity between cultures, but this, as Eliade (1952:34) comments, still does not account for the reason some features are diffused and maintained while others are not. It also does not explain the similarity in cases where contact between two societies is not possible.

In the same way Catherine and Evon Vogt (1970) use the notion of binary opposites to analyze the demarcation between culture and nature utilized by the Maya in Chiapas, one can conceptualize the distinction between the sacred and profane in Maya society (and in all societies for that matter) using Lévi-Strauss' binary structure (1963a:160). Although the Maya world is a cyclical one (Holland, 1964:14-15; Kintz,

1990:120), and embodies countless sacred objects, it still acknowledges the polarity of the sacred and earthly realms, often represented in dichotomous forms such as night/day or earth/sky.

Though connected, these two regions are distinct. This is not to say that the difference is always clear, that they are mutually exclusive, or that each is represented consistently in every case; for the many faces of gods in all realms of the Maya pantheon change often in appearance and name, as do other religious symbols. However, the essential structure of myths and cosmological conceptions often remains the same across time and space, in accordance it seems with Lévi-Strauss' "laws" of the unconscious (1963a:35,203). The prevalence of a central axis mundi is a strong exemplar of such structure. Whether in natural form, such as a large conspicuous rock or tree, or a man-made structure, such as a pyramid or wooden pole, this concept enjoys a popularity throughout the world's cultures and across epochs. In the Maya world it takes several forms. At La Venta, an Olmec site in Tabasco dating from 900 B.C. (Weaver, 1981:66), there still stands an earth mound which once served as a temple and pathway to the gods, and which likely was an architectural precursor to the magnificent pyramids of Classic times (300 A.D.-900 A.D.).

All of the major Classic period temples penetrate and surpass the forest canopy, thus bringing the priests as close to their gods as was physically possible with the technology of the time.* They served as sacred places at which important rituals, such as agricultural ceremonies, sacrifices and inaugurations, were conducted. The temple was for the Maya, and most Mesoamerican cultures, a pathway to the heavens (and underworld, since at this point all three levels are joined) used by the elite kings and priests to manage

* It should be noted that the height necessary to achieve this vertical superiority varies with the type of forest surrounding the site. At places such as Tikal, where the forest is high, the main temple is 80 meters tall. At other sites situated further north and in regions of lower forest - Coba and Calakmul for example - the central pyramids only rise to a height of 50 meters. Further north still, where the forest canopy is even lower, the temples tend to be of a smaller stature.

the affairs of religion and government - two inseparable entities - and to carry the souls of the dead nobility to the afterlife. At Palenque the temples of the Cross Group and the tomb of Pakal (the Temple of Inscriptions) are salient examples of these functions. The tree/cross/temple tri-partite connection that is evident in the Cross Group pyramids can be seen in several other instances as well. In the Chiapas highlands, particularly around San Juan Chamula and Zinacantan, the hillsides, street corners and house entrances (among many other areas) are adorned with green crosses which have pine boughs tied to them. These 'crosses' represent the "navel of the world" (Vogt, 1976:58), and act as doorways to the domain of the supramundane (44). This sacred cross/tree link is also described by David Freidel et. al. (1993:251):

We believe that the living force that animated all properly dedicated things in the Classic Maya cosmos survived the Conquest and endures today. One accessible expression of this continuity is found in the ancient symbol of the World Tree, which transformed into and merged with the modern Cross of Christ . . . The World Tree-Cross as an object had its conjuring houses, its altars, and has today its churches. But it requires none of these things to manifest the soul of god. For the house of the World Tree is the world itself.

Tree-Crosses in the Yucatan have historically functioned as transmitters to God and other deities in the Maya world. The "Talking Cross" of Chan Santa Cruz gave the Maya rebels inspiration and guidance during the Caste War in 1851 (Bricker, 1981:102-109), and continues to be revered in a small park located in present day Felipe Carillo Puerto, the alleged site of its origin.

My fieldwork revealed similar cosmological beliefs, apropos crosses, among many Yucatecans today. One octogenarian interviewed told the story of his crosses, which stand on a table situated below several paintings of the Virgin. He had brought the two crosses with him to Campeche from the state of Yucatan because they are special crosses which perform miracles, including curing him of a serious illness many years before. He

subsequently made a promise to God to carry the crosses with him wherever he went in return for a long healthy life. The crosses - 'dressed' in colored 'clothing' which is changed every year - he says, are like "governors to the president" who relay his messages and requests to God.

The cross-person is a miniature axis mundi, capable of transmitting from the mundane to the sacred. This association of the cross with the human body is observed in other situations as well. Linda Schele and David Freidel (1990) give an example derived from Classic monuments:

On public monuments, the oldest and most frequent manner in which the king was displayed was in the guise of the World Tree . . . The king was this axis and pivot made flesh. He was the Tree of Life (90).

The ceiba tree has historically, though not exclusively, been associated with the World Tree (see Freidel et. al., 1993:393-397). In addition to its metaphorical depiction as a central direction in the *Chilam Balams* and in Tozzer's ethnography of 1907, its actual presence in the center of villages has been documented since the time of European contact (Díaz del Castillo, 1963:71), and has continued to today.

Returning to the original structural theme, some connections can be made between the World Tree/axis mundi and unconscious processes. In all of the aforementioned examples, the axis mundi is a conspicuous object, standing alone and towering above the surrounding geography. The tree is a variation on this theme, being incorporated into a society's cosmology, given the appropriate geographic and social conditions. In many cases trees are the tallest structures evident in the natural environment of a given culture, and as such inspire a sense of awe in the beholder, somewhat in concordance with Müller's "awe theory" (Lessa and Vogt, 1972:8). As one reads explorer John Stephens' (1990) account of his travels through the Yucatan in the 19th century, one can hardly overlook his implicit respect for, and fascination with, the impressive ceiba. Modern ethnographers and

tourists alike marvel at the noble structure and immense size of this tree. When I mentioned this typical feeling of awe experienced by the Western psyche to an ethnographer, she jokingly replied "there must be a little Maya in all of us". More likely, I would argue, there is a little bit of 'all of us' in the Maya, and the ceiba strikes the same unconscious chord in them as it does in all humanity, even the vacationing businessman. Not surprisingly, the ceiba is held sacred by neighboring Central American cultures such as the Lencas, Pipiles and Nicaraus (Flores, personal communication). It is also included in the national coat of arms of Nicaragua (Lotschert and Beese, 1983:237).

Albeit this awe may manifest itself in different forms, or respond to a variety of stimuli, something can be said for the similarity in emotional reaction to such conspicuous and perceptually unique phenomena as high mountains, tall trees and other such visually notable entities. The Ceiba pentandra, being one of the tallest trees in tropical Mesoamerica (Baker, 1983:135) and the largest in terms of biomass (Flores, personal communication), is a prime candidate for a sacred nomination. Its high growth rate and dominating vertical rise give it the ability to tower above its competitors in both primary and secondary forests. Even in the drier climate and less fertile soil of the Yucatan, where the ceiba's maximum height cannot be reached, this species still retains its relative vertical dominance in this ecological zone.

The classification of plants holds more evidence in favor of the structuralist argument. Some authors (Lévi-Strauss, 1966:10; Berlin et. al., 1974) see humankind as possessing an innate propensity to organize and classify. Though there may be agreement as to the existence of this tendency, the proposed reasons for its existence vary. According to Brent Berlin et. al. (1974:25):

Man is, by nature, a classifying animal. His continued existence depends, in fact, on his ability to recognize similarities and differences among objects and events in his physical universe and to mark these similarities and differences linguistically.

While Berlin and his colleagues assign a utilitarian role to humankind's quest for order, Claude Lévi-Strauss (1966:Ch. 1) postulates a theory of psychological gratification. He suggests that humans seek knowledge because of a "desire for knowledge for its own sake" (1966:14), and classify because "it meets intellectual requirements rather than or instead of satisfying [biological] needs" (1966:9). To address this debate in a linguistic context is beyond the limits of this thesis, as is the phenomenological question of where 'order' exists. What is important for present purposes is the apparent universality of how biological phenomena are perceived and classified. Informal experiments conducted by Berlin (1992:9) demonstrate the similarity with which three different cultures - American, Huambisa and Jivaro - classify given fauna. This study, supported under formal conditions by Boster (1987), indicate a structural factor and common manner in which humans perceive their external world. Commenting that Lévi-Strauss' "intellectual need" theory is largely unsupported, Berlin (1992:8) posits that order exists independently of man's predisposition for order. In stating the objective of his argument, he writes:

It will be shown that the striking similarities in both structure and content of systems of biological classification in traditional societies from many distinct parts of the world are most plausibly accounted for on the basis of human being's inescapable and largely unconscious appreciation of the inherent structure of biological reality (8).

Thus, in Berlin's view, the manner in which the natural environment is perceived and ordered is more of a dialectical process, rather than solely residing in neural networks and deriving from emotional motives. Humankind classifies the natural world as it does, not only because it is able to do so, but also because order exists in nature itself.

Regardless of where order exists, given the general environmental awareness and knowledge of natural surroundings displayed by tropical forest societies, it is not a far step

to suggest that this knowledge plays a part in the creation of cosmological concepts.* In a similar vein, Herman Konrad (1992), noting the prevalence of environmental themes in the pantheon of Maya deities, suggests that, "Their cosmological construct was grounded in secular ecological knowledge about the dynamics of their environment" (6). The selection of a tropical tree as an axis mundi, therefore, is a logical choice; for it is a metaphor of the tropical forest itself, symbolizing the three vertical layers, the cyclical process of life and sustenance (Konrad, 1992:5).

But why the *Ceiba pentandra*? What morphological traits could account for its distinct sanctity? There are numerous species of neotropical trees which could just as easily have been selected as the cosmic axis and tree of life. To answer this question it is necessary to distinguish the unique physical characteristics of the species which set it apart from other potential candidates. In addition to its size already discussed, the ceiba exhibits several other unique features in terms of appearance. First, its branches are generally at the perpendicular with the single stem trunk, creating an almost perfect cross-like image. Other large neotropical trees tend not to have such a morphology, usually having instead a split trunk and/or angular branches. Second, it is a solitary tree (Haller, 1985:62) and is not seen in groves as other trees are, such as the *ramón* or cedar. The trunk of the young ceiba, moreover, is inundated with large thorns. The ceiba's response to physical damage, may also yield clues to its sanctified position. It was observed in many instances by the researcher, corroborated by informants, and supported by Tozzer (1907:154ft.), that when the ceiba is felled at a certain height on the trunk, rather than continuing to grow in a single vertical direction, the trunk splits into four equidistant parts, paralleling the four cardinal points. It is uncertain whether this characteristic is unique to this species, and subsequently

* Even today natural indicators are utilized in determining geographic location. One informant spoke of two such indicators used to calculate the cardinal directions in absence of normally used landmarks such as the stars or sun. Both the first turn of a vine and the largest buttress on a tree almost always face east, according to this informant. This latter correlation (the largest buttress facing the prevailing winds), with respect to the ceiba, is speculated upon in botanical literature (Baker, 1983:212).

cannot be assumed to be a causal factor in the selection process. It is likely, however, that this propensity was known to the ancient Maya, and hence incorporated into their cosmology.

Another factor supporting the ceiba's claim to the sacred, deals with its name. In Yucatec Maya, the Ceiba pentandra is known as the yaxche, which translates to either "green tree" or "first tree". Going back to Classic times it is known that the glyph for "yax" could mean either "green" or "first" (Thompson, 1970:195), and was largely dependent upon the context in which it is found. The association with the "first" or world tree is supported in the text of the *Chilam Balam of Chumayel* (Roys, 1967:102) and in Tozzer's ethnographic work (1907:154).

The other interpretation of "green" is supported by the actual physical features of the ceiba tree itself, as well as the definition given by all ten informants questioned on this matter in this study. Though the "*verde*" (green) meaning of "yax" is consistent among informants, the reasons for this designation is not. The ceiba tree is noted by Yucatecans for its green trunk, which it has until 12 years of age (Flores, personal communication), and also for the brevity of its leafless period (only two weeks) relative to other tropical species (Baker, 1983:213). Hence, it is likely that the yaxche received its name from either, or both, of these qualities. Additionally, in the *Chilam Balam of Chumayel* the central direction in the Maya cosmos is green (Roys, 1967:100), further connecting the yaxche with the world tree and cosmic axis.

Of interesting note with respect to the importance of names, is the propensity of the Maya to name places with water-associated phenomena. According to William Brito-Sansores (1990:90), many prehispanic communities were named for the deposit of water and corresponding physical characteristics at which they were situated. He gives us one example of present day Valladolid, which in Maya is called Sacihual, named after *sacaua* trees that grow near subterranean sources of water (1990:142) (of which there are several

in this city). It is not so surprising then to discover there were at least seven towns named "Yaxche" in the Yucatan peninsula of 1854 (map from Heller, 1854) - further indication of the significance of this tree.

The structural and spatial dimensions of the issue at hand have been examined and viewed in a theoretical context, drawing upon structuralism and other psychologically oriented perspectives. From the evidence available, it would seem that a reasonable argument can be made for a connection between the physical structure of the yaxche and internal processes of the psyche - whether through emotive, neurological, or unconscious channels. But are the ceiba's dominant qualities in the structural sphere paralleled when viewed in an utilitarian context and from a materialist framework? It is this question which is addressed in the next chapter.

CHAPTER FIVE: THE MATERIAL CEIBA

The Maya of the Mexican tropical lowlands, like most tropical forest societies, view the environment and manipulate plants much differently than the Western World (Alcorn, 1989). The flora and fauna are part of the former's daily worldview, and invariably are viewed as resources and valuable in some way. If this propensity to internalize the flora repertoire exists so strongly in contemporary Maya society it would most likely have existed in earlier Maya societies which relied even more on their natural environment for survival. If this is true, then all trees, including the ceiba, would have some perceived secular importance within the Maya worldview throughout the evolution of their resource management strategies. Considering this, if a material explanation for a particular species' elevated sanctity is to be found, an inherent and unique life-sustaining function must be demonstrated.

Many functional studies of religious phenomena have been conducted over the years (e.g. Durkheim, 1915; Malinowski, 1948; Radcliffe-Browne, 1952; Gluckman, 1964), each an attempt to elucidate observed events and behaviors. However, as Rappaport (1968:1) notes, these scrutinize processes and relationships within a given social group. Subsequent material-oriented approaches, such as Stott (1962) and Vayda et. al. (1961) differ in scope, focusing on the connection *between* social entities and external factors, emphasizing the role ritual plays in the adaptation to environmental forces.* In later works of authors like Roy Rappaport (1968), Julian Steward (1977), and Marvin Harris (1979), a materially influenced view gains more momentum, and environmental factors are almost viewed as causal agents in the formation of social phenomena.

That environmental conditions, such as climate, availability of water, and geographic terrain have an influence in the development of societies is generally an accepted

* Not all commentators see a positive correlation between ritual and ecological adaptation. Louis Luzbetak (1954:113), for example, contends that often ritual has detrimental effects upon the ecosystem.

proposition within Anthropology. It is the extent and manner in which external forces are seen to affect social realities, and the degree of reductionism and subjective interpretation involved in any one approach, where contention exists. Variability can even be discerned in the focus given by materialists themselves. Julian Steward (1977), for example, describes his theory, which he calls "Cultural Ecology", as "the study of the processes by which a society adapts to its environment" (43), and which "recognizes the substantive dissimilarities of cultures that are caused by the particular adaptive processes by which any society interacts with its environment" (44). While postulating the effects of the external environment on the evolution of 'primary' social entities, which he defines as subsistence strategies, kinship and residence patterns, he allocates a secondary position to religion. In his scheme, religion is seen as "stylistic" and as "secondary embroidery on the basic social fabric" (Steward, 1977:51).

Roy Rappaport's approach hypothesizes on the correlation between ritual, the regulation of material concerns, and survival. In his study of the Tsembaga of New Guinea he lists eight ways in which ritual mediates social groups and external entities. Within this group, ritual regulates, among other things, conservation of fauna, diet, population, and warfare (Rappaport, 1968:3). In commenting on the ubiquity of religion, Rappaport (1973) theorizes that, "it is plausible to assume, at least initially, that anything which is universal to human culture is likely to contribute to human survival . . . our thesis here is that religion has not merely been important but crucial to human adaptation" (404-405). Thus, according to this view, religious elements play an active, though not necessarily explicit, part in the maintenance and survival of human congregations.

In similar fashion, Marvin Harris' theory of "Cultural Materialism" advocates a link between material conditions and social structure. He proposes the principle of "infrastructural determinism":

The etic behavioral modes of production and reproduction probabilistically determine the etic behavioral domestic and political economy, which in turn probabilistically determine the behavioral and mental superstructures. For brevity's sake, this principle can be referred to as the principle of infrastructural determinism. (Harris, 1979:55)

His argument runs as follows. There are powerful constraints which exist at the infrastructural level that supersede those at the cognitive level. As Harris (1979) puts it, "To endow the mental superstructure with strategic priority, as the cultural idealists advocate, is a bad bet. Nature is indifferent to whether God is a loving father or a bloodthirsty cannibal. But nature is not indifferent to whether the fallow period in a swidden field is one year or ten" (57). Noting that "Thought changes nothing outside the head unless it is accompanied by the movement of body parts" (58), he stresses the import of etic and behavioral processes over emic and cognitive variables. Using this approach, Harris (1966) postulates ecological reasons for the existence of the sacred cow in India, arguing that "the explanation of [beef-eating] taboos. . . [should] be sought in 'positive-functioned' and probably 'adaptive' processes of the ecological system" (50).

Opponents of the materialist perspective denigrate this approach for eschewing mental and/or social factors in the development of a culture. Indeed their arguments are compelling, for surely internal, linguistic and social variables have an influence in stylistic and even material matters in a given society. Moreover, ethnographic evidence illustrates that material concerns are not universal, and not always sanctified. Raymond Firth (1930-31), for example, when comparing the economic utility of given flora with their representation at the totemic level in the Tikopia system, remarks, "As far as the majority of animal totem species is concerned the economic interest in them is not of a pronounced type" (297). Another consideration is the diversity of ecosystems extant in the world. Surely the ecological role of trees cannot be assumed to be identical between disparate

terrains such as desert and tropical forest: their significance in a general sense is often contingent upon other local factors such as precipitation and food supply.

In spite of the above noteworthy criticisms, it must be remembered that many critics fail to recognize that most materialists do not propose environmental forces are absolute and universally binding causes. Steward (1977:51) for example, observes that identical stylistic elements (i.e. religion) have diffused to a diverse array of natural environments. Marvin Harris (1979), often a target of idealist polemic, states clearly that he "does not deny the possibility that emic, mental, superstructural, and structural components may achieve a degree of autonomy from the etic behavioral infrastructure" (56), and qualifies his determinism by using the word "probabilistically" in its definition (55).

In agreement with the above qualification, the position taken in this study is one of degree rather than absolutism, with respect to materialism. Thus, although material factors will be given emphasis, cognitive elements will not be disregarded. Discerned correlations, therefore, are considered in cultural and geographical contexts, and the limited application of any such connections, regionally and temporally, is acknowledged. An external factor may be posited as the prime agent in some instances, but not in others. I now turn to the ceiba tree and the Maya world, to examine the material link between the two.

Utility of the Ceiba

Little is known of how the ancient Maya used this tree apart from its depiction in stelae, yet post-contact data can shed some light on the situation in that it is evidence of at least *possible* usages. So it is from here that the deductive process begins, as each reported application is looked at in turn, for if an utilitarian explanation is to be viable, it must be demonstrated that the Ceiba pentandra was, and still is, vital to the survival of the Maya people.

Shade

The ceiba's predominant station in the central marketplace of townships - a point already discussed in a symbolic context - is also indicative of a shading function. Its large and fast-growing branches are ideal for the task of providing shade for hundreds of market patrons and entrepreneurs. John Haller (1985) relates his observations of a giant ceiba in the main square of Palin, Guatemala:

Under its massive boughs [154 foot branch span] all of Palin's events occur. People congregate, walk, stand, sit, and relax; tether horses, park oxen, cars, and trucks; go to church and market; weave baskets and blankets; and spread their wares in the shade. From one side to the other, the giant tree extends its vast boughs (50).

This function carries over to cattle ranching as well. A ceiba tree can often be seen in the center of corrals holding cattle, serving the same function as in the above case. In fact, one specimen in Xcupil, Campeche is said to have been planted 120 years ago for this very purpose. The ceiba is also a common shade tree on former forested areas cleared for pastures in Campeche, Quintana Roo, Tabasco, and lowland Veracruz.

As suited for the task of providing shade as the ceiba is, it does not necessarily have exclusive rights in this regard, at least in contemporary times. Other species are capable of giving ample shade, and some ceiba tree specimens observed in town squares are too slender and sparsely endowed with leaves to provide a significant amount of relief from the sun's rays. Furthermore, although perhaps an essential and valuable commodity in barren ecosystems such as deserts, shade does not hold the same import in forested regions such as those inhabited by the Maya.

Wood

The ceiba's wood is soft, and subsequently not very resistant to invasive elements such as termites or water. Its usefulness in construction of houses or doorway lintels of

ancient temples is, therefore, non-existent, for firewood negligible. Other, harder, wood such as that of the chicozapote and jabin are much better suited for satisfying both of the above needs. Paul Standley and Julian Steyermark (1949) observe that canoes are sometimes carved from the trunks of ceiba trees - a custom still practiced today, according to an informant at Yaxchilan (a Classic site situated on the Usumacinta river) - yet, the water-resistant wood of the mahogany is utilized more frequently for this purpose.

The only observed role of the ceiba in supplying wood during the four months of fieldwork is for *triply*, a type of fiberboard derived from the larger variety of ceiba in Tabasco and Veracruz. Here it is manufactured and distributed domestically to make furniture.

Fruit

At the time of fruiting the ceiba can hold as many as 4000 fruit (Flores, personal communication). There have been some reports of the fruit's edibility (Baker, 1983:214; Haller, 1985), however it is more commonly known for the fine cotton (*kapok*) that is released from the fruit upon dehiscence. This silky fiber is nowadays used locally in Yucatan to stuff pillows/mattresses (the most commonly cited usage by females, as measured in question 3 of the questionnaire - see Appendix I), and commercially in the Far East in the manufacture of life preservers and insulation (Schery, 1972:198). In a general sense, the sentiment of Yucatecans towards this fiber is rather negative. The majority of informants questioned on the matter of kapok simply said it is a nuisance, because in season it flies all over, creating a mess and wreaking havoc with allergies.

Whether this fiber was used in Classic times is uncertain, but there are some clues which allow us to eliminate certain possibilities. The fibers are too short to be used in spinning material (Schery, 1972:198), negating any utility in the making of garments.

Moreover, a study done by Folan et. al. (1979) at the Postclassic (900 A.D. - 1520) site of Coba found a correlation between socio-economic status and access (ownership) to commercially and ritually important trees. In the areas surveyed, no mention is made of the ceiba, leading one to believe that it was not a major player in the economic game in the Classic period. In a contemporary context, a survey of 60 dooryard gardens (in the towns of Cholul, Chemax and Bacalar) revealed ceiba trees in only two homes. Papaya, banana, and chicozapote were much more frequently represented in this capacity.

Medicine

The medicinal properties of the ceiba tree, listed in Table 1, have been well documented (Standley, 1920-26:791; Roys, 1965:67; Mendieta and Del Amo, 1981:91; Alcorn, 1984:375,587). Notwithstanding this reported diversity, the ceiba tree is not a prominent part of the *curandero's* (practitioner of folk medicine) regime of plants. Looking through ethnobotanical surveys of Maya societies (see Alcorn, 1984; Mendieta and Del Amo, 1981), it is clear that the regimen of available and useful plants in the Maya area is extremely large. Moreover, there are many plants which have inherently more potency and which remedy more dire conditions than is claimed for the ceiba. Given the ceiba's tertiary role in the regard, it is unlikely to be a contributing factor towards its unique status.

Agriculture

Another material quality possessed by the yaxche is the part it has in planting and harvesting. Janis Alcorn (1984:587) reports that this species serves as an indicator of the sowing season, its flowering in spring announcing the time to plant milpa. The ceiba is additionally said by some residents of Xcupil to indicate the time of burning in the swidden

Table 1: Medicinal Uses of the Ceiba*

<u>Function</u>	<u>Part of Tree</u>	<u>Application</u>
<i>emética</i> (emetic)	<i>corteza</i> (dermal tissue)	<i>oral</i> (oral)
<i>diurética</i> (diuretic)	<i>corteza</i>	<i>oral</i>
<i>antiespasmódica</i> (anti-spasmodic)	<i>corteza</i>	<i>oral</i>
<i>hidropecia</i> (dropsy)	<i>corteza</i>	<i>oral</i>
<i>erupciones y granos</i> (boils and pimples)	<i>corteza</i>	<i>baños</i> (bath)
<i>reumatismo</i> rheumatism	<i>corteza</i>	<i>baños</i>
<i>antiinflamatorio</i> <i>de postemas</i> (anti-inflammatory - abscesses)	<i>tallo</i> (stem, shoot)	<i>local</i> (local)
<i>antiinflamatorio</i> <i>de tumores</i> (anti-inflammatory - tumors)	<i>tallo</i>	<i>local</i>
<i>muelas, dolor de</i> (toothaches)	<i>tallo</i>	<i>local</i>

cycle (its falling leaves signaling the peak of the dry season), and is also implicated in forecasting the forthcoming year's harvest (if it displays an abundance of flowers and fruit, the fall's harvest will be good). Notwithstanding this essential function, the connection with sanctity can still not be made. Other methods were, and still are, utilized for this task as well. In the *Chilam Balam of Mani*, for example, several references are made to the moon being used to indicate the best times to plant trees and transplant saplings (Craine and Reindorp, 1979:20,24).

* Sources for the above are Martínez (1989:481) and Mendieta and Del Amo (1981:91).

The ancient Maya also had an extremely accurate calendar, capable of calculating days of the solar year, and astronomical events such as planetary movements and eclipses, with precision.* They were used by ritual specialists to divine certain occurrences (Coe, 1993:48) and plan secular events such as festivals and daily activities (Landa, 1990:90). It is almost certain therefore, that the calendar round was utilized in an agricultural capacity as well. On a smaller, more micro-climatic, scale - which determined the exact day to begin sowing - undoubtedly a variety of natural and less formal ritual signals were used to win the battle against the rains. Even today, a diversity of measures are utilized. Patterson's (1992:46) research indicates that sowing season is locally determined by the drying of the seedpods of the jabin tree. Ritual calendars called *cabañuelas* are also a common means of divining the arrival of the first rains, and subsequent time of planting.

Trees play a part in other aspects of the milpa system as well. In Campeche it is customary to leave two trees standing in a milpa for hunting purposes. The hunter sits, and sometimes sleeps, in these trees throughout the night, waiting for deer to come into the milpa in search of food (often *chaya*, a leafy shrub, is planted in the milpa to attract game). The trees are selected for their morphological suitability for the function of providing a sturdy observation position out of the visual and olfactory range of cautious prey. In Campeche this selection does not include the ceiba, simply because it is not a common species in the area. The yaxche is implicated, however, in milpa management in other regions (Tabasco, Veracruz and Chiapas) where it is naturally more abundant. Gómez-Pompa (1987:7), for example, observes that fast growing trees, such as the ceiba, are often left to grow in cleared milpas for purposes of shade.

That the ceiba has a role in agriculture is evident. The degree to which it is significant is not so straightforward. From the data available, I would argue that its role is a very minor one. In addition to calendars, there are a host of other, natural, indicators

* According to William Gates (Landa, 1990:81ft.), the Maya calendar is more accurate than the Gregorian calendar used today.

which are important in agricultural activity. Furthermore, the functions the ceiba is reported to have in agriculture are duplicated by other indicators, such as the fruit and leaves of the jabin and the number of a particular bird specie's (*yuya*) nests in a given season.

Water

Water has been, and still is, the source of life for humankind. In pre-industrial societies, such as the ancient Maya, procurement of water was an integral part of their daily life and often incorporated into cosmological paradigms. It has, thus, historically been a primary concern when choosing settlement locations (Weaver, 1981:272).

The yaxche has been associated with water in several respects. The "yax" glyph can signify water, in addition to the more common "green" and "first" meanings. Its presence has been noted at wells (Stephens, 1990:1:132, 2:32), cenotes, and cave entrances (Schele and Freidel, 1990:72). Finally, Alcorn (1984:375,588) writes of its ability to pinpoint subterranean sources of water.

At first this connection appears significant, perhaps significant enough to warrant a special status and to justify its presence in the center of villages. And this would certainly not be an unique postulation, for it has been implicated in other instances. The ahuehuete tree of the Aztecs (Durazo and Farvolden, 1989) and the Indian banyan (Sastrapradja, 1988:204) are both exemplars of water-divining species that are held sacred.

In view of the above evidence, it was my first reaction to assume the same correlation with respect to the ceiba, and consequently it was the first hypothesis tested upon reaching the Yucatan. As data was received however, it became rather clear, for a number of reasons, that this was probably not the causal agent originally thought.

The ceiba's presence at wells as documented by John Stephens in the mid 19th century is invariably an association with shade rather than with water *per se*. The wells he writes about were on haciendas and were likely planted *after* digging. The disproportionate number of ceiba trees that today grow on old hacienda land, in the states of Campeche and Yucatan, indicates a volitious human component. As for cenotes, out of nine cenotes assayed in the peninsula, only two had ceibas growing near them, and at one of these sites the specimens were planted by caretakers. Observations and interviews indicate, furthermore, that the cedar, laurel, oak, and poplar are more commonly represented at cenotes and caverns than the subject of study.

The ability to divine groundwater is indeed an useful endowment, for in some regions it would aid in the precision with which subterranean water sources are located. Yet this necessity varies from region to region. In the northern part of the peninsula, for example, the water table is very shallow, often no deeper than 3 meters and easily accessible. Also, many Maya sites had an inexhaustible supply of fresh water in the form of lake (e.g. Coba), river (Palenque, Yaxchilan), or cenote (Chichen-Itza) At sites, such as those in the Chenes or Peten regions, which did not have regular access to natural sources of water, other methods of water collection and storage, such as aguadas and chultunes, were employed. Even if one assumes the capacity to locate groundwater was a vital factor in the survival of the pre-contact Maya, there are at least three other indigenous species of trees (*Erethia tirirfolia*, *Brosimun alicastrum*, *Ficus yucatanensis*) which possess this property (Flores, personal communication), thus negating the ceiba's monopoly in this regard.

To Link or Not to Link

The ecological relationship between trees and sanctity has been demonstrated in several forms in Asia and Africa (Gadjil and Vartak, 1976:152) - one such instance being sacred groves. In India this proscriptive system is thought to serve the crucial function of conserving otherwise fragile tropical forest ecosystems from overconsumption (Gadjil and Vartak, 1976:157), and preserving crucial supplies of fuel for future use. In the Maya area of the world recent archaeological work (Gómez-Pompa et. al., 1990) has uncovered evidence to substantiate the claims by colonial chroniclers of the existence of sacred *cacao* groves in the Yucatan. Unlike their Asian counterparts, however, these groves were likely conserved for different reasons, since cacao was used as both a currency and a culinary luxury - as opposed to a vital natural resource - in the Classic and Postclassic Periods. Nonetheless, the goal of preservation, and the mechanism (fear of committing sacrilege) by which it is obtained, remain the same.

The reasons for sacred groves in India have a logical underpinning, yet if the scope of investigation is narrowed to the *Ceiba pentandra* a similar logic is not so apparent, for a number of reasons. Closer scrutiny reveals that other large trees indigenous to the Maya region have served a greater role in the subsistence of these people. The chicozapote, for example, was utilized for door lintels in Classic times due to the hardness of its wood. It has been used diachronically for its resin (from which chewing gum is derived), its fruit, and medicinally. Another exemplar is the Copal protium, from which the Maya sacred incense of copal is extracted. The cedar, mahogany and ramón also inhere qualities more significant to survival than the ceiba. Furthermore, the ceiba is rarely found at altitudes over 1500 feet, removing any possibility of direct utility for the highland regions.

A material explanation for the sacred position of the ramón is put forth by Gareth Lowe et. al. (1982:275), who state that the sacred tree in stela 5 at the Olmec site of Izapa

(which they claim is unequivocally this species) is likely a result of its life-sustaining properties. But they then go on to speculate that the associated mythological importance of this species was at some point "passed by the Maya to the ceiba tree (which in fact has no life-sustaining properties other than its shade) because the ceiba is much grander, usually solitary, and extremely long-lived" (275). The ceiba's status according to these authors, unlike its alleged predecessor, is a function of its "obviously opulent dimensional characteristics" (275). In essence, their words support a structural argument.

In conclusion, with respect to tangible utility, there is little evidence to suggest the ceiba has been a prime factor in the subsistence of the Maya. This is not to suggest, however, that the ceiba has not served a purpose in other sectors of society. Its image has been exploited by the elite Maya for over a millennium, often in the service of legitimizing political positions or in creating general ideology. As Rappaport (1973:411) points out, many religious beliefs are *de facto* unfalsifiable, and because of this hold considerable power over members of a society by negating the possibility to rationalize misconduct or contend existing laws. What in secular terms may seem an unreasonable restriction becomes unchallengeable, both logically and socially, upon entering a religious frame of reference. Sacred propositions, therefore, are ideal mechanisms with which to manipulate and subsequently control the general population. The ceiba's role in this power game is the subject of the next chapter.

CHAPTER SIX: THE POLITICAL CEIBA

The concept of the center and its political import have held a diachronic significance in Mesoamerica. Places once occupied by the large temples in Classic centers, have since been altered to accommodate the religious and aesthetic tastes of the conquistadors, taking the form of the *zocalo*. The appearance and function of these central plazas, located in the center of the community, is virtually identical throughout Mesoamerica consisting of a church, *palacio municipal* (city hall), and other politically important structures. It is in the *zocalo* that public meetings, rallies, political speeches, and economic activities are held. It is the symbolic and effectual area of power.

In addition to its metaphorical depiction as a central direction, the ceiba also maintains a physical central presence. In a survey of 25 centers in the Yucatan peninsula carried out by the author, seven had a sample of this species in the center of town. No other tree species were represented in a solitary and conspicuous fashion such as this. A more extensive study conducted by Denise Brown et. al. (1988) shows a similar ratio of yaxche-centered towns within the northern part of the peninsula.

Another instance in which this noble tree is used in a centering manner is in the ceremony of a pueblo's patron saint in some towns. In this ceremony, which is in many ways similar to the one described by Redfield (1936) and almost identical to those witnessed by Miller (1976), a young ceiba tree is ceremoniously felled* and then 'planted' in the center of a temporarily constructed bullring where it stands for the duration of the festival (usually five days). Several bulls (or cows) are ritually killed each day in the bullring by a variety of *matadores* in a Spanish style bullfight. There are notable differences, however, to the European tradition. It seems to be less of a sport and more of

* Herman Konrad (1977), for example, counted exactly thirteen deliberate and successive machete strokes in the initial felling of a ceiba for this fiesta - a number corresponding to the thirteen levels of the Maya heaven.

a religious act when orchestrated by the Maya of Yucatan. Although there are elements of the man-against-beast theme, the emphasis is on the death of the bull. In Chemax, for example, some of those in attendance told me that the killing of the bull is "*como un sacrificio*" (like a sacrifice) and is offered in thanks for all that God has done. According to one informant, the ceiba tree serves as a "road to the gods", an interpretation consistent with the observed practice of tethering the bull to the tree in the center just before it is released for the fight. Its position on the axis mundi is thus firmly established.

It is said by the participants in the ceremony at Chemax, as well as an informant from Tizimin, that it is "custom" to use the ceiba in this fiesta and that no other type of tree will suffice. However, in many villages which have a similar type of ceremony, it is common to see just a wooden pole in the center or perhaps another species of tree. Hilario Miller (1976), for example, notes that in the state of Quintana Roo a chicozapote is used because it is also sacred and much more common than the ceiba in that region. Herman Konrad (1977) also reports the use of a chicozapote in the May festival in Chumpon and a palm tree for a similar festival in the northern coastal community of Progreso.

The political significance of sanctity and ritual has been asserted by several authors. One example is Roy Rappaport (1971:68), who, expanding on Durkheim's (1915) idea of the unifying function of ritual, posits that the very survival of a society may be dependent on the order and stability that ritual and sacred propositions putatively provide. In Rappaport's (1971) words:

Both ritual content and occurrence are important in regulatory operation. (65). [Mankind's] very survival may be involved. It is plausible to argue that the survival of any population depends upon social interactions characterized by some degree of orderliness and that orderliness depends upon communication (68).

From this perspective, ritual and sanctity are seen as adaptive processes which aid in maintaining some degree of homeostasis within a social group amidst environmental

fluctuations (Rappaport, 1973:405). The ceiba tree, historically planted in zocalos and symbolizing the central axis of power, is a significant player in this regard.

The annual ceremony in Chemax, centered around the yaxche*, is strongly associated with cattle ranching in this pueblo (Brown, personal communication). Cattle ranching is an elite occupation, attainable for only a select few who have the resources, and to a lesser extent, political connections, to pursue this way of life. It may be argued, therefore, that the connection between cattle ranching and perceptions regarding the ceiba in Chemax is not incidental, and that the ceremony is used to reify the existing socio-economic structure and identity of those involved. Herman Konrad (1983), describes a similar festival (a mock version which uses people acting as bulls) in a small Yucatecan village, and suggests that these festivities are "both a commentary on contemporary society and on an ideology which legitimizes a vision of the past" (153). Likewise, the ceiba may symbolically reaffirm the established power structure, and placement of cattle ranching within it.

One factor not emphasized by Rappaport is the disparity in levels of power wielded by different sectors of a culture and the resultant variation in terms of ability to control his proposed "adaptive processes". This subject has been taken up by other, more politically oriented, theorists such as Karl Marx. Marx's materialism envisioned the social structure in a given society as being determined by its corresponding economic system. Concomitant with these material conditions is a consciousness, which according to Marx (1970), is a social product (51) and develops with the division of labor (52). In Marx's world of classes and conflict it is the ruling class which is instrumental in the development of this consciousness.

* It is interesting to note that in the other centers, which have similar festivals and use a different species of tree, the word "yaxche" (first/green tree) is still used to signify the central tree, suggesting an association with the Ceiba pentandra, at least in an historical or metaphorical sense.

The individuals composing the ruling class possess among other things consciousness, and therefore think. In so far, therefore, as they rule as a class and determine the whole extent of an epoch, it is self-evident that they do this in their whole range and thus, other things, rule also as thinkers, as producers of ideas, and regulate the production and distribution of the ideas of the age (Marx, 1970:64).

Many of these ideas are disseminated throughout society in the form of religion, which Marx (1964) defines as "the general theory of that world" (41). Religion is seen as a crutch to which humankind clings in its naive 'false' state of consciousness. As a part of the socio-economic structure, it affects mankind at an emotional/irrational level and serves to pacify the masses by diverting their attention to a deceptive and spurious reality (1964:41). Thus, it mirrors Durkheim's notion of infusing order into the social world.

Marx's theoretical work also precedes subsequent emotional theories of religion postulated by Müller (Lessa and Vogt, 1972:8), Malinowski (1948), and Radcliffe-Brown (1952:149). In all of the above theories, emotion is implicated in some capacity in the initiation and maintenance of religious convictions and ideology. For Malinowski (1948:87), religion serves the function of alleviating the inevitable anxiety which accompanies the uncertainties life presents man, whereas Radcliffe-Brown (1952:149) conversely proposes it is religion which instills these very fears.

These apparently opposing views may complement one another if juxtaposed against the politically focused approaches of Marx (1970), Durkheim (1915), and Rappaport (1971). It is plausible that a ruling elite instills certain fears with an unfalsifiable ideology, thereby creating a dependence, in terms of mitigating these fears, on elite specialists on behalf of the general population, in turn maintaining social order and the status quo.

Not all commentators accept the underlying assumptions implicit in the above reasoning. Eyerman (1981:43), for example, does not, like Marx, perceive the masses as being naive to the realities of everyday life and susceptible to the ideological propaganda

imposed by the ruling class. He argues that ideology is restricted to intellectuals and capitalists, and that the peasant or working classes are removed from this realm precisely because they are outside of this "high" culture. Likewise, Eric Wolf (1966:102) suggests there are in fact two levels of belief systems simultaneously occurring within peasant societies. One level is concerned with higher esoteric meanings and maintained by specialists while the other is concerned with more mundane events and everyday business of survival. According to Wolf (1966), "It is not that the peasant is ideologically uncreative; he is limited in his creativity by his concentration upon the first order of business, which is to come to terms with his ecosystem and fellow-men" (103).

Undoubtedly, the peasant's (or proletarian's) world is considerably different from that of elite's. Their daily routines, problems, and anxieties are likely to be quite distinct, and as such their relationship to both ideological processes and content is bound to contrast. This variance in itself, however, does not necessarily imply an absence of ideological input on the part of the lower social strata, nor does it assume their complete independence of elite ideology. As Rappaport (1971:68) notes, the recipients of symbolic messages must be willing to accept the propositions engendered therein, otherwise communication is ineffective. One way in which to ensure this acceptance, he argues, is to obfuscate the empirical validity of underlying premises. Sanctity, he asserts, "is the quality of unquestionable truthfulness imputed by the faithful to unverifiable propositions" (Rappaport, 1971:69). The degree to which said propositions are acceptable, and the conditions necessary for acceptance, are likely a function of several factors, such as political efficacy of the ruling body, the nature of a given proposition, and the existing social structure.

It is difficult, at least in empirical terms, to measure cognitive variables such as acceptance of, and adherence to, beliefs. Along ethnomethodological lines, it seemingly would entail a degree of social negotiation, observable in discourse between the parties

involved. But to discuss these variables in further detail is outside the parameters of this study and will not be elaborated upon. It will be assumed for the purposes herein that in stratified societies there is some degree of ideological control - albeit limited by both internal and external constraints - asserted by the ruling class over the general population, and that most ideology and associated religious activity is directed towards maintaining some form of status quo.

The processes of control and sanctification may be, as Rappaport (1971:72) observes, related to the degree of technological development a culture has undergone. From his viewpoint, as technological prowess increases, so does the capacity for physical coercion; and so it is the technologically undeveloped societies which rely most on sanctification for the maintenance of authority. Keeping this in mind, I return to the Maya Classic era to examine the possible connection between political system and ideology.

At the ancient city of Tikal, in the Peten region of present day Guatemala, is the first known emblem glyph (on stela 29 with a date of 292 A.D.), indicating it was one of the first areas of concentrated political power (Weaver, 1981:281). By the eighth century the number of dominating regional centers had grown to at least four, as recorded in Stela A at Copan (Weaver, 1981:282). Heinrich Berlin (1958) identifies three of these as Tikal, Copan, and Palenque; the fourth is purported by Joyce Marcus (1976) to be Calakmul. It is from these centers that Classic Maya culture emerged and blossomed.

Irrespective of the relationship between the above centers, it is generally accepted that the Maya sociopolitical structure was ranked and that mobility between classes was extremely difficult (Weaver, 1981:281; Coe, 1993:200). It is asserted by Michael Coe (1993:184) that there were no priests *per se* in the Classic period, rather their role was played by the nobility and scribes. The "artists and scribes", writes Coe (1993), "belonged to the very highest stratum of a rigidly ranked society" (200); and it was exclusively in their hands that "probably all knowledge of writing, the calendar, astronomy, and the esoteric

world of the supernatural [resided]" (184). What is more, is that these positions were hereditary, and, as theorized by William Rathje (1970), were likely in a relatively closed economic system in which the flow of wealth was of a circular nature, limited to a few select lineages.

This social stratification and exclusivity of knowledge continued into the Postclassic period as well. It is known from Bishop Landa's account of the Yucatan in the 16th century that there existed at this time elite institutions of chiefs and high priests. The power wielded by the priests can be witnessed in Landa's (1990) description of a high priest named Ahkin May:

He was held in great reverence by the chiefs, and had no allotment of Indians for himself, the chiefs making presents to him in addition to the offerings, and all the local priests sending him contributions. He was succeeded in office by his sons or nearest kin. In him lay the key to their sciences, to which they most devoted themselves, giving counsel to the chiefs and answering their inquiries (34).

The dissemination of esoteric knowledge was thus limited to the sons of priests and chiefs, a restriction likely imposed for reasons of social control. For with knowledge came the power to divine future events and to establish sanctions. Landa (1990:67) reports of the fear the Maya had of the potential repercussions following sinful acts. They believed that evil - in the form of death, disease, and persecution - would come upon them should they transgress the line of socially accepted behavior. Fear was also utilized in motivating ritual activity on the part of the lay population. If the calendrical calculations, interpreted and imparted to the populace exclusively by the priests, forecast impending misfortune, the onus was on the individual to curry favor with the gods by hiring a specialist to conduct special rites and offerings to evade the predicted malady (Landa, 1990:83). By using their esoteric information, the priests could assert control over the masses, employing fear as their tool. According to Bishop Landa (1990), even when the prescribed ritual failed to

elicit the desired outcome, "the priests made the people believe that it was because of some error or fault in the ceremonies" (83). Put succinctly, the ruling elite could manipulate the general populace, as it had exclusive rights over ideological creation and interpretation.

For whose benefit the ruling class used their power is not known for certain; however, the content of Classic monuments and religious texts (combined with humankind's history of avarice) lead one to believe that most, if not all, sanctified and scientific activity was done to benefit those in power. Much of the ancient Maya writing found to date celebrates the accomplishments of 'great personages'* (Coe, 1993:69). Additionally, almost all of the pictures in Classic reliefs have as their subject autocrats, and associated personages, engaging in ceremonies of political (sacred) ascension or military victories (Coe, 1993:196). It was, in effect, one of the earliest forms of propaganda in the New World.

The struggle for ideological domination did not end with the conquest. On the contrary, the persecution of the indigenous population throughout colonial times by the Catholic diocese is well-documented (Clendinnen, 1982; 1987). The Maya were consistently subjected to mental and physical abuses at the hands of the Catholic priests, ostensibly in the name of Christianity. Today a similar struggle is evident in several Maya communities (notably in some towns in the Chiapas highlands and Guatemala), and although the intimidation tactics employed are somewhat different now than in previous centuries, psychological manipulation is still a major operating variable. The contemporaneous nature of this battle for souls was revealed to me by an informant through his story of a curandero and Catholic priest.

A priest, who had been an active member of the clergy and town padre for 15 years, heard that one of his parishioners had been helping her mother perform 'pagan' healing ceremonies. He subsequently ordered both the mother and daughter to cease such

* It is interesting to note that this choice of theme is not unique to Mesoamerica. The Sumerian epic of *Gilgamesh* (circa. 3000 B.C.) and Homer's *Iliad* are just two examples of ancient heroic tales.

practices because it was the "devil's" work and that they would ultimately end up in hell if they did not change their ways. The daughter, whose role was that of an assistant rather than actual practitioner, was frightened into giving up these 'abominations'. Her mother, a firm believer in the efficacy of traditional medicine (it can also be a lucrative trade), upon hearing that her daughter would no longer provide her with assistance, threatened her daughter with death by black magic. The daughter, again the victim of fear, quickly acquiesced and returned to her former employment.

Control over others emotions, especially fear, essentially enables control over their behavior also, and leaders have recognized the value of this tool throughout history. Considering the above, it is not a far reach to hypothesize that the Classic elite implemented some form of emotional manipulation over the peasantry to achieve certain goals. The tree symbol was likely used in this capacity. By connecting the elite with the supernatural, a realm feared by all, it was able to legitimize otherwise refutable positions of power, via the fear factor. The tree-cross iconography at Palenque - and in less dramatic fashion, the cross scepter seen at places such as the center lintel in building 33 at Yaxchilan - exemplify such intent on behalf of the reigning persons. The nebulous connection of tree/cross/king discussed previously, ultimately, and exclusively, placed the elite in the realm of the sacred, symbolically justifying the hereditary right of a given lineage. The tree, signifying life and access to the supramundane worlds, was a powerful natural symbol, aptly suited for such employment.

The extent to which the masses believed such messages will never be known. Nonetheless, it can be presumed from the degree of social organization exhibited in ancient Maya civilization, and by the amount of ritual activity, that there must have been a substantial measure of social control obtained through ideological means. The sacred tree was undoubtedly a player in these affairs, and, in light of its impressive morphology, the Ceiba pentandra was a logical choice for a sacred representative and messenger.

The material and social conditions within in the Yucatan are rather different now than during the Classic era, and, not surprisingly, the ceiba's role within Maya society has also changed. Instead of being carved on royal monuments, as was the case 1500 years ago, the ceiba's image is now used in the commercial sector of the urban population. Businesses such as travel agencies, restaurants and golf courses have this species' icon or name in their logo, appealing to its connection with traditional identity and harbinger of peaceful shade.

It would appear that the ceiba continues to be used in a political manner, being exploited by entrepreneurs, cattle ranchers, and politicians alike. The manipulation of its image, once controlled by the aristocratic elite in Classic times, is now being assumed by their contemporary counterparts. A more detailed discussion of the impact of modernization, with respect to the utilization of the yaxche and its image, is given in the following chapter.

CHAPTER SEVEN: SOCIAL CHANGE

The rapid move to catch up to the industrialized nations by the Mexican government is no secret. Since the early part of the 20th century, and particularly in more recent times in the spirit of the North American Free Trade Agreement (NAFTA), which included Mexico in 1994, there has been a political will to mechanize the traditional slash and burn farming of the peasantry through government sponsored programs, and to bring in more foreign capital through increased tourism and business ventures, with the hope of incorporating the rural sector into the world economy. Ostensibly these goals are being accomplished - although the distribution of the benefits is questionable (see Gates, 1993) - and more and more of the population is slowly being incorporated into the world culture. As electricity, tourists and Western products make it into the remotest of villages, so do their cognitive counterparts, with varying degrees of 'success'.

The ideological change that has resulted from social integration, is illustrated in the differing ecological perceptions held between generations. Table 2 shows the results of a questionnaire, administered to 79 respondents in the community of Xcupil, Campeche, which indicate a disparity between age groups, with respect to the perceived utility of the ceiba tree, and trees in general. Subjects were asked to give the amount of trees they thought were useful, in the form of a percentage. The answers (in percentages) were grouped according to age and sex, and then averaged. The youngest group (<30 yrs.) perceive only 15% of tree species as being useful. The perceived amount of useful trees species increases to an average of 27% for the mid-range age group (30-59 yrs.), and to 33% for the oldest group (60+ yrs.). If the answers are partitioned into four equal size groups ranging from low to high percentage and correlated with the three age categories (rendering a 3x4 table), the tendency to view trees as useful increases significantly with age by a Gamma value of .52. Using Pearson's *r* correlation coefficient, a correlation of .43

was found.* In a more specific sense, the perceived utility of the ceiba tree, which was ascertained by a simple "Yes" or "No" question, also increases with age: the mean percentage of affirmative responses for the three age groups, from youngest to oldest, were 46%, 93%, and 96%, respectively. Another important finding is the variance shown between age groups in terms

Table 2: Questionnaire Results**

Question 1: What Percentage of Trees are Useful?

Question 2: Is the Ceiba Tree Useful?

<u>GROUP</u>	<u>NUMBER</u>	<u>MEAN ANSWER</u> <u>- QUESTION 1 ***</u>	<u>REPLIED "YES"</u> <u>- QUESTION 2</u>
AGE GROUP 1 (<30 yrs.)			
Male	12	19% (10.1)	50%
Female	12	12% (9.9)	42%
Subtotal	24	15% (10.0)	46%
AGE GROUP 2 (30-59 yrs.)			
Male	17	37% (15.8)	100%
Female	13	14% (5.0)	85%
Subtotal	30	27% (12.3)	93%
AGE GROUP 3 (60+ yrs.)			
Male	16	42% (13.1)	100%
Female	9	18% (4.5)	89%
Subtotal	25	33% (10.8)	96%
MALE (total)	45	34% (13.5)	87%
FEMALE (total)	34	15% (7.0)	71%
TOTAL	79	26% (11.2)	80%

* For a description of these measures refer to Norusis (1990:300,331).

** Administered August, 1994, in the town of Xcupil (population 800).

*** The number in brackets denotes the standard deviation.

of sex differences. Referring to question 1, females report, on average, less useful trees than males, regardless of age. However, the *gap* between the sexes increases with age. The youngest group's mean response is 12% for females and 19% for males, a minor difference. Yet when the mean answers of the older age groups are observed, this disparity increases significantly. The gap widens to more than a twofold increase (from 18% to 42%) from female to male responses in Group 3.

The above trend is perhaps indicative of an overall transformation of worldview, which can be expressed, in Konrad's (1994) terms, as a shift from the Indigenous view of "society-in-nature" to the European perspective of "society-over-nature". The further removed from nature one is, the smaller the corresponding ecological knowledge base becomes. Thus, as industrialization further encroaches into the traditional sectors and influences the younger generations, it seems that it affects their perception of nature. The narrowing gap between sexes in the younger ages may also be indicative of the modernization process. With the introduction, and acceptance of more liberal values engendered (arguably so) in developed societies, it is possible that traditional gender roles, characterized by a marked division of labor and knowledge, are being supplanted by relatively egalitarian ones.

The statistically measured generational chasm noted above is corroborated by numerous interviews, with both the old and the young. When, for example, explaining how to use the ceiba tree to forecast the year's harvest, septuagenarian informants complain, "the young people today don't know any of these things. All they do is ride their bicycles and play video games. Nowadays they have too many distractions". In addition to this, young people are increasingly being taught in Western style - which is clear if one reads through a primary school ecology textbook (e.g. *Republica Mexicana*, 1992) - and given information from a Western perspective in Western terms. Other, more supramundane, beliefs are also waning. One thirty two year-old father for example, could

recount various stories of the many phantasms, such as *aluxes*, which inhabit the cornfields, yet when questioned about his six year-old son's opinion on the matter, he simply replied, "oh, we don't teach him of these things".

The lack of will to pass on these traditions is closely tied to socio-economic status; for according to several informants, most of the indigenous population, the younger segment in particular, is ashamed of being classified as "*Indios*" (literally translated as "Indian") as it often incurs connotations of "backwardness" and "ignorance", and subsequent prejudiced treatment. Many parents do not want to teach their children traditional beliefs or the Maya language for this reason. Not surprisingly, the youth generally do not want to learn these for the same reason. If they go to urban centers, such as Campeche or Merida, they often do not speak Maya. One informant told me that his young cousins get angry when he speaks Maya with their father in the city.

The correlation with age and acceptance of Western elements is also reflected in a dichotomous system of self-classification which distinguishes between "*Mayas antiguos*"* and "*Mayas modernos*". According to several informants the former term is applied to those who maintain traditional lifestyles, while the latter is represented by those who are to some degree incorporated into the national, urban culture. Characteristics such as dress, culinary preference, type of dwelling, and usage of new technology determine to a large degree one's position within this system. Some food, such as *chaya*, is typically seen as a "poor person's food" and associated with the "*antiguos*", whereas hot dogs and hamburgers are exemplars of the cuisine favored by the "*modernos*". This, of course, is just one of many possible examples of the criteria used to discern the degree of change an individual has undergone, and is in no way absolute. It is the combination and accumulation of a diverse range of criteria that eventually determine one's status. An individual may be classified differently on different occasions or by different people. It is

* In a literal sense this term refers to the ancient Maya, however, it is used by the young generation to also refer to the older, living Maya.

an informal and general way in which community members are classified, and seems as confusing for informants as it is for the anthropologist. What it does clearly demonstrate, however, is the recognition by some Yucatecans (at least in Hopelchen) of the dynamic and often conflicting nature of belief systems and basic customs.

Despite the criticisms (see Press, 1975:7) that have been raised at Redfield's (1941) notion of a folk/urban continuum, since its publication over 50 years ago, some of the incipient concepts can still serve as a general frame of reference with which to conceptualize the complexities of social integration. With this in mind, the current situation can be viewed as a struggle between the more traditional belief system frequently observed in smaller isolated communities and that of the larger industrialized centers. The current process, however, is by no means new to the Yucatan. Its inception dates back to the first contact with Cortés and his men in the early 16th century, and has continued ever since. What is unique about the situation today, is the rate of integration, and corresponding accelerated degradation of Indigenous culture. At the current pace, it is likely that most traditional knowledge will be lost within several generations. The Yucatan of today is a far cry from that of 1964, described by Irwin Press (1975) as follows:

Yucatan was an ideal place for Redfield's folk-urban study. It was and remains strikingly homogenous. The native people represent one physical and linguistic stock. Further, there is but one seat of urban influence (Merida), the peninsula having been effectively isolated by sea, jungle and rivers from mainland Mexico and the outside world (11).

With the introduction of the tourism trade in Cancun and a highway linkage to the rest of Mexico, the Yucatan is no longer such an isolated region. And, as more archaeological sites are reconstructed and nature reserves opened to the public, this situation is bound to be exacerbated. The result of this contact has been an influx of modern technology and associated amenities. This contact, coupled with the move of the government - through such organizations such as the Instituto Nacional Indigenista (INI),

and various Ministries of the Federal Government - to bring formal education, electricity and mechanized farming, among other modernities, to rural areas, has irreversibly altered the cultural landscape of rural Yucatan (a trend also observed by Ellen Kintz, 1990:131). What little traditional knowledge remains is with the elders and is, in effect, a watered-down version of that exemplified in Tozzer's *Maya* of 1907: it seems all but lost in the transition to the young people of today. This process is described by a *curandero* as he reflects on the past:

It was pure Catholic, pure *yerbateros* [curanderos], pure *h-men* [ritual specialists], and there were not so many doctors. About fifty years ago, there were not so many religions. Now there are Catholics, Pentecostals, Evangelists, and more. They all go to their temples and adore god. But fifty to sixty years ago, there were only Catholics, *yerbateros*, and *h-men*. Then everyone in the world made *Chachac*, *Lolcatal*, *U-hanli-col*, and *U-hanli-cab* ceremonies. Nowadays, people have stopped making the traditional rites to guard themselves (Kintz, 1990:144).

As agricultural mechanization takes further hold, there is less need for children and youths to work in the cornfield alongside their father, as in former times. They do not receive the same exposure to oral traditions as previous generations did. Instead they are occupied with other matters such as attending school and enjoying technologically-based amusements. As formal education, television, and contact with international elements (e.g. pop music) increase, so does the shift from the folk to the urban side of the equation. The traditional importance of the ceiba tree, once a central symbol in the Maya world, has accordingly changed in several ways. One example is the heterogeneity of interpretations this species elicits.

Throughout the peninsula the diversity of perceptions surrounding the ceiba tree is clear. Interpretations of its significance range from the pragmatic "it represents the luck of the village", to the cosmological "pathway to the gods", to the more common, "it's just a tree". Thus, the meaning this species has for the Yucatec Maya is far from homogenous as earlier ethnographies infer. It varies not only between villages, but also within villages,

between individuals viewing the same event, and even temporally in the individual psyche. The transcript below taken from a fiesta organizer in Chemax, is a good example of the dynamic nature of meaning (for a more complete version, refer to Appendix II).

"Después de que lo siembran se le hechan el vino sagrado. Entonces es como bautizar a una persona, el bautismo. Pues, es donde se agarra fuerza de una persona. Claro que, la ceiba no es un árbol muy duro, pero resiste por más grande que sea el ganado."*

The above paragraph illustrates the dynamic nature of meaning. Within one paragraph the speaker refers to the ceiba's sacred aspect, as well as the physical mundane function it serves. The heterogeneous structure of urban ideologies, somewhat akin to Mary Douglas' notion of "high-grid" (1982:103), lends itself to multiple interpretations, and is not only context-dependent, but also constantly fluctuating within the same context.

If the results of the present investigation are compared with earlier ethnographies (e.g. Tozzer, 1907; Redfield and Villa-Rojas, 1962) and ethnobotanical surveys (Standley, 1920-26; Roys, 1931), the increase in heterogeneity of beliefs, one of Redfield's distinguishing characteristics of an urban society, can be observed.** What was perhaps once a more or less homogenous system of interpretation in Maya society is now scattered across a large spectrum, contingent upon the degree of urbanization (and hence syncretism with the Catholic faith and capitalist ideology) an area or individual has undergone. This is not to say that no generalities can be discerned or that other conditions have no role in the development of religion and ritual, for indeed some of the traditional knowledge categories seen in most peasant societies, such as those between age and sex, were described in the

* The author's translation of this reads: "After it [the ceiba tree] is planted, sacred wine is poured over it. Then it is like baptizing a person, a baptism. It is where one gets strength. Of course, the ceiba is not a very hard tree, but strong enough to resist the largest of livestock."

** It should be noted here that in terms of self-ascribed affinity, almost all Yucatecans would classify themselves as Catholic, and believing in one supreme God. It is the manifestation and expression of these beliefs that vary. Such things as one's perception of the cross or degree of adherence to Maya ritual are indicators of the degree to which the traditional or Catholic belief system is activated.

aforementioned questionnaire (Table 2). Additionally, other factors, such as ecological terrain, undoubtedly have an influence. I am merely suggesting that the limitations be recognized, in terms of generalizing about the beliefs in societies undergoing change.

The everyday, secular usage of trees, including the ceiba, has also changed concurrently with the process of modernization. Medicinal applications of this species, which according to previous literature (refer to Table 1) numbered nine, were found to now be reduced to only one in the Hopelchen area. Interviews with three curanderos revealed knowledge of only dermatological usage.* Other reported usages, such as providing food and fiber called *kapok* (Baker, 1983:214), have either retreated into non-existence or been incorporated into the industrial web. The most commonly cited contemporary use of the ceiba (as measured by question 3 of the questionnaire), at least by male respondents, was for triply - an application not mentioned in previous literature. It appears that the secular utility of this tree is, along with its ritual significance, changing with industrialization.

So too is the manner in which it is used in city planning. The tradition of planting a ceiba in the village square is slowly waning into the realm of modern urban aesthetics. In contrast to their smaller counterparts, the larger urban centers (e.g. Campeche, Merida, Valladolid), instead of planting ceiba trees, typically have from five to twenty large trees arranged in a square or circular pattern, and no ceiba. As cities grow and become more modernized their traditional concept of social space changes also.

The loss of Indigenous, or traditional, knowledge is seemingly being replaced by a different kind of knowledge - one which accompanies the existing power base and dominant economic structure, predominantly Western capitalism. This transformation is occurring on both secular and non-secular levels, and as economic realities dictate the course of events, urban ideology supplants the traditional.

* The remedies consist of either applying the green ceiba bark locally to the spot affected, or boiling it in water to make a broth, which is ingested.

With the trend of urbanization, the former Maya ideological specialists, such as curanderos, now are for the most part limited to healing and agriculturally related ceremonies. As such, they are essentially removed from the process of creating ideology, an activity now largely, though not exclusively, assumed by the urban elite. It is not surprising then to find that the ceiba tree's image and meaning are generally found to be of a secular mundane nature among the general rural population. What religious and ideological experiences they do have are likely influenced by the prevailing urban elite. Interviews corroborate this to some degree. For most of the rural population the ceiba is "just a tree", "sometimes used for wood", but in a general sense is considered "useless"*. The campesino, whose knowledge typically stems from his day to day contact with the environment and reflects practical contemporary conditions, is not necessarily concerned with the ceiba over and above its place in daily affairs. When, for instance, asked if it is felled, one peasant answered, "only if it is in the way of planting my cornfield". Another replied, "they don't grow around here". The majority stated that they have no reservations in cutting a ceiba.

In general, the peasants interviewed tend to view their world in practical terms rather than in esoteric symbolism, and what ethical and behavioral restrictions do exist are increasingly being dictated by the urban sector in the form of formal laws or Catholic values. The result is an alteration in the way peasants view themselves and the world around them - a condition illustrated in the disparity of beliefs between generations.

The syncretism noted by anthropologists (e.g. Madsen, 1964:370; Wolf, 1958) between Catholic and Indigenous belief systems undoubtedly exists, and can be observed

* The high percentage of questionnaire respondents who said that the ceiba is useful contrasts markedly with the responses received in informal interviews. This disparity may be due to the difference in perceived formality of the two contexts. In casual conversation the meaning of "useful" is likely interpreted in the relative sense, in which case the yaxche is not considered useful relative to other tree species. Conversely, the questionnaire was generally perceived as a formal document, and respondents were quite worried about answering questions 'incorrectly' (even though there are no truly 'correct' answers), and interpreted the questions literally. In an absolute context the ceiba is useful: in terms of relative import, it is not.

in such things as the Indigenous practice of dressing crosses in clothing or using Christian prayer in otherwise Maya ritual. But as Press (1975:186) notes, this is a one-way process, since traditional Maya elements are never incorporated into contemporary urban Catholic ritual. Gradually then, as industrialization becomes more complete, the ceiba's image and meaning lose their original significance and naturalistic embodiment to the Western worldview.

The Western worldview which corresponds with the political/economic structure of the industrial world is mirrored in the contemporary symbolic use of the ceiba in business and government. One example of this is an informal revitalization movement among the upper classes, particularly teachers, to maintain Indigenous traditions by promoting literature, language, and an attitude of respect for the ancient Maya. Using information obtained from textbooks, they are attempting to recreate Maya culture accordingly. Yet, ironically, they are still very much a part of the existing Western social structure and do not share many of the beliefs with the more traditional population. As one student of twenty, speaking on behalf of his generation, explained, "we have respect for the old beliefs but we have no credence in them". The past tends to be looked upon by the upper classes as a noble antiquity and recreated as such. The ceiba tree's image thus is being incorporated into this new structure, its meaning recreated within the more urbanized ideology, symbolizing tradition and Maya identity. But ironically, although this recreation is one stemming from respect, it is in a nostalgic context, distancing its creators from any real connection with Indigenous beliefs.

One example of how the ceiba's image is being used in this regard is in the promotional paraphernalia of the Cultural Institute of Yucatan and other government organizations such as the Instituto Nacional de Antropología y Historia (INAH). It can be seen on T-shirts and posters, as a symbol of 'Maya' culture. It is also used by non-government organizations, such as ecological groups, to promote environmental

conservation. Yet this symbolic promotion is a selective extraction, as only certain, positive aspects of the traditional culture are revered. Moreover, for the reasons given earlier - the negative connotation of anything traditional - this 'preservation' is generally restricted to those who can 'afford' to show such pride, namely the upper classes. Of the over 60 people interviewed throughout the Yucatan, only five said that the ceiba is "sacred". One of these was the fiesta patron describe earlier. The others - a doctor, a botanist, a high-school teacher and a university student - are all of an educated class and have learned of the ceiba's place in Maya culture through textbooks. Because of their socio-economic status (reflected in their dress, and to some degree their phenotypes) they do not have to worry about being labeled in a derogatory manner, since their social position is firmly established.*

That change has occurred in the Yucatan over the last century is clear. But has the method of ideological indoctrination really changed so much, even from preconquest times? Although the specific content of the message embodied in the ceiba's image has changed, the manner in which it is used, and by whom it is promoted, ring of Classic times. The stylized tree-cross on the Panel of the Cross at Palenque, whose purpose it was to instill a sense of acceptance in the populace, can be paralleled with the purpose behind today's representations of the ceiba. In both cases, the majestic yaxche has been utilized in the manipulation of popular sentiment for the benefit of the ruling class.

The effects of modernization on the belief system of the Yucatec Maya are numerous and complex in nature, far too complex to ascertain accurately in only four months of fieldwork. What I have attempted to achieve is to raise questions apropos the mechanisms and extent of social change that is presently occurring in the Yucatan. Though there appears to be an irreversible and unidirectional shift of worldviews - from traditional to Western - this process is in no way absolute. There are certain regions - like Chemax

* For a recent discussion of ethnicity in the Yucatan see Peter Hervik (1992).

where the ceiba tree still retains some of its traditional meaning, or San Juan Chamula in Chiapas which has fought hard to maintain its traditional ways - that have somehow managed to elude, or perhaps only delay, the seductive powers of modernization. How long their relative cultural independence will last, and the means by which they have thus far been able to withstand the onslaught of modernization, especially with respect to ideology, remain unanswered. If traditional knowledge is to be preserved at all, understanding the processes involved in ideological adaptation seems a logical place to begin.

CONCLUSION

As was discussed in the introduction, the diachronic nature of the study and the stylistic renderings of stela depictions make it difficult to ascertain with any degree of certainty the exact species of tree represented in the earlier reliefs and pottery. Furthermore, it may be the case that the floral images were not intended to portray any one particular species. Some Mayanists (e.g. Konrad, personal communication) have suggested that the tree represents the general cyclical processes typical of tropical forest regeneration. According to this perspective, the transition of the various ecological stages exemplified in swidden agriculture - death (slashing), regrowth (maize production), and maturity (forest regeneration) - are a metaphor for the same cyclical processes involved in natural transitional processes inherent in tropical forest ecosystems. The tropical tree not only emulates natural processes but also the parallel cycle of milpa agriculture used for so long by the Maya. If viewed in this context, the system becomes a complete whole, whereby all events are contained within this cyclical system of constant regeneration. The type of tree used to symbolize this system then is irrelevant, as presumably all species are viewed equally in terms of the life process. Whether it is the birth-giving maize plant, the "holy" cedar (in Maya the cedar is called *kuche*, which translates to "tree of the gods"), or the life-sustaining breadnut tree, the cyclical theme exemplified in the life/death dichotomy remains constant.

From this perspective, the ceiba tree is just another part of the systemic whole. The ceiba, in the *Popol Vuh*, though having a slightly different role than in lowland religious manuscripts, is still involved in the life/death process, for it is next to a ceiba tree that one of the main female characters dies (note the connection with Landa's description of the Maya heaven). Her hair is then entwined in its bark, one morning flowering and giving fruit (Abreu-Gómez, 1992:87). Its association with death is further established in the

Chilam Balam of Mani, in which it is a symbol of the destruction of the world (Craine and Reindorp, 1979:116,119). The cyclical pattern so consistent in Maya thought is displayed in the duality of the ceiba's role - as a messenger of death and producer of life.

In later manuscripts, the sacred tree of the center is identified as the "yaxche", the name ascribed to the Ceiba pentandra. In the *Dresden Codex* it is depicted numerous times, sometimes with the green spiny trunk unique to the young ceiba. It is drawn with four branches reaching out to the four cardinal points, often with Chac sitting atop its central trunk, perched in the sacred realm of the cosmic axis. The *Dresden Codex* depictions, combined with the yaxche's sacred presence in both the *Chilam Balams* and early 20th century ethnographies, paint a rather clear picture as to the species representing the cosmic tree. Generally speaking, as one moves forward chronologically into the Postclassic era, more detail begins to emerge in the cosmological record. It is in the *Chilam Balams* that the concepts of a central green color and the four "ceiba trees of abundance" (representing the four directions) are first known to appear in the cosmological record - a construction, I would argue, molded after the physical traits of the ceiba itself. The reasons for the selection of the ceiba for this distinction, in the opinion of the author, are threefold and involve a combination of the three theoretical orientations discussed earlier.

Assuming the Classic scribes wished to control and manipulate the masses as is posited in Marxist theory, they would have needed a symbol which was inherently capable of instilling respect and fear in the populace. This symbol would also have to be compatible with the existing cosmology, and morphologically resemble the cosmic schema of the era. The Ceiba pentandra, would have been the ideal candidate for this station for two reasons. First, this species is morphologically congruous with the transcendental function it assumes. It is one of the tallest trees in the Mesoamerican forest, the largest in biomass, and a frequent emergent species. Additionally, it is a solitary tree, and exhibits unique structure (horizontal branches, conical spines and green bark when young).

Succinctly put, the ceiba stands out among other trees in almost every ecological niche it grows, dominating an observer's visual attention. No other tree species in tropical Mesoamerica is as unique in this regard.

Because of its unique morphological qualities, particularly its size, it is plausible that it strikes some part of the unconscious, invoking an emotional response of some sort - most likely respect and/or fear. For these reasons the yaxche was ideal for the purpose of ideological indoctrination. As a natural symbol of strength and power, it imbued all things associated with it with similar attributes. Hence when a king symbolically dressed as a tree (as asserted by Schele and Freidel, 1990:68) he became the powerful, the sacred, the axis mundi itself. Likewise, the tree in the Cross Group panels at Palenque served to symbolically associate the nobility with the supramundane world, where life and death are one. The same principle has been postulated for the selection of totems among Australian aborigines (Lévi-Strauss, 1963b:76). It is for the physical and behavioral attributes of a given species, claims Lévi-Strauss, that a particular animal is chosen to represent a clan or moiety. Just as a tribe may associate itself with a predator for its courage and fierceness, so too the Maya elite may have associated themselves with the mighty ceiba for its qualities.

It is feasible that the yaxche's sanctity evolved from another species or a generic tree idea. The speculation presented by Lowe et. al. (1982:275), that the sacred tree of the Olmec was originally the ramón, is a possibility. It could be that this tree was indeed sacred in Preclassic times and later abandoned for the ceiba. Or, the existence of several different forms of stylized trees in the stelae at Izapa could be viewed as evidence for the generic interpretation, each carving representing a different form of a non-specific tree. In either case, the ceiba was later adopted as the sacred tree of the center. I offer two possible explanations for this evolution.

As the Olmec civilization became larger and more complex, it is probable that both their subsistence patterns and political structure changed concurrently. One explanation

could be that the need for social control became greater, and thus, attention was diverted to the selection of an appropriate symbol to fulfill this role. Another possibility is that the ramón, thought to be a source of food under famine conditions (Puleston, 1982), became too valuable as a food source to retain its sanctity, and the theocrats were forced to choose another tree. From a materialist perspective, the choice of the ceiba was a logical one. The relatively negligible role the ceiba played in the subsistence of the Maya may be the precise reason it was allowed into the sacred. It not only was structurally compatible, but also ecologically compatible with the demands imposed by a sacred position, such as cutting proscriptions: as a non-essential entity, the ceiba tree did not have to be felled, affording it the luxury of sanctification.

A dualistic theory of sanctity, in which both political and material processes are considered in the development of sacred phenomena, is summarized nicely by Sankar Sen Gupta (1980). In reference to the sacred tree cults of India, he theorizes that, "Again if we carefully look to the sacred trees, we will see that generally some useful trees are considered as sacred, which speak of the business mind of law givers" (116). I propose adding a third element to Sen Gupta's premise - structuralism. Assuming a species is both politically and materially 'viable' for sanctification, would it not behoove those manipulating a sacred image to choose a species which already has the desired qualities inherent in its morphology? Would it not be easier, for instance, to instill fear and respect with a jaguar symbol than with the image of a mouse? Many informants (especially those over 60 yrs.) gave size as the reason for the ceiba's sanctity in ancient times. Its towering crown and thick branches convey a feeling of humility in the observer. Even today its powerful presence virtually commands respect from the onlooker. In summary, I suggest that the above three theoretical perspectives can, when combined, explain the sanctification of the yaxche, the World Tree of the Maya.

So far I have talked about uses and perceptions of trees as if they were universally extant in a given society. However, fieldwork has a way a dispelling such notions of simple solutions and universal truths. When dealing with symbols and semiotics it is impossible to ascertain the meaning any one sign may have for an individual, let alone a group. One can scrutinize discourse, interview subjects, or observe behavior, yet these methods still can not directly access meaning *per se*, for it is within the individual psyche, and moreover, is extremely dynamic in nature. To elucidate this premise in more detail it is first necessary to distinguish between "public" and "private" symbols as defined by Raymond Firth (1973).

Public symbols are those which are shared by members of a community, that have a common meaning among two or more individuals; and although they also have meaning for the individual, they are public in that they are shared. Albeit, sometimes apparent public symbols have different private meanings for individuals of a society, or an intended meaning is interpreted 'incorrectly' by a receiver, most symbols in a given society generally have the same meaning for all. Language, said by Jakobson (1971:556) to be "the most important semiotic system", exemplifies this continuity. Without a common agreed upon meaning of individual words and intonations, communication would be impossible. As Firth (1973:90) points out, symbolization functions to simplify and organize our experience, in turn facilitating communication and social interaction. In contrast, private symbols occur solely in the minds of individuals and do not necessarily have a conventional social meaning. Though they reside in the same locale as public ideas, they are more egocentric, tend to involve more personal experiences, and can be spontaneous.

At some point a distinction between these two types of symbols is internally made. Imagine an American who sees a can of coca-cola. He is a member of a particular society, and as such it can be assumed that in a public sense the can holds the same meaning for him as it does for others in that society - it is a metal container holding a carbonated beverage.

However, depending on the situation, it could have numerous private meanings. If our subject is thirsty, it is a sign of refreshment; or perhaps he associates it with a poignant childhood memory, in which case it has a more vague meaning of 'youth'. But this analysis is too simple, because meaning is always context dependent and constantly being reconstructed at an individual level as well as at a social level. Returning to our example, suppose two Americans are feeling homesick while traveling in a foreign country, the can of coke could very well mean 'home' for both of them. A third American may join them who does not hold the same sentiments, thus bringing the meaning into social negotiation. The impending quagmire of infinite and ever-changing meanings is formidable to say the least, and too complex an issue to be dealt with in the existing parameters. What is most salient in this example, is that much meaning is situational, and involves an exchange between the internal and external.

For public symbols this exchange occurs between two or more people, and in the case of private symbols this exchange is between different components of an individual's psyche (i.e. thoughts and memories), and between the psyche and external world. Meaning for a given symbol is, therefore, constantly shifting and being revised within an individual mind, moving from perceptual image, to logical sign (natural symbol), to metaphor, in varying order and directions, and in a constant exchange with one's experience of the external world. Taking this dynamism further, and as is evidenced with Keith Basso and Henry Selby's work on Apache metaphors, sometimes even new semantic categories are created to allow novel metaphorical meanings (Basso and Selby, 1976:6). The fiesta organizer's description of the ceiba tree discussed in the previous chapter reflects the amorphism of private meanings. The ceiba, as relayed to the researcher in one sentence (see page 79), is both a person (in that it is "baptized like a person") and a pole used for practical purposes. It is simultaneously a sacred living being and an ordinary pole.

Numerous, alternative, private meanings, apropos this tree, were offered by other informants at this event as well.

The import of private psychological dynamics to social activity inheres in two areas. First, although symbols are not social events until they are publicized by social action, they are housed in the memories of the actors involved. Thus, though they may not be observable until they are communicated, they still exist - in so far as they are generally known by the individual member to be of a public nature - in the minds of individuals. If they did not, the process of communication would involve the constant reestablishing of a shared meaning for every object or idea in every social situation. This is hardly the case, and the ceiba tree, as with other symbols, does elicit some consistent interpretations among certain groups. The yaxche is known among Yucatecans as being a large tree. Frequently its size was mentioned when informants were asked of their impression of this species: the same feature was also often said to be the reason for its sanctity. Thus, we have come full circle back to a structuralist argument, implicating the size and structure of the yaxche as partial causal agents in its cosmological elevation.

But structuralism does not necessarily imply that all large trees are sacred. Nor does it assume that this propensity is an intellectual one. On the contrary, with respect to the present study, it suggests that the *Ceiba pentandra* stimulates an emotional response, outside the domain of rational thought. Its domineering presence induces an unconscious reaction.

Because the proposed force (the unconscious) in its pure form is generally not accessible to the conscious mind, and is subsequently 'modified' by the conscious, it does not detract from other theories, such as the interpretive or ethnomethodological, which advocate the role of verbal negotiation and the importance of context in the creation of social reality. It is indeed a primordial force, yet one which is molded and shaped by external factors. I would argue, therefore, that it is the social environment of a given

society or situation which gives the unique flavor and style to otherwise universal psychological processes.

Perhaps it is these underlying psychological processes which account for the prevalence of tree worship around the globe, for to assume a universal material component is inadequate for several reasons. First, trees are not essential to the survival of some societies in which they are given sacred province. And secondly, in many cases where given plant species serve vital economic and/or subsistence functions, they are not sanctified. Admittedly, in some instances an ecological factor may be the prime reason for the sanctification of certain trees and other flora, but this must be viewed contextually, both geographically and historically. If this is done with the case at hand, the evidence supports a negative ecological connection, in which the *absence* of survival value contributes to sanctity.

Temporal considerations must also be made, since both material and social conditions change over time. The amount of change that has occurred recently in the Yucatan - in terms of technological development, economic production, and methods of subsistence - is substantial. Not surprisingly, this material change has, in a general sense, been accompanied by an ideological shift and modification of social values. What is at one point in time a precious commodity - such as cacao was in Classic times or henequin just 20 years ago - can quickly become both useless and/or perceived as such. Local flora is not immune to this trend. Plant species that were once the only remedy for a certain condition can now often be substituted (sometimes at a lower cost) with a variety of modern medicines. Similarly, other aspects of ethnobotany are affected. Plants at one time valued for their fibers (kapok), sustenance (chaya), and resins (chicozapote) are succumbing to the forces of industrialization and profit-driven world markets, many having depreciated in the process. Other species, such as the tropical cedar and mahogany, have become more highly valued (in monetary terms) in the new economic system. In both

cases, the relationship of the natural environment to peasant communities and international interests have, for the most part, evolved according to the dominating economic structure.

The ramifications for ethnobotanical study are several. Much of the research to date has studied indigenous peoples' knowledge of their natural environment, and looked for possible correlative utility in the industrialized world. Plants are surveyed for their potential usefulness in terms of properties such as medicine, food, and fiber. This has been done, however, in a synchronic manner, and has not taken into account the multitude of transitions any one society may have experienced. The indigenous knowledge studied today is surely not the same as twenty years ago. Even if a 'pure' culture, free of 'modern' contact, could be found, it is reasonable to assume that over the course of its existence (which could be up to 4000 years in some cases) usage of local flora has changed and evolved along with the social structure. Therefore, I propose that in order to obtain the most complete ethnobotanical assay possible it is necessary to consider, and if possible examine, the historical record of a social group under study.

It is not only material circumstances that change. Ideological and religious concepts are similarly affected. The ceiba tree, once the tallest and mightiest natural icon in the Maya world and symbol of power, is now just a nostalgic memory for most. As mentioned previously, both its image and corporeal body have been incorporated into the industrialized world, serving as a model for advertising graphics and a source of fiberboard. It is no longer a symbol of natural processes, but rather is perceived as potential revenue. It is no longer the tallest structure in the Mesoamerican skyline - this position is now occupied by multi-storied office buildings in which the new seat of power resides.

BIBLIOGRAPHY

- Abreu-Gómez, Emilio. 1992. *The Popol Vuh*. Producción Dante, Mexico.
- Abreu-Gómez, Emilio. 1993. *Tales and Legends of Ancient Yucatan*. Producción Editorial Dante, Mexico.
- Alcorn, Janis B. 1984. *Huastec Mayan Ethnobotany*. University of Texas Press, Austin, Texas.
- Alcorn, Janis B. 1989. Process as Resource: The Traditional Agricultural Ideology of Bora and Huastec Resource Management and its Implications for Research, in : *Resource Management in Amazonia: Indigenous and Folk Strategies*. D.A. Posey and W. Balee (eds.). The New York Botanical Garden. Bronx, N.Y. Vol. 7. *Advances in Ethnobotany*.
- Avendano y Loyola, Andres. 1987. *Relation of Two Trips to Peten*, C. Bowditch and G. Rivera (trans.). Labyrinthos, Culver City, CA.
- Baker, Herbert G. 1965. The Evolution of the Cultivated Kapok Tree: a Probable West African Product. Pages 185-216, in *Ecology and Economic Development in Tropical Africa*. D. Baokensha (ed.). Institute of International Studies, University of California, Berkeley, Research Series No. 9.
- Baker, Herbert G. 1983. Ceiba Pentandra, in *Costa Rican Natural History*, D.H. Janzen (ed.). The University of Chicago Press, Chicago.
- Baker, Herbert G. and Harris, B.J. 1959. Bat Pollination of the Kapok Tree, Ceiba Pentandra (L.) Gaertn. (Sensulato). *Ghana. Journal West Science Assoc.* 5: 1-9.
- Baldus, Herbert. 1968. Adolf Bastian, in *International Encyclopedia of Social Sciences*, Vol. 2, D. Sills (ed.). The Macmillan Company and The Free Press.
- Barrera-Vásquez, Alfredo and Rendón, Silvia. 1948. *El Libro de los Libros de Chilam Balam*. Fondo de Cultura Económica, México.
- Barth, Fredrik. 1970. Introduction, in *Ethnic Groups and Boundaries*, F. Barth (ed.). George Allen and Unwin, London.
- Basso, Keith and Selby, Henry. 1976. *Meaning in Anthropology*. University of New Mexico Press, Albuquerque.
- Berlin, Brent. 1992. *Ethnobiological Classification*. Princeton University Press, Princeton, NJ.
- Berlin, Brent, et. al. 1974. *Principles of Tzeltal Plant Classification*. Academic Press, New York.
- Berlin, Brent and Berlin, Elois. 1983. Adaptation and Ethnological Classification. Pages 301-29, in *The Adaptive Responses of Native Amazonians*. R. Hames and W. Vickers (eds.). Academic Press, New York.

- Berlin, Heinrich. 1958. El Glifo "Emblema" en las Inscripciones Mayas. *Journal de la Societe des Americanistes*, 47:111-119.
- Boster, J. 1987. Agreement between Biological Classification Systems Is Not Dependent on Cultural Transmission. *American Anthropologist*, 89: 914-19.
- Bricker, Victoria. 1981. *The Indian Christ, the Indian King: The Historical Substrate of Maya Myth and Ritual*. University of Texas Press, Austin.
- Brito-Sansores, William. 1990. *Maya Writing*. Producción Editorial Dante, Mexico.
- Brown, Denise. 1994. Personal communication. Departamento de Antropología, Universidad de Iberoamericana, Ciudad de México.
- Brown, Denise et. al. 1988. *Catalogo de Comunidades Mayas en Tres Zonas de la Peninsula de Yucatan*. Investigación apoyada por: El Proyecto "Dooryard Gardens", University of California, Riverside, CA.
- Bruce, Robert D. and Perera, Victor. 1982. *The Last Lords of Palenque: The Lacandon Maya of the Mexican Rainforest*. University of California Press.
- Campbell, Joseph. 1949. *The Hero with a Thousand Faces*. Pantheon, New York.
- Carvalho, C.T. 1960. Das Visitas de Morcezos as Flores (Mammalia: Chiroptera). *Anais Acad. Brasil. Cienc.* 32: 359-77.
- Chipp, T.F. 1927. *The Gold Coast Forest: a Study in Synecology*. *Oxford Forestry Memoirs No. 7*, Clarendon Press, Oxford.
- Clendinnen, Inga. 1980. Landscape and Worldview: The Survival of Yucatec Maya Culture Under Spanish Conquest. *Comparative Studies in Society and History*, 22: 374-93.
- Clendinnen, Inga. 1982. Disciplining the Indians: Franciscan Ideology and Missionary Violence in Sixteenth-Century Yucatan. *Past and Present*, 94:27-48.
- Clendinnen, Inga. 1987. *Ambivalent Conquests*. Cambridge University Press.
- Coe, Michael. 1993. *The Maya, 5th ed.* Thames and Hudson Ltd., London.
- Conklin, Harold. 1957. *Folk Classification*. Department of Anthropology, Yale University, CT.
- Cook, Roger. 1974. *The Tree of Life: Image for the Cosmos*. Thames and Hudson, London.
- Craine, Eugene and Reindorp, Reginald. 1979. *The Codex Perez and the Book of Chilam Balam of Mani*. University of Oklahoma Press, Norman.
- Díaz del Castillo, Bernal. 1963. *The Conquest of New Spain*. Penguin Books, Toronto.
- Douglas, Mary. 1966. *Purity and Danger*. Ark Paperbacks, London.

- Douglas, Mary. 1982. *Natural Symbols*. Pantheon Books, New York.
- Dumond, Don E. 1961. Swidden Agriculture and the Rise of Maya Civilization, *Southwestern Journal of Anthropology*, 17: 301-16.
- Durazo, Jaime and Farvolden, R.N. 1989. The Groundwater Regime of the Valley of Mexico from Historic Evidence and Field Observations. *Journal of Hydrology*, 112:171-190.
- Durkheim, Emile. 1915. *The Elementary Forms of the Religious Life*. Hollen Street Press, Ltd., London.
- Eliade, Mircea. 1958. *Patterns in Comparative Religion*. World Publishing, New York.
- Eliade, Mircea. 1991. *Images and Symbols*. Princeton University Press, Princeton, N.J.
- Epic of Gilgamesh, The*, N. Sandars (ed.), 1972. Penguin Books, Markham, Canada.
- Eyerman, Ron. 1981. False Consciousness and Ideology in Marxist Theory. *Acta Sociologica*, 24, 1-2:43-56.
- Firth, Raymond. 1930-31. Totemism in Polynesia. *Oceania*, Vol. 1, No. 3 & 4.
- Firth, Raymond. 1973. *Symbols: Public and Private*. George, Allen and Unwin Ltd., London.
- Flores, J. Salvador. 1994. Personal communication. Departamento de Biología, Universidad Autónoma de Yucatán, Mérida.
- Folan, William J. et. al. 1979. Fruit, Fiber, Bark, and Resin: Social Organization of a Maya Urban Center. *Science*, 204: 697-701.
- Folan, William J. et. al. 1983. *Coba: A Classic Maya Metropolis*. Academic Press, New York.
- Freidel, David, et. al. 1993. *Maya Cosmos*. William Morrow and Company, Inc., New York.
- Freud, Sigmund. 1950. *Totem and Taboo*, J. Strachey (trans.). W.W. Norton and Company Inc., New York.
- Furst, Jill L. 1977. The Tree Birth Tradition in the Mixteca, Mexico. *Journal of Latin American Lore*, 3:2, 183-226.
- Gadgil, Madhav and Vartak, V.D. 1976. The Sacred Groves of Western Ghats in India. *Economic Botany*, 30:152-160.
- Gates, Marilyn. 1993. *In Default: Peasants, the Debt Crisis, and the Agricultural Challenge in Mexico*. Westview Press, Inc., Boulder, CO.

- Geertz, Clifford. 1968. Religion, in *International Encyclopedia of Social Sciences*, Vol. 13, D. Sills (ed.). The Macmillan Company and The Free Press.
- Geertz, Clifford. 1973. *The Interpretation of Culture*. Basic Books, Inc., New York.
- Gluckman, Max. 1964. *Custom and Conflict in Africa*. Barnes and Noble, Inc., New York.
- Gómez-Pompa, Arturo. 1987. On Maya Silviculture. *Mexican Studies/Estudios Mexicanos*, 3(1):1-15.
- Gómez-Pompa, Arturo, et. al. 1990. The Sacred Cacao Groves of the Maya. *Latin American Antiquity*, 1(3): 247-257.
- Griffiths, John F. 1976. *Applied Climatology: An Introduction, 2nd ed.* Oxford University Press.
- Hall, Peter and Spencer Hall, Dee Ann. 1983. The Handshake as Interaction. *Semiotica*, 45, 3-4:249-264.
- Haller, John M. 1985. The Giant Ceiba of Palin. *American Forests*, Vol. 91, Dec.: 48-50+.
- Hanks, William F. 1990. *Referential Practice, Language and Lived Space Among the Maya*. University of Chicago Press, Chicago.
- Harris, Marvin. 1966. The Cultural Ecology of India's Sacred Cattle. *Current Anthropology*, Vol. 7, 1:51-66.
- Harris, Marvin. 1974. *Cows, Pigs, Wars & Witches*. Random House, New York.
- Harris, Marvin. 1979. *Cultural Materialism*. Vintage Books, New York.
- Heller, Clarence. 1854. *Reisen in Mexiko*, Leipzig.
- Hervik, Peter. 1992. Mayan Culture - Beyond Boundaries. *Ethnos*, 3-4.
- Holland, William. 1964. Conceptos Cosmológicos Tzotziles Como una Base para Interpretar la Civilización Maya Prehispánica. *América Indígena*, 24:11-28.
- Homans, George C. 1941. Anxiety and Ritual: The Theories of Malinowski and Radcliffe-Browne. *American Anthropologist*, 43: 164-172.
- Homans, George C. 1964. Bringing Men Back In. *American Sociological Review*, 29(5), 809-818.
- Isphording, W.C. 1975. The Physical Geography of Yucatan. *Transactions-Gulf Coast Association of Geological Studies*, 25:231-262.

- Jakobson, Roman. 1971. Results of a joint Conference of Anthropologists and Linguists, in *Selected Writings by Roman Jakobson*. Wadsworth Publishing Company, Belmont, CA.
- Jung, Carl G. 1959. *The Archetypes and the Collective Unconscious*, 2nd. ed. Princeton University Press. Princeton, NJ.
- Jung, Carl G. 1967. *Alchemical Studies*. Princeton University Press, Princeton, N.J.
- King, Arden R. 1964. Urbanization and Industrialization, in *The Handbook of Middle American Indians*, Vol: 6, M. Nash (ed.), pp. 512-536. University of Texas Press, Austin.
- Kintz, Ellen R. 1990. *Life Under the Tropical Canopy: Tradition and Change Among the Yucatec Maya*. Holt, Rinehart and Winston, Inc., Toronto.
- Konrad, Herman. 1977. *Fieldnotes*.
- Konrad, Herman. 1983. Barren Bulls and Charging Cows: Cowboy Celebrations in Copal and Calgary, in *The Celebration of Society*, F. Manning (ed.). Bowling Green University Popular Press, Bowling Green, Ohio.
- Konrad, Herman. 1991. Pilgrimage as a Cyclical Process: The Unending Pilgrimage of the Holy Cross of the Quintana Roo Maya in, *Pilgrimage in Latin America*, N. Crumrine and A. Morinis (eds.). Greenwood Press, New York.
- Konrad, Herman. 1992. *Maya Environmental Perceptions and Ecological Stress as Reflected in the Dresden Codex*.
- Konrad, Herman. 1994. *Sustainable Versus Changeable Views of Forests, 1492-1994*. Paper presented at the "Sustainable Development in the 21st Century " conference at the University of Calgary, Calgary, Canada.
- Kricher, John C. 1989. *A Neotropical Companion*. Princeton University Press, Princeton, NJ.
- Kuper, Adam. 1994. Culture, Identity and the Project of a Cosmopolitan Anthropology. *Man*, Vol 29:3, 537-554.
- Landa, Diego de. 1990. *Yucatan Before and After the Conquest*, W. Gates (trans.). Producción Editorial Dante, Mexico.
- Leach, Edmund R. 1977. *Political Systems of Highland Burma*. The Athlone Press, London.
- Lessa, William and Vogt, Evon. 1972. *Reader in Comparative Religion*, 3rd ed. Harper and Row Publishers, New York.
- Lévi-Strauss, Claude. 1963a. *Structural Anthropology*, C. Jacobson (trans.). Basic Books, Inc., New York.
- Lévi-Strauss, Claude. 1963b. *Totemism*, R. Needham (trans.). Beacon Press, Boston.

- Lévi-Strauss, Claude. 1966. *The Savage Mind*. University of Chicago Press, Chicago.
- Lotschert, Wilhelm and Beese, Gerhard. 1983. *Collins Guide to Tropical Plants*, C. King (trans.). William Collins Sons & Co. Ltd., London.
- Lowe, Gareth W. et. al. 1982. Izapa: An Introduction to the Ruins and the Monuments. *Papers of the New World Archaeological Foundation, No. 31*. Brigham young University, Provo, UT.
- Lundell, C.L. 1934. Preliminary Sketch of the Phytogeography of the Yucatan Peninsula, in Contributions to American Archaeology, *Carnegie Institution of Washington*, 12:255-321.
- Luzbetak, Louis J. 1954. The Socio-Religious Significance of a New Guinea Pig Festival, parts 1 & 2. *Anthropological Quarterly*, 2:59-80, 102-128.
- Madsen, William. 1964. Religious Syncretism, in *The Handbook of Middle American Indians*, Vol. 6, M. Nash (ed.), pp. 369-391. University of Texas Press, Austin.
- Malinowski, Bronislaw. 1948. *Magic, Science and Religion*. Souvenir Press Ltd., London.
- Marcus, Joyce. 1976. Emblem and State in the Classic Maya Lowlands. *Dumbarton Oaks Research Library and Collections*, Washington, D.C.
- Martínez, Maximo. 1989. *Las Plantas Medicinales de México*, 6th ed. Ediciones Botas, México.
- Marx, Karl. 1964. Contribution to the Critique of Hegel's Philosophy of Right (introduction), in *On Religion*, Karl Marx and Frederick Engels. Scholars Press, Atlanta, GA.
- Marx, Karl. 1970. *The German Ideology, Part I*, C.J. Arthur (ed.). International Publishers, New York.
- Matheny, Ray T. 1976. Maya Lowlands Hydraulic Systems. *Science*, 193(4254): 639-646.
- Mathews, Peter. 1994. Personal communication. Department of Archaeology, University of Calgary, Calgary, Canada.
- Meggars, Betty J. 1954. Environmental Limitation on the Development of Culture. *American Anthropologist*, 56: 801-24.
- Mendieta, Rosa and Del Amo, Silvia. 1981. *Plantas Medicinales del Estado de Yucatán*. Instituto Nacional de Investigaciones Sobre Recursos Bioticos, Xalapa, Veracruz.
- Miller, Hilario. 1976. *Fieldnotes*.
- Miller, Mary. 1986. *The Art of Mesoamerica from Olmec to Aztec*. Thames and Hudson, London.

- Miller, Mary and Taube, Karl. 1993. *The Gods and Symbols of Ancient Mexico and the Maya*. Thames and Hudson, New York.
- Miller, R. 1987. *Fact and Method: Confirmation and Reality in the Natural and Social Sciences*. Princeton University Press, NJ.
- Moerman, Michael. 1988. *Talking Culture*. University of Pennsylvania Press, Philadelphia.
- Moran, Emilio F. 1982. *Developing the Amazon*. Indiana Press, Bloomington.
- Morley, Sylvanus. 1956. *The Ancient Maya*. Stanford University Press, Stanford, CA.
- Nadel, Seigfried F. 1954. *Nupe Religion*. Routledge and Kegan Paul, London.
- National Geographic Society. 1980. *Mexico and Central America*, December, 1980. Washington, D.C.
- Nations, James D. and Nigh, Ronald B. 1980. The Evolutionary Potential of Lacandon Maya Sustained-Yield Tropical Forest Agriculture. *Journal of Anthropological Research*, 36(1): 1-30.
- Neihardt, John. 1979. *Black Elk Speaks*. University of Nebraska Press, Lincoln, NB.
- Norman, V. Garth. 1973. Izapa Sculpture. Pt.1. *Papers of the New World Archaeological Foundation*, No. 30. Brigham Young University, Provo, UT.
- Norusis, Marija J. 1990. *The SPSS Guide to Data Analysis*. SPSS Inc., Chicago.
- Patterson, S.D. 1992. *In Search of a Mesoamerican Floricultural Tradition: Ceremonial and Ornamental Plants Among the Yucatecan Maya*. Ph.D. Thesis. University of California, Los Angeles, CA.
- Peoples, James and Bailey, Garrick. 1994. *Humanity: An Introduction to Cultural Anthropology*, 3rd ed. West Publishing Company, New York.
- Posey, Daryl. 1985. Ethnoecology as Applied Anthropology in Amazonian Development. *Human Organization*, 43(2): 95-107.
- Press, Irwin. 1975. *Tradition and Change: Life in a Modern Yucatan Maya Village*. Greenwood Press, London.
- Puleston, Dennis E. 1982. The Role of the Ramón in Maya Subsistence, in *Maya Subsistence*, K. Flannery (ed.), pp. 353-366. Academic Press, New York.
- Radcliffe-Brown, Alfred R. 1952. *Structure and Function in Primitive Society*. The Free Press, New York.
- Rappaport, Roy A. 1968. *Pigs for the Ancestors*. Yale University Press, New Haven.

- Rappaport, Roy A. 1971. Ritual, Sanctity and Cybernetics. *American Anthropologist*, 73:59-76.
- Rappaport, Roy A. 1973. The Sacred in Human Evolution, in *Explorations in Anthropology*, M. Fried (ed.). Thomas Y. Crowell Company, New York.
- Rappaport, Roy A. 1979. *Ecology, Meaning and Religion*. North Atlantic Books, Richmond, CA.
- Rathje, William L. 1970. Socio-political Implications of Lowland Maya Burials: Methodology and Tentative Hypothesis. *World Archaeology* 1(3):359-374.
- Rathje, William L. 1973. Classic Maya Development and Denouement: a Research Design, in *The Classic Maya Collapse*, T.P. Culbert (ed.). University of New Mexico Press, School of American Research Advanced Seminar Series, Albuquerque.
- Redfield, Robert. 1936. The Coati and the Ceiba, in *Maya Research*, F. Blom (ed.). Vol. 3, July-Oct., No. 3-4.
- Redfield, Robert. 1941. *The Folk Culture of the Yucatan*. The University of Chicago Press, Chicago.
- Redfield, Robert. 1953. *The Primitive World and its Transformations*. Cornell University Press, Ithaca.
- Redfield, Robert and Villa-Rojas, Alfonso. 1962. *Chan Kom: A Maya Village*. University of Chicago Press, Chicago.
- República Mexicana: Equilibrio Ecológico*. 1992. SEP, México.
- Robertson, Merle Greene. 1991. *The Sculpture of Palenque, Vol. 4*. Princeton University Press, N.J.
- Roys, Ralph L. 1931. *The Ethnobotany of the Maya*. Middle American Research Series. Pub. No. 2. The Department of Middle American Research, Tulane University, New Orleans, LA.
- Roys, Ralph L. 1965. *The Ritual of the Bacabs*. University of Oklahoma Press, Norman.
- Roys, Ralph L. 1967. *The Book of the Chilam Bilam of Chumayel*. University of Oklahoma Press, Norman.
- Sahagún, Bernardino de. 1956. *Historia General de las Cosas de Nueva España*, K. Angel Maria Garibay (ed.), 4 Vols. Editorial Porrúa, México.
- Sastrapradja, Setijati. 1988. Perspective on Conservation in Indonesia, in *People of the Tropical Rainforest*. J.L. Denslow and C. Padoch (eds.). University of California Press in association with Smithsonian Institution Traveling Exhibition Service, Washington, D.C.

- Schele, Linda and Freidel, David. 1990. *A Forest of Kings*. William Morrow and Company, Inc., New York.
- Schery, Robert W. 1972. *Plants for Man, 2nd ed.* Prentice-Hall, N.J.
- Sen Gupta, Sankar. 1980. *Sacred Trees Across Cultures and Nations*. Indian Publications, Calcutta.
- Sharrock, Wes and Anderson, Bob. 1986. *The Ethnomethodologists*. Tavistock Publications, London.
- Smith, Claude E. and Cameron, M.L. 1977. Ethnobotany in the Puuc, Yucatan. *Economic Botany*, 31(4): 93-110.
- Solano-Flores, Guillermo and Pick de Weiss, Susan. 1992. *Tú y el Medio Ambiente*. Instituto Mexicano de Investigación de Familia y Población, A.C.
- Sosa, Victoria and Flores, J. Salvador. 1993. *La Flora Ornamental de Merida*. Ediciones del Ayuntamiento de Mérida.
- Spencer, Baldwin and Gillen, F.J. 1927. *The Arunta, Vol. 1*. London.
- Standley, Paul C. 1920-26. *Trees and Shrubs of Mexico*, in Contributions from the United States Herbarium. Vol. 23, Parts 1-5. Smithsonian Institution. United States National Museum, Washington, D.C.
- Standley, Paul C. and Steyermark, Julian A. 1949. Flora of Guatemala. *Fieldiana: Botany*, Vol. 24, Pt. VI.
- Stephens, John L. 1990. *Incidents of Travel in the Yucatan*, 2 Vols. Producción Editorial Dante, Mexico.
- Steward, Julian. 1977. *Evolution and Ecology*. University of Illinois Press, Chicago.
- Stott, Denis H. 1962. *Cultural and Natural Checks on Population Growth, Culture and the Evolution of Man*, F. Ashley Montagu (ed.). New York, Oxford University.
- Thompson, J. Eric. 1954. *The Rise and Fall of Maya Civilization*. University of Oklahoma Press, Norman.
- Thompson, J. Eric. 1970. *Maya History and Religion*. University of Oklahoma Press, Norman.
- Thompson, J. Eric. 1972. *A Commentary on the Dresden Codex*. American Philosophical Society, Philadelphia.
- Toledo, Victor M. 1977. Pollination of Some Rainforest Plants by Non-Hovering Birds in Veracruz, Mexico. *Biotropica*, 9: 262-67.
- Tozzer, Alfred M. 1907. *A Comparative Study of the Mayas and the Lacandons*. MacMillan & Co., Ltd., London.

- Turner II, Billie L. 1978. *Pre-Hispanic Maya Agriculture*, P.D. Harrison and B.L. Turner (eds.). University of New Mexico Press, Albuquerque.
- Turner, Victor. 1967. *The Forest of Symbols*. Cornell University Press, Ithaca.
- Vayda, Andrew P. et. al. 1961. *The Place of Pigs in Melanesian Subsistence*, *Proceedings of The American Ethnological Society*. V.E. Garfield (ed.), University of Washington, Seattle.
- Villa-Rojas, Alfonso. 1945. The Maya of East Central Quintana Roo, in *The Carnegie Institution of Washington*, Publication. No. 559.
- Vogt, Evon Z. 1969. *Zinacantan: A Maya Community in the Highlands of Chiapas*. Harvard University Press, Cambridge, MA.
- Vogt, Evon Z. 1976. *Tortillas for the Gods*. Harvard University Press, Cambridge, MA.
- Vogt, Evon Z. and Vogt, Catherine. 1970. Levi-Strauss among the Maya. *Man*, Vol. 5:3, 379-392.
- Watson, Graham. 1991. Rewriting Culture, in *Recapturing Anthropology*. School of American Research Press, Santa Fe.
- Weaver, Muriel P. 1981. *The Aztecs, Mayas, and Their Predecessors*, 2nd ed. Academic Press, Inc., Toronto.
- White, Leslie. 1949. *The Science of Culture*. Grove Press, New York.
- Wilson, Monica. 1957. *Rituals of Kinship among the Nyakyusa*. Oxford University Press, London.
- Wolf, Eric. 1958. The Virgin of Guadalupe: A Mexican National Symbol. *Journal of American Folklore*, LXXI, 34-39.
- Wolf, Eric. 1966. *Peasants*. Prentice Hall, Inc., Englewood Cliffs, NJ.

APPENDIX I: QUESTIONNAIRE

- 1) CUAL ES EL PORCENTAGE DE LOS ARBOLES QUE SON UTILES?
(What percentage of trees are useful?)*

_____ %

TIE K'A'AXO'OB BUCAAJ CHE'O KU MEYAJ TEX?

- 2) A EL CEIBO QUE SE LE CONOCE TAMBIEN COMO YAXCHE ES UTIL O NO?
(Is the ceiba, also known as the yaxche, useful or not?)

SI

NO

(encierre su respuesta)

LE CEIBO' U KA'ABA' XANE YAXCHE' KU MEYAJTEX WA MA'?

JELE'

MA' .

- 3) Y COMO SE UTILIZA EL CEIBO?
(How is the ceiba used?)

BAN TI JU PA'AJTA' U MEYAJ LE YAXCHE' O?

* English translations were not given on the original questionnaire.

APPENDIX II: TRANSCRIPT OF AN INTERVIEW WITH A
FESTIVAL ORGANIZER, CHEMAX, 1994

Informant: . . . La fiesta cuando termina se hace el "mapach", se prepara unas panes gorditas así con las hojas para que entonces que sepa que todo lo que invocaron los hombres ya termino la fiesta ya termino, ya no hay más gritos y insultos no más todos; es una ceremonia que se hace. Entonces cada diputado, son 12, 13 diputados que tienen que presentarse "k'ex"¹, un pollito una pollita, y entonces allá que termina. Después se le sacan también al "balam"² de la hora de la noche porque son representantes también para, de dios. Entonces se saca "saca"³ otra vez y para te dar conocimiento de todo "un kanaka kaname tankah kanaho balam"⁴, e un sam chaac un sam balam, muul⁵ ka chaac muul ka balam, y pic chaac pic balam, uleika chaac uleika cam balam, e un sac babai un chaac babai de balantun, e un kambabei y tu maho chaho miso lohun cahun"⁶ y se terminó la fiesta. Entonces todos los descuida el pueblo, pero no de San Antonio de Padua⁷.

When the fiesta finishes they make the "mapach", some thick breads are prepared this way with leaves so that then one knows that all that invoked the men has finished, the fiesta is finished, there are now no more shoutings and insults, no more anything. This ceremony is done. Then every deputy, there are 12 - 13 deputies that have to present "k'ex", a young male and female chicken, and that is where it ends. After they also get the "balam" of the hour of the night because they are representatives also of God. Then they get "saca" another time in order to give knowledge of everything "un kanaka kaname tankah kanaho balam, e un sam chaac un sam balam muul ka chaac muul ka balam, y pic chaac pic balam, uleika cam balam, e un sac babai un chaac babai de balantun, y un kambabei y tu maho chaho miso lohun cahun" and the fiesta is finished. Then everyone is ignored, but not San Antonio de Padua.

¹ Freidel et. al. (1993:219, 285) translate the term as "substitute". A third-party, a trilingual informant, gives the meaning "cambio" = "change" or "exchange" in english; the root is "keexik" = to change. Thus, the "pollitos" mentioned can be interpreted as being objects of sacrifice for exchange. The same informant also spoke of a more general religious idea which sees the relationship between men and gods as one of exchange. The term "k'ex" is used to characterize the actions of people who visit the "virgen" of Xcupil offering images which show sick parts of the body. In exchange for this image people expect to be cured. A similar relationship exists between the peasants and the "owner of the milpa". If one wants to get a good harvest one must offer *pozole* (a drink made of corn meal) to the "owner".

² Jaguars, protectors of the towns and fields (Freidel et. al., 1993:50,131,428,note 14)

³ A holy beverage made of corn and water.

⁴ "tankah" = terrain like a hill; "kanaho balam" = the balam who guards the village. This sentence would thus read something like: "The balam lives there, outside on a hill".

⁵ "muul" = together.

⁶ The speaker here is talking about the different Maya gods (the balams and the chacs). According to the aforementioned informant and his father, these expressions are used only by *h-men* (traditional ritual specialists), and as such are indecipherable to the average Maya speaker, including the translators.

⁷ The patron saint of the village.

Question: Cuantos años tiene la fiesta?

Informant: Pues poco más bueno yo tengo, desde que yo era nací y yo crecí, era niño, 56 años ahorita, tiene haciendo como más de 80 años o más.

Question: Mil años posiblemente? Es muy antiguo?

Informant: Es muy antiguo.

Question: Y el árbol, se llama ceiba?

Informant: Si sabes porque se siembra también en la plaza. Porque cada persona que quiere hacer su promesa⁸, hay personas que, no puedo meter un toro para torrear, para que matan eso, pinche torrero. Entonces se siembra el ceiba. Se dice, y sabes como se dice en maya que "sacatan xcupal", es la "reina de la plaza". Se siembra con el vino sagrado. El vino sagrado es el "balché". Se siembra entonces el ceiba, los "sacatan xcupal", para que pendientes. Cualquier ganado que por lo más grave que alguna vez se pega ya así todo es, y hay más, ahorita vamos a traer este, las armas con que se matan ganado. Son los aceritos⁹ así.

Question: Es la ceiba un árbol sagrado?

Informant: Es un árbol sagrado.

Question: Porqué? Porqué no otros especies? Porqué la ceiba?

Informant: La ceiba porque, bueno es como se dice. Después de que lo siembran se le hechan el vino sagrado. Entonces es como bautizar a una persona, el bautismo. Pues, es donde se agarra fuerza de una persona. Claro que, la ceiba no es un árbol muy duro, pero resiste por más grande que sea el ganado. No lo tumba, no se quiebra, no nada. Buen, todos estas fiestas son fiestas tradicionales.

How old is the fiesta?

Well, somewhat more than me, since I was born and growing up, I was a child, I'm 56 now, this has been done for more than 80 years or more.

A thousand years possibly? It is very ancient?

It is very ancient.

And the tree that is called the ceiba?

If you know why it is planted in the plaza. Because every person who wants to make their promise, there are people that can not contribute a bull to be fought, to be killed by a damn bullfighter. Then the ceiba is planted. It is said, and you know how they say in Maya, that "sacatan xcupal", "it is the queen of the plaza". It is planted with sacred wine. The sacred wine is "balché". So the ceiba is planted, the "sacatan xcupal", for the hanging [of various types of ornaments]. Whichever cattle, and no matter how hard that sometimes it is hit, it stays the same, and there is more, now we are going to bring them, the weapon with which they kill the cattle. They are "aceritos" like this.

Is the ceiba a sacred tree?

It is a sacred tree.

Why? Why not another species? Why the ceiba?

The ceiba because, well it is like they say. After it is planted it sacred wine is poured over it. Then it is like baptizing a person, a baptism. Well, it is where one gets strength. Of course, the ceiba is not a very hard tree, but it resists the strongest of livestock. It does not fall, it does not crack, nothing. All of these fiestas are traditional fiestas.

⁸In this context, a "promesa" can mean a promise to God. It is part of a deal in which an offering is given in exchange for good fortune.

⁹Steel spears.

Ya tenemos el programa, este de PACNIC. Un proyecto para, o sea el presidente de la república ayuda a los fiesteros con todo este, así como platos, ollas, pailas, molinos de mano para moler chile para moler este recado. Entonces ya tengo todos los papeles. El proyecto ahorita está en concurso. Sí San Antonio de Padua, el patrono del pueblo, para el otro año vas a ver cuando va a ser más mejor la fiesta.

Es tradición. Esta fiesta es como el "Cha Chaac", es como "Lo", es como el "K'ex", todo eso.¹⁰

Question: Los dioses del Maya?

Informant: Sí, porque se invoca también a dios en pura maya para invocar se dice . . . [followed by a Maya prayer¹¹].

We already have the program, this PACNIC. A project for, that is to say the president of the republic helps the fiesta organizers with everything, like plates, pots, pans, vessels to crush chile, to crush this spice. So I have all the papers. The project now is in operation. Yes, San Antonio de Padua, the patron [saint] of the village, another year is going to see when it is going to be a much better fiesta.

It is tradition. This fiesta is like the "Cha Chaac", it is like "Lo", it is like the "k'ex", all of these.

The gods of the Maya?

Yes, because the gods are also invoked. In pure Maya to invoke them they say . . . [followed by a Maya prayer].

¹⁰ The "Lo K'ex" is a healing ceremony (see Freidel et. al., 1993:219-222).

¹¹ This prayer, as with the earlier expressions, is also in esoteric language and could not be translated.