CARIBBEAN PREHISTORIC DOMESTIC ARCHITECTURE: A STUDY OF SPATIO-TEMPORAL DYNAMICS AND ACCULTURATION

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For my Mom and Dad who provide me with everything I need to do the little things and
God who does everything else.
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ABSTRACT

The study of settlement geography, demography and social behavior in the prehistoric Carib and Taíno societies of the Caribbean has recently become a prominent domain of interest to archaeologists working in these islands. Archaeological floor plans for prehistoric houses within the islands of St. Eustatius, Barbados, St. Thomas, Cuba and Puerto Rico demonstrate the cultural continuity of house shape, settlement organization and social organization from the early Saladoid to the contact period. These data support a model of Taíno settlements with multiple house forms, not only the *bohio* and *caney* forms recorded after contact, but oval and rectangular forms that indicate a social hierarchy and an indigenous origin for the complex settlement organization revealed in archaeological excavation.

**Key Words:** Taíno, house, St. Eustatius, Barbados, St. Thomas, settlement, household, demography, form, evolution, *caney, bohio, maloca.*
INTRODUCTION

West Indian archaeology has focused on the middens and socio-economic development of three groups: Taíno, Carib and Ciboney. This focus spans the earliest entry of the Caribs and Taínos into the Caribbean from South America, ca. 4000 B.C., to the later ceramic traditions of the “people who greeted Columbus” (Rouse 1992:1). Of equal importance, but secondary consideration in most cases, prehistoric archaeological research has also emphasized settlement patterns and the socio-political dynamics of communal Caribbean societies.

This thesis is an examination of the changes in house structures within the Caribbean region across a long expanse of prehistoric time marked by cultural change. Caribbean quadrilateral house styles have long been perceived as post-contact era features. I contend in this thesis that this change in house form is a development from Taíno and Carib cultural roots in South America and developed on the islands of the Caribbean. Evidence presented in this thesis will show that the assumption of post-contact change is incorrect and that a variety of house forms (not only round and square) are indigenous developments, preceding European contact.

The thesis also seeks to illustrate the multifunctional uses of these house types throughout the Caribbean in prehistoric times, not just as a chiefly dwelling place, as portrayed in the ethnographies. Diversity in form and function are all linked to the evolution of social organization among the Taíno groups. The organizational models of evolutionists (e.g., Elman Service 1966 and Kent Flannery 1972) can be applied to an examination of cultural and social changes in the region as evidenced by archaeological and ethnographic data.

At the time of Columbus’s arrival, the Caribbean area was occupied by chiefdom level societies, with the exception of an earlier aceramic tradition surviving in sections of northwestern Cuba. Ethnographic descriptions and archaeological data have identified the existence of different patterns of house structure and composition. Most Caribbean prehistoric housing was constructed from thatch and posts, was circular in layout, and conical in shape. Research (mainly from ethnographic accounts of Spanish chroniclers of the contact era, e.g., Las Casas and Peter Martyr) has shown that the structures were occupied by extended families (Rouse 1992; Siegel 1989, 1999; Versteeg 1992). Larger chiefly houses, oval in shape and accommodating some 500 to 700 individuals were also in existence (Versteeg 1992; Wilson 1990).
In 1985, Hugh-Jones introduced the idea of the *maloca*-style house, an indigenous South American style, into archaeological interpretations of Caribbean prehistoric houses (Figure 0.1). This house style is the model used to describe the larger oval or round shaped house features found throughout the Caribbean. The prehistoric maloca house style is unique to these cultures and assists in understanding the communal lifestyle of the Taíno and Carib inhabitants who shared this form.

![Figure 0.1 An example of a maloca-style house construction (from Hugh-Jones 1985: 81).](image)

To understand Taíno villages and house structures in the Lesser Antilles and Greater Antilles, an introduction to Taíno settlement features is needed. Such an introduction includes the location of Taíno villages on the islands and the composition of the households living in each house type or form. Data available on the construction and modification of these structures must be compared to those houses created during the colonial era and credited as a new house style or type of architecture evolving in the native settlements of the Caribbean under European influence. The origins of the *maloca* style, *bohío* or rectangular house style described in the ethnographic record must be understood and its indigenous features (e.g., shape and composition) verified. It is also important to understand that the cultural implications of this type of house within the social and political dimensions of Taíno culture are the keys to understanding prehistoric evolution of house styles (i.e., shape, form or type).

This examination is patterned from a theoretical standpoint after the works of Kent Flannery (1972) who examined cultural evolution in house shape and communal compound formation. Flannery (1972) proposed that the earliest house form was a circular hut compound of communal dwellers and identified its presence archaeologically in the Near East and the Maya area of the New World. He also demonstrated that this form was replaced by later village
settlements with rectangular houses. The change in house style carried with it the cultural
developmental markers of a more complex society. I propose to trace the growth of complexity
and diversification in Amerindian cultures of the West Indies using this material culture marker.
Variations in house form help to illustrate the phenomena of cultural evolution and acculturation
from the time of initial population to first contact in 1492 (Figure 0.2).

Chapter one provides a brief history of the Ciboney, Taino, and Carib people who
inhabited the Caribbean from its earliest colonization to the time of European contact. The
chapter draws much of its data from the work of Irving Rouse (1989a, 1989b, 1992), Rouse and
Moore (1984) and from Rouse and Cruxent (1963). Each culture is considered independently
using the culture titles given by European chroniclers and the time periods created by
archaeological examination of the ceramic artifacts of this region. The chapter also provides a
general synthesis of information about Caribbean prehistoric artifactual data and how these data have been recovered. This chapter is prelude to a presentation of the territorial extent, socio-political and economic dynamics of the various island groups.

Chapter two presents the definitions of the culture sequence and organization of the cultural material that identifies each culture group. It examines foodways, production, consumption and distribution of goods, and the social dynamics of each cultural group with special attention to the Taíno. This chapter is designed to give the reader an understanding and appreciation of the complexity of the region and the extent of the investigations that have been conducted in the history and anthropology of the indigenous groups.

Chapter three addresses the central topic of this thesis, presenting the ideas surrounding the debate about house forms in the archaeological record. It also discusses archaeological research in the Caribbean Basin and northern South America, and examines the relationship between ethnographic analogies and the interpretation of archaeological settlement data. The chapter also delves into the theoretical scope of anthropological research into house form evolution, both its sociological and anthropological implications.

Chapter four presents the data that are currently available on prehistoric house forms identified in the Caribbean region. The chapter also examines the general features associated with settlements, such as burials, sources of water, work space, in addition to the architecture and dimensions of the houses and other structures. The discussion of settlement evolution or diachronic and systemic change is also examined briefly.

Chapter five uses the data from chapter four to focus on the house forms and the association of these house forms to the theoretical perspectives, theories and models presented by various researchers (e.g., Rapoport, Versteeg, and Drewett). There is also a brief examination of the demographics of these sites and islands, based on the available archaeological data and uses the scientific techniques presented by Curet (1998) for constructing prehistoric Caribbean population estimates using house size data.

The concluding chapter six presents cogent arguments about variations in house form identified in archaeological sites throughout the Caribbean region. Using insights gained from the analysis, this chapter reconsiders earlier perceptions about Taíno house forms and presents a model consistent with the archaeological and ethnographic record. This final chapter seeks to answer questions presented in this introductory segment.
Chapter 1

CARIBBEAN SETTLEMENTS IN PREHISTORY

Prehistoric settlements within the Caribbean have been identified primarily by two groups of researchers. One of these groups is composed of the historical societies conducting archaeological site surveys to locate national heritage sites. The other group is composed of foreign researchers interested in examining population migrations and the origins of these isolated indigenous island populations. These groups each represent differing archaeological interests in the prehistoric settlement data of the Caribbean: settlement distribution versus internal site patterning. Their interpretations are based on differing approaches to the archaeological survey goals developed for this region and represent an evolution of techniques and anthropological investigation.

The earlier period of survey, under an antiquarian paradigm (1900-1949), was focused on the assessment of cultural remains of the three indigenous cultures and implied varied socioeconomic organization (Versteeg 1998). These researchers generated the first midden and settlement site lists for major islands: Puerto Rico (Fewkes 1905, 1922), Jamaica (DeBooy 1913) and Guiana (Roth 1924). The second phase of archaeological survey focused on academic investigations into the origins and demographics of these migrant populations to identify the cultural links tying the islands together and to mainland South America (Howard 1950, 1965; Lovén 1935). This phase of archeological research in the Caribbean has been conducted on a significantly smaller scale. During the 1980s, in anticipation of the Columbian Quincentenary, archaeological research into West Indian cultures at the time of contact focused on the cultural dynamics between the indigenous population and the European explorers of this frontier (Keegan 1991; Rouse 1992).

At the time of contact, the Caribbean area featured societies at a chiefdom level of social organization. The Taíno inhabited the Greater Antilles and parts of the Lesser Antillean islands of this region. They are identified as South American migrants, native to the Amazon Basin, who belong to the Arawakan linguistic group (Wilson 1997:25; Rouse 1992:37). Their movements within South America have been traced from the Amazon Basin into Venezuela and British
Guiana. From there, they spread into the Lesser Antilles and on rapidly northward into the larger islands of Puerto Rico, Hispaniola, Cuba and Jamaica (Keegan 1985, 1974). By 500 B.C., the Taino who had migrated into the Caribbean Basin had developed a cultural identity distinct from their South American ancestors. They were recognizable as a native Caribbean social complex with their own distinct ceramic styles and social structure.

Taino culture reached a level of complexity that greatly affected the demography and topography of this archipelago. Part of that cultural distinction was in the manner of their settlement structure and organization, in their house forms and demographic density. Some Taino, who, subsisted by fishing and agriculture, lived in communities (yucayeques) situated along the coastlines and within interior valleys with river systems. Not all Taino groups developed the same level of social organization (e.g., cacicazgos [chiefdoms]) or practiced both fishing and agriculture. At the time of contact, Maggiolo (1997:37) notes that there were intensive gathering communities at the Soco site in the Dominican Republic, where the natives gathered “guayiga” (Zamia debilis) as well as shellfish and extended families lived in bohíos (houses) built near large mounds or middens.

Bartolomé de Las Casas (Maggiolo 1997:37) chronicled three distinct types of Taino settlement, during the First Spanish Period (1492-1524). One type was the circular patterned settlement reminiscent of South American compound villages with a central plaza. An example of this type is the Juan Pedro site, in the San Pedro de Macoris province of the Dominican Republic. A second type of settlement was the two intersecting streets plan, from eastern Hispaniola. The third and smallest type was a collection of a few bohíos organized around a steep-banked riverine area. Estimates of demographic density vary from five hundred in the larger settlements to more than one thousand in the central plaza plan villages. Ceremonial plazas also developed separately from settlements, such as the Atajadizo site and Aleta sites in the Dominican Republic and Caguana (Figure 1.1) in Puerto Rico (Espenshade 1995).
Figure 1.1 Caguana Park is a large Taíno ceremonial settlement in Puerto Rico's Utuado region. Multiple plazas similar to those seen at Maisabel are shown in this photo (from Alegría 1989:169).

Ethnographic records supply information about a large town near Puerto de Paz (Port de Paix) on the north coast of the Republic of Haiti, with 1000 houses and a reported 3000 inhabitants (Lovén 1935:336). Las Casas (Lovén 1935:338) also reported several towns on Hispaniola that had ball courts, but no streets and houses built in an regular pattern. The great house of the chief was located on the plaza (Lovén 1935:338) and a cacique-residence was constructed as an extension to this meeting place where the chief and his family (concubines and young children) resided. Higuey on Hispaniola was the only town reported by Las Casas to have had a town plan, of sorts, where four streets were oriented in the form of a cross (in Lovén 1935:336). Both Las Casas and Columbus mention pile supports for structures in the Bahamas and for Carahate in Cuba. Las Casas mentions that the houses were “sobre horcones en el agua” (Lovén 1935:337) suggesting they may have been built on a waterway, most probably a river that required pilings. Columbus also mentions a watchtower, or what Fernando calls a “tablado” (in Lovén 1935:338), on the west coast of Puerto Rico. This installation was built away from the settlement itself and a sentinel posted. Although these records of settlement type and appearance date from the post-contact era, they are recognized as indigenous on the basis of their lack of any true organization or planned layout.

Las Casas’ description of a Taíno house in Hispaniola taken from Historia, provides details of house construction during Spanish colonial days as he saw it in Indian towns like En Bas Saline, near Puerto Real:
… their (inhabitants of Hispaniola) houses of wood and straw, in the form of a bell. These were very high and spacious, such that ten or more persons lived in one. They drove in the big poles, as big as a leg or even a thigh, in a circle, half the height of a person, into the earth and close together; they were all joined together at the top, where they were tied with certain cord of root, which formerly were called bejucos. Upon these first poles, across and crisscross many other thin ones (poles), (were) tied well with roots. With this root and the bark of trees …, they make lattice work with designs and foliage like paintings on the inside of the building…. Others were adorned with stripped reeds … very thin and delicate canes … made by the Indians, which one Spaniard sold to another for 600 castellanos or pesos of gold …. (Las Casas 1951:146-7)

Archaeological survey on the Caribbean islands has identified evidence of prehistoric settlement which ethnographic accounts did not record (Figure 1.2). These features are mostly identified as middens, burials, surface finds and a few postmolds. This study focuses primarily on sites that have been identified in Puerto Rico, Barbados, St. Thomas and the Lesser Antillean island of St. Eustatius, because they have the best prehistoric settlement data.

Figure 1.2 The Caribbean Basin surrounded by the American continent and the Atlantic Ocean (after Quilter 1997:14).

El Bronce, in the south-central part of Puerto Rico, was a ceremonial plaza-type settlement. This settlement consists of a central plaza lined with petroglyphs and several clusters of post molds, indicating multiple houses. The PO-21 and PO-39 are among many other sites that have been identified in the Cerrillos Valley of Puerto Rico. Playa Blanca-5, another Classic
Taíno site was located in the Ceiba region, on the east coast of Puerto Rico. Maisabel, another ceremonial site, has few house remains and is on the north coast of Puerto Rico, 30 km west of San Juan.

The Tutu Archaeological Village site is located on the island of St. Thomas, which is one of the islands within the group of islands that make up the U.S. Virgin Islands.

Golden Rock is a site within the central plains of St. Eustatius (also called Statia) that dates to the fifth and seventh century A.D., during the very early years of Caribbean colonization and settlement by the peoples from the Orinoco Valley of Guiana and Venezuela. Archaeological work at the site revealed the remains of circular structures and middens. The structures were identified from the analysis of excavated postholes. Several of the structures were identified as round houses and others as oblong houses or what Aad Versteeg (1998, 1992), the primary researcher, identified as a *maloca*-style house.

The Heywood site, on the west coast of Barbados, is but one of over fifty sites on Barbados: included are the sites of Hillcrest, Chancery Lane and Silver Sands. The Barbados sites have been researched and reported by Maureen Bennell (1996), Peter Drewett (1991, 2001), Honychurch (1997) and Elizabeth Wing (1991).

Culture Groups

The Taíno, or Island Arawak, are the largest of the three ethnic groups who at the time of European contact inhabited the area known today as the Bahamas and the Greater Antilles (Figure 1.3). Prior to the arrival of the chroniclers (Las Casas, Columbus and Pané), they lacked a common name for the entire culture; instead, each island or locality had a specific name, like the inhabitants of Puerto Rico, who were known as the Borinquen. Those in the Bahamas called themselves the Lucayo. Both are well documented in ethnohistoric records (Las Casas 1951; Rouse 1992; Olsen 1974).
Irving Rouse (1948:495) characterized the Taínos as an agricultural society with permanent villages, a well-developed aristocracy, and a religious life focusing on the worship of zemis (idols), through dancing and songs performed within ceremonial plazas. Although little evidence of the manioc fields of conucos remains (raised earth in which the tuber manioc/cassava is grown), remnants of their ceremonial plazas (batey) exist today on the islands of Puerto Rico, Hispaniola, Cuba and some islands of the Lesser Antilles. The only clearly recognizable remains of an actual Taíno dwelling was found at the Golden Rock site in Monsterrat and excavated by Aad Versteeg (Keegan 2000:141; Versteeg 1989, 1992).

The Ciboneys, or Guanahatabeys, shared Cuba with the Taíno who occupied the eastern half of the island. Theirs is a lithic culture, identified in the archaeological record from a stone tool assemblage, classified as the Casimiran subseries by Irving Rouse (1992:51-54). The Ciboney lived in rock shelters and were mentioned in the ethnographic record by Las Casas and Oviedo as a non-agricultural people who subsisted on shellfish gathering and fishing (in Highfield 1997:155; Rouse 1992:20).

The Island Caribs occupied the Lesser Antilles on the Windward side of the Caribbean Sea. They are believed to be the last colonizers of the Caribbean area to arrive from the South American mainland. They shared many linguistic traits with ancestral Arawakan groups in South
America and maintained trading relationships with various tribes along the Guiana/Venezuelan coast. They called themselves the *Kalinago/Kalina* in their native language. The Kalinago occupied the Windward Islands, Guadeloupe and other Leeward islands during the Protohistoric period (A.D. 1492-1524). They belong to the linguistic group known as Igneri, which is also an Arawakan language (Rouse 1992:21; Keegan 1992:10; Highfield 1997:156). A trade language, Cariban in origin, was used to conduct negotiations with South American tribes with whom the Caribs maintained contact well after the arrival of Europeans.

Ceramic Series Dating of Circum-Caribbean Sites

The idea of a ceramic complex used to define a people’s culture entered Caribbean archaeology from Peruvian studies through Robert Howard’s (1947) work in the Caribbean Basin. This approach uses “the attributes of shape, material and decoration that a local population build into its pottery during a single cultural period” (Rouse 1989b:385). As Keegan (2000) has noted, the major focus of Caribbean archeological research has been on ceramics, and most of the excavations to date have focused on the recovery of ceramic artifacts. Pottery types form the chronological and cultural framework for the examination and classification of the West Indian archaeological record. The chronological sequencing of events surrounding the population, migration, or settlement and abandonment of sites in the circum-Caribbean area has been developed using available radiocarbon dates and comparisons of ceramic series and subseries originally created by Irving Rouse (1948) and elaborated and refined (Rouse 1992). To Rouse’s work has been added the investigative and research expertise of William Keegan (1985, 1992a, 1997b) and Peter Siegel (1989, 1992, 1997, 1999) among others who have revised and refined the more current chronology and cultural sequence for the peoples and material culture in the area under study.

Rouse’s (1992) creation of a four period division of the cultures of the Caribbean is perhaps the most widely used outline of ceramic development for the cultures of the area (Figure 1.4). Rouse linked calendrical dates based on radiocarbon determinations, stratigraphic dating methods, and the ceramic typologies and records of cultural groups into a single chronology.
Figure 1.4 Ceramically defined periods in the Taíno area and their calendrical dates and periods (from Rouse 1992:107).

Ceramic-bearing cultures entered the Caribbean around 500 B.C. with the appearance of the Huecan subseries, named after the type-site of La Hueca, on Vieques Island, off the coast of Puerto Rico (Allaire 1997:22; Rouse 1992:87). This ceramic subseries is also identified from the Puerto Rican site of Sorcé, excavated by Luis Chanlatte Baik in 1981 and Punta Calderon excavated by Miguel Rodriguez in 1991 (Rouse 1992:87). The subseries is composed primarily of zone incised crosshatched pottery lacking paint. The bird head pendant or adorno is also a characteristic of this subseries, which includes snuff vessels, three-pointer stones and simpler stone pendants (Rouse 1992:86). The Huecan ceramic subseries has been used to link Caribbean populations with the South American continent where a comparable ceramic style has been identified in the lower Orinoco River Basin. The Punta Candelero site has been radiocarbon dated to between 170-70 B.C., while the Sorcé dates range up to A.D. 200 when the Hacienda Grande, or Cedrosan Saladoid series, replaces the Huecan.

The Cedrosan Saladoid subseries, characterized as the Hacienda Grande group, after the site of the same name in the Rio Loiza basin on Puerto Rico, has been found at a number of sites where evidence of habitation also has been identified. Saladoid pottery, identified by its highly decorative style has been found at the Golden Rock site, in most prehistoric archaeological sites
on Puerto Rico and at the Trants site in Monsterrat. It is characteristically painted red, black and white-on-red with zone incised crosshatching, punctuation, modeled and incised zoomorphic adornos and strap and loop handles. This culture also produced lapidary artifacts, from exotic materials, like amethyst, carnelian quartz, serpentine and jadeite (also produced by the preceding Huecan culture) (Keegan 2000:143). The westernmost site of the Hacienda Grande series is La Caleta on Romana Island across the Mona Passage from Puerto Rico, radiocarbon dated to circa A.D. 240.

Saladoid culture settlements have been identified primarily from inland river drainages with adjacent agricultural land. Coastal settlements are also present to a lesser degree. Village settlements were large. The Trants site population is estimated at between 200-300 people. The duration of occupation at the site was in excess of 800 years, indicating the success and sustainability of the culture. Large houses occupied by extended families were also arranged in horseshoe-shaped villages as seen in the earlier Huecan culture. At the Trants site, a plaza and cemetery were also present. Clay griddles were also found on these sites and the remains of an active lapidary industry. Warfare and raiding have been identified from a burial at Maisabel on Puerto Rico (Siegel 1992). Long distance trade is identified from the exotic materials used in the lapidary industry. These findings, including the elaborate plazas and maloca-style houses, are according to Versteeg (1998), indications of a complex political organization, (i.e., a chiefdom level society).

The Troumassoid subseries follows the Saladoid between A.D. 500 and 600, in the Windward Islands (Figure 1.5), and lasts until A.D. 1000. Polychrome vessels with curvilinear incisions were continued. Painting was primarily in black and red and the vessels were given legs or pedestals. Granular material (grit or crushed shell) was also included in the fabric of the vessels. Clay spindle whorls were produced in the Late Troumassoid period. This style, like the Huecan style, also shared similarities to the Barrancoid series in the Orinoco Basin.
In the Leeward Islands, Troumassoid culture evolved into the Mamorean culture, which is found primarily on Antigua. In the Virgin Islands, Troumassoid was replaced by the Magens Bay culture, which is similar to the Ostionoid culture that developed in Puerto Rico and the Greater Antilles. In the southern Leeward Islands, Troumassoid yielded to the Suazoid culture in A.D. 1000.

The Suazey ceramic series dates from A.D. 1000 to 1450 (Keegan 2000:146), developing out of the Troumassoid into a simpler, plainer ware. The vessels are bulky, with finger-indented rims, primarily redware, with incisions. The style is characterized by a flat human head adorno with pierced ears. Suazoid culture settlements are located along the coast, near water sources where flat arable land was available.

The Suazoid subseries was succeeded by the Ostionoid Period that lasted from A.D. 600 to 1500 (Keegan 2000:148-9). This period, like the Saladoid before it, is divided into a number
of ceramic subseries. Elenan, or the Elenoid period is the first of these. It features a coarse ware with some Zone Incised Crosshatch (ZIC) incisions and modeled incised designs that vanished in Period IIIB. The style is best known from eastern Puerto Rico and the Virgin Islands (Rouse 1992:124). Rouse (1992:107) proposed dates of between A.D. 600 and 1490 for this subseries. El Bronce, in Puerto Rico is the site of an Elenan Ostionoid ceramic style. It is here that the earliest of the plaza ball courts was discovered (Curet 1992).

The Elenan culture quickly was superceded by the Ostionan subseries named after the Punta Ostiones type-site on Puerto Rico. Ostionan ceramics are redwares, like the Suazey, but largely undecorated. Its vessels have red slip and red paint with black smudging or what Rouse calls a “black-banded design” (Rouse 1992:93). The Ostionan culture has been found in Western Puerto Rico, Jamaica, Cuba, Grand Turk and Haiti. The site of Anadel in the Dominican Republic is an Ostionan site, radiocarbon dated to between A.D. 695 and 1245 (Rouse 1992:95). Another type-site is Arroyo del Palo in eastern Cuba that is radiocarbon dated to A.D. 930 to 1190 (Rouse 1992:95).

The third subseries within the Ostionoid period is the Meillican, originally from the Cibao region in the northeast corner of the Republic of Haiti. Radiocarbon dates for this site range from A.D. 825 to 1220 (Rouse 1992:96). In Cuba, dates of A.D. 830 to 1460 have been recorded and in Jamaica, A.D. 880 to 1490 (Rouse 1992:97). This subseries is similar to the Ostionan with thin, hard and fine bowls with upturned shoulders. They are not painted and their surfaces are decorated by roughening. Punctuation is also present beneath the rim and incised, appliqué and punctuated designs are seen on vessel shoulders. These designs are rectilinear with some crosshatching and plain hatching. It is Meillican culture that develops the mound field system of conucos recorded by Columbus and practiced by the Classic Tainos. Their sites are located in coastal areas, but on high ground back from shores (Rouse 1992:98).

The Chican subseries is the last of the Ostionoid period, dated to between A.D. 900 and 1490 (Rouse 1992:107). This style was first identified in the Dominican Republic and appears to have spread to Puerto Rico and St. Croix. The style was also found on Anadel and Atajadizo from Dominica (Rouse 1992:110). This style includes mainly bowls with incised shoulders that are decorated with modeled and incised lugs and curvilinear surface incisions. The Chican subseries is the predominant style found on Anguilla and Saba.
The Ostionoid period is crucial in the examination of the cultural developments that created the communal house in the West Indies. The periods that preceded the Ostionoid, i.e., the Saladoid and the Pre-Saladoi d periods, fostered the creation of this complex society from which the architects of the *maloca, caney* and *bohío* (Figure 1.6) were learning and developing their skill.

Figure 1.6 A caney and a bohio (after Fewkes 1904:43).
Chapter 2

HISTORIC OVERVIEW

This chapter provides a more complete canvas on which to address the topic of settlement and house form. The various cultures, their geographic range, political, social and economic composition and temporal and cultural dynamics are the backdrop against which all of the data on prehistoric Caribbean architecture must be evaluated. The paucity of data on this topic and the complexity of the Caribbean culture area necessitate a fuller understanding of each of the components.

Migration and Peopling of the Caribbean

The migration and peopling of the Caribbean region has been defined by its ceramic correlates. Rouse (1989b), who first recognized the ceramic continuities within the prehistoric ceramics of the region, defines peopling as, “the individuals within a homogeneous area during a single culturally defined period. A people is thus a human population … a single culture” (Rouse 1989b:384).

There are various lines of evidence for the origins and migrations of peoples into the West Indies. Linguists have traced the Arawakan language of the region using glottochronology (Greenberg 1960). They have classified it in the subfamily of the Andean Equatorial language family. The Cariban language of the Island Caribs has been assigned to the Macro-Cariban subfamily within the Ge-Pano-Carib family (Greenberg 1960:794) found within the Amazonian language area (Figure 2.1). It was then traced along the Rio Negro, a tributary of the Orinoco River, through the Casiquiare Canal, to the Orinoco River Valley; then from the delta region of Venezuela and British Guiana into the West Indies (Keegan 1985:118). In the islands, it split into the two recognized historic languages of the natives: Carib and Taíno Arawak. The Greater Antilles and the Bahamas are thought to have shared one language and the same speech community. In the Windward Islands and Guadeloupe, the Island Caribs had two languages: one the general Arawakan language, adapted from the Igneri, the original inhabitants of the island,
and the other a pidgin of their native Cariban language with an Arawakan grammar and Cariban vocabulary.

Figure 2.1 The Phylogeny of Arawakan Languages (from Rouse 1986:122).

There were purportedly, several waves of migration of Taino people into the Caribbean islands. Researchers (Rouse 1985; Keegan 1985; Wilson 1989) have identified the first colonization of the Caribbean as the migration of a people from Central America across present day submerged islands into Jamaica (Wilson 1989:430). This has been supported by the correlation of Casimiroid tool kits between the islands of the Greater Antilles and Central or Middle America (e.g., in present day Belize). Jose M. Cruxent excavated the site of Casimira in the Dominican Republic where the Casimiran subseryes was first identified from an assemblage of lithic tools and dated to 4000 B.C. (Cruxent and Rouse 1958; Rouse 1992:51).

There were two migrations of Arawaks from South America. The Amazonian migration is believed to be earlier, originating in the far reaches of the Upper Amazon (5000 B.C.), while a later migration, marked by the postglacial separation of Trinidad and Tobago from the South American continental shelf by the inflow of the Atlantic and expansion of the Caribbean Sea, originated in the Orinoco Basin (Rouse 1986:108). Rouse has provided one of the most useful models of the migratory pattern of this Amazonian group into the Caribbean region. His wave
model (Figure 2.2) has been collaborated by archaeological evidence within the islands that have traced the ceramic, cultural and linguistic temporal dynamics of sites across the region (Rouse 1986).

Figure 2.2 Advance of the Ceramic-Archaic frontier through the Caribbean (from Rouse 1986:135).

The wave model of migration provides an interpretation of the movement of peoples from the south meeting the non-ceramic indigenous peoples of the Caribbean and the concomitant decline of these people. In the Historic period, they are reported to be present only on the western tip of Cuba. Rouse’s (1986) waves, or frontiers, are also where the Saladoid peoples halted during their migration across the archipelago. The Saladoid series ceramics are the predominant ceramic type found behind the boundaries of frontiers 1 through 3. Rouse (1992) has identified three Saladoid types or subseries: Ronquinan, Sambran and Cedrosan, all of which are found in different distributions across these frontiers. Sambran and Ronquinan are found behind the first frontier, but the Cedrosan is found behind frontiers one and three. In sequential analysis this may seem ambiguous. If Ronquinan, Sambran and Cedrosan were ordered arrangements of Saladoid ceramics, for earliest to latest series, then Ronquinan and Sambran would be behind frontier one and Cedrosan behind frontier three.
The Ronquinan Saladoid type-site is found in the town of Parmana, in the Middle Orinoco area of Northern South America (Rouse and Cruxent 1963:90). At Saladero, however, the more West Indian Saladoid appears in the Orinoco Delta. This is the obvious launch point for the rapid insertion of these people into the archipelago and up to Cuba and the Bahamas. In the Orinoco Delta, archaeological excavation has revealed the appearance of the Barrancoid ceramic culture after the Saladoid dispersed from this area. These ceramics appeared as a peripheral group to the Saladoid, further up the Orinoco River Valley. It is here in the Lower Orinoco, that models of pull and push factors and interpretation of the exodus into the insular islands to the north have been generated (Rouse 1986; Keegan 2000; Keegan and Diamond 1989).

From Saladero, the Ronquinan potters moved into Guiana where there were natural broad levees on the banks of the rivers that provided sufficient natural resources to sustain an increase in population, as groups migrated into the region. During the first millennium A.D., at Wonotobo Falls in Surinam, the Cedrosan Saladoid appears fully developed with its accompanying settled village agriculturalists. Radiocarbon dates from Trinidad’s site of Cedros, give a Saladoid date for colonization of A.D. 100 to 190, while the Fond Brule site in Martinique dates to A.D. 530 to 85. However, earlier dates exist for Puerto Rico where the Saladoid appeared 400 to 500 B.C. (Siegel 1991:80). Maisabel and Punta Calderó in Puerto Rico were later, ca. 170 to 10 B.C. (Siegel 1991:81). Both of the latter sets of dates suggest some resettlement of southern islands after an earlier migration that occurred before the time of Christ. This new wave of migrants who settled Martinique and Trinidad may account for the separation of the cultural groups of Carib and Taíno across the island chain.

Keegan’s model of the dispersal into the Lesser Antilles is based on an initial population bottleneck, and later expansion, that precipitated the fissioning of groups of settlers and migration into insular areas away from the conflict and constrictions of a disproportionate relationship between people and resources (Keegan 1985; Siegel 1991:84). Peter Roe (1989) describes the rapid migration evident in the archaeological record through the archipelago from the Lesser Antilles, Puerto Rico and Hispaniola, as an attempt to retain the mainland agricultural and resource exploitive practices on the islands. Migratory groups, therefore, immediately aimed for the bigger, more attractive islands of the north, the Greater Antilles.

The colonists were well suited to the new island habitats. They were prepared for the geomorphology and insular niches of the islands from their experiences in the Orinoco Delta.
They had also adapted an extensive canoe building and navigational technology while in the river basin. The delta area acted as a perfect incubator for the cultures that would settle this island region (Siegel 1991:86). Thus it is little surprise that the earliest settlements of the West Indies Saladoid follow the pattern of Venezuelan and British Guianan sites. Sites are located on river terraces inland, where the soils were the familiar, loamy soils like those of the Orinoco Valley. As the settlements inland grew and time passed, people shifted to the coastal areas where exploitative patterns for new resources evolved and the marine ecosystems became a primary part of subsistence. Low density population expansion then occurred at a rapid rate as communities fissioned to take advantage of new and more dispersed resources.

This early migratory group of Saladoid settlers would later evolve into the complex ceramic series cultures which Irving Rouse has charted and which Keegan has attempted to illustrate for the Lucayan region. They propose that it is the adaptations of these peoples, within the climate of Amazonian society, which ultimately evolved into the chiefdom level societies of the Taíno and Carib. Only ethnohistoric and archaeological research can elucidate some of these developments.

Socio-Economic Dynamics

The people who first colonized the islands of the Caribbean Basin have been identified in chapter 1 as Saladoid migrants from the north coast of South America. This culture introduced the white-on-red, zoned incised and crosshatched (ZIC) ceramics that we associate with this culture. They also brought with them a host of cultural practices that define their group: agriculture, permanent village settlements, the ball game and the worship of zoomorphic idols, called zemis. From this culture within the insular confines of the West Indies, the Taínos developed a subsistence and political regime that was to thrive here for over a thousand years before the arrival of the Europeans.

It is the European chroniclers who have provided much of the data depicting the political and social structure of the Taínos of the Greater Antilles. Archaeological and ethnohistoric data have provided a glimpse of the society of the Taínos, in the form of burials, personal records, maps, and artifactual remains of a complex chiefdom level society. Through the efforts of researchers such as, Elizabeth Wing and other environmental archaeologists, a better
understanding of the subsistence practices and resources available and utilized by these peoples has been generated from sites all over the Caribbean. These include an examination of the wood types used on site and the resource niches exploited by the indigenous populations. Not only do these data provide information about the materials available for the construction of domestic architecture but also the dynamics of the relationship between society and nature that shape the perceptions of space.

The Taíno’s primary cultigens were brought from South America and included: cassava or manioc (Manihot esculenta), their primary crop; sweet potato (Ipomoea batatas); yahutía (found in Venezuela, Guiana and in the Amazon) and pineapples (Ananas comosus). They also grew the Meso-American tripartite crops of beans (lima beans and common beans), squash and maize (Zea mays). The Taínos were also cultivators of achioté (seeds were used as seasoning), peppers (including chilies), groundnuts, peanuts, guava, papaya (Carica papaya) and the mamey apple (Alegría 1997:20; Keegan 1985:126-7). As the principal crop, cassava was used in many rituals and ceremonies of Taíno cultural practices, even before their arrival in the islands. Methods of growing these crops were unique to the Taíno of the Caribbean, however. All root crops were grown in artificial mounds or conucos, which provided the aerated soil needed for manioc root growth. The Spaniards described the conucos as being nine to fourteen feet wide and as tall as a man. The cassava was baked on griddles, sherds of which are found throughout the Caribbean at settlement sites. The Taínos also developed irrigation systems, at least on Hispaniola, during contact times, indicating that a fair amount of technological innovation and expertise was employed in the farming methods of these inhabitants, whom Rouse (1992) identifies as the Classic Taino.

Colonization and expansion entailed the exploitation of indigenous food sources, especially during initial group expansions when splintering or fissioning of the population on daughter islands occurred and garden plots were established and new inland ecosystems were invaded, sometime by one or several moieties. The Taíno also made use of the natural flora of the islands: medicinal plants such as annatto (Bixa sp.), edible wild plants such as prickly pear (Opuntia sp.), sago palm (Zamia integrifolia), sea grape (Corcoloba uvifera), cordia nuts (Cordia sebestena), wild tamarind (Lysiloma bahamensis), coco plum (Crysobalanus icaco), purslane (Sesuvium portulacastrum) and passion fruit (Keegan 1985:130).
Because the crops they grew were not rich in protein or high caloric foods, hunting remained a significant factor in Taíno subsistence activities. Columbus himself recorded the Taíno capture of parrots, a sort of currency or highly prized exchange good, traded among the groups in the Greater Antilles and the Bahamas. They also hunted *hutia*, manatee, iguanas, snakes and a variety of birds. The only identified domestic animal in the islands was a small dog, which many chroniclers describe as “bark-less” (Sauer 1966:59) They also harvested Queen conch, oysters and other shellfish, along with land crabs (Keegan 1992:124-7; Drewett 2000). All have been identified in numerous excavations that will be described below. The Taíno were fishermen, who used bone and shell hooks and lures, nets and the bow and arrow to hunt bigger fish. They also caught fish using the juice of the barbasco plant to poison or asphyxiate them (Maggiolo 1997: 38; Alegría 1997: 20). Fish species included: bonefish (*Albula vulpes*), porgies (*Sparidae* sp.), parrotfishes (*Scaridae*), surgeonfishes (*Acanthurus* sp.), snappers (*Lutjanus* sp.) and grunts (*Haemulon* sp.). From Barbados, Wing (1991) also records eel, shrimp, and crayfish in shell middens.

Fishing was a lower class occupation among the Taíno in yucayeques or communities, called *naborias*, by the chroniclers. They also worked the fields and hunted. The upper classes, *nitainos*, were warriors and artists. They owned the canoes and conducted trading expeditions. Women for the most part were the gatherers of wild plants. They tended fields, helped with harvests, prepared food and water and cared for domestic animals. Women wove baskets, cotton fibers and sisal (*Agave* sp.) and made the pottery. Men did the clearing of fields for planting. They also built the houses and wooden furnishings like the *duhos* and zemi tables. Children were responsible for tending fields during the growing season (Maggiolo 1997:38).

The Taíno also depended on shellfish to support their diet. Middens composed of a variety of shellfish have been recorded from virtually every island that has had archaeological excavations. Keegan (1985) has recorded species from the Bahamas and Elizabeth Wing (1991) has provided a list of shellfish species from Barbados. Keegan has recorded Citons, Nerites, and West Indian top shells (*Chittarium pica*), all of which are harvested from rocky intertidal zones in the Bahamas (Keegan 1985:134). Many of the mollusks occur on eel grass flats (*Thalassia testudinum*), including the bivalve, *Codakia orbicularis* and Queen conch (*Strombus gigas*), the most numerous species within the faunal collection of most Taíno midden deposits. Sea turtles
have also been identified as part of the Taíno diet, in particular the green turtle (*Chelonia mydas*), which has been found in Bahamas and in St Eustatius (Versteeg 1987).

The Taínos exploited a variety of habitats at the time of Spanish contact. These included littorals of marine and pelagic habitats, inland marshes and swamps and coastal beach and dune areas. Reef environments and beaches were primary areas for hunting, while the fertile valleys were agricultural locations. Both of these primary subsistence-harvesting areas were accessible from the coastal locations where Taíno settlements were usually established. The variety of subsistence niches indicates a considerable investment in exploring these varied habitats and trial and error attempts to master the means of capture, processing and food preparation techniques necessary for this variety of food types. Some of these processing techniques were quite elaborate as indicated by Keegan’s (1985:134) research into the processing method for Nerites, which he found to necessitate the boiling of the shellfish prior to hammering and opening of the shell to extract the meat.

The majority of island settlements show some shift from more inland fertile valleys to coastal location, but all settlements maintained access to multiple habitats. Keegan (1985:175) has linked this shift in settlement location to a shift in subsistence practices: from a focus on the traditional subsistence crops of manioc and the three sisters (maize, squash and beans) to marine habitat-based subsistence as recorded in the Lucayan phase of settlement. This shift in subsistence would have been hastened by the decline in terrestrial animals like the hutía and rock iguana, on which the migrants Taínos feasted on during the initial Saladoid period. In response to the intensification of marine patch exploitation, a number of shellfish species appeared in the diet, signaled by a change in the Taíno tool kit to include Strombus hammers, blades and axes, used in the production of the wooden structures of Taíno life. In fact, in Barbados at the Heywoods site, *Strombus gigas* shells are identified as part of the Suazoid artifactual collection and menu (Drewett 1991:162)

Taíno trade relations were extensive and included both inter- and intra-island networks, especially between the Greater Antillean islands and with other groups (e.g., the Lucayans in the Bahamas and Sub-Taíno on Hispaniola). Not only did trade require canoes, but it also affected the location of settlements. The canoe makers required large hardwoods, like ironwood identified from the forests of Hispaniola and Barbados, and from coastal locations where large and small
canoes could be launched safely and shelter provided during tropical storms when the canoes were moored.

Archaeological evidence of widespread trade comes from the Bahamas where Keegan (1985:186-187), reports the excavation of exotic hand stones, polished petaloid celts and igneous sand-tempered ceramics from the Greater Antilles. An ethnohistoric account by Columbus also reports Taíno trade links between Long Island and Cuba, where they traded in cotton, salt and marine products. A trade in foodstuff was also an integral part of this maritime trade. In some instances, trade was conducted on a daily basis, (e.g., on the Mona Passage between Jamaica and Hispaniola). Part of this trade was in the elaborate zemis and other artifacts that they produced from stone, bone, shell and wood. Later cotton and other fibers were added during the protohistoric period. Caciques, who were the controllers of the intra-island trade, also traded in songs and dances used in cohoba ceremonies (manioc feasts) where arietos (musical plays) were performed.

The evidence of many innovations and exploitation of diverse niches indicates a productive subsistence base. Although there is also evidence of expanding population, there is no indication that surplus production or storage of large quantities of food was used as a sign of wealth and power. The chiefly individuals used other means: different more elaborate houses, small structures replicating their bohíos in which their zemis were housed, elaborate courts in which they presided over ceremonies. In these courts, food and other productions were collected and redistributed in feasts like the cohoba festival. They also had chiefs and priests who required tribute and redistributed surpluses, but who did not store these as a sign of their wealth and power.

Socio-Political Organization

One of the first components of the Taíno social and political dynamic that is widely accepted in the literature is that they were a matrilineal society as described by the Spanish chroniclers of the sixteenth century. It has also been accepted that this culture was a chiefdom level society. Other terms have been used to describe the Taínos of the Protohistoric period: e.g., “Formative,” in the case of the Classic Taíno or “Tropical Forest” for the Eastern and Western Taíno (Rouse 1992:19). All of these classificatory terms are applied to this clearly stratified
society of farming villagers, who participated in extensive trade and maritime relations that were both violent and integrative. This cultural repertoire was carried by the first wave of migrants during the period between 500 B.C. and A.D. 800, with the Saladoid/Barrancoid peoples of the northern coast of South America. These were the builders of the maloca-style houses on Monsterrat and Antigua during the Saladoid and were the ancestors of the villagers of the great provinces of Hispaniola with their multi-form house designs.

Very little is known of the prehistoric social and political dynamics of the Taínos of the Saladoid period who colonized the Lesser Antilles from Trinidad to the coast of Puerto Rico around the first millennium. The majority of evidence of this society is drawn from archaeological remains recorded from sites like Krum Bay, Maisabel, Golden Rock (GR-1) and other Saladoid settlements identified on the islands of Puerto Rico, Antigua, Monsterrat and Barbados. Evidence points to a more egalitarian society with a greater focus on cosmology and religious order (Keegan 2000:144; Siegel 1996:318). The batey (ball court or plaza) was not as extensively used although there is evidence of its existence. Shamanism, the worship of zemis and the sexual division of labor are the most obvious elements that provide insights into the culture and society of the Saladoid colonizers of the West Indies.

There is no evidence of site hierarchy or a functionally diverse settlement system during the Saladoid period, rather the earliest West Indian natives lived in large, insular villages (Keegan 2000:144). There is no evidence of elaborate burials although there is exotic material (greenstone, or jadeite beads and monkey remains) in early mortuary assemblages. I believe that these materials might be an expected part of the migrant population’s material possessions brought from their mainland homeland. This is not to say that later Saladoid villages in the Caribbean lacked the organizational hallmarks associated with the Tropical Forest culture of South America’s Amazonia. Peter Siegel (1996:318) points out that the Saladoid peoples of the Caribbean had a very complex ideological and religious life that evolved from their South American origins.

Villages were organized in concentric ring models with horseshoe-shaped middens, surrounding a central plaza or ball court (e.g., Sorcé, Maisabel and Punta Candelero). Burials were also placed in cleared areas that occasionally functioned as cemeteries (Siegel 1996:323). These areas are believed to be precursors to the more elaborated stone-lined courts of the post-Saladoid era (Siegel 1996, 1999). This settlement organization is patterned after the South
American cosmological model of the universe. Most of the remains of trade and ceremonial life of the Saladoid period was buried in the middens that surrounded these plazas. This placement seems to indicate the separation of the sacrosanct and nonreligious parts of life and may be related to ancestor worship and the organization or separation of the spiritual from the physical world (Eliade 1957). Few grave goods were buried with the interred, but were instead placed in middens. The kinds of objects found with human burials are believed to be strictly ritual in nature, being used by the dead to commune and care for the living while on their journey through the afterlife.

During the Saladoid period there was also evidence of a mythological connection to the mainland. This is represented by zoomorphic adornos and decorative lugs on the red-and-white ceramics and in zemis, carved with the faces of monkeys or boa constrictors, found only on Tierra Firma (Venezuela). Snuff or nostril tubes, incense burners, vomiting sticks and bottles, perhaps for alcohol, also form part of the material remains of this pre-chiefdom society. There is little doubt that the matrilineal kinship system recorded for the later inhabitants encountered by the Spaniards was also practiced during the prehistoric era as similar kinship ties exist within Amazonian societies.

Early Indian colonists in the Caribbean are believed to have been matrilineal and matrilocal, tracing descent through the mother’s lineage and living with the matriarchal clan after marriage (Keegan 1997b:112-113). It is standard for colonizers to have a flexible social organization like a unilineal system of matrilineage in order to exploit all ecological niches offered by a new environment (Keegan 1997b:114). A quick and adaptable strategy of multi-ecological resource exploitation ensures maintenance and the rapid growth of the colonizing population (Keegan and Diamond 1987; Keegan 1985). Matrilineality also allows for the mobility of that population, as the primary work unit and the owners of the land, the women and their matriclan, are related by ties of kinship thus ensuring survival of the group (Keegan 1992:103-4; Fewkes 1907). This pattern was present during the initial period of colonization when the losers of the space war in the Orinoco/Venezuelan Basin were pushed into the sparsely populated, ecologically rich habitats of the Caribbean. As time passed, population increased and the islands to the far north that were not already occupied were all settled, this kinship and social organizational pattern changed.
Taíno society was composed of matriclans and lineage or descent was traced through the mothers from a female common ancestor and her son. With the transition to the next era of Taíno development, the Ostionoid period of zone incised and crosshatched (ZIC) ware, a new and far more complex social and political order appears. The dynamics of this change are not clear and in fact were at one time thought to be a second migration (or fourth migration, in the number of all human migrations) from South America (Rouse 1989a, 1989b). Today, however, it has been accepted that this was a local development of the culture of the West Indian Amerindians, as the past populations, Igneri, Ciboney and Guanahatabeys were absorbed or erased in West Indian prehistory. Regardless of the causes of this ethnic diversification and the subsequent new ceramic cultural series, between A.D. 600 and 1500, the West Indian Amerindians developed a stratified society, a matrilineal chieftaincy by the time of European contact in 1492.

Their chiefs, called caciques, were organized in hierarchical order, from village or clan head (guaoxeri), to second grade chief (bahari) who had control of several clans or villages and perhaps more than one ball court, to the supreme chief or paramount (matunheri) who led an entire province and was supported by his fellow caciques (Wilson 1997b:115). This organization was recorded ethnographically from Hispaniola, where five large cacicazgos or chiefdoms, were ruled by a cacique (Rouse 1948:528). Each chief, headman or subchief had control of any village he/she lived in, receiving tribute, making decisions concerning trading, food gathering or production, hosting visitors and, of course, calling on elites and villagers alike for military and civil support. The position of chief was hereditary, passed from uncle to maternal nephew. The cacique was always supported by his kin and used his own skills as a speaker and spiritual intermediary to his ancestral rulers who provided protection and guidance for the entire village (Wilson 1990:4). There was still a shaman (called a Boii, Fewkes 1902:101;and bohuti, Rouse 1992:14) who performed healings and interceded with the spirits as in the earlier Saladoid period. The cacique of the later ceramic periods was a hereditary ruler with links to the spirit world (Rouse 1992:14). He led cohoba feasts and declared the beginning of ball games to settle disputes. He also administered justice in the form of death for adulterers and thieves (Newson 1976: 64).

Below the chief and within his social sphere were the elites or nitainos to whom he was related by marriage. Elites practiced polygamy to cement their position and gain allies, especially
from villages outside their purview. These elites, like the caciques, had control over the
commoners or naborias, as some ethnohistorians have labeled them. They often formed councils
and adjudicated civil affairs (e.g., trade or marriage and officiating at ceremonies in some
capacity as witnesses or supporters). Their position is evidenced by their manner of dress: for
married women of high rank, a long skirt; the men were allowed to wear a single row of feathers
in a crown and all wore large elaborate amulets, armbands and other ornaments (Rouse 1992:11).
The cacique was also known to possess a stone collar, having pictographs or elaborate carvings
that depicted suzerainty or ancestry. Caciques and nobles also lived in larger houses, which were
centrally placed in the village, sometimes actually juxtaposed to the ball court, his arena of
power (Wilson 1997b:32).

The common villagers or naborias did the work of the village or clan. Marriage among
naborias required payment in service to the bride’s family; the elite paid their bride price in
foodstuff or other goods (Wilson 1997b:115). There were local artisans, workers of stone, wood,
bone, cotton, shell and clay (Rouse 1992:9). Many of these tasks were gender specific. Women
were the makers of ceramics in Taíno society and they also made the symbols of power and
ritual, the *duho*, or wooden seat of honor. The zemis, made by women from a variety of materials
(including stone, wood, feathers and textiles) were often passed from mother to daughter
(Keegan 1992:102). The men made canoes and engaged in war. They also cleared fields and
hunted, gathered shellfish or crabs in the earlier period and played ball. Women and children also
participated in the ball game, which was used as a political tool to settle conflicts between clans
or villages as well as places to gamble and exchange gifts and favors with distant relatives
(Rouse 1992:15).

Communities within the cacicazgos were composed of thousands of people at the time of
contact. Some cacicazgos led between seventy and a hundred such communities or matriclans.
Each household was composed of nuclear families, wives living with their husband and their
offspring. In elite or nitainos households, a man might have several wives living in the same
house with offspring. There might also be a nephew or other kin who had special ties to the
family (e.g., as heirs to their position if they were village headmen or elders in the village social
hierarchy). The head of the household had the largest hammock, woven from cotton by the
women of his household and situated higher than all others. His chief wife might have a large
hammock also and the *duho* she inherited from her mother. Up to ten other zemis would also be
in the house (Rouse 1992:13). All wives lived, worked and slept on their own hammocks in the same house (Espinola 1973:69). Children’s hammocks were close to the ground, as they tended the fires, as would their mothers. A cacique would also have a type of platform to meet with visitors or members of the household. Zemis of the house were kept on tables, or in niches/shrines. Ancestral bones were hung from the central post of the house.

Increased complexity in social structure and political development was accompanied by an elaboration of ritual observances and structurally by an increase in the number of ball courts (Siegel 1996:326; Wilson 1997:52). It is during this post Saladoid period that the stone-lined plazas of Maisabel and Caguana/Capá appear in Puerto Rico and the rest of the Greater Antilles. There also were new art styles in sculpture, petroglyph writings in caves and on stone blocks used to line the ball courts. All these developments were accompanied by a population explosion during the Ostionoid period. How long this population growth continued is unclear, since European diseases and conquest decimated this culture, in the early seventeenth century.

Spanish Acculturation and Colonial Settlement

In colonizing the Americas, the Spanish rulers and Columbus hoped to create a trading enterprise comparable to the Portuguese East India Company. Spain in 1492 was desperately seeking coinage with which to support an economy reeling from war, low to non-existent domestic commerce and religious and social strife. Columbus was sent to establish factorías – factories or storehouses for long distance trade (Deagan and Cruxent 2002:8). He was to establish relations with the Grand Khan of Cipango and take the wealth of gold and spices back to Spain’s monarchs, with the assurance that continued trade and a solid Spanish foothold in this new territory would be both long-lived and profitable for all parties. Instead, his voyage took him to an unknown area and ushered in one of the greatest cultural exchanges in history. Spanish contact began among the chieftaincies of Hispaniola with the founding of La Navidad near Cap Haitien, Haiti. Spanish/native interaction was terminated after a brief period of colonization, when epidemic disease, slavery, and displacement resulting in profound cultural changes for the local cultures of the Caribbean and their eventual ‘disappearance’ (http://www.hartford-hwp.com/taino/).
During the first Spanish period more than fifteen towns were established in the New World. The majority of the settlements were swiftly constructed within the first fourteen years, between 1492 and 1506. The earliest Spanish settlements established in the Caribbean were La Navidad founded in 1492, La Isabela on the north coast of present day Dominican Republic in 1494, and Puerto Real just 1.5 m from the original La Navidad site in 1503. Both La Isabela and Puerto Real have experienced extensive archaeological investigation and provide some of the best data on early Spanish colonial structures in the Caribbean. This information forms the basis of the comparison of the European material culture influences that were introduced to the island indigenous populations from early contact.

The site of La Isabela provides some of the most definitive early illustrations of European colonization and establishment of Spanish society in the Caribbean. Although the town did not conform to prevailing grid-pattern layouts of the early contact era, it did have a radial pattern consistent with the organized patterns of townships in Europe of the fifteenth and sixteenth century. Due to the destruction of La Navidad the town was organized around a defensive principle where geographic features played a definitive role in the layout and placement of buildings. The principal buildings of the town (e.g., the church, the storehouse or alhóndiga, Columbus’ house or Casa de Colón and the polvorín or powder house) were aligned with the beach and dock area. The only deviation being the orientation of the church which ran east to west in accordance with Catholic liturgical precepts (Deagan and Cruxent 2002:106). The town of La Isabela was in the form of an irregular parallelogram with the sea to the west, the river Bajabonico to the north and a cliff to the south. The site ran 150 m east to west and 190 m along the west shore and 105 m north to south, totaling 15,025 m² (Deagan and Cruxent 2002:104).

La Isabela was surrounded by a defensive wall made of tapia (i.e., shell and sand cement-like mix), as were many of the principal buildings of stone and bricks. It is possible that this wall, built prior to any of the buildings on the site, actually served to conceal a great deal of the construction and structure of the European settlement from the eyes of the local inhabitants of the area. The material to build the community came from nearby stone quarries and the satellite settlement of Las Coles across the bay where bricks were manufactured in a kiln. At least three of the principal buildings were roofed with tejás (curved roof tiles) also produced at Las Coles (Deagan and Cruxent 2002:111).
The alhóndiga at La Isabela was located on the north end of the settlement. It was a large irregular structure with stone foundations and sixteen interior stone column supports for a huge roof that covered the 48 by 13 m structure (Deagan and Cruxent 2002:122). The short walls on the north and south of the structure were made of stone as was the church’s short walls while long walls were made of tapia. It had an associated tower on the north wall. The tower was a solid stone flat-topped structure that served as a watchtower. The watchtower was four meters in diameter.

The church was small, only approximately 15 by 16 m with an interior space of 90 m² (Deagan and Cruxent 2002:116). It was single nave, with a bell tower and a companario. The sacristy and altar were on the east end of the church while the principal entrance was on the west end. Secondary doorways were in the north and south walls. The floor was covered in lime mortar except for the eastern end where the raised floor of the altar was located.

Columbus’ house was a fortified rectangular structure overlooking the bay, Las Coles and the Bajabonico River. Its principal room measured 5.5 m wide by 2.9 m long and had a cement like floor. A small watchtower was attached to the building on its northeast corner. The structure had four doorways that gave access to patios or courtyards enclosed by the defensive wall (Deagan and Cruxent 2002:113).

All these public structures formed a horse-shoe shaped ring around an eastern central Poblado area, or public residences. The elite residences were located in the center while the majority of sailor’s houses were located on the periphery of the main area of the settlement. The post stains from the excavation of the Poblado area indicate the existence of rectangular structures with outdoor activity areas where hearths and trash were deposited. These residential structures were rough buildings of thatch and wood measuring between 40 and 60 m² (Deagan and Cruxent 2002:129).

The structures at Puerto Real were also similarly single-family rectangular houses with walled courtyards attached to the domestic buildings (Ewen 1991:46). Puerto Real buildings were also made from stone and masonry, which according to Ewen (1991:107) precludes indigenous architecture. Buildings at Puerto Real, when excavated, revealed linear wall foundations. They also possessed drains along building walls and brick pavements.

Puerto Real, unlike La Isabela, had a number of circular residential and public structures associated with early occupation. It is possible that La Isabela also had earlier circular structures,
which the extensive razing of the site has since demolished. The residential area at Puerto Real, located east of the Building A, had a series of postholes at the time of excavation (1981) that revealed circular pole and thatch structures in Stratum IV, dated to 1503 (Deagan 1995:149). These were then replaced by rectangular pole structures in Stratum II and III dated from 1513 to 1578, just before the abandonment of Puerto Real. The rectangular structures were eight meters from east to west and 12 meters long from north to south. The roof was also thatched, as the earlier structures had been (Deagan 1995:155). These later buildings were similar to the residential buildings identified at La Isabela, demonstrating a consistency in style and material culture.

Private residences had a different pattern of material culture than public buildings associated with administration and control of the colonial settlements. Colonial towns in the Caribbean were very well organized settlements with many components of European architectural and urban planning principles. These grid and radial patterned towns with mortar, brick and stone buildings were stark contrasts to the fragile and Free style associated with indigenous towns. Colonial towns were not just alien in appearance and composition to the Tainos but they were also contained enclosed spaces that separated the activities of the Spaniards from native live. This separation existed in the form of defensive walls and an imperial European dictum that sought to emphasize and encourage a separation of civilized Spanish society from indigenous culture.
Chapter 3

THEORETICAL FRAMEWORK

This chapter is an analysis of the hypotheses and assumptions surrounding the study of house design from an anthropological perspective. Here I will examine specific house types from the prehistoric and protohistoric era in the Caribbean and South America. The main argument in this thesis concerns the origins of the rectangular house form in the Caribbean, known as the *bohio*. Some researchers argue that the *bohio* style house is a result of European contact, but my contention is that there is prehistoric evidence and Amazonian-Orinocan precedence for a complex range of house forms of which the *bohio* was but one type. In this chapter, I present various lines of thought concerning house form evolution, both as an individual element of archaeological data and as a unit of a settlement plan.

Study of The Built Environment

This study begins with the common anthropological theory that the appearance of agriculture and sedentism was widely marked archaeologically by the appearance of village settlements. The anthropological study of houses and architecture dates to the time of Lewis Henry Morgan’s *Ancient Society* (1877). Multilinear evolutionists have since then found evidence for the cross-cultural appearance of village life and agriculture at different times in prehistory. Settlement studies have grown significantly since the time of Morgan, but the focus is still on the interrelation of humans and the environment. The question here is, in what ways does culture affect the design or form of houses and how is society ordered by the arrangement of these houses?

Amos Rapoport (1969:46) states that the house “is an institution” created by a combination of cultural, ritual, economic and physical components. The house is a place of congregation, “a social unit of space.” It is a physical manifestation of attitudes, beliefs and worldview. In studying the evolution, design and form of a house within its cultural and physical context, anthropologists have a window into the ideas, technical development of mind and the
The interrelation of religious or cosmological thought and the physical world. The study and interpretation of house forms from various cultures allows cross-cultural comparison and examination of links that exist between life patterns and way of life or cultural habits of various cultures. Using these insights, an assessment of the rituals and practices that are linked to the building of specific house forms in various cultural and physical contexts can be made.

The study of house design or form has generated a number of explanatory proposals that address differences in house shape, which have evolved in various cultures through time. The factors fundamental to house design formation are: technological level of the people, available construction materials, available locations and defensive needs, social organization of group units (e.g., nuclear family, extended family), economic means of builders, relationship of housing and production areas, and social perceptions of spatial arrangement within a settlement. Equally important, but perhaps more difficult to examine, are influences on design or construction that stem from the ideological sphere influences about appropriateness, pace of construction, layout, and ritual activities that anchor the building of a new dwelling.

The design of a house in either a circular, orthogonal, or quadrilateral shape is not of any significance in and of itself, except that in anthropology a particular house shape may be associated with a specific type of culture. Both rectangular and circular designs for permanent dwellings predominate in cultures around the world. It is rectangular dwellings that correlate significantly with fully sedentary cultures (Flannery 1972:29), and archaeologically they do predominantly replace circular dwellings, as argued by settlement theorists. Thus they are seen archaeologically as a physical symbol of a developed society, as opposed to the circular house that is a symbol of an incipient sedentary culture group. This is not true for all cultures, and the Taíno are one example of a complex culture that utilized the circular design construct in community planning.

A number of anthropological theorists, including Rapoport (1976, 1969), Flannery (1972) and Doxiadis (1976) agree, in general, that the circular house type preceded the rectangular house form. The circular house in fact is generally accepted as the predecessor to other house forms. Both biological and psychological reasons for this exist. Eric Eriksson (1971) advocated the round form as a more comfortable form with which people chooses to surround themselves, as it is a familiar shape, commonly found in nature. This is just a general rule, however, that has a number of exceptions that make it unacceptable as an evolutionary theory. The circular room or
house design does follow some general pattern of change over time in many cultures to the rectangular form. There is very little evidence to support the existence of any culture that has gone from the quadrilateral house form to a circular one and that is certainly not the case in the Caribbean archaeological record.

One of the problems with Flannery’s (1972) argument is the strict association of circular huts to compound type settlements of “Bigmen” societies while rectangular houses are village-based settlements with a stratified society. Flannery states clearly that rectangular house villages are associated with a tribal form of social organization that has a far greater potential for production and social growth when compared to the circular house compound. This is not evident in the New World, where the round *ayllus* and circular house forms of the Incas, contradict this theory. In the Caribbean, archaeologists and anthropologists have no problem associating the prehistoric settlements of the Taíno and Carib with village life and a village design. No evidence exists that the circular form of *caney* or the orthogonal maloca-style was any limit to the productive capabilities of the Taíno and Carib production unit of extended family groups. Corporate production associated with the construction of large conucos and malocas that held hundreds of people do not indicate the economic or social limits listed by Flannery (1972). The labor requirements involved in the creation of the Taíno ball courts and plazas scattered across the Caribbean and found in practically every settlement also represent larger economic cooperation between households in a community. There are also significant differences in household composition in Taíno society in contrast to the Near Eastern and African societies described in Flannery’s study.

The concentric design of settlements is a common pattern found in many different types of societies around the world and several of them from South America are discussed in this chapter. The design of a village and the shape of the houses or built structures within a community are, in many cases, a representation of the religious attitudes and worldview of a society. This was true for the Taíno and Carib who possessed a long history of ritualistic and mystic relations with the supernatural world. This tradition was born in the attitudes and beliefs of South American tribes and is in existence today, both on northern South America and the Caribbean. It was used as a model from which the maloca and circular house pattern of South American and prehistoric Taíno and Carib peoples originate.
South American Analogy: The Maloca

By far the best contemporary ethnographic examples of an Indian dwelling that approximate the form and style of the Taíno house are the house forms of the Waiwai, a cultural group found within the same culture area as the Barama and other British Guianese Indian tribes. The Waiwai share many of the culture traits of the Taíno including their religious ideology, cultural artifact assemblage, social and economic practices. Both Versteeg (1992) and Siegel (1989) use the Waiwai as a suitable ethnographic analogy for Taíno social order and settlement morphology. The typical Waiwai village consists of conical houses and several small square houses that may or may not have walls. Fields of cassava, grown using swidden agricultural methods, surround the village. The communal Waiwai house is described in ethnographic reports as a high conical structure, with an equal ratio of diameter to height (Farabee 1924:164). A smoke hole surrounds the central support post, which is covered by a canopy. The walls of the structure have inner and outer support posts, with notched tops to support a circular plate on which the rafters are lashed. Additional smaller posts are also used to support the walls. The entire structure is thatched with palm fronds.

The communal Waiwai house has two doors: one on the west side for women the other for guests and both sexes. There are no partitions, but each family its own section and its own fireplace, hammock posts and dog platform. There is also a chief’s circular house, occupied by the chief and his wives. Other small structures are used as visitor housing and work huts (Farabee 1924:165). This description of a Waiwai village near the Essiquibo in Guiana is a very accurate depiction of the typical Taíno village described by ethnohistorians like Las Casas and Oviedo and is also in evidence in the complete settlement excavations on St. Thomas, Barbados and St. Eustatius.

The maloca as described by Hugh-Jones (1985) is a communal house of Indians living in the forests of Amazonia. It functions as a multi-purpose center for Indian life modeled to depict their view of the cosmos, the human body and their society. There are a number of different types of malocas used by different tribes within the Amazon. The Tukano have a rectangular maloca, while the Yukana and the Ye’huana have round malocas. Among the Barasana, this type of house has a “tent-like thatched roof with a semicircular apse” (Hugh-Jones 1985: 79). Barasana malocas are built close to rivers and streams and have two doors, one to the east and
front, the other to the west and back. A path is built from the front of the house to the river, where canoes are moored. The woman’s path, however, is located at the back door and leads to a female bathing area. The Taíno houses in Cuba, as mentioned above, also had two doors. Each South American maloca stands alone but in the Lucayan islands they are paired.

A typical South American maloca is one hundred and thirty feet long and forty feet high. It is built using vines to make the plan in a cleared sandy building site. Two rows of hardwood form the central beams of the house, with smaller beams at the sides. The roof’s peak is raised on a ridge post that is supported by tenons across the central support beams. Other beams are used to make the framework of the walls, which also have tenons to support end ridges. Roofing the house is the longest task since weaving the thatch requires from two to three months. The walls are closed last and are often covered using roof material from an old maloca. In the traditional styles, the front of the maloca is often made from flattened sheets of bark, which are painted with chalk, ochre and charcoal to depict visions received during hallucinogenic trances. There are cleared areas in front and behind the house that are the sites of various tasks associated with men or women (depending on which door the patio area is adjacent). They had no plazas like the Taíno, but their work areas for grilling, cassava processing, and other activities were located in the same areas as the Taíno and they used similar tools (e.g., a bag to squeeze the juice from the grated manioc and manos and metates).

After construction was completed, a dance and beer festival was held during which the shaman blessed the building. The Taíno also had dances, feasts and games at the opening of a new house (Rouse 1992). The house may be occupied for up to fifteen years, but might be abandoned due to the death of an important member or several members of the matriclan. A Taíno house might be abandoned or burnt similar to the Barasana practice. The maloca usually contained fifteen to thirty families, each of whom shared a hammock post and lit individual fires. Belongings, like bow and arrows, canoe paddles and nets were kept in the walls and roofs of the house.

The major difference between a large Taíno bohío and the maloca of the Barasana is that the interior of the house was compartmented on the side where individual families had their own living area. The compartments in the back of the maloca each have a doorway. The front end of the maloca is open and is used for public and ritual life in which only men participate. The women are relegated to the rear, the domestic area of the maloca. In the middle and front of the
house, ritual paraphernalia, men’s stools and mats or hammocks are kept. Men were buried in the ritual space at the front and center of the house, while women were buried near their compartments. There is no mention of the Taíno practice of hanging parts of the dead from the rafters in Barasana communities or of the Barasana keeping totems made from the dead.

The Barasana built the maloca to reflect their view of the cosmos. The ridge post on the roof ran east to west, reflecting the path of the sun and a post above the center of the house represented the seat of the midday sun. For the Taíno this center lays in the cemetery located in the center of the plaza (Siegel 1997:108). Both cultures believe in a concentric model of the universe, in which the village or maloca is the center of their worldview. An imaginary river runs through the house and represents the mighty river of their world, the Amazon. In Taíno cosmology, the waters are below and on the earthly plane where the village is located (Siegel 1997). Below the floor runs the river of the dead flowing from east to west to complete the circle of life. As a representation of a body, the maloca has a face, which is its painted front entrance. As a representation of a woman, the maloca front entrance is her vagina, while the back entrance is her head. As a man, the back entrance of the maloca is the mouth, as this is where conversations and ritual accoutrements are located (Hugh-Jones 1985:93).

The Kalapalo are another Amazonian tribe living in the forests of Central Brazil. They belong to the Carib language family. They live in the Upper Xingu Basin, near the confluence of the Xingu River and its tributaries. The Kalapalo village style (Figure 3.1) is very reminiscent of the Taíno village as described above. It consists of a circle of oval shaped houses (elongated haystacks that open onto a cleared plaza called a fugombo) (Basso 1973:45). The Kalapalo central plaza, unlike the Taíno plaza, has a small ritual building near its center. The kuakutu building is placed off center in the middle of the plaza and is used to store trumpets and other ceremonial paraphernalia. At dead center, however, just as with the Taíno, there are unmarked burials of those who have died in the village.
Among the Kalapalo the location of a house in the village is fortuitous as the house is placed within open spaces in the circle and then back or in front of another occupied house in the circle. The entire village helps to build each house with the male future occupants playing a primary role. Hardwood logs, just as among the Barasana and the Taíno, are used to form the central posts, while saplings are used to form the oval framework (Basso 1973:48). The men do the thatching using yucca leaves. Stout posts are placed along the perimeter to serve as hammock attachments with the outer walls where nuclear families will share one post or single males may share one post. The entire building process takes six months and the house will last for six years before the posts collapse.

Fires are built near each cluster of hammocks, but among the Kalapalo, there is a main fire, similar to the Taíno central hearth. The Kalapalo main fire is located at the back of the maloca. Another contrast between the Taíno and the Kalapalo, is the central platform area in the Kalapalo house, called the ogo, where ceremonial paraphernalia are stored as are women’s baskets and food, like manioc flour and mash. The area in front of the platform has a view of the central plaza, where any visitors would have to enter the village, and where everyone in the village meet. The plaza thus had similar functions to other West Indian and North American plazas mentioned in ethnohistorical records. The clear area at the front of the house is a communal work area for both Kalapalo men and women.
Three other Carib tribes within British Guiana and Northern Brazil also present interesting analogies for this study: the Macusi of British Guiana’s Essiquibo River Basin, the Barama also from British Guiana and the Mahinaku Indians of Central Brazil. All had Portuguese and other European contacts during the colonial era. The Mahinaku are also located within the Xingu Basin, which lies along a possible migration route of the Taíno ancestors. The Mahinaku village is very similar to the Kalapalo, except it is a men’s house that forms the focal point for the village. Their houses also look like hay stacks and are approximately one hundred feet long, thirty feet wide and thirty feet high (Gregor 1877: 57). Their plaza and village circle are similar to the Kalapalo.

The Macusi have various forms for their houses just as the Taíno did: from square, to round to elliptical. The houses varied in size from very large to very small. The village houses have no pattern and they are usually located on high land near a river. This placement is also reminiscent of the Taíno pattern. The walls of the house are of palm, bark or adobe. Small houses are usually round, large house are elliptical or rectangular and are usually faced with adobe. The large house is forty feet high and forty feet in diameter with six interior posts supporting the roof and thirteen wall posts, an extra post being used for the door (Farabee 1924:16). The elliptical house can be a communal house some forty-eight feet long and twenty-four feet wide and seven feet high. This type has two principal posts at either end of the building, which support the ridge post on which the roof rests. When they begin to sag the house is abandoned. There are no rooms in the house, though each family has a place where they sleep together and store their possessions. They also have no central hearth, rather each family has a small hearth along the wall.

The Barama Indians of British Guiana position their village on or near creeks. Although they are the closest tribe to the ancestral area where the Island Carib lived, their buildings have seemingly very few correlates with Taíno houses. Their houses have no walls and gabled roofs, which are very similar to the house in Girolamo Benzoni’s portrait of hunting camps from the *La Historia del Mondo Nuovo* (Maggiolo 1997:38).
Ethnographic Caribbean House Forms

Ethnography and archaeological data confirm the existence of three types of built structures in the Taíno village: the house, the work hut and the storage rack (Roth 1924; Siegel 1987). These are identified in the archaeological record from post molds, pits, caches, middens and ash marks. All are the remains of living floors. Other predominantly Greater Antillean features include ball courts (flat, often rectangular or oblong swept surfaces with raised earthen banks or/and stone banks along the perimeter of the court) where zemis or zoomorphic effigies were erected. There were various designs for these built structures and in this study, size and artifact scatter are used to differentiate between the various types.

The Europeans who first recorded Taíno houses called them *caneys*. They were identified historically by de Las Casas at Behecchio, a residential town in the Taíno province of Xaragua on Hispaniola. During explorations into the interior, Columbus also found round houses in the province of Cibao. These houses were described as being circular or bell-shaped, with a post frame, reed walls and straw roofs. They had two entrances, but no doors or windows. Las Casas (1951) estimated their size as ranging between 26 and 32 m in diameter. Curet (1992:162) estimates the area of these houses at between 64 and 113 m².

The chief’s house, or *bohío*, from Hispaniola, described by Peter Martyr D’Angleria (1970) as a rectangular house type, was measured at between 26 and 32 m, a total area of between 530.9 and 840.2 m². Oviedo (1959), a later chronicler, also described these rectangular houses in Haiti as existing up to the 1800s. They were described as having porches and windows, features which lend credence to the idea that these structures were of European rather than native origin. Windows are more indicative of European architecture than the native house styles common to South and North America. They also seem to be anomalous when compared to the style of Amazonian houses within the western Venezuela/Orinoco River basin region from which these Circum-Caribbean tribes originated.

It is acceptable that these porch houses were a colonial era invention precipitated by the settlement of Europeans on the islands of Española as early as the late 1400s. Archaeological data confirm that some malocas and caneys were still in use after 1514, on islands where the Spanish influence was less advanced, but they also show the existence of quadrilateral structures (Pendergast 2001). The purpose of this thesis is to interpret the existence of these different types
Caribbean Settlement and the House Form Debate

The *bohio*, as a rectangular house form, is interpreted as an advanced design, the design that evolves from or after the round *caney* form. The rectangular house form has been associated historically with more complex societies, and this is likely the reason for its long acceptance as a product of Spanish contact. Based on expectations of evolutionary form, however, the cultural transformation to a rectangular house form is a predictable outcome of the growth of social complexity and hierarchical ranking of Caribbean prehistoric societies and not the result of acculturation. The development of more complex societies does not inevitably lead to rectangular house forms, however, as evidenced by the round *ayllus* and buildings of the Incan civilizations of the New World. The rectangular house design is advantageous to the creation of a more complex society. The ability to expand a quadrilateral building is one of the reasons used as a rationale for the precedent of association of square houses with more complex societies like chiefdoms and states.

Taíno villages, as described throughout this study, have been shown to have traits similar to an acephalous band society with communal hut compounds and a flexible type of social grouping (Flannery 1972). Prehistoric Caribbean society is not an exact match for Flannery’s (1972:30) “circular hut compound,” even though this terminology does accurately convey the built landscape of a Taíno community. Flannery (1972) describes the compound type of settlement as associated with sedentary cultivators with social structures that allow a variety of economic systems. This is an accurate description of Taíno societies that have demonstrated an economic versatility predicated on an unpredictable island habitat. Flannery (1972) also argues that each ‘hut’/house is composed of an economic unit of production, a unit of corporate labor. This is also true of Taíno dwellings that house economically independent units, many with their own garden plots. However, the compound or settlement is a collective unit when it comes to large-scale construction, whether of conucos or caneys and bohios. The labor requirements involved in the creation of the Taíno ball courts and plazas found in practically every settlement.
across the Caribbean also represents a larger economic cooperation between households in a single community.

Lovén describes a transition from round to rectangular house construction in which the central post was replaced by a row of “horcones” (poles) (Lovén 1935:340). This change has been interpreted by current researchers like Versteeg (1992) and Siegel (1989) as a creation of the chroniclers like Oviedo and Martyr who ascribed the rectangular *bohío* to Indian origins. Las Casas and Columbus make no mention of rectangular houses associated with indigenous populations. All of the chroniclers (Fewkes 1907; Siegel 1989; Versteeg 1992) agree that rectangular houses were called *bohío*, from the Arawakan word *baju*, the word cane, however, is less used in the literature through it is the common circular design type found in the ethnohistoric documents and in the archaeological record.

Curet (1992:161), Lovén (1935:339-341) and Rouse (1992:9) argue that the rectangular house was a feature of Spanish influence with the native populations of this region and did not exist during Pre-Columbian times. Curet (1992) states that the Taíno already had the technological knowledge of these structures, as they were so readily adopted after European contact. He, along with Rivera and Rodriguez (Curet 1992:64), noted that the house forms found at Playa Blanca-5 and El Bronce indicate a square frame being used for circular caneys during the prehistoric period (Saladoid to the Chicoid period). I agree with Curet that there is evidence that the Taíno had square house designs prior to European contact. They did not employ this design in household construction; rather it was a non-sleeping chamber building shape during Pre-Columbian times used for food processing or other special function activities, such as shrines for *zemis*.

The sizes of villages and the houses within them vary across the Caribbean. Keegan (1992:116) has stated that house dimensions were kept fairly regulated in the Bahamas, as was the spacing between them (one house per 33 m) during the Ostionoid period. He has also noted that the number of houses increased in number as the Lucayan population of the Bahamas increased, to twenty-member households and spacing was reduced to one house every twenty-five meters. These observations are based on data from the MC-6 site on the Middle Caicos, in the Bahamas (Keegan 1992, 1985).

Keegan’s findings stand in contradiction to Curet’s (1992) research in Puerto Rico, however. According to Curet’s study of the Maisabel, Playa Blanca and El Bronce site on Puerto
Rico and Golden Rock on St. Eustatius, there was a marked decrease in house and household size in the archaeological record contrasting with the ethnographic records of Las Casas and Columbus. Curet (1992) notes that the Maisabel site communal structure, an oblong house, would have had a household size of between sixty and ninety-eight people as is typical of Late Saladoid, early Ostionoid communal houses (Curet 1992:168). By A.D. 600 to 900, this would be transformed into single nuclear family houses and later in the Chicoid period to the circular, caney floor plan for single-family houses. Curet (1992) states that the variations in house form were from oblong to round with smaller house sizes associated with a change in social organization from communal to nuclear families. It is possible that the chroniclers, Columbus and Las Casas were biased in their reporting because they came in contact with chiefs and nobles who were obligated to have large communal dwellings. These structures were actually atypical of the common house floor plan and household composition of the Taino at least in the later prehistoric period. Change in the floor plans and household composition of Taino houses is linked to the transformations that were taking place in the economy, society and demography of the Caribbean. These transformations took the form of smaller household size, a reduction and change in the form and size of houses, a shift from terrestrial to marine hunting and gathering and intensive agriculture and the development of more complex chiefdom level social organization. Although the number of sites was increasing in the interior of islands like Puerto Rico and Hispaniola, there was variation among islands, as large communal dwellings were still being occupied on Cuba during the contact period (Keegan 1992b: 151).

The growth of complexity and diversification in Amerindian cultures of the West Indies similarly can be traced using a number of cultural markers: hierarchical settlement organization related to hierarchical social organization or through the elaboration of iconography and ritual space, in the Americas, ball courts and ceremonial plazas. The temporal variation in house form within the Caribbean region, also illustrates the phenomena of cultural evolution and acculturation from the time of initial population to first contact in 1492 (Figure 0.2). This transformation in Taino society is seen in the transition from a Saladoid maloca-style house to the smaller caney oval houses of the Late Ostionoid and Proto-historic period.
Chapter 4

ANALYSIS OF SETTLEMENT/FEATURE EXCAVATIONS

Village Location and Type

Prehistoric village settlements in the islands of the Caribbean have primarily been identified as coastal sites in archaeological survey and excavations. The islands selected primarily for this study are: Barbados, Puerto Rico, and Montserrat. Different anthropological field teams have surveyed each island, at different times, and under different anthropological paradigms. They have identified sites of food procurement or production, and the places of domestic occupation. Most of the identified sites have been in coastal areas, close to riverine or deltaic resources, where a diversity of biotic environments supports a more settled existence.

In other islands, where specific cultural data on the house design in settlements are not available, middens or artifact accumulation signifying occupation have also been found on the coastal plains. In Jamaica, the Little River midden site, identified by Marian DeWolf (1953), is on the north coast of the island, at the mouth of a small stream. The White Marl site, identified by Robert Howard in his survey of 1947-48, is also near the coast, on a hilltop overlooking the sea. The same is true in Grenada where Ripley Bullen’s 1962 survey identified the Black Point Beach site, and the Pearl site at the airport both of which are coastal plain sites.

Though coastal occupations are predominant in the protohistoric Caribbean, they are not the only locations of native occupations and cultural activity. Hill top sites, that have a clear view of the coastal inlets and coastal access points to the sea, also appear to be a preferred location for Taino groups that settled the larger islands of the Greater Antilles. An example of this is the Little Nigger Ground site in Jamaica, surveyed by Theodoor De Booy (1913). This midden site is six miles inland at an altitude of 1200 feet (DeWolf 1953:234), but coastal refuse material was still found by De Booy, indicating the continued interaction of the inhabitants of the site with the coastal biotope.

The Indian Creek site in Antigua is also a non-coastal site, and was occupied for approximately 1,100 years, beginning in the pre-Saladoid period of Ciboney and Guanahatabey
occupation. The site today is separated from the sea by a mangrove swamp and is located on a hillside on the Southeast part of Antigua, 800 m from the prehistoric settlement (Jones 1985:519). Both Maisabel and Playa Blanca in Puerto Rico were coastal sites, with close access to fresh water as well as the sea. El Bronce was just 13 km from the Puerto Rican south coast beaches. The island of St. Eustatius is of such a small size, that though the site of Golden Rock is located within the interior of the island, the coastal habitat was still identified as an inherent part of the site. Sites in Barbados, like Heywoods and Silver Sands, are also ideal coastal sites, with access to a myriad of rich environmental niches from which long term and multi-varied sites were supported. Regardless of the settlement locations, all Taíno settlers made diverse and intensive use of maritime resources and exploited the multiple ecosystems available to a particular site.

Sites in Curaçao have been identified as being more coastal, during the Archaic period, with a shift to hilly, or plain-type locations during the ceramic period (Havisier 1989:8). Curaçao Taíno sites, like other sites across the Greater Antilles, had long periods of occupation. Long-term occupation led to the exploration of hinterland areas outside the initial settlement area and eventually to the expansion of secondary sites, such as marine food processing areas. The location of these settlements or sites of cultural activity were influenced by such factors as access to fresh water source and other raw materials necessary to the survival of the group. Settlement location and function depended on the needs of the group, and the available resources of the area that were identified and exploited.

Keegan (1985:213) has identified some of the types of occupational settings chosen by the Taíno in the Bahamas. The main types were the conventional classificatory settlement types found in most anthropological studies of tribal groups: primary village, the village, and the hamlet. These types are reminiscent of Johnson and Earle’s (1987) classification of settlement types: the state/ranked society, the local group and family level group. Keegan (1997:53) describes large villages in the Bahamas as a “series of concentric circles” with the open plaza at the center, representing human society from which all unity (in nature and the spirit world) was derived. Around the plaza were the houses and around the houses were house gardens and animal enclosures for hutía or dogs. Next there were the large gardens with conucos from which trails led to other villages some six to eight miles away from the center of the large village. Villages in the Lucayan islands were also reputedly built in pairs where two sites were linked by social
and/or economic ties, such as the MC sites on Middle Caicos (MC-12, MC-36 and MC-32). This organization also represents some of the natural fissioning principles common to village development. Village pairs may also simply be the natural growth of villages close to former homes that have been abandoned for religious or practical reasons. Though Keegan’s description was used for the Bahamas (Lucayan islands), its context and usage can readily be applied to other islands within the Greater Antilles, where the same population migration and settlement history have been identified from contemporary ceramic series comparisons across the region.

Other factors, outside of food and water, affected the typology, size, and distribution of settlements. From the study of the distribution of these sites, it is clear that over time, cultural changes in the ceramic styles and economic and ideological behavior of these people led to changes in their locational preferences for settlements. Keegan (1985) identified a pattern in ceramic age sites that indicates a change in the directional location of near coastal sites over time. In the period between 500 B.C. and A.D. 1, when the earliest of the Saladoid cultures (as the early Taino ceramic culture is called) had spread to the Virgin Islands, some 54 percent of all settlements (except those in Puerto Rico) were on the northern half of islands. Between A.D. 1 and A.D. 500 there were sites on practically all islands and they seem to have shifted to southern locations. Keegan (1999) provides an estimate for this geographical preference as present on 80 percent of all islands in the archipelago and further states that even single-site islands were occupied on their southern coast. Lucayan linear villages were located on sand dunes with the sea in front and marsh areas behind and the concentric pattern, described above, was found in the primary or largest villages. During the first millennium A.D., all the settlers in the Greater Antilles were sedentary, and according to ethnohistorical data they were participating in daily trading among neighboring islands, and forming a network that is believed to have stretched from the north coast of South America to the coasts of Florida during the protohistoric period.

When Columbus arrived in the West Indies, the Taino were well into the Village Formative phase of cultural development with large settlements, multi-component sites and specialized sites, such as farmsteads and raw material extraction centers. These settlements were composed of a multitude of structures, some domestic and others ritualistic in nature. They were founded using the ideological principles that the natives inherited from their ancestors as well as being shaped by their newly-established social system of tribal chiefdoms and multiple ethnic mixes (Carib, Ciboney and Taino). These systems were fostered by the territories of which the
natives had become supreme masters adapting subsistence technologies and economic strategies to overcome natural and man-made the forces within their island world.

The islands of the Bahamas, Barbados, Cuba, Virgin Islands, Hispaniola, Puerto Rico and St. Eustatius are the sites of some of the best archaeological evidence of Taino settlements and houses in the Caribbean. A variety of settlement types has been identified on these islands and there is information on the size, extent and development of settlements on these islands. There are ethnographic records of the villages, provinces and perhaps townships that existed in Hispaniola up to the time of Spanish colonization. Archaeological data on the houses of St. Eustatius (Statia), form a pivotal part of settlement studies in the Caribbean and are the focus of this study. Puerto Rico is the center of study for ceremonial settlement geography in the Caribbean (Siegel 1992). Its Maisabel site is the largest ceremonial center yet known in the archaeological record of Taino prehistory. The study of Bahamian settlement history also lends a wealth of information on settlements in the latter part of Taino prehistory and gives hints to the mechanics of migration from the South American continent across the archipelago. An examination of the topography and biogeography of these islands is vital to the understanding of settlement locational choice and the survival of these sites in the archaeological record.

Topography and Paleo-Environment

The composition of the islands of the Caribbean has been outlined above, but closer scrutiny of the islands, where contemporary house sites were identified and excavated, can reveal clearer patterns, and a framework from which the nature of the changes that took place in settlement location and composition, may be understood. The islands of St. Eustatius, Barbados, Cuba, St. Thomas and Puerto Rico form a diverse sample from which the geography of these islands can be discussed and the factors that contributed to the establishment of house sites and the process of their decomposition can be understood.

Although settlers had their own preferences when colonizing islands, they would have been drawn to larger islands that were more visible on their sea journeys. There are several factors shared by the islands that allow for their climate, and biotope to be noticeably accommodating to the Saladoid settlers. Initially settlers had a preference for the windward side of islands, where first landing would have been most common since they were traveling
northward and westward in their migration route from South America. As far north as Pigeon Creek in San Salvador, Bahamas, Lucayan villages were located on the windward east side of the island. Prehistoric settlements were often near coral reefs and inlets. Precipitation and the amount of fresh water sources on an island were determined by the size of the island and could be seasonal in nature on smaller islands. We know the immigrants brought some of their own fauna and flora (e.g., manioc).

St. Eustatius

The site of Golden Rock is on the small island of St. Eustatius (Figure 4.1), in the Netherland Antilles at the juncture of the Leeward and Windward Islands of the Lesser Antilles. An extinct volcanic mount, called “The Quill,” rises some six hundred meters to the south of the site. To the north is another minor hilly range, enclosing the village site with its ball court and maloca-style house. The windward coast has a coral bay that supports a rich coastal and marine ecosystem, with numerous fish species and turtles. A beach on the leeward side of the island within the resource sphere of the site supports pelagic waters where (*Cittarium pica*) was most lightly harvested and was recovered archaeologically from the middens on the site (Versteeg 1989: 172).
Figure 4.1 St. Eustatius main landscapes and archaeological sites. Corre Corre Bay is the only pre-ceramic area on the island (from Versteeg and Schinkel 1992:3).

The area within which the GR-1 site is located has thick soils at the transition between the Cultuurvlakte and the Quill slopes, and is an excellent area for tillage, particularly for manioc agriculture (Versteeg and Schinkel 1992:23). Water was captured from shallow wells on the Caribbean side of the island and the natives brought water from there to the site, some 1.5 km from the shore to Golden Rock 1. The soil also has very good moisture retentive properties, but it is the overburden of midden accumulation, specifically shellfish refuse, that is responsible for the excellent preservation conditions at GR-1. The six house structures and other non-domiciliary structures were preserved under a thick accumulation of faunal and ceramic debris in middens located on the site.

Puerto Rico

Puerto Rico has a number of renowned ceremonial prehistoric settlements: one of the foremost is Maisabel. Along with El Bronce, Caguana and the Playa Blanca-5 sites, these are the
most researched and perhaps well-documented late prehistoric/protohistoric centers of Taino life in Puerto Rico (Figure 4.2). Maisabel is located on the north coast of Puerto Rico in the Vega Baja region, near San Juan. The early Saladoid settlement at the site was directly on the coast and is similar to the Hacienda Grande ceramic culture (which is part of the Cedrosan ceramic series) in terms of settlement location and zooarchaeological components (feasting on crabs).

![Figure 4.2 Puerto Rico showing the sites of Maisabel, El Bronce and Playa Blanca 5 (from Siegel 1992: 164).](image)

The site of Maisabel is located on a coastal plain with fertile soils and access to a variety of aquatic environments and terrestrial habitats. The site is over twenty hectares in size. The largest maloca-style house found on the site is located between two of the largest of five middens that partially ring, what is believed to be, the plaza area. Saladoid settlers at Maisabel used both maritime and terrestrial resources, the most important of these, in the earlier period of settlement, was the blue land crab, *Cardiosoma guanhumi*. These were caught in large quantities in the mangrove swamps to the east of the site, where the Cibuco River system provided a major resource base. The Cibuco River system is composed of a number of aquatic habitats that became essential to the survival of the settlement at Maisabel. There was fresh water from the main river and its tributaries, and estuarine resources at the mouth of the river. Beyond the river outlet, there are also neritic and littoral habitats, associated with two lunate bays (DeFrance 1989:60). Finally there are pelagic waters offshore from which shark, tuna and sea turtles were captured. Faunal remains, from these resource zones, have been recovered using flotation samples taken from the five horseshoe-shaped middens.
With the shift in diet from terrestrial land resources (land crabs) to a maritime economy (shellfish) there was a shift in food resource zones from the mangrove in the east to the submerged limestone bench offshore to the north. This bench forms a benthic and littoral zone. This is not to say that the mangrove swamps were abandoned. Many houses are believed to have been situated within the mangroves themselves or at least on their periphery and have since prehistoric times been destroyed by post depositional processes. At that time, an increase in the exploitation of shellfish species, like chiton, nerites and conch from the littoral zones was in evidence.

The site of El Bronce is identified as a coastal habitation with a long history of settlement, indicated by numerous post molds. The total occupation time of the site covers some six centuries that, in conjunction with the number of superimposed posthole data, shows a long period of continuous settlement. The other Chicoid period site is Playa Blanca-5 in the Ceiba region of eastern Puerto Rico.

Thirteen posthole stains were also exposed at the PO-21 site in the Cerrillos River Valley, Los Fonolos sector, in the barrio of Maraquéz, south central Puerto Rico. PO-21 is on a floodplain 1 km north of PO-39, and therefore more subject to alluvial deposits which make PO-21 less accessible than PO-39. PO-39 is located in this sector also and situated on a ridge spur on the western wall of the Cerrillos River, 15 miles from the Caribbean Sea and 160-165 m above sea level.

Barbados

Barbados is a small island close to the end of the archipelago in the South American coastal waters of the Caribbean Sea. Its climate, like most of the other islands, is maritime and tropical with sub-humid to humid rainfall regimes and temperatures (Drewett 1989: 79). It is relatively stone free, having only sedimentary rocks of little technological use for industry. Some of the settlement sites are Heywoods, Hillcrest, Silver Sands, Chancery Lane, and Goddard (Figure 4.3). All are coastal sites. Chancery Lane and Silver Sands are on the south coast, Heywoods and Goddard on the west coast and Hillcrest on the east coast. Heywoods, Chancery Lane and Silver Sands all have natural marine inlets where salt marshes have been created through the work of migratory sand dunes and beaches, giving each site access to land, sea and salt marsh.
Figure 4.3 Map of Barbados showing the location of settlement sites: (29) Silver Sands, (19) Heywoods and (33) Hillcrest (after Drewett 1998: 104).

Chancery Lane is located on low sand dunes toward the middle of Long Bay on the south coast. The Saladoid settlements were located on a sand rock bench near a marine inlet that was protected by a degrading cliff face to the northwest. Migrating sand dunes that have since buried the site covered the bench during prehistoric times and many have led to the site’s abandonment (Drewett 1989:85). The migrating sand dunes and beach material created a salt marsh near the area.

Silver Sands was a short-lived site that has suffered extensive topographic changes since prehistoric times. This site is also marked at its northern limit by a degrading cliff line, a sand bar and migratory dunes to the south. There was a marine inlet in prehistoric times that has since disappeared, due to eolian activity. The inlet would have opened a waterway some two hundred miles inland. This inlet emptied into a basin around which a salt marsh formed. The settlement has been identified at seventy centimeters below the wind blown sands where pottery and shell tools have been recovered archaeologically. These topographic conditions are almost an exact
replica of Chancery Lane. The same is true of Heywoods, except the marine inlet actually was a lagoon.

Hillcrest is the only site on Barbados located on a promontory, very reminiscent of White Marl in Jamaica. It is also the only site with a permanent water source (Drewett 2000:168). Other sites had pot-lined wells. The promontory on which Hillcrest stood was actually created from a series of gullies filled with colluvial material, believed to have accumulated from prehistoric forest clearing of the area. This site is dated ceramically to the late Troumassoid to early Suazoid period, in Taíno prehistory (Drewett 1989:87).

Cuba

The site of Los Buchillones, on Cuba’s north central coast was excavated in a 1998 and 1999 field season (Figure 4.4). The 1998 field season yielded settlement data on one structure, approximately 20 m offshore east of a lagoon area where previous archaeological research had uncovered Taíno prehistoric remains (Pendergast 2001:74). The offshore excavation that required damming techniques and some wet site excavation revealed a grouping of posts in a semi-circular configuration.

Figure 4.4 Map of Cuba showing principal Taino sites (from Moure and de la Calle 1996:21).

The houses at Los Buchillones must have been built on pilings and carried conical roofs for smaller round structures and gabled roofs for square structures. Los Buchillones’ houses on piles with a raised floor must have been a later adaptation to the problems of house building on coastal shores, as pile houses have not been found archaeological on other sites. It is possible that
this unique archaeological site could be duplicated in further archaeological investigations of offshore prehistoric sites. Further analysis and reports are expected from this site in the future that will greatly increase our understanding of Taino settlements during the protohistoric period.

St. Thomas

The Tutu Archaeological Village site is one of the most well-known and extensive settlement sites in the Caribbean. It has yielded a plethora of information about native settlements in this region and set standards whereby anthropological studies of social space in the region are modeled. The site is inland, approximately 1.75 km from the northeastern coast of St. Thomas in the US Virgin Islands (Figure 4.5). St. Thomas is included within the islands of the Greater Antilles due to its location 55 km east of Puerto Rico and its geology. The Turpentine Run, a modern intermittent watercourse that empties into the Mangrove Lagoon, surrounded the site. The site had everything from a protected defensive position to large trees for canoes. The stream afforded transport to the coast and irrigation waters for the available flat ridge land.

Figure 4.5 Map of St. Thomas, U.S. Virgin Islands, showing the Tutu site in relation to other village sites (from Righter 2002:10).
Ethnohistoric Record and Archeological Surveys

It is important to note at the beginning with any ethnographic work that these data have several inherent flaws that must be taken into consideration when used for anthropological analysis. The chroniclers who ventured to the West Indian islands in the fifteenth century were writing their accounts using their European experiences and theories about non-Christians and people from alien cultures. For the Spaniards this alien experience was with the Moors and their theories of the New World based on the experiences of Marco Polo and other Asian explorers. These chroniclers, Colón, Las Casas, Pané (the first ethnographer, commissioned by Columbus to study the Indians) and others had their own plans and reasons for recording their impressions of these people in the New World. Columbus wanted his actions in the Indies to be viewed favorably by Ferdinand and Isabella of Spain and he also wanted to continue believing, during that first voyage, that he had reached Cipango. Las Casas wanted to paint as black a picture of Spanish behavior in order to draw sympathy for the Catholic cause in the colonies of the Caribbean. To the ethnographic accounts of the Taíno settlements, houses, cultural behavior and ideology have been added contemporary studies of the South American cultures having linguistic and historic links to the Caribbean cultures. Archaeological surveys provide the contemporary evidence to test the veracity and reliability of the ethnographic record, even though these surveys are few and incomplete for most islands.

The most important source of ethnohistorical data from the Spanish explorers who saw the Taínos comes from Fray Bartolomé de Las Casas. A Renaissance man who gave a humanistic and spiritual cast to the history of Spanish-Arawakan encounters, he was a landholder on the island of Hispaniola in 1502 and also lived in Cuba. He made journeys to Mexico, where some of his observations and writings were made before his return to Spain. He wrote three very renowned chronicles, including the *Historia de las Indias* from Puerto Plata in 1527 and the *Apologetica historia sumaria*, both of which were not published until much later (the *Apologetica* was not published until 1909). Colón’s diary of his voyages have also become part of the chronicles of the encounter period and have been translated and distributed in a variety of texts, one of which is extracts from his first letter to the King of Spain, quoted in Las Casas text, the *Historioa*. Other chroniclers include Oviedo’s *Historia general de las Indias* (1526) and Peter

The earliest and most extensive archaeological surveys were undertaken in the Caribbean by Rouse, Rainey, the Bullens, Fewkes and Goggin to name but a few. Though these surveys are by no means complete island surveys and rarely carry a settlement studies focus, they were the basis for more localized surveys of specific sites on islands where settlement analysis has been conducted: Bahamas, Hispaniola, Barbados and St Kitts, among others.

The survey of Hispaniola, the focus of much of the ethnohistorical data of the region, reveals that open-air sites are the most common. Many of these sites are between one and two hectares with less than ten houses (Wilson 1990:22). These are often represented by middens that can encircle an open central area as mentioned in the historical records for these sites, or with houses surrounding a central plaza. This description of settlement sites is also found in Cuba and Puerto Rico. Ball courts or plazas are fewer on Hispaniola than on Puerto Rico, however they are much larger and are often earthen courts with no stone embankments like those at Caguana on Puerto Rico. Ethnohistorical accounts portray Hispaniola as composed of a number of organized provinces ruled by a cacique who ruled over other caciques who ruled over village headmen. At the time of contact, five provinces were described by Charlevoix (using Las Casas’ writings) and later, Rouse described six provinces organized in this same hierarchy.

Ethnographic and archaeological data have indicated that the Taíno practiced community ownership of land, as is common among contemporary South American groups. Their kinship relations were matrilineal and chroniclers and many of the early anthropological investigators claimed that the Taíno were patrilocal. It is widely thought, however, that Keegan and MacLachlan’s (1989) description of a viri-avunculocal residence pattern (where adolescent ego lives with his maternal uncle, and a spouse also moves into the maternal uncle’s household) is more in keeping with the type of settlement patterns and ethnographic records of the cacicazgos described for Hispaniola and the Bahamas. This type of residence pattern explains the diffused settlement pattern with more concentrated township type settlements and smaller more dispersed settlements scattered across the landscape as revealed in archeological surveys and described in ethnohistoric documents. Bahamian surveys reveal that the village sites are fairly densely distributed across the landscape of the small islands with the larger primate villages predominating on the leeward coast (western and northwestern) of islands.
Columbus’s description of the settlements of the Bahamas confirms this layout. In Historia, many of the sites of settlements were visible from his ship as he sailed along the southern end of San Salvador. He describes seeing two or three villages near one beach and another settlement with six houses on a small peninsula on the coast, where the Indians were seen walking out to meet his ship and even swimming out to meet him.

Similar settlement descriptions also have come from Cuba, first colonized in A.D. 700 by Taino migrants, and occupied before and after their arrival, by the Ciboney culture. Settlements are located in areas where both terrestrial and marine resources could be exploited, similar to the Bahamas, Jamaica and other islands described above. The bays and rivers of northeast Cuba were ideal places for settlements, as the Europeans also learned. Most Taino settlements were oriented to the east, facing the Windward Passage where, according to ethnohistorical accounts, they made contact on an almost daily basis with their ancestral groups on the west side of Hispaniola. Ten ceremonial plazas have been identified on the eastern tip of Cuba alone (Alegria 1983). Sixty-four kilometers inland from the bay of Rio de Mares, Colón’s crew came upon a settlement they described as a large village with some fifty houses. They described the houses as “large booths.” Later Colón in his diary described the houses as alfaneques, a round Moorish type tent as those occupied during times of war (Sauer 1966:62). Houses in Cuba were also described as having two doors and a chimney. The houses were circular in outline and were between thirty and forty feet across, with no partitions within them. Each village had approximately twenty to fifty houses with two hundred to five hundred residents.

Comparisons of the ethnographic and archaeological survey data have confirmed that the Tainos lived on the coast or near rivers in interior valleys, exploiting multiple terrestrial and marine environments. There were also small special purpose settlements, like the two-house/fishing sites Colón encountered on Bahía Bamay in Cuba and archaeological sites of dense shellfish and marine fauna middens identified and excavated on the coasts of many West Indian islands. The houses in settlements were randomly aligned around plazas or cleared areas with larger villages sometimes having bisecting paths that led from the ball courts to the coast and most having central plazas around which houses were located and smaller settlements consisting of only a few houses perched on some promontory or river bank.
Preservation of House Materials

The context and associations of the materials that will be discussed in Chapter 5 will be better understood in light of what is known about cultural behavior and the environment in which these structures were created. This discussion includes an examination of the conditions that foster the recovery of artifactual data through archeological excavation. Some understanding of the transformational processes wrought by the archaeologists have led to the loss or recovery of building materials and these also need to be mentioned.

Thatch and wood artifacts are, without a doubt, the most rare artifacts recovered in tropical climates like the Caribbean, where humidity, high temperatures and rainfall are extreme. Organic material, in general, is only preserved in uniform environments, such as constantly cold, dry or waterlogged matrix. The key to preservation is a stable anaerobic environment with a suitable pH, preferably neutral, but not always, and low natural or man-made transformational or erosional processes. Manufacturing processes include firing of wooden objects to cause carbonization, hardening and preservation of the organic material as well as choice of materials, such as Lignum vitae wood for posts, used at many prehistoric sites including Los Buchillones (Pendergast et al. 2001:74) in Cuba, Heywoods in Barbados (Drewett 2000:163), Tutu Village in St. Thomas (Righter 2002) and possibly Golden Rock, St Eustatius (Versteeg and Schinkel 1992). In Los Buchillones, the thatched roof itself was preserved and seems to have just been allowed to fall on the underlying structure (Pendergast et al. 2001:75).

Los Buchillones is a very rare site in comparison to others identified within the Caribbean. In fact, it is probably even more spectacular and certainly just as important to the study of house structures and settlements as the Golden Rock site. What makes Los Buchillones unusual is the anoxic underwater environment that has produced a phenomenal amount of organic building material. Small elements were also recovered: the rafters’ stringers used to attach the roof to the structural posts and other tenons joining the roof to walls and thatch material. The structural posts of this house on the sea, that probably reused massive primary posts, have been radiocarbon dated to A.D. 1385 and A.D. 1295 (Pendergast et al. 2001:78). The soils in which this artifactual material has been recovered have not been fully analyzed to understand the processes that allowed such remarkable preservation. Neither has there been any
study of the sea level changes and coastal morphology that might reveal why this material, after more than 400 years, has been safely recovered.

Terrestrial sites like Golden Rock, Playa Blanca and Heywoods have also not been analyzed to elucidate the conditions fostering the preservation of organic material at these sites. Each site has its own geographic location: close to the coast, or to marsh areas and even on the sides of promontories, like Heywoods. Shellfish, composed of siliceous material, known to act as a preservative on sites for organic material have been found at all of these settlement sites, but they are rarely, if ever, found in direct contact with posts or post molds. It is true, however that most of these settlement sites have been located in well drained areas with sandy or loamy soils, but clays, tuff (as that found at Golden Rock) and silts have also formed part of the soil matrix of these sites. At Golden Rock water was quite scarce on the site during prehistoric times and St. Eustatius had seasonal droughts that kept the settlement small. Heywoods also had to create pot-stack wells and construct man-made water sources for their settlement. Thus anaerobic environments were present, especially for organic artifacts that were hardened and buried rapidly after manufacturing.

Post depositional processes can have severe effects on site preservation. At Golden Rock it was the very lack of or non-severity of post-depositional activity on the site that assisted in the preservation of archaeological data. The degree of runoff from the site, located within a hill foot plain was minimized (during the non-occupation phase of GR-1 formation) between ca. A.D. 900 and 1640 when colonial agricultural activity started on the Cultuurvlakte. The build up of colluvial material from the runoff on either side of the site, as well as the gently sloping terrain of the site that allowed for a thick post-depositional layer through which plows could not penetrate. The presence of substantial shellfish deposits with calcium carbonates and silicates is most responsible for the preservation of features at Golden Rock. Some posts were actually preserved by chalk infilling of post molds, leaving impressions of the posts used in the prehistoric era (Figure 4.6).
At the Tutu Archaeological Village Site a similar site history was recorded in historical records. The site is located on an unused portion of a farm and contained remnant indigo plants but no evidence of plowing or harvesting. Colonial and modern land use as well as the building of a dam over the Turpentine Run “gut” altered ground water patterns within the site and created heavy top soil (alluvium and colluvial material) components that buried archaeological features underneath two massive earth mounds. Other post-depositional activities were congruent and promoted preservation on the site. Included in this were extensive midden deposits and a calcite rich soil composition of the site (Righter 2002:14), which promoted the preservation of a wealth of paleobotanical and osteological material, such as wood posts with carbonized material attached, human burial remains and seeds. Plant identification of several wood species used in construction of Taíno houses was possible at Tutu. Plant species included not only the Masticodendron species also found at Heywoods in Barbados, but also Lignum vitae (Guaiacum sp.) (Righter 2002:117).

Archaeological investigation, in most cases, has only been able to identify postholes by interpreting the dark organic stains revealed by excavation. Often it is only the configuration of stones used to lodge posts in a posthole during construction that indicates a post existed at any site (Righter 1997:76). Many settlement sites across the Caribbean have only been identified from midden deposits of domestic artifacts that are interpreted as part of a building complex. Most of the study and analysis of data concerning prehistoric structures must be left to the interpretations of the archaeologist using ethnographic and ethnohistoric data.
There is still much about the preservation conditions of structural artifacts that is not fully understood. Further analysis and investigation are needed to understand why these buildings have been preserved and identified through archaeological surveys and reports from locals who have stumbled across these features in the open landscape of the Caribbean. It is likely that modern development and historic degradation of cultural resources are major causes of the loss of these features. The lack of cultural heritage preservation programs is certainly another. In some cases these programs have come too late or lack the resources in skilled personnel and funds needed to foster steady archaeological recovery, cataloguing of the material recovered and interpretation of findings. Time and expertise are needed to compare the geographic and environmental composition of these islands so that preservation conditions may be better understood.

Burials

Burials, food remains and non-utilitarian wood elements are also recovered from settlements across the Caribbean. The preservation of these materials is of course due to the special conditions that also have allowed structural evidence to be preserved in the archaeological record. As mentioned in previous sections, these are particular instances where carboniferous materials such as shell (calcium carbonate) middens have overlain organic material or where water-logged conditions have promoted an anoxic environment favorable to the preservation of organic materials. It is important to remember that these are unique conditions and therefore these data are very rare in the archaeological record. The special preservation issues that surround the analysis of organic materials also implies that bias in a study and that these samples are but modest representations of the larger mass of organic materials that were created by these cultures.

Burials are an integral part of settlement studies and place actual people in the excavated structures. The context and morphology of burials provide insight into the social stratification, ritual practices and ideological beliefs of cultural groups. The Taíno had a very active ancestor worship cult, as evidenced by ethnographic and ethnohistorical records.

Taíno food practices involved horticultural production and the practice of extensive fishing and shellfish harvesting prior to European contact. As mentioned previously, there were
very few terrestrial species on these islands. Examination of the organic remains of food residues has, as expected, confirmed this condition. Most faunal species found within middens, burials and caches or pits at Golden Rock, Heywoods and Puerto Rican and Bahamian sites have been shellfish species, predominantly *Cittarium pica* and *Strombus gigas* both worked pieces and food processing discard was present.

Barbadian burials were found at a number of sites across the island. Areas A and B from the 1996 excavation year exposed six burials at the Heywoods site. Saladoid ceramics were found in association with these burials. Four out of the six burials in Areas A and B were flexed and showed signs of having been bound. They were placed partially upright or in a sitting position.

Three burials were found in association with the Heywoods house Structure 1 (S1) from the 1998-99 excavation field season. They were located outside the house structure (Figure 4.18). Two burials were found in association with Structures 2 (S2) and 3 (S3). The burials seem to be in a central space between three of the structures uncovered at the Heywoods site. All were adults and most were males as identified from osteological examination of the pelvis, and cranium (Drewett 1991). Machine damage to the skulls indicates that a significant number were placed upright, perhaps in a half sitting posture with the head slightly raised, as in the burials from Golden Rock-1, believed to be burials of individuals in their hammocks.

![Figure 4.7 Heywoods, Barbados 1998-99. Structure 1. Key: P- pot-lined well, B- burial, Black- post wood (from Drewett 2000: 41).](image)

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A later Suazoid phase burial area was located to the far northeast corner of Heywoods (Figure 4.19). These burials included more elaborate accoutrements. Other than the fact that they were located within a fenced area (or building, with a line of postholes surrounding them), some of the burials had other artifacts included within the grave. Two of the individuals were buried together though it is not clear if they were male or female. One of the burials within this “cemetery,” included the remains of a beaded necklace found on a male buried atop of a midden. Two pits were also found within this burial group. Another burial contained two conch adzes, Suazoid ceramics and parrotfish bones. The other pit included shellfish and fish bones that appear to have been burnt. A possible indicator of social stratification is the burial of an elderly woman well away from the group to the north of this “cemetery.”

Figure 4.8 Heywoods, Barbados 1998-99. General plan of site with postholes of three houses, historic structure and Suazoid burial area fence line emphasized in black (from Drewett 2000: 40).
A similar type of cemetery belonging to the Saladoid/Ostionoid ceramic series period was found at Maisabel on Puerto Rico. Also found in association with the house form discovered at that site, it is located between two of the largest middens within the horseshoe configuration of five middens. This site’s burials displayed signs of violent death. One individual had a manta ray spine projectile in the rib cage (Figure 4.20). Another individual had his right arm amputated, (his upper humerus displayed cut and saw marks). Similar types of injury were present on burial victims at the Hacienda Grande site.

Figure 4.9 Burial 4, Maisabel, Puerto Rico. Individual is in a flexed fetal position lying on its right side (male). Notice stingray projectile parallel with the ribs (from Siegel 1989: 235).

Nine Amerindian burials were recovered from Golden Rock-1, a very small representative sample for the population of six house structures. One burial, a teenage female, was placed next to the Structure 4 house post. One child, a fourteen year old was buried under an undecorated pot and given offerings as indicated by the accumulations of ash and charcoal found
over the vessel. Other children were also given offerings of food and other burial goods, like shell and coral tools, found throughout the site’s midden. All demonstrated a great variety of postures and practices. The most common were flexed burials, both on the back and on either side. The knees were slightly bent or raised toward the chest. Burials with either or both hands on the chest are interpreted as being buried in their hammocks. This practice is recorded in ethnological analogies from South American tribes (Farabee 1924:81). The orientation of the skeletons also showed great variety. There were three burial locations. One burial area was to the north of the central house area, Structure 2. Another area was south of Structure 2 and the last area was in the margin of the midden (Burials 1, 7 and 8, composite burials with two individual interred one above the other) (Figure 4.21).

![Figure 4.10 GR-1, Phase 2 occupation: Structure 1, 2, 7 and 8 (from Versteeg and Schinkel 1992:207).](image)

During the late Saladoid (AD 65-600) occupation of the Tutu Archaeological Village, a central cemetery or burial area was located during excavations (Figure 4.22) and believed to be chronologically related to Structure 5. The burial area was also associated with a central plaza, on the southeast sector of the central area. This central burial feature found in St. Thomas and other sites like Heywoods and Golden Rock suggest the existence of corporate groups, such as moieties or linear family groups during the Saladoid period (Righter 2002:341). This burial area
or cemetery existed during the later periods, to A.D. 960. After A.D. 1170, burials were being placed outside structures, occasionally against the walls of the structure (Figure 4.23). House-related burials are a post-Saladoid feature of settlements mentioned in this thesis and represent a significant social change in Taino prehistory. The presence of a single burial in a larger central plaza area is perhaps the most cogent evidence to date of the development of a stratified social order and complexity of the society during the later Ostionoid and pre-contact era Caribbean society.

Figure 4.11 Tutu settlement layout, c. AD 660-960 (from Righter 2002:336).

Figure 4.12 Tutu settlement layout, c. AD 1170-1585 (from Righter 2002:337).
Non-House or Quadrangular Structures and Other Features

Structures 9 through 14 at Golden Rock were interpreted as non-house structures (Table 4.2). All, except for Structure 9, are located in the southern sectors of the site in what is interpreted as a work area. Structure 12 and 13 were small four post structures, while Structures 9, 10, 11, and 14 were linear postholes. Structures 9, 10, 11 and 14 all have shallow postholes (less than 20cm depth). Other postholes at Golden Rock, not attributed to regular configurations are interpreted as repair posts or extra support posts or just postholes with unknown function.

Table 4.1 Golden Rock Non-House Structures, area and depth of postholes (from Versteeg and Schinkel 1992: 152).

<table>
<thead>
<tr>
<th>Structure</th>
<th>Area (m²)</th>
<th>Depth of Outer Circle Postholes (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GR-1 S7</td>
<td>21</td>
<td>13</td>
</tr>
<tr>
<td>GR-1 S8</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>GR-1 S12</td>
<td>0.64</td>
<td>24</td>
</tr>
<tr>
<td>GR-1 S13</td>
<td>1.35</td>
<td>46</td>
</tr>
</tbody>
</table>

There are no official dates for the non-house structures at Golden Rock, but it is believed that all eight structures were in existence from the earliest occupation of the site (Versteeg and Schinkel 1992:206). Certainly, Structure 7 and twelve were in the Phase 1 interpretation of the occupation stages for GR-1 (Figure 4.9).

The remains of a rectangular building were also uncovered at the Troumassoid/Suazoid site of Silver Sands, Barbados (Drewett 2000:22). Three postholes were excavated from this site. The entire structure was not excavated, but it is estimated to measure approximately 36 to 72 m². There is possible human and dog burial materials associated with this structure, Burial 3 dating to A.D. 100-1300 (Drewett 1991:25).

The scatterings of postmolds within Locus one at El Bronce demonstrates the presence of other structures within the area that have not been completely analyzed. In total, there are approximately forty postmolds within locus one, with several unknown post molds that hint at a rectangular structure south of and at right angles to the oblong structure (Figure 4.7).

Medium-to-large-sized postmolds located outside the main structure at Playa Blanca 5, also indicate secondary structures. It is possible that a total of four other structures may have
been present in the adjacent area (Curet 1992:165). They may have also been non-roofed structures like windbreaks or net hanging posts, or perhaps burnt out tree roots. Artifactual evidence places the settlement in the Chicoid period (A.D. 1200-1500), the estimated time of the special purpose buildings’ usage (Curet 1992:163).

In Barbados, Heywood, is one of the few settlement excavations that has yielded evidence of wood-lined wells and pot stacks used to collect water around and within structures. No wells were identified at Golden Rock-1, or any of the sites on Puerto Rico. The wood-lined wells and pot-lined wells are unique features that have only been identified at Heywoods where the Amerindians were taking advantage of a shallow water table (Figure 4.24).

Figure 4.13 A wood-lined and a pot-lined well from Heywoods. Wood lined (Context 574). Key: Crosshatched = wood, Black = coral rock (from Drewett 2000: 47,43).
Chapter 5

INTERPRETATION

Types of Houses

Museum exhibits, like those in St. Eustatius and British Guiana, have inspired many artistic interpretations of Taíno houses. These exhibits are created using information gained from archaeologically-recovered structural features that are given life from ethnographic analogy and ethnohistoric descriptions (Figure 5.1). These are individualized renderings within the diversity of structures that existed in the West Indies during the prehistoric occupation of these islands.

Figure 5.1 Reconstruction of a Taíno settlement from excavations at Hillcrest (from Drewett 1991).
Three different house forms were described in the ethnographic records by the Spanish chroniclers. Illustrations of these structures have been preserved in Oviedo’s *Historia general y natural de las indias* (1539-48) (Figure 1.5) and have been used in numerous discussions of Taíno houses from the pre-contact and contact period (Fewkes 1904; Lovén 1935; Maggiolo 1998). In Chapter 4 the three types of houses -- *caney* (the round house), *bohío* (the rectangular chief’s house) and the *maloca* (communal house in round forms) -- were described from ethnohistorical records. Ethnographic analogies regarding the shape and size of Taíno houses have been made, in this study and by other authors, using such groups as the Kalapalo, Witoto (Siegel 1989), Waiwai and other South American tribes.

These interpretations also rest on data from the archaeological record: posts, postholes and post molds, tools, ceramics and other midden accumulations. Computer projections (Siegel 1995, 1989), general population and settlement models (Curet 1998; Keegan 1992b; Doxiadis 1976) and ethnographic analogy (Versteeg and Schinkel 1992; Siegel 1989) are also used. In general, interpretations and reconstructions of the built landscape rely on sparse data about house forms or living spaces in Caribbean prehistory.

House shape from the five countries mentioned in this study suggests a freeform design that underlies Caribbean indigenous architectural styles. The basic structure, depending on size, graduates from round to oval to oblong or *maloca* styles as seen in Table 5.1. The small structures may either be round or square but large structures, which appear during the Early Ostionoid, invariably carry a *maloca*/oblong shape, indigenous to this region.

Table 5.1 House location, shape and area (m²). Calculated from diameter measurements given from posthole data for individual structures.

<table>
<thead>
<tr>
<th>Country</th>
<th>Sites</th>
<th>Structure Designation</th>
<th>Shape</th>
<th>Area (sq. m.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Thomas</td>
<td>Tutu Village</td>
<td>Structure 1</td>
<td>Round</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Tutu Village</td>
<td>Structure 2</td>
<td>Round</td>
<td>34</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>Maisabel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>El Bronce 1O</td>
<td>Locus 1</td>
<td>Oblong</td>
<td>576</td>
</tr>
<tr>
<td></td>
<td>El Bronce 1</td>
<td>Locus 1</td>
<td>Round</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>El Bronce 2</td>
<td>Locus 2</td>
<td>Round</td>
<td>21.5</td>
</tr>
<tr>
<td></td>
<td>Playa Blanca 5</td>
<td></td>
<td>Round</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>PO-21</td>
<td></td>
<td>Oval</td>
<td>46</td>
</tr>
<tr>
<td>Location</td>
<td>Structure</td>
<td>Phase</td>
<td>Shape</td>
<td>Dimensions</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-------</td>
<td>--------------</td>
</tr>
<tr>
<td>Barbados</td>
<td>Goddard</td>
<td>Area 3</td>
<td>Oval</td>
<td>246.5</td>
</tr>
<tr>
<td>Hillcrest</td>
<td></td>
<td>Round</td>
<td>353.4</td>
<td></td>
</tr>
<tr>
<td>Heywoods 1B</td>
<td>Structure 1 Area B</td>
<td>1996</td>
<td>Round</td>
<td>56</td>
</tr>
<tr>
<td>Heywoods 1</td>
<td>Structure 1</td>
<td>1998/99</td>
<td>Oval</td>
<td>28.26</td>
</tr>
<tr>
<td>Heywoods 2</td>
<td>Structure 2</td>
<td>1998/99</td>
<td>Oval</td>
<td>99.75</td>
</tr>
<tr>
<td>Heywoods 3</td>
<td>Structure 3</td>
<td>1998/99</td>
<td>Oval</td>
<td>90</td>
</tr>
<tr>
<td>St. Eustatius</td>
<td>GR-1</td>
<td>Structure 1</td>
<td>Round</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>GR-1</td>
<td>Structure 2</td>
<td>Round</td>
<td>41</td>
</tr>
<tr>
<td></td>
<td>GR-1</td>
<td>Structure 3</td>
<td>Round</td>
<td>71</td>
</tr>
<tr>
<td></td>
<td>GR-1</td>
<td>Structure 4</td>
<td>Maloca</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td>GR-1</td>
<td>Structure 5</td>
<td>Maloca</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>GR-1</td>
<td>Structure 6</td>
<td>Maloca</td>
<td>214</td>
</tr>
<tr>
<td>Cuba</td>
<td>Los Buchillones</td>
<td>Structure 1</td>
<td>1998</td>
<td>Round 40.82</td>
</tr>
<tr>
<td></td>
<td>Los Buchillones</td>
<td>Structure 2</td>
<td>1999</td>
<td>Square N/A</td>
</tr>
</tbody>
</table>

Data from St. Eustatius and St. Thomas present the most complete archaeological settlement data offering an excellent data set for comparison and classification. At Golden Rock-1, five types of houses are present. Type 1 house design, represented by GR-1 Structures 1, 2 and 3 (Figure A.3), has an outer circle of shallow postholes and one to two central postholes, with extensions or posts forming radiating walls from the main structure (Table 5.2). Type 2, represented by Structures 4 and 5 (Figure A.5 and A.6) at Golden Rock, is a large structure, with an outer and inner circle of deep postholes, two central postholes and two arcs of postholes not joined to the structure. Type 3, exemplified by Structure 6, is also a large structure with an outer circle of less deep postholes, an inner circle of deep postholes and three central postholes. Type 4, is a small structure with an outer circle of shallow postholes and no central post, very much like Structure 8 at GR-1. Type 5 house design, interpreted by Versteeg and Schinkel (1992) as a “non-house” structure (work hut), is a small two-aisled structure, with or without extensions, exemplified by Structure 7 (Versteeg and Schinkel 1992:180).
Table 5.2 Golden Rock-1 Structures area, time period and estimated household number using the (Curet 1996:367) linear formula (after Versteeg and Schinkel 1992: 152).

<table>
<thead>
<tr>
<th>Type</th>
<th>Structure</th>
<th>Dates cal. A.D.</th>
<th>Area (m²)</th>
<th>Population Estimate</th>
<th>Depth of Outer Circle Postholes (cm)</th>
<th>Depth of Inner Circle Postholes (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GR-1 S1</td>
<td>560-794</td>
<td>45</td>
<td>8.1</td>
<td>109</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>GR-1 S2</td>
<td>675-725</td>
<td>41</td>
<td>7.5</td>
<td>121</td>
<td>-</td>
</tr>
<tr>
<td>1</td>
<td>GR-1 S3</td>
<td>625-675</td>
<td>71</td>
<td>12.5</td>
<td>110</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>GR-1 S4</td>
<td>775-880</td>
<td>283</td>
<td>48.5</td>
<td>162</td>
<td>167</td>
</tr>
<tr>
<td>2</td>
<td>GR-1 S5</td>
<td>672-774</td>
<td>154</td>
<td>26.6</td>
<td>136</td>
<td>144</td>
</tr>
<tr>
<td>3</td>
<td>GR-1 S6</td>
<td>800-875</td>
<td>214</td>
<td>36.8</td>
<td>58</td>
<td>123</td>
</tr>
<tr>
<td>4</td>
<td>GR-1 S8</td>
<td>N/A</td>
<td>16</td>
<td></td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>GR-1 S7</td>
<td>N/A</td>
<td>21</td>
<td></td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

Structures 1, 2 and 3 at Golden Rock-1 were earlier smaller structures, but Structures 4, 5 and 6 were typed as maloca structures because of their large size, internal divisions of inner and outer circles and triangular relationships between the inner and outer posts. These attributes or descriptors can be used to create a typology for similar structures across the Caribbean. Tutu Structure 1, for example, is a Type 4 structure with no central post and a small size (12 m²). Many of the other Tutu structures may be categorized as Type 3 structures maloca-style houses. Structure 5 at Tutu is the only structure that truly resembles structures from Golden Rock-1 (Righter 2002:339).

The round house, or *caney*, is the predominant house form from all ceramic time periods, from earliest Saladoid period of the Elenoid until contact. This house form is also found on all the islands in this study, from the Greater Antilles, Cuba to the Leeward Islands of the Lesser Antilles in St. Eustatius and Barbados. It is clear that the round form is an indigenous style that existed in the Caribbean from earliest prehistoric times and later, after the Early Ostionoid, reappears as the dominant house type. This finding reconfirms Curet’s (1992:169) theory of the early appearance of the large, communal maloca-style in the Early Ostionoid and continuation of the round style in the Chicoid or Late Ostionoid period.

At the Tutu site three different circular house types were identified: an oval house with interior post holes (Structures 3, 6 and 8), and round houses with (Structures 1 and 4) and without (Structure 2 and possibly 7) interior postholes (Righter 2002:333). The variation of style and size is most probably associated with functional differentiation of structures (e.g., shaman huts or visitor housing). The larger structures (Structure 7 and 8) are believed to be chiefly
houses where the greatest number of external activity areas were identified: burial area, workspace, entrance area and open spaces (Righter 2002:334). These two structures were also located on the elevated section of the site overlooking the central plaza area, with some possibility of a stone-lined plaza, during the Late Ostionoid occupation of the site.

Archaeological evidence has also provided new information about Taíno house features not previously known in this region. These include the pile houses and raised floors found at Los Buchillones. There have been a number of records of smoothed, cleaned floors in the ethnographic record, but it is logical to assume that where settlements were built close to shores, tidal action and marsh or lagoon water could cause seasonal inland flooding, especially in the tropics. The Taíno developed architectural methods to accommodate fluctuating water levels. One response was to place their houses on promontories near shore, or move inland. Perhaps fostered by the subsistence changes that were taking place in the culture, the shift from terrestrial to marine resource exploitation necessitated a technological adaptation in adjusting the floors, as houses were built closer to the Caribbean Sea. These littoral locations also assisted with the inter-island trade that was an everyday part of Taíno life. Many raw materials, such as volcanic stones and food, were imported daily to assure survival in isolated island environments.

When the evidence from Ft. Liberté, a Period IV (A.D. 1200-1524, Figure 1.3) site in Haiti is examined, a clearer understanding of the changes that occurred in Taíno house structures after contact can be better understood. The images of Taíno houses provided by Fewkes (1907:43) and Rainey (1941:151) show some interesting changes in the shelter structure and behavior of this culture group during Period IV (A.D. 1200- A.D. 1524). During this period, a geometric form of pottery style called the Carrier (Chican subseries) group or series had developed, ostensibly an in situ evolution from Meillacan (Rouse 1939:136). At the same time, the Carrier groups on Hispaniola (in Haiti) were trading and exchanging ceramic technology with Puerto Rico. They were also building religious structures similar to those described by Oviedo in his 1539-48 description of Taíno *bohios* (Figure 1.5).

The *bohio* house structures described by Oviedo, and assigned to the Period IV occupations at Ft. Liberté, are obvious results of the preceding forty years of Spanish Indian contact that began with the settlement at La Navidad in chief Guacanacaric’s (also called Guacanagari or Guacanarillo) province of Ciguayo (Rouse 1948:529; Deagan and Cruxent 2002:
31). This house form is not a Spanish-introduced style, however, in my opinion, it is a response to diminishing populations and the cultural and ideological upheavals that resulted from contact.

Spanish houses in the early contact period reflected European ideals of Christianity, civilization and superiority to native Taíno practices. The early settlements at La Isabela and Puerto Real reflected Columbus’ determination to build a Spanish empire in the New World. Settlements in the Americas were built to resemble forts or castrums on gridded plans, like those built in Spain by Isabella and Ferdinand, during the last years of their campaign against the Moors. They featured quadrilateral buildings, with stone foundations for the church, governor’s house and the alhóndiga (the storage house) (Deagan and Cruxent 2002:120). The common sailor’s and soldier’s houses were also quadrangular in shape and had what was described as patios or entranceways, door pivots where doors could be shut, windows and partitions.

Postmold data from Spanish houses at La Isabela were found in the residential area or Poblado. Two of the post mold complexes reveal thatch-and-post buildings in a rectangular form. They were between forty and sixty square meters, comparable to Spanish sizes on the European continent (Deagan and Cruxent 2002:129). These domestic structures were disposable in nature, compared to the solidity of the public structures. The size, shape and materials used for the construction of domestic structures was dependent on local materials and the colonists were left to their own devices when it came to the construction of their houses (Deagan and Cruxent 2002:130).

The archaeological evidence of domestic structures at Puerto Real demonstrates that Spanish houses were very symmetrical. They employed posts in construction but also included bricks, stone and roof tile. There were also enclosed courtyards and brick drains, with middens located north of the structures (Ewen 1991:107). The houses at Puerto Real, located at Locus 33/35 and 19 were also perfectly aligned with Building A to the north of the domestic area (McEwan 1995:206). Both La Isabella and Puerto Real had domestic structures that were rectangular houses of thatch and post, with doors and windows. The Spaniards were forced to use native materials, which also led to similarities between native and European houses in the New World. With the exception of the doors and windows and the furnishings, there is very little dissimilarity between Taíno and Spanish houses in the 1490s. They even shared the same pattern of central plazas in their town structure with the exception of roadways and drainage features.
These similarities do serve to emphasize some of the compatibilities between Spanish and Taíno settlement plans and organization.

Temporal and Spatial Comparisons

During the prehistoric and the protohistoric period of Caribbean history there were various forms of Taíno structures. The interaction of Spanish and native cultures created a legacy of material cultural remains that significantly affected the cultural melting pot of the West Indies. Caribbean society of today was created by numerous cultures -- European, African, East Indian and Asian -- all of which have contributed in some part to the material, social and ideological development of these independent island states. The events following 1492 signaled the end of thousands of years of Taíno culture and society and its replacement by new societies created by the forces of cultural contact and isolation that are unique to this tropical archipelago. Such cultural transformations would not occur again until European and Asian colonization of the South Pacific Islands in the nineteenth century, some four hundred years later.

Taíno houses of the prehistoric era have been described as elliptical in shape with quadrilateral frames. The thatch and forked roof beams, with wattle walls, have formed the basics of traditional Ostionoid structures. During the protohistoric period, house forms associated with contact period interaction between the Taíno and the Europeans resulted in new forms and styles of domestic architecture. These same features of colonial period Caribbean architecture persisted into the historic period in the architecture of the slave migrants from Africa and the indentured servants of East Asia who populated the sugar islands of the Greater and Lesser Antilles in the seventeenth and eighteenth century.

In Cuba, the Taíno term for house has been preserved, as has the architectural style first described by Oviedo. This style has been perpetuated in many cultural elements that are legacies of the “Columbian Exchange” (Crosby 1973; Ewen 1990:2). This transfer of lexical and material cultural items includes the barbeque, from the Taíno word *barbacola*; canoe, from *canoa*; and tobacco from Taíno *tobaco*, among others (Highfield 1997:160-65). Variations on the tools used to make modern day *bohios* in Cuba have changed, as possibly have some of the techniques. Modern bohios are very similar in style and shape to the protohistoric models as can be seen in Figure 5.2. Many have different models for the patios and doors, as can be seen in this photo, but
they are very similar to descriptions of native houses during the initial occupation of Hispaniola, Jamaica and Cuba in the early Spanish period of colonization. Similar structures have been seen from Trinidad and Puerto Rico (Figure 5.3 and 5.4). Some use the pile, raised house style, as described at Los Buchillones and most use yagua or palm leaves similar to the local materials used by agricultural Taíno society, during their initial colonization of these islands.

Figure 5.2 Baracoa bohio in parts of Havana, Cuba. Made from wood and various palm leaves (from Llanes 1999: 27).

Figure 5.3 Carib House at Arima, Trinidad (from Fewkes 1907:Plate VII).

Figure 5.4 Puerto Rican House (from Fewkes 1907:Plate III).
These architectural designs and settlement types can still be seen in South America in the valleys where the horticultural group of the Saladoid culture originated and spread into the Caribbean. Whether this origin was in Guiana or Venezuela has been debated in the past but it is generally accepted, on the basis of ceramic and artifactual data, that the Taíno groups that developed on the islands of the Caribbean came from the Orinoco River Basin on the north coast of South America (Rouse 1992:27; Keegan 2000:138). Present day tribes are cultural and linguistic relatives to the Taíno, as well as a few descendants inhabiting the countries of British Guiana and northern Amazonia. Data from these groups form favorable ethnographic analogs with which to portray the Taíno.

The traditional or native Taíno structure, the maloca, is almost lost to the history of the Caribbean region. Only modern day archaeological and anthropological efforts have revealed the circular caney/maloca of the West Indian natives. The maloca-style house was an innovation in Taíno society with many variations of form, specific to territorial areas and cultural traditions of these prehistoric peoples (Hugh-Jones 1985; Versteeg and Schinkel 1992). In the Greater Antillean islands, the large style house was of a strikingly different form than the houses of the Lesser Antilles. Saladoid houses were smaller in general than Ostionoid houses of the later part of Taíno history (after A.D. 900). It is during the Ostionoid period that the maloca style appears; prior to that period, a caney- style house seems to have been the most popular form. These were small structures with circular, single row postholes, conical roofs, some with gables and extensive external structures, such as extensions or L-walls around the structures or arcs, as at Tutu and Golden Rock. Work areas and burials were found in close association with house structures, some within the structure itself, as at El Bronce.

Extensive shellfish exploitation permitted greater social and ritual activities within settlements. Under these conditions of growth, the maloca style appears among the Taíno/Carib populations of the West Indies and the structure assumes a more social or communal form with larger living spaces and separation of ritual and domestic space. At Heywoods, this separation took the form of domestic areas with pot-lined wells and hearths within corners of the structure. In GR-1 the structures had inner and outer post rows within the structure separating the central communal areas from the domestic partitions within the outer section of the house. Burial patterns also changed from burials within or around structures and in middens, to midden burials.
and group burial areas in special central areas within village settlements. At Heywoods and Silver Sands in Barbados these burials were placed within fenced areas, which maybe interpreted as work or special function areas. At Golden Rock, burials were located in a central relationship to house structures as they were at the Tutu village. All are very reminiscent of Siegel’s (1997) interpretation of Taíno axis monde that ran through the central plaza or court area of settlements placed (Figure 5.3).

Demography and Mobility

The establishment of communal style hierarchical settlements is a complex subject. It involves an examination of the culture’s physical, ideological and religious artifacts and a general comparative approach using analogous cultures from which population models can be tested. A goal of this study is an understanding of the demographics of the population that created the culture’s unique landscape. In order to understand Taíno settlement organization and material culture, an examination of the factors involved in the movement and facility of these people also must be appreciated.

Ethnohistoric records and ethnographic analogy using modern day structures similar to the Taíno caney, have produced data on population sizes associated with each site and house form. They have also provided insights into Taíno migration and the effects of that movement on their domestic structures. Intra-island migration and the stability of Taíno populations was dependent on a number of factors, particularly kinship relations and community organization. These relationships are still not fully understood by researchers examining this culture’s history. In keeping with the modern paradigm, the Keegan and MacLachlan’s (1989) viri-avunculocal residence pattern has been accepted as the mode of Taíno relationships with consanguines. The factors involved in the acceptance of this mode of kinship relationships are multi-layered, but are generally in agreement with the archaeological evidence that exists for populations across the region. Cultural factors include communal property rights, bride price, affinal kin relations, as well as archaeological data regarding site size and population, the area of roofed dwellings, midden or mound sizes, mortuary remains, food processing and consumption.

The household is the basic social unit below that of the community in Taíno society. Ethnohistoric and ethnographic data have identified a complex household organization within
Taíno society. The household, like many such units in tropical forest cultures, such as the Caribbean Taíno and Carib tribes, is the basic unit of social life. The household is the foundation from which all other organizations arise. It is the family or lineage that forms the basis of any Taíno/Carib household. The Taíno of the West Indies followed a complex system of corporate units. Nobles or other village heads, caciques or elders, could have more than one wife. When the population of the West Indies began to rise as the Classic Taíno occupied all of the Greater Antilles (during the Ostionoid Period) the larger sized *maloca* or oblong communal houses with extended families may have contained the members of a single clan or moiety. During the protohistoric period, after the arrival of the Spaniards, the population began to be decimated by disease and hardships. A response to this loss is the nuclear family *bohio*, another house form and household pattern that appeared during the early 1500s.

Various forms of archaeological data can be used to estimate the size of these households, over these time periods and culture areas. The examination of floor space in house structures is the primary method used (Curet 1998; Versteeg and Schinkel 1992), but complimentary data can also be obtained from the study of mortuary remains, surface refuse or ceramic density, artifacts related to food preparation, storage and consumption and artifact density or scatter. Many of these lines of inquiry can be used independently or in conjunction, but architectural features and surface refuse are the most widely used parameters. Archaeological factors that must be considered when creating a demographic model for a prehistoric population are: the duration of occupation, mobility within the site, differential occupation of different intra-site areas across time, the reconstruction or enlargement of structures and the natural and cultural transformational processes that affect the formation of the settlement site (Curet 1998:363).

It is obvious that the Taíno settlers of the West Indies were very conservative in their house styles and that they often occupied a site for some time, often centuries. Many times they built over structures from which they reused raw materials for construction. The estimated populations suggest that they were maintaining their size and later in pre-history even showing a demographic increase (Mid-Ostionoid). As mentioned before they were obviously moving to different sections of the island, from the windward to the leeward sides of islands, often nearer to sources of water. Yet these speculations and limited mortuary information do not provide solid data on populations on these islands or in settlements. Ethnohistorical data has been shown to be exaggerated or unreliable when doing scientific study (Henige 1978:237) hence the use of living
floor space analysis to arrive at a better conceptual understanding of settlement demographics in the prehistoric period of this region.

The mathematical model used to estimate population size for the Taíno sites mentioned above is the linear regression formulae developed by Curet (1998) using ethnographic analogy to create a regression analysis with an acceptable r-square value of 0.959. The regression plot has a y value of 0.50636 + 0.16949x and the r² value of 0.959 (Figure 5.5). The r-squared value is sufficiently low to account for 97 percent of the variables that must be considered when estimating the number of persons to floor space using a linear mathematical formula. Maisabel, Goddard, Silver Sands and Hillcrest were not included in some of these formulae due to the speculative nature of the structure sizes given in reports from these sites. The lack of sufficient data concerning the posthole configuration of these structures is very unpredictable and thus not suitable for given so general a population estimate as this one.

Figure 5.5 Regression plot of floor area from all houses, created from an ethnographic list of South American cultures (from Curet 1998: 367).

This model was chosen specifically because it was designed for Caribbean and South America “Tropical Forest Traditions” (Curet 1998:374). Actual inspection of the curve and the evaluation of the house area data were simple procedures used to create a data set with which to examine population demographics for each site that was less than 25,000 m², as required by Curet’s (1998) model.
The formula is useful, with numerous qualifications, for examining these data. The first qualification, is that, these population figures are estimates and do not reflect the actual populations across the site. The figures have been produced to give an idea of the number of people who inhabited the site, thus shedding light on the human resources available for the structuring of the community at each site, the base manpower that was available for the building of the site and the functioning of the community. It is important to remember that an examination of the family structure of the groups at the site is not being considered by this general linear regression square. Whether they were nuclear or multi-family units would have affected the size of the houses. The function of the building as a ceremonial or communal building also has not been considered in the mathematical formula and this is the primary reason for the range of data used in the estimates. Histograms and other mathematical models have been used to describe some of the differences that would be apparent between nuclear and multi-family households (Curet 1998).

The ranges of population figures given in Table 5.4 are population estimates for selected sites, given in range from the highest to lowest figures. The figures are created using the r-square values (Figure 5.5) and calculating the house area (m²) from measurements reported from the sites. Some of these figures have been calculated using Curet’s (1998) calculations for sites mentioned in this study.

Table 5.3 House Sites shape, area, time period and estimated number of inhabitants. *Estimates of household size are based on Curet’s linear formula for all sites (y = 0.50636 + 0.16949x r² = 0.959) (after Curet 1998: 367).

<table>
<thead>
<tr>
<th>Sites</th>
<th>Date (A.D.)</th>
<th>Ceramic Tradition</th>
<th>Area (sq. m.)</th>
<th>Household Size*</th>
</tr>
</thead>
<tbody>
<tr>
<td>GR-1 S1</td>
<td>560-794</td>
<td>Saladoid</td>
<td>45</td>
<td>8.1</td>
</tr>
<tr>
<td>Tutu S5</td>
<td>650-895</td>
<td></td>
<td>37.17</td>
<td>6.8</td>
</tr>
<tr>
<td>Maisabel</td>
<td>600-900</td>
<td></td>
<td>576</td>
<td>98</td>
</tr>
<tr>
<td>PO-21</td>
<td>600-1500</td>
<td></td>
<td>46</td>
<td>8.3</td>
</tr>
<tr>
<td>PO-39</td>
<td>600-1200</td>
<td>E. Elenan</td>
<td>42</td>
<td>7.8</td>
</tr>
<tr>
<td>GR-1 S3</td>
<td>625-675</td>
<td></td>
<td>71</td>
<td>12.5</td>
</tr>
<tr>
<td>Goddard</td>
<td>650-1100</td>
<td>Troumassoid</td>
<td>246.5</td>
<td>42.3</td>
</tr>
<tr>
<td>Hillcrest</td>
<td>650-1100</td>
<td></td>
<td>353.4</td>
<td>58.1</td>
</tr>
<tr>
<td>Heywood 2</td>
<td>670-965</td>
<td>Elenan</td>
<td>99.75</td>
<td>17.8</td>
</tr>
<tr>
<td>GR-1 S2</td>
<td>675-725</td>
<td></td>
<td>41</td>
<td>7.5</td>
</tr>
<tr>
<td>GR-1 S5</td>
<td>672-774</td>
<td></td>
<td>154</td>
<td>26.6</td>
</tr>
</tbody>
</table>
It is obvious that structures at Goddard, Hillcrest, Maisabel, Heywoods, the Cerrillos Valley and Golden Rock 1 are ceremonial center sites with large communal structures. The Los Buchillones structure is an anomalous site, but again it is assumed this was a ceremonial site, with a large communal house. When the really large structures, over a hundred square meters are omitted from the equation, structures within the nuclear or multiple family size households show a trimodal distribution in house area (Table 5.4), as do population calculations for each house structure (Table 5.5). The lowest or smallest household, having a population of between twenty and forty individuals, a medial household estimate of between forty and sixty persons and then large household of over eighty would be communal size houses with populations ranging from ninety-six at Maisabel and seventy-two at Hillcrest.

<table>
<thead>
<tr>
<th>Site Type</th>
<th>Area Range (sq. m)</th>
<th>Population (Estimate)</th>
<th>Medial Population (Estimate)</th>
<th>Large Population (Estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heywood 1</td>
<td>1085-1150</td>
<td>L. Elenan/Ostonian</td>
<td>90</td>
<td>15</td>
</tr>
<tr>
<td>Heywood 3</td>
<td>1040-1300</td>
<td>L. Elenan/Ostonian</td>
<td>34</td>
<td>5.5</td>
</tr>
<tr>
<td>Tutu S2</td>
<td>1175-1405</td>
<td>L. Elenan/Ostonian</td>
<td>12</td>
<td>3.1</td>
</tr>
<tr>
<td>Tutu S1</td>
<td>1290-1405</td>
<td>L. Elenan/Ostonian</td>
<td>29.4</td>
<td>5.1</td>
</tr>
<tr>
<td>Tutu S7</td>
<td>1290-1420</td>
<td>L. Elenan/Ostonian</td>
<td>41.9</td>
<td>7.6</td>
</tr>
<tr>
<td>Tutu S3</td>
<td>1290-1420</td>
<td>Chican</td>
<td>24</td>
<td>4.6</td>
</tr>
<tr>
<td>Tutu S6</td>
<td>1290-1492</td>
<td></td>
<td>23.31</td>
<td>4.5</td>
</tr>
<tr>
<td>El Bronce 1</td>
<td>1200-1492</td>
<td></td>
<td>37</td>
<td>6.8</td>
</tr>
<tr>
<td>El Bronce 2</td>
<td>1200-1492</td>
<td></td>
<td>80.75</td>
<td>14.1</td>
</tr>
<tr>
<td>Playa Blanca 5</td>
<td>1295-1655</td>
<td></td>
<td>530.7</td>
<td>90.4</td>
</tr>
<tr>
<td>Tutu S4</td>
<td>1305-1425</td>
<td></td>
<td>30</td>
<td>5.2</td>
</tr>
</tbody>
</table>
Table 5.4 Distribution of house structure floor area for sites less than 100 m². The two sites not within the grouping are Tutu S5 and Playa Blanca-5.

![Scatter Plot for Small (<100 sq. m.) House Structure Area](chart1)

Table 5.5 Scatter chart showing trimodal distributions of household sizes, for houses <100m². Excluded are Maisabel, Hillcrest, GR-1 S4, S5, S6 and Goddard.

![Population Estimates for House <100sq. m.](chart2)
Structures over eighty meters square may be interpreted as extended/multiple family houses with a demographic of between 12 and 17 persons (Tutu S7 and S5, Heywoods S2 and S3, Playa Blanca-5), while those structures between sixty and forty square meters are large nuclear family houses with perhaps an additional member, between 7 and 11 persons (Heywoods S1, GR-1 S1, S2 and S3, Tutu S6). The lowest structure area range is between 20 and 40 m² (El Bronce S1O, S1 and S2 Tutu S1, S2, S3 and S4) and represents a standard nuclear household, between 3 and 7 persons, as ethnographic reports for South American house sizes estimate five people in a 21m² house and six in a 40m² house. A 202m² house Waïwai house has been recorded as accommodating forty-one persons (Curet 1998:366) similar to the communal houses from Tutu and Heywoods. Both sites from the Cerrillos Valley, though single structures in a complex of buildings hereto not identified, belong to the mid-range family house group with a population of between 7 and 8 persons. Silver Sands, although a highly speculative structure, being identified from only three post molds belongs to the smallest size houses with a population of 5.8 persons, the same as Tutu S2.

The communal houses, such as Maisabel, Goddard, Hillcrest, and GR-1 S4, S5 and S6 are all early structures, dating from A.D. 600-900 (Maisabel) to A.D. 800-875 (GR-1 S6). Their area and household composition are high, over one hundred square meters area and between 26.6 (GR-1 S5) and 98 (Maisabel) persons. It is logical that the ceremonial “turtle house” (GR-1 S6) from Golden Rock is within this range of great houses. This structure, as well as the other later phase structures from Golden Rock, symbolizes the height of Carib culture in the Lesser Antilles in the middle part of the Ostionoid period. The same may be said for the Barbadian and Puerto Rican structures. Little is known about the Goddard and Hillcrest site, except that like Maisabel a large ceremonial plaza, or more than one plaza, as at Maisabel was present. These structures represent a large aggregation of people at a level of social organization that allowed the amassing of resources required to create structures of this size and population. They also symbolize a measure of social solidarity and cultural ties that extended to a large portion of the population of these islands. Certainly at Golden Rock a structure like GR-1 S6 and GR-1 S4 would have been monumental structures on the landscape of St. Eustatius.
CONCLUSION

House Styles

Taino prehistoric architectural forms vary among a number of circular forms and a quadrangular form that seems to be associated with special function uses, given the ethnographic and archaeological data. These uses include work structures for the processing of food, accommodations for visitors and ceremonial houses. Added to the quadrilateral forms are the circular forms, which vary from an actual round form, to an oval form and an oblong form, but can be very irregular in shape and size. Structure size depended on the needs and size of the occupying group. Larger structures then may have been more irregular in shape to conform to the needs of all household members, as well as being a deviation from the common circular forms.

The circular house, based on archaeological evidence, is the basic house form used by the prehistoric Taino from their earliest occupation of the islands of the West Indies until the time of contact. Of the almost twenty structures examined here, not including the Tutu Archaeological site in Puerto Rico, almost half were circular structures dating from a variety of periods in Taino prehistory and the contact era (Table 5.1). The caney has its archaeological correlates spread across an expansive period of time (A.D. 600 – 1520) and geographic area (from the U.S. Virgin Islands to St. Eustatius).

Indigenous interpretations of circular shape and conical form in Taino houses were widely adapted leading to the creation of a new form of Taino house structure, the oblong-shaped house or maloca. This is the house shape used at the height of Taino cultural history when the chiefdoms or cacicazgos were well established in the Greater Antilles and the population of the islands had grown to larger numbers. The oblong-shaped house was a communal structure built to accommodate the increased populations of the Ostionoid revolution in Taino prehistory. This new structure is associated with the shift from a terrestrial to a maritime economy, evidenced by reduced consumption of blue land crabs and greater quantities of Strombus gigas and other shellfish, which appeared in the midden deposits of settlements. This structure was also associated with the development of Taino inter-island trading networks that linked neighboring islands. These networks led to daily economic and social interaction within the Caribbean region...
and linked several different Taino groups: the Western and Eastern Taino with the Classic Tainos and Caribs as far south and north as northern South America and Florida, respectively.

The oblong/maloca structure has been found in association with ceremonial areas where the Taino practiced their zemistic religion. It is associated with the paved walkways and stone-lined plazas or bateys that were part of this culture’s ceremonial complex. The maloca-style house is associated with larger and more complex social ties among members of Taino society and a richer ideological life filled with ritualistic artifacts and symbolic meanings. The Taino house itself was a symbolic structure within a settlement. The burying of turtle tablets in the houses at Heywoods, the shape and proposed form of Structure 6 from Golden Rock (Figure 4.14), as well as the elaborate burials that have been identified in settlements across the region are confirmation of the importance of these structures to Taino lifeways. It is this central meaning and symbolic importance that define the shape and form of the communal houses of the Ostionoid tradition in the West Indies.

The oval house is a variation of the circular structure and was contemporaneous with oblong structures. Like the caney it was probably created for small families, and a variation in shape may represent the addition of another household member, or an architectural peculiarity of the builders who designed the structure. Structure 5 at Tutu bears a striking resemblance to the GR-1 round maloca structures, though there were a number of oval structures at Tutu with greater resemblance to those from Puerto Rico. The oval house is a Late Ostionoid form and represents, to some extent, a break in the mathematical concerns with perfect forms, a shift from the artistic and technological skill of structures like the turtle house, GR-1 S6, to the oval forms at Tutu S3 that needed many central post to support a small structure (29.4 m²). This may be the result of changes in the society and economy of these island groups as large family groups disappeared and smaller nuclear households became the norm. Smaller households resulted in a loss of labor for building and may have led to less attention to architectural forms. Thus the perfectly round caney decreases in frequency. Perhaps there is also a loss of the technological skill that would have been passed from the Early Ostionoid maloca builders to the caney builders of the Chicoid. The variation in round houses and the maloca-style house are indicative of the variability present among islands and within settlements, as the sites on Puerto Rico and St. Thomas attest.
The quadrilateral structures discovered in archaeological excavations in Barbados and St. Eustatius point to a prehistoric origin for Taino bohios found across the Caribbean throughout history (Figure 5.2 – 5.4). Indeed, given current archaeological evidence, they were not even late structures in the region. They are controversial structures that have been widely attributed in anthropological and archaeological debate to acculturative changes after contact between Spaniards and Amerindians on the islands of Hispaniola and the Greater Antilles. The archaeological evidence, however, does not support this assertion. It is significant to note, however, that not all these structures were domestic residences for Taino natives. The evidence suggests that these dwelling places housed ritual artifacts: zemis, elbow stones, three-pointed stones and stone rings associated with the ritual activities held in these large ceremonial settlements. They may also have functioned as men’s houses and in ritual activities associated with cults of the Caribs and Taínos of the region. The unique shape of these buildings and their scarcity in the archaeological record confirms that they were specialized buildings and not common domiciles.

The square or rectangular house form was certainly found in dense population centers. In the case of Silver Sands and Structure 7 at GR-1, these buildings were present at later occupation sites on islands with very different population dynamics. St. Eustatius and Barbados were two of the last islands to be occupied by the Saladoid culture in the Leeward Islands. These islands are characterized by the presence of few Amerindian sites, but large settlement size through time.

The presence of these structures in the Carib culture region prompts several questions. Carib culture shared many linguistic and ceramic correlates with the Taino culture to the north. The Carib occupation of the islands within the Leeward arc, however, was marked by continued interactions with the South American mainland and a stronger intermixing with other groups that previously inhabited the region, namely the Igneri. Their cultural development is also marked by extensive conflict between rival groups within their society and by conflict with the Eastern Taínos, in Puerto Rico and Hispaniola. It is this internal and external conflict among culture groups that has been credited as a factor in the social development of Taino cacicazgos on Hispaniola and the rise of complex social hierarchies and ritualistic behavior in this culture area (Wilson 1990). It may also be attributed to the rise of smaller households and the appearance of the bohio in prehistoric times as family units were reshaped by continued threats of invasion, and
loss of members (both males and females) in Carib raids. It also meant that Carib society was being reformed by an influx of Taínos into their society as captives, slave and spouses.

Other less permanent domiciles also have been identified in archaeological excavations from Heywoods and other complex sites like Maisabel and Golden Rock, even though they are more often associated with work areas, drying racks or fence lines of some unspecified function, such as keeping animals (dogs) in or keeping people or animals out. Two-, three- and four-post temporary structures have been recorded in ethnographic descriptions of Cariban tribes in South American Amazon regions, such as the Macusi, Waiwai and Barame. Structures in which a Taíno could string a hammock were all quite acceptable house structures, varying in duration of occupation and in function as shelters for the storage of accoutrements or for daily activities (e.g., food preparing, meeting space, worship) or as sleeping quarters.

All of these structures had thatched roofs and walls of small posts covered with thatch. Very little can be deduced about the roofs of these prehistoric structures, though Schinkel and Versteeg attempt to make approximations of roof height and form for GR-1 and also at Tutu by Elizabeth Righter (2002). Through the Akawaio house (Figure 6.1) form reveals an unlikely model for tropical Caribbean house roofs it does provide a rather interesting analog for high roofed dwellings for this area, especially when compared to the form of the Aifa house form (Figure 3.1).

![Figure 6.1 Round Akawaio maloca style houses in Guyana (ca. 1842) (Versteeg 1998).](image)
Within these structures were found manioc griddles, graters and other food processing tools, such as nets, metates and bows and arrows. They also had fires within their structures, though the majority of cooking and processing activities associated with daily life took place outside dwellings within protective shelters or windscreens. Most of the elliptical or round houses had conical roofs and long overhanging eaves that formed shelters around the structure and enlarged the cleared area around the house for activities during daylight hours. The forked posts of the structure were also places to hang ancestral relics in woven yucca bags, while floor space was dedicated to cohoba stands, where hallucinogens were kept for smoking during ritual séances and worship.

Social Change: House Forms in Transition

The theoretical framework of this thesis focuses on the evolution of house forms and settlements from the simple round structures found in tribal horticultural societies to the development of square house village settlements analogous to complex hierarchical societies, such as chiefdoms. In Taíno and Carib society, researchers (e.g., Rouse, Wilson and Keegan) have shown the migration and evolution of these societies from their South American origins to the complex social systems present in the Caribbean region at contact. This study has presented and discussed the variety of house structures and structural forms through space and time. The change in house forms is not abrupt. Cultural change in the Caribbean was not sudden. There were subtle and pervasive changes in social structure, cosmology, ideology and economic systems marked by changes in ceramic forms, foodways and hierarchical organization of the islands. The changes in house forms reflect these changes.

When analyzing the ethnographic analogies used by the researchers to present models of the prehistoric Taíno and Carib structures, their South American cultural origins are obvious. Versteeg and Schinkel (1998, 1992) used the Akawaio and the Waiwai from the culture area where the Caribbean cultures originated. Both Curet (1992) and Siegel (1989) use northern South American analogies in their analysis of post data and house form in the Caribbean. Their choices were not made because of the applicability of using ethnographic analogs that have morphological similarities to a prehistoric culture to create models, but because these
ethnographic descriptions match what was found archaeologically. The existence of central posts with Caribbean prehistoric structures, the suggestion of partitions along the outer walls of the structures, where spare postmolds were found, all point to analogs with northern South American houses functioning in cultures like the Waiwai and Kalapalo.

Quadrilateral houses, from Golden Rock, Los Buchillones and other sites mentioned here appear during the Chicoid period, after A.D. 900, when the small, round house replaces the communal maloca-style house form. This represents social and political changes in the societies where nuclear family households were being formed and the communal activities of the preceding period were being enacted in different spaces, along with special purpose buildings such as rectangular houses. These buildings became the chiefly dwelling places, not just religious or community structures where zemis were worshipped and ritual activities enacted. This change in function of special purpose structures is symbolized in Siegel’s (1999) depiction of Taíno cosmology (Figure 0.2), where the square cemetery and the chief bohio of the Late Ostionoid replaces the circular plaza or ceremonial space of the Saladoid. At Tutu, the village structure of houses indicates a complex level of social organization indicated by the use of cemetery burials at the same time house-based burials were taking place. This complex society of the Late Ostionoid is also evidenced at Tutu by the size of the settlement, the presence of ritual artifacts like a massive stone zemi and the presence of burial groups possibly representing unilineal descent groups (Righter 2002:341). All of these features are accompanied by round style houses with complex interior organizations similar to those at Golden Rock.

When structures from the Tutu archaeological village are compared to the structures created by Spanish settlers in the early towns of La Isabella and Puerto Real similarities become apparent. The houses constructed by the sailors and conquerors of the Caribbean islands were porch houses with square frames. They were multi-roomed as at Puerto Real where the rooms were arranged in a linear pattern following a patio area (Deagan 1995:430). The structures from Tutu also had porches or porticoes as termed by Righter (2002). They also have some form of internal division, a sort of half wall or dividing wall, an interior corridor (Figure 4.13), but they are round structures that date to the Chicoid period. Structures from Golden Rock and Playa Blanca-5 display similar gross features (i.e., partitions or internal walls and porch areas). Prehistoric Caribbean settlements also had walkways and drains as those described at Maisabel and Caguana, exemplifying the complexity of Taíno and Carib architectural styles that
approached those of the later colonial patterns employed in the establishment of early Spanish towns, like La Isabella and Puerto Real.

A general observation about house forms in the Caribbean, which is perhaps true for many cultures and culture areas, is that structures have elements of compatibility across time and space. The maloca-style introduced by Versteeg to identify prehistoric house forms in St. Eustatius had elements of similarity to the house form originally described by Hugh-Jones as communal Amazonian houses. The caney was also a structure influenced by a South American ancestry and whose existence waxed and waned throughout the prehistory of Taino society. Additions and stylistic changes may have altered the shape but the basic form remained the same from the earliest structures in the Saladoid settlements of Puerto Rico to the later round structures that existed during contact. The square house also had a parallel tradition that appeared and disappeared in the settlement history of the region, but experiencing a florescence after contact as the bohio, a chiefly dwelling. As illustrated from Puerto Rican and Statian archaeology, house forms were eclectic in accordance with underlying social, religious and political precepts that were gravely affected after 1492, but which were in existence centuries before.

Households

It is important to remember the tentativeness of the population figures used here, as they are based on a gross formula used to generate population numbers from available floor space. This formula is derived from ethnographic examples. With this caveat in mind, some general models of household size for structures are presented not just to understand the general population of different prehistoric house structures, but to consider the labor investment and resource strength of the communities created by these populations.

To reiterate, the household residence patterns of the Taino were eclectic, particularly at the bottom rung of society where residency was determined by a multitude of political, personal and economic factors. The elite or rulers of the society, caciques or headmen, would have a variety of household members from different nuclear families, perhaps cousins or once removed relatives. Las Casas cited a range of between ten and fifteen members to one household. Most
researchers cited within this study used Curet’s (1992) population estimates to construct a
demographic for settlements that are not radically removed from the estimates presented here.

Three household sizes were revealed in the demographic estimates of household size
from structures within this region (Table 5.4 and Table 5.5). The first set were households
smaller than ten individuals, believed to be a representative figure for a small extended family
house, between twenty and forty square meters. The second grouping had a household size of
between ten and sixteen persons within a forty to sixty-eight square meter house floor space. The
final set was communal houses with populations over twenty-five individuals. At Tutu, this
communal household was estimated to be composed of a total of three families, with an average
size of five individuals per family; giving the largest structures (Structure 7 and 8) a household
size of circa 15 (Righter 2002:339). If Maisabel and Goddard are included in these estimates, the
household sizes for large communal style houses would range between thirty-six and ninety-
eight, which are still considerably smaller numbers than the thousands per house given by Las
Casas.

The smallest house sizes came from El Bronce in Puerto Rico. This, in itself is
interesting, in that Puerto Rico has so many large ceremonial centers, particularly the large
complexes of Maisabel and Caguana. The household estimate for El Bronce is roughly 4.5
persons, a similar figure to that used by Versteeg (1992:193). Theoretically, the inhabitants of a
large communal house, of between four to six families, each with approximately four
individuals, could have occupied one triangle of the structure, the joining of a hammock to one
inner and either of the two outer wall posts, giving more space for private and communal space
in a maloca. Large families would have their hammocks strung underneath each other as seen in
Figure 6.2 (Versteeg and Schinkel 1992:186). Using ethnographic analogy to recreate Taíno
households, each nuclear family within the larger communal households would share posts
where that family’s hammocks were strung together with mothers and their children close to the
fire on the ground near the central posts or at the eastern end of the house, near the women’s
door. Each communal house would hold an extended family from eight to sixteen people and
several families living together would have a household size within the maximum range of
individuals, above twenty people.
It is probably impossible, using the scant amount of data available from burials and floor space population estimates, to approximate a population size for each settlement. In actuality the populations of these settlements can only be approximated using site area and regional density estimates, as Keegan (1985) has done for the Bahamas. Regional and community densities require an accurate measurement of site boundaries and not all of these are available. There is also a lack of data on the total number of sites for heavily populated islands like Puerto Rico and Barbados, as well as only a generalized understanding of the contemporaneity of these sites.

Settlement Features

A number of structural elements outside of the regular configurations of postholes were exposed at settlement sites. Some of these were irregular postholes associated with unique features attached to the house in some cases and in others simply in general association. These additions or elaborations of Taíno house structures included extensions and or arcs of postholes, interpreted as work areas adjoining houses, where the domestic activities of the household were located. Other elements found within excavations of settlement sites, included wells and pits, caches and burials. There were also unique functional artifacts, like the stone slabs of Golden Rock that provide insight into the construction methods of these house structures (Versteeg 1998:14). The middens, plazas, and work areas with anomalous posthole lines are also elements that add to the complexity of settlement types in this region.

The most notable house extensions and associated arcs, delimiting workspace, were found at Golden Rock, but similar posthole elements can be seen from Playa Blanca-5, El Bronce, and Heywoods. An extension is clearly shown on Structure 1 (Elenan period) from Drewett’s 1999 excavation area and another arc surrounding Structure 3 may also be interpreted from the line of features to the north (Features 387 across to 412, Figure 6.3).

Figure 6.3 Heywoods Structure 3, Barbados, showing Features 335 to 503 (from Drewett 2001:45).

Generally little directional preference, as to the placement of these proposed work areas, and no preferential burial orientation for many of these sites has been identified. At Golden Rock the investigators, Versteeg and Schinkel, have proposed a correlation between burial location and the age of the inhumed: from south to north the age of individuals decreases, placing the oldest at the edge of the midden and the youngest away from the midden (Versteeg and Schinkel 1992:200). At the Late Ostionoid Tutu Village, burials were grouped in specific burial areas related to structures (Righter 2002:334). A similar pattern is seen at other sites, such as Maisabel, Heywoods and even at Golden Rock. Work structures have been be found in close association to houses and were peripheral markers of grave areas, where graves were midway between the house, the midden and the work area/structure. These extensions, arcs and windbreaks are within reach of midden areas and were found in high-density artifact regions, middens.
The only wells mentioned in archaeological excavations came from Heywoods Barbados, from within and around structures. It is known that Golden Rock-1 lacked a source of water, but no well structures were identified at this site. The complexity of the Heywoods wells is also an anomalous feature within the composition of Taíno settlements. Other than the pot stack wells within households, which Drewett proposes were constantly being refitted, there were wood lined wells within the settlement compound, south of Structure 2, and perhaps in the settlement central court region (Figure 4.19).

Middens and mounds within settlement spaces were the markers of house location. They are formed outside the house structures where debris swept from the cleaned house floors was discarded. At Caguana and Maisabel, these mounds were actual delimiters of occupation space. They not only indicated the extent of the settlement, but also aided in the interpretation of court, house and adjoining track space between living floors on the site. The mounds and middens of Taíno settlement sites contributed to the symbolic nature of settlement organization following the concentric model found in ethnographic and ethnohistoric examinations of this culture’s cosmology.

The central plaza or dance court, around which structures were built, was the place where ancestors revered by that house (or lineage as each house is thought to represent) were buried, as seen at the Tutu village (Figure 4.22 and Figure 4.23). Some burials, during the early Saladoid period, were made within middens directly outside the walls of the house (e.g., Heywoods and Golden Rock). Data from Golden Rock support the ethnohistoric record that portrays a more logical burial pattern (to account for the scarcity of actual people, only nine burials), in which the dead were exhumed and the storage of ancestral skulls within houses, attached to posts, was practiced. The skull from GR-1 Structure 1 (Versteeg and Schinkel 1992:198) is an excellent example. Throughout the Caribbean region, plazas or central cleared areas with burials were found within settlements from the early Saladoid period. During the Late Ostionoid this pattern changed somewhat, at places like Tutu, where burials of whole families were identified near dwellings (Righter 2002). Burials within central plaza areas continued, but were less in number compared to the previous period. These burials were clear symbols of a hierarchical social organization and a lineal basic kinship system that had grown out of the ideology of the early Saladoid culture that focused on ancestral worship.
Many of the settlement features identified in the archaeology of the region find early Saladoid origins in Venezuela and the Guianas. Like the house forms, work space and midden distributions changed in some ways but remained the same. Taíno and Carib societies demonstrate a conservative yet surprisingly adaptive ability that resulted in unique features, (e.g., wells and pile houses), which the ethnohistoric record has failed to reveal. Over a span of more than one and half thousand years the cultures of the Caribbean region have faced a variety of pressures and their adaptation are the legacy of these indigenous people to the modern societies of the West Indies.

This thesis questioned the correlation of quadrilateral, bohio-style structures with post-contact acculturation. A corpus of ethnohistoric, ethnographic and archaeological data has been presented that supports the theory of a prehistoric origin for both quadrilateral and oval house forms. South American origins, cultural continuity, and indigenous adaptation through time and across space in the Caribbean has been demonstrated. Various house forms were used to illustrate cultural change within these cultures from the early Saladoid through the Late Ostionoid/Chicoid period to acculturation during the contact era. House form, demographic expansion, settlement organization and economic are among the traits discussed that illustrate the cultural changes in this culture area. Across hundreds of miles, the migration and adaptation of Caribbean cultures reflect variation as well as the preservation of ancestral South American cultural patterns.
### APPENDIX A

Data Table of Excavated Houses from the Caribbean (*with illustrated graphics after*)

**Table A.1 Archaeological Sites and information on House Features in the Caribbean.**

<table>
<thead>
<tr>
<th>Ceramic Series</th>
<th>Ceramic Subseries</th>
<th>Date (A.D.)</th>
<th>Site Nomenclature</th>
<th>Location</th>
<th>Excavator/ Publication</th>
<th>Hearth Location</th>
<th>Interior or Central Posts</th>
<th>Structure Shape</th>
<th>Area (m²)</th>
<th>Posthole Size (cm²)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saladoid</td>
<td>Cedrosan</td>
<td>560-794</td>
<td>GR-1 S1</td>
<td>St. Eustatius</td>
<td>Versteeg (1984-88)</td>
<td>Outside in midden</td>
<td>1</td>
<td>Round</td>
<td>45</td>
<td>&gt;80</td>
<td>Two extensions and an arc surround structure (Figure 4.21).</td>
</tr>
<tr>
<td>600-1200</td>
<td>PO-39</td>
<td>Puerto Rico</td>
<td>Garrow and Assoc. (1993)</td>
<td>Outside in midden</td>
<td>4</td>
<td>Round</td>
<td>42</td>
<td>&gt;140</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Date</td>
<td>Site No.</td>
<td>Location</td>
<td>Director</td>
<td>Size</td>
<td>Shape</td>
<td>DB No.</td>
<td>Notes</td>
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<tr>
<td>625-675</td>
<td>1 S3</td>
<td>St. Eustatius</td>
<td>Versteeg (1984-88)</td>
<td>1?</td>
<td>Round</td>
<td>71</td>
<td>House had an attached arc of 8 postholes. Assoc. burial and midden (Figure 4.9)</td>
<td></td>
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<tr>
<td>670-965</td>
<td>S2</td>
<td>Barbados</td>
<td>Drewett (1998-9)</td>
<td>2</td>
<td>Oval</td>
<td>99.75</td>
<td>14 Postholes. Adze marks were found on the base of post remains.</td>
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<tr>
<td>675-726</td>
<td>S2</td>
<td>St. Eustatius</td>
<td>Versteeg (1984-88)</td>
<td>2</td>
<td>Round</td>
<td>41</td>
<td>Two extensions and an arc of six postholes. Within same building phase as Structure 2 (Versteeg and Schinkel 1992)</td>
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<tr>
<td>672-774</td>
<td>S5</td>
<td>St. Eustatius</td>
<td>Versteeg (1984-88)</td>
<td>2</td>
<td>Maloca</td>
<td>154</td>
<td>Destroyed by fire: deformed vessel and grindstone fragments. W/ midden and burial. (Figure 4.11)</td>
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<tr>
<td>785-1010</td>
<td>S1</td>
<td>Barbados</td>
<td>Drewett (1998-9)</td>
<td>2</td>
<td>Round</td>
<td>63.59</td>
<td>Wood from posthole identified as Sapotaceae, genera Mastichodendron (false mastic, mastic, and mastic bully) (Drewett 2000:163).</td>
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<tr>
<td>775-880</td>
<td>S4</td>
<td>St. Eustatius</td>
<td>Versteeg (1984-88)</td>
<td>2</td>
<td>Maloca</td>
<td>283</td>
<td>Two arcs of eight and six postholes. Destroyed by Fire. (Figure 4.12)</td>
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<tr>
<td>800-875</td>
<td>S6</td>
<td>St. Eustatius</td>
<td>Versteeg (1984-88)</td>
<td>3 or 4</td>
<td>Maloca</td>
<td>214</td>
<td>The turtle house (Versteeg and Schinkel 1992:196-7) Associated burial and midden. (Figure 4.14)</td>
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<tr>
<td>Period</td>
<td>Site</td>
<td>Culture</td>
<td>Site (Ref)</td>
<td>Phase</td>
<td>Type</td>
<td>Observed Data</td>
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<tr>
<td>Elenan/Ostionan</td>
<td>900-1200</td>
<td>El Bronce S1O</td>
<td>Robinson (1985)</td>
<td>N/A</td>
<td>Oblong</td>
<td>23.88</td>
<td>500</td>
<td></td>
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<tr>
<td></td>
<td>1085-1150</td>
<td>Heywood S3</td>
<td>Drewett (1998-9)</td>
<td>2</td>
<td>Oval</td>
<td>90</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Puerto Rico</td>
<td>Robinson (1985)</td>
<td>16 Posts, 21 postholes. Also had post remains with adze marks.</td>
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<td>c. 40 postmolds at Locus 1 hint at another rectangular structure at that site (Figure 4.8)</td>
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<tr>
<td>Troumassoid</td>
<td>650-1100</td>
<td>Goddard Barbados</td>
<td>Hackenberger Curet (1989)</td>
<td>Near wall and water pot</td>
<td>N/A</td>
<td>Oval</td>
<td>246.5</td>
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<tr>
<td></td>
<td></td>
<td>Hillcrest Barbados</td>
<td>Drewett (1998-9)</td>
<td>0</td>
<td>Round</td>
<td>353.4</td>
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<td>Double row of postholes indicate a conical structure.</td>
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<td>Possible fence line or building. Coral chip spread around structure suggests a beehive circular shape. Burials found outside (Figure 4.10).</td>
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<tr>
<td>Suazoid</td>
<td>950-1300</td>
<td>Silver Sands</td>
<td>Drewett (1998-9)</td>
<td>N/A</td>
<td>Oval</td>
<td>35.2</td>
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<td></td>
<td>Remains of a rectangular structure were also found along with a number of burials.</td>
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<tr>
<td>L Ostionoid</td>
<td>1040-1300</td>
<td>Tutu S2</td>
<td>St. Thomas</td>
<td>Righter (2002)</td>
<td>4 -5</td>
<td>Round</td>
<td>34</td>
<td>340-1457</td>
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<td>Roof height calc. at 5.26m (Righter 2002:318). Detached arc north of structure delimit a burial area w/ a double infant burial (Figure 4.13).</td>
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<tr>
<td>Site</td>
<td>Date</td>
<td>Structure</td>
<td>Author</td>
<td>Shape</td>
<td>Postholes</td>
<td>Height (m)</td>
<td>Notes</td>
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<tr>
<td>Tutu S1</td>
<td>1175-1405</td>
<td>Round</td>
<td>Righter</td>
<td>0</td>
<td>12</td>
<td>63-112</td>
<td>Beehive roof Height calc. at 3.10m. Postholes at entrance show p. portico, also interior corridor on the S.E. (Figure 4.16).</td>
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<tr>
<td>Tutu S7</td>
<td>1295-1400</td>
<td>Oval</td>
<td>Righter</td>
<td>Outside NW wall</td>
<td>3</td>
<td>90</td>
<td>1485-3500 Roof Height calc. at 8.6m. Overlap w/ S8, assoc. kiln.</td>
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<tr>
<td>Tutu S6</td>
<td>1290-1420</td>
<td>Round</td>
<td>Righter</td>
<td>5</td>
<td>105</td>
<td>41.85</td>
<td>Burial 9 and 40 have overlapping dates w/ structure, possible occupants, of two families. Burial on S side of Structure (Righter 2002:322)</td>
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<tr>
<td>El Bronce</td>
<td>El Bronce S1</td>
<td>Round</td>
<td>Robinson</td>
<td>4</td>
<td>24</td>
<td>500-700</td>
<td>Irregular structures superimposed over each other from different occupations (Curet 1992).</td>
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<tr>
<td>El Bronce</td>
<td>El Bronce S2</td>
<td>Round</td>
<td>Robinson</td>
<td>3</td>
<td>23.31</td>
<td>&gt;700</td>
<td>Had a possible partition and an assoc. work shelter of a three postmold configuration (Curet 1992).</td>
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<tr>
<td>Period</td>
<td>Site</td>
<td>Location</td>
<td>Author(s)</td>
<td>Plan</td>
<td>Shape</td>
<td>Postholes</td>
<td>Notes</td>
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<td>1200-1492</td>
<td>Playa Blanca-5 Puerto Rico</td>
<td>Riviera and Rodriguez (1991)</td>
<td>central 5</td>
<td>Round 37</td>
<td>200-850 (Max. 80-1000)</td>
<td>Square frame, round house. Trimodal distribution of postmold sizes indicate: square house, windbreaks and drying racks (Figure 4.7) (Curet 1992:164).</td>
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<td>1270-1650</td>
<td>Tutu S8 St. Thomas</td>
<td>Righter (2002)</td>
<td>3 internal 1 outside in work area W</td>
<td>Round 80.75</td>
<td>360-3000</td>
<td>Like S1 and S3 postholes indicate possible portico and an arc on N side. Burial w/in and outside house. Hearth and Burial on W side of Structure (Righter 2002:326).</td>
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<td>1295-1655</td>
<td>Los Buchillones S1 Cuba</td>
<td>Pendergast et al. (1999)</td>
<td>N/A</td>
<td>Round 530.7</td>
<td></td>
<td>Four rafters and two king posts recovered. King post maybe reused support posts (Figure 4.15).</td>
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<td>1295-1655</td>
<td>Los Buchillones S2 Cuba</td>
<td>Pendergast et al. (1999)</td>
<td>N/A</td>
<td>Square N/A</td>
<td></td>
<td>Water logged excavation within lagoon area.</td>
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<td>1305-1425</td>
<td>Tutu S4 St. Thomas</td>
<td>Righter (2002)</td>
<td>0</td>
<td>Round 30</td>
<td>300</td>
<td>Roof Height calc. to 4.88m. Assoc. burials</td>
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Figure A.1 Post Mold distribution and location of the hearth from Playa Blanca 5, Puerto Rico (from Curet 1992: 166).

Figure A.2 El Bronce, Puerto Rico. Post mold distribution for Locus 1 and 2 (from Curet 1992: 167).
Figure A.3 GR-1 S3, Phase 1 occupation, Burial 11 (from Versteeg and Schinkel 1992: 206).

Figure A.4 Hillcrest, Barbados, 1988. Post Structure and other features (from Drewett 1989: 111).
Figure A.5 GR-1 S5, Phase 3 occupation, Burial 11 (from Versteeg and Schinkel 1992:207).

Figure A.6 GR-1 S4, Phase 4 occupation, Burial 5 and 3 (from Versteeg and Schinkel 1992: 208).
Figure A.7 Tutu Village Structure 2, related burial and related posthole arc, Area 3 (from Righter 2002:291).

Figure A.8 GR-1 S6, Phase 5 occupation: the “turtle house” (from Versteeg and Schinkel 1992: 208).
Figure A.9 Rafters, Stringers and other elements from the 1999, Los Buchillones lagoon site excavation (from Pendergast et al. 2001:76).

Figure A.10 Plan view of postholes of Structure 1, Tutu Village, St. Thomas (from Righter 2002:312).
Figure A.11 A combination of excavated features with a ten-foot wide entrance based on the Witoto house produced this theoretical map of the Maisabel house. The stippled areas are areas of the ditch that have been excavated (from Siegel 1986: 229).
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Blue Cave Archaeological Research, Blue Cave, Belize  
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Spanish Mosque site, Spanish Town, Jamaica  
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University of the West Indies, Mona Estate, Kingston, Jamaica  
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**Teaching Assistant**
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**Teacher, Third Grade**
Instructed 32 students, wrote lesson plans, lecture, student advising, tutoring, science field excursions and parent/teacher advising.

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**Mission San Luis de Apalachee**, Tallahassee, Florida May-August 2002

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**Mary Brogan Museum of Art and Science**, Tallahassee, Florida January-April 2001

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**Florida State University Museum**, Tallahassee, Florida January-April 2000

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