An Unexplored Realm in the Heartland of the Southern Gulf Olmec:

Investigations at El Marquesillo, Veracruz, Mexico

by

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To Señora Cruz Reich Pitalua and all the people of El Marquesillo, past and present.

"Note to Reader"

The original of this document contains color that is necessary for understanding the data.

The original dissertation is on file with the USF library in Tampa, Florida.

Table of Contents

List of Tables

List of Figures

An Unexplored Realm in the Heartland of the Southern Gulf Olmec:
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ABSTRACT

This dissertation examines El Marquesillo, a settlement in an archaeologically unexplored region of the Southern Gulf Lowlands of Veracruz, Mexico. Evidence suggests the site has been consistently occupied from the Early Formative period (c. 1500 BC) to the present. Thus, this investigation presents an opportunity to re-examine the sociopolitical continuum encompassing the Olmec cultural phenomenon (c. 1150-300 BC), the emergence of which has been used repeatedly as an example of incipient social complexity.

Theorists have portrayed the development of sociopolitical complexity as a mosaic process in which environmental, social, political, economic, ideological, and demographic variables act independently or in combination to bring about change. In order to examine these variables, a suite of traditional and progressive archaeological techniques – remote sensing, geophysical survey, GIS, mapping, anthropogenic soil survey – were employed to prospect, document, and analyze the natural and built environments along with the material record documented at El Marquesillo. I argue that

the resulting data do not fit many of the traditional models that have been offered to explain the development of Olmec sociopolitical complexity.

The term “traditional Olmec paradigm” is used to describe a collective array of conjectural concepts that have been proposed by theorists to explain how Formative people of the Southern Gulf Lowlands constructed and experienced their reality. Findings from El Marquesillo and other recent Heartland investigations suggest that much of this traditional Olmec paradigm may not be accurate. The Gulf Olmec were not a homogeneous and uniform entity across space and time. At El Marquesillo, idiosyncratic behaviors of the ancients relating to ancestor veneration and their connection to the landscape and worldview have been identified. These noted variations in social expression and the lack of adherence to the traditional Olmec paradigm suggest that some hypotheses regarding the Formative people of the Southern Gulf Lowlands be re-visited and possibly revised in the light of new evidence.

Preface

The journey to this particular point in my life has not been through the more traditional corridors of academia. After concluding a successful career in the business world in 1995, I turned my attention to more personally agreeable matters. The study of ancient and contemporary Mesoamerican peoples has increasingly occupied my time and influenced my activities over the past 30 years. During this time, my level of interest and inquiry continually intensified, as did my personal enjoyment. The opportunity to visit, research, and appreciate Mesoamerica and its people is the result of the encouragement, cooperation, and patience of my family, friends, and innumerable individuals who helped me along the way. I thank them all.

After a decade and a half of travel and examination of all things Maya, I journeyed into the “Land of the Olmec.” Little did I know then that this incidental visit in 1991 would so profoundly impact my life, and that a series of improbable events would lead to my eventual return to university and ultimately to this dissertation. In Veracruz, Mexico, I had a chance encounter with María del Carmen Rodríguez. Her generosity and cooperation led to my friendship and collaboration with Ponciano Ortíz Ceballos. During my work with them, I had the good fortune to meet María de Lourdes Hernández. It is through Lourdes’ assistance, enthusiasm, and competence that the El Marquesillo Project became a reality. *Muchísimas gracias*.

Furtherance of my academic career was due to the support and encouragement of many people. Foremost among them was the late George Llano, who was responsible for my return to academia. George showed me, by example, that the joy of curiosity and the accumulation of knowledge have no limits, spatial or temporal. In 1999, I was fortunate to be invited to begin my graduate studies by Kathrine Josserand and Nicholas Hopkins at the Florida State University (FSU), and it was here that Rochelle Marrinan taught me to be a field archaeologist. Mary E. D. Pohl provided me the lab experience through the opportunity to study and analyze materials from San Andrés, a support site to the Olmec center of La Venta. I thank her for her continued assistance throughout my graduate school tenure. I also received invaluable guidance and support from John E. Clark of the New World Archaeological Foundation at Brigham Young University. I am very grateful for his friendship and generosity, which continue to assist in expanding my opportunities in Mesoamerican studies. At FSU, I also had the great opportunity to study with and learn from fellow graduate students; Jeffrey Du Vernay, Christina Halperin, Christopher Morehart, Allison Perrett, and Chelsea Blackmore. My study of the ancient peoples of Mesoamerica was extended to the Soconusco Coast of Chiapas, Mexico through the invitation of Robert Rosenswig to participate in his investigation of Cuauhtémoc, an Early Formative site on the eastern margins of the Mazatán region.

My decision to pursue a doctorate at the University of South Florida has proved to be an auspicious one. Due to the efforts of Robert H. Tykot and E. Christian Wells, I have been guided through the intricacies of research and scholarship, and I thank both for their support and patience. The assistance and encouragement given to me by Karla L. Davis-Salazar has improved my examination techniques and expanded my research

horizons. Charles B. Connor helped me to better understand and explore the relationships between geology and archaeology, and he generously provided the technologies necessary for the remote sensing portions of this investigation.

In the field, the archaeological survey project was facilitated by the assistance of the people of El Marquesillo. I would specifically like to thank Mario and Christina Capetillo and their family, along with Leopoldo Joachin, Eduardo Mulaga, and Martin Mollina Pérez for their efforts on my behalf. As well, the work and contributions made by Luz Benítez, Edder León Herández, and Alfredo Delgado Calderón were invaluable. I am also grateful for the authorization provided by Ing. Joaquín García-Barcena González, Presidente del Consejo de Arqueología del Instituto Nacional de Antropología e Historia (INAH) in Mexico City and the cooperation of Ing. Daniel Goeritz Rodríguez, Director del Centro INAH – Veracruz and his staff. Discussions with David Grove, Richard Diehl, Michael Coe, Thomas Killion, and Christopher Pool improved my understanding of the Formative period in Mesoamerica and enhanced my research perspectives.

I wish to thank Lori Collins who provided the balance, support, and input to help me achieve the successful completion of this dissertation. Laura Conner contributed the technical expertise that allowed me to conduct the geophysical surveys in the field and to process the data. I also want to thank James Hawken, Claire Novotny, Ethan Goddard, Christopher Branas, Steven Hernandez, Alan Peche, Anthony Aveni, and Lawrence Poulsen for their help and expertise during the various surveys and analyses. Finally, I would like to express my indebtedness to John Yellen and the National Science Foundation for his assistance and their financial support via dissertation improvement grant BCS-0424526.

Chapter 1. Archaeology, Social Theory, and the Southern Gulf Olmec

> *What might the presence of a ruler's throne at El Marquesillo mean? Was this apparently small site an unknown major Olmec center that will force us to rewrite the political history of Olmec culture?* (Diehl 2004:191)

Introduction

In January, 2002, the attention of the archaeological world was drawn to El Marquesillo when an on-line edition of *El Liberal del Sur*, a southern Veracruz news service, published photographs of a recently recovered monumental stone sculpture. The monolith was identified as an Olmec table-top throne (Figure 1.1). Why was this find so remarkable? What is the significance of this artifact to Formative period researchers?

In Mesoamerica, monolithic stone thrones are regarded as material symbols of elite lineage status and rulership; they are literally seats of power (Clark 1997; Coe 1968; de la Fuente 1996; Gillespie 1999; Grove 1973, 1999; Taube 2004). The recovery of an Olmec-style stone altar at El Marquesillo is significant because examples comparable in size, form, and iconographic depiction have been recovered only at San Lorenzo and La Venta, the two primary central places of the Gulf Coast Olmec (Grove 1999). Substantially smaller and iconographically different versions have been found at Tres Zapotes and Laguna de los Cerros (Gillespie 2000a; Stirling 1965). Still other derivative types were recovered at Loma del Zapote and Estero Rabón; sites considered secondary support centers within the San Lorenzo polity (Cyphers 2004).

Figure 1.1. El Marquesillo's monumental Olmec throne.

Major discoveries relating to the Formative period Southern Gulf Lowlands are rare; therefore, recovery of a monumental "Olmec-related" artifact can generate substantial new information to the limited corpus of data. This particular artifact, along with knowledge of its depositional context, could provide insight into a little known and unexplored region of the Southern Gulf Lowlands. This throne has also created new questions that require a re-evaluation of aspects of the conventional wisdom regarding the extent and degree of the Olmec phenomenon and its related sociopolitical complexity.

This project began with questions that were slightly less lofty than those asked by Diehl in the introductory quote. As the investigation progressed, the initial inquiries that related to the details of the throne and its presence at El Marquesillo broadened to include consideration of settlement patterns, coeval development of nearby sites, residential and ceremonial activities, and iconographic and symbolic expression. As the examination continued other issues arose. The evidence from El Marquesillo, along with other recent research being conducted along the Southern Gulf Coast (e.g. Arnold 2003, 2005; Borstein 2001; Cyphers 2003; Killion and Urcid 2001; Pool 2005, 2006; Pope et al. 2001; VanDerwarker 2006), demonstrate that the perception and models of the "Olmec," as used by social theorists and as they are portrayed to the general public, need to be revisited and possibly revised.

Upman (1990a:98) maintains that social and political complexity is a mosaic process in which variables (i.e., environmental, social, political, economic, ideological, and demographic) may act independently or in differential collaboration to affect change. In this dissertation, I use diverse lines of evidence from El Marquesillo (e.g., spatial analysis, remote sensing, anthropogenic soil survey, ethnohistoric and ethnological accounts, geomorphology, landscape archaeology, and artifact analysis) to examine those variables. I argue that these data do not fit many of the prototypical models that have been put forth to explain the Olmec sociopolitical phenomenon that occurred in the Formative period Southern Gulf Lowlands.

The investigation of El Marquesillo was designed to examine the site from various perspectives and multiple scales of analysis. It was through this type of approach that the analyses of the natural and built environments, along with the material record, suggested that a different social trajectory was followed by the people of El Marquesillo from what has been postulated for other contemporary regional settlements. There are distinctive physical expressions that relate to ancestor veneration, occupational and cultural continuity, interaction of the ancient people with their landscape, and the manifestation of their worldview. Equivalent displays of continuity and social practice were either not present or remain unidentified at other Southern Gulf Lowlands sites.

In this dissertation, I use the term “Olmec paradigm” as a descriptor for a set of theoretical assumptions, concepts, values, and practices that have been used to constitute how the Formative people of the Southern Gulf Lowlands viewed and experienced their reality. Components of this paradigm are discussed in detail later in this chapter. The latest findings from El Marquesillo and other Heartland settlements suggest that the traditionally proposed sociopolitical paradigm was not homogeneous and uniform across the region but instead, appears to have been a malleable template that could be selectively employed by local elite leaders to meet the demands of their constituency.

The significance of these findings is due to the fact that the Olmec have been used repeatedly as a theoretical exemplar for incipient and emergent social complexity and culture progress. Thus, apparent non-conformity to the hypothesized social patterns and behavioral archetypes requires that a number of these theories be re-evaluated in the light of new evidence. A review of the impediments involved in attempting to simply determine a definition of the term Olmec provides a point of departure from which to begin an assessment of the Olmec social paradigm.

The term “Olmec” is an archaeological convention that has been variously employed as a descriptor for an art style (de la Fuente 2000; Pohorilenko 1996), a Formative period (c. 1500- 300 BC) ethnic group (Diehl 2004; Stark 2000), a set of religious iconographic symbols (Feder 2007), a temporal phase (Arnold 2003b; Taube 2004), a suite of cultural practices (Pye and Clark 2000), a Postclassic period (c. AD 1200-1500) native society (Coe 1965; Scholes and Warren 1965), and a geographic culture area (Coe 1989; Lowe 1989). Thus, it is not surprising to find that misunderstanding, confusion, and debates over the term have continued unabated since its introduction to Mesoamerican archaeology more than a century ago (Beyer 1927; Paso y Troncoso 1939; Saville 1929). This situation has led Pye and Clark (2000:12) to assert that, "[t]he problem, and the reason for some substantive, continuing controversies, is that the term Olmec serves too many masters and is thus inherently ambiguous." In a broad sense, this dissertation represents a critical examination of the use of the term Olmec as it has been applied to the ancient Formative period inhabitants of the Southern Gulf Lowlands of Veracruz and Tabasco, Mexico.

The ambiguity, as I see it, in the use of the term Gulf Coast Olmec is analogous to another situation in social theory that resulted in similar problems. A comparable dilemma arose with the introduction and evolution of the terms "band, tribe, and chiefdom." Developed primarily through the work of Sahlins and Service (1968, 1960, 1962) along with Fried (1967), these terms became the consensus typology for a social evolutionary model not only among cultural anthropologists, but archaeologists as well (Drennan 1987; Hayden 1995b). Haas (1998:15) points out the problems, "the models of Service and Fried [became] a handy tool to pigeonhole prehistoric cultures into meaningful anthropological categories." The ease with which this classification could be assumed and exploited led to its misuse and abuse. Attribution of an evolutionary stage or type of political organization, such as egalitarian band or ranked chiefdom, to a society was routinely taken to imply that the *entire* spectrum of elements associated with the definition was present, *even if supporting evidence was not encountered* (Spencer 1987; Yoffee 2005). Moreover, on a conceptual basis, the standard terminology of band, tribe, and chiefdom does not permit qualitative distinctions to be made between levels of organizational structure and political power that may be inherent in different social groups. This simplified ranking of social organizations into a standardized evolutionary continuum has proven to be an attractive alternative to the diligence required to analyze multiple perspectives of each social group independently (Carneiro 1981:37; 1998:22, 37; Scarre and Fagan 2002).

The term “Gulf Coast Olmec” suffers from these same taxonomic problems. An entire cultural system is too complex and inclusive to be used as a unit of analysis; it is inadequate to explain the inherent complexity and nuances of the system. The term has come to represent a relatively fixed paradigm, a set of assumptions, concepts, and practices thought to form the worldview for the community that shared them. Outside a small cadre of investigators, the overarching notion regarding this model is that it is static and monolithic, representing a single generic archaeological culture. Social theorists have constructed numerous hypotheses concerning the development of Olmec social complexity, subsistence systems, political economies, and ideological beliefs. The cultural implications assumed by these theories have been imposed on the territorial inhabitants of a “Heartland” region that extended along the Southern Gulf Lowlands. This critique of the Gulf Coast Olmec paradigm is not intended to suggest that we ‘throw the baby out with the bathwater,’ but rather, that we be aware of the variability as well as the similarity among occupants of the Formative period Southern Gulf Lowlands and to observe them from broader and varying perspectives.

It cannot be assumed that everyone living in the region participated in this system, and it should be recognized that the degree of participation, or non-participation, probably varied from site to site and across time. Furthermore, it cannot be presumed that the meaning and interpretation of the symbols and iconography was uniform for all participants. It is especially critical to realize that the expressed ideology and materiality experienced significant geographic and temporal transformations as well (see Clark 2005).

Primary data for this evaluation have been produced from the archaeological investigation of El Marquesillo, a previously undocumented Formative period site on the middle San Juan River in Southern Veracruz. The site was examined through a series of integrated archaeological survey, prospection, documentation, and analytical techniques. Additionally, ethnohistoric records and ethnographic accounts were used along with data from previous and ongoing investigations of the Formative period Southern Gulf Lowlands to observe El Marquesillo from different perspectives and varying scales of analysis. The results suggest certain sociopolitical and settlement similarities to other contemporary regional sites. At the same time, however, the evidence implies significant site-specific traits and cultural adaptations that set El Marquesillo apart. These individual characteristics illustrate that the Olmec paradigm should be recognized as an amalgam of dynamic heterogeneous parts.

In the following section of this chapter, I provide background on some of the difficulties and misunderstandings that have plagued studies of the Formative Southern Gulf Lowlands from its inception. Then, I briefly review anthropological theory as it pertains to the Olmec and how it has been used to build and support theoretical ideas of social development. In Chapter 2, I examine individual Olmec-related sites along the Southern Gulf Lowlands during the Formative period and what evidence has been recovered that served as foundations for social theories. I also present a series of models of political and social organization that relate to Formative period Southern Gulf Lowland centers.

A major obstacle in the studies of the Southern Gulf Lowlands has been a fixation on individual sites and limited regional, settlement pattern analyses that do not consider the broader contexts (Diehl 1989, 1998, 2000b). The fortuitous discovery of El Marquesillo has provided a unique opportunity to implement a more inclusive approach to southern Gulf Formative studies. The site, situated on an elevated bank of the San Juan River, is located in an archaeologically unexplored region of southern Veracruz. Preliminary data suggest that the site has been occupied for the past 3,500 years. A dynamic landscape approach has been implemented in the current investigation in an attempt to observe the site and its ancient inhabitants through the material manifestation of their relationships with their neighbors and environment. Chapter 3 begins with an examination of the site's history, as it is presently known, commencing during the pre-Olmec phase of the Early Formative period and continuing to include today's residents. The accidental discovery in 2002 of a monumental basalt Olmec throne and its significance are explained. A review of the throne's rescue and the associated investigation is also included.

Chapter 4 includes my description of the prospection and remote sensing techniques used during El Marquesillo's archaeological survey project. The methods that were employed and the rationalization for their inclusion is followed by a description of how the surveys were conducted in the field and a presentation of the acquired data. Chapter 5 is a continuation of the data collection description, but focuses on the artifact record and its analysis. In Chapter 6, I present a synthesis of these data and possible interpretations. Finally, I compare and contrast El Marquesillo, according to the recovered evidence, to the Olmec paradigm. Suggestions are made for future investigations that could produce evidence to support or refute the developed hypotheses and expand the corpus of data relating to the Southern Gulf Olmec.

Background

Numerous attributes of the Formative period Gulf Olmec have been utilized by theorists to develop and support a broad range of hypotheses regarding social patterns and comprehensive social structures. Olmec economic and subsistence systems, ritual and symbolic representations, sociopolitical organization, labor-intensive work projects, warfare, migration, and diffusion are among the concepts that have been incorporated into contemporary social theory. Many theorists have made definitive assertions about Olmec origins, their rise to social complexity, and the homogeneity of their culture. This portrayal of the Olmec and the significance placed on their role in the development of social theory suggests a complete, well-documented, broad-based archaeological record that has been tested and supported through repeated investigations. Is this assumption valid? What evidence have these hypothetical models been based upon? Do they present an accurate picture of the ancient inhabitants of the Southern Gulf Lowlands?

In contrast to the assuredness expressed by many social theorists (e.g., Harris 1979; Cioffi-Revilla 1996; or Bingham 1999), Mesoamerican scholars studying the Formative period are not as confident. For example, Clark (2001:340) states that the “Southern Gulf Coast region has the dual distinction of being widely acknowledged as the central hearth of early Mesoamerican civilization and, ironically, as being virtually unknown archaeologically." Diehl (2004:7) prefaced his recent publication on the Olmec by stating that they "are one of antiquities most mysterious, fascinating, poorly understood, and controversial civilizations." One's initial thought may be that this line was simply hyperbole intended to entice the audience through an aura of the exotic unknown. In truth, however, even the most ardent Mesoamerican Formative period scholar would have difficulty arguing against either Clark's or Diehl's assertions.

Since the initial archaeological investigation in the Southern Gulf Lowlands in the mid-1800s, uncertainties, misjudgments, and controversies have hindered study and interpretation and continue to impede substantive progress within the discipline. This situation is due to a variety of factors. First, archaeological investigation into the ancient Gulf Olmec has produced limited data relating to emergent complexity and other social issues. Historically, comprehensive investigations of the Formative Southern Gulf Lowlands have been nominal, and the dearth of information has been consistently noted (Coe 1989:68-70; Diehl 1989, 1998, 2000b; Grove 1997:72-73; Sharer 1989:3-4; Soustelle 1984:7; Stark and Arnold 1997). Second, the preponderance of information that has been produced has emanated only from the sites of San Lorenzo in Veracruz and La Venta in Tabasco, Mexico; seldom has the full scope of the region been considered. The foundations of the social theories have been built almost exclusively on these two sites.

Third, and possibly the most detrimental to the investigative progress, is that many earlier explanations for sociopolitical development were based on conjecture, inference, and supposition. Owing to the lack of primary data, many investigations of the Southern Gulf Lowlands have arrived at conclusions through implication or indirect methods of interpretation such as carrying capacities, technological modification, and analogy (Diehl 1989:25; VanDerwarker 2006:33). Because direct or supporting lines of evidence have not been forthcoming, or in some cases even considered, the implied conclusions have, over time, become widely accepted as valid. Others then use these questionable assumptions to build models and hypotheses, creating a scenario that can best be described as a "house of cards." In other words, if empirical evidence is recovered that refutes the original underlying supposition, then all theoretical inferences based on that proposition must be called into question.

These statements are not meant to imply that this process is intentional. For example, inadvertent and unrecognized misinterpretations can be promulgated in introductory text books and remain uncorrected in updated editions (e.g., Feder 2007:428-437). More to the point, researchers need to recognize the limitations of indirect evidence, question the validity of inferred conclusions based on tentative assumptions, and examine the situation from multiple scales of analysis and from varying perspectives in order to arrive at the most accurate conclusions possible.

On a more positive note, recent investigative work in some areas is producing direct evidence that demonstrates the overly simplistic nature of long-standing sociopolitical, economic, and demographic models of the "Olmec" (e.g., Kruger 1996; Ortíz and Rodríguez 2000; Pohl et al. 2002; Pope et al. 2001; Rodríguez and Ortíz 1997; Rust and Sharer 1988; Symonds and Lunagómez 1997; VanDerwarker 2006). These new findings are challenging the traditional paradigm and require that the models be re-evaluated. Current works are revealing the complexity and heterogeneity within the region itself and are demonstrating the impracticality of attempting to consolidate the

Southern Gulf Lowland inhabitants into a single mindset, obligatory sociopolitical regimen, or set of standardized economic activities.

Adding to this growing corpus of Formative data is the investigation of El Marquesillo. The inadvertent rediscovery of this site and its subsequent examination have provided an uncommon opportunity to assess and evaluate current models and hypotheses regarding Early, Middle, and Late Formative period societies along the Southern Gulf. From its inception, a primary objective of the Marquesillo Archaeological Survey Project was to produce data that could be analyzed and evaluated against a variety of models (e.g., geographical, settlement pattern, and sociopolitical). These data allowed the spatial manifestations that illustrated the relationship between humans and their environment to be considered. The application of analytical concepts relating to the regional dynamics of the landscape (i.e., historical or landscape ecology, environmental history, boundaries, biological and cultural diversity: Crumley 1994; Crumley and Marquardt 1987, 1990) can provide a more holistic view of the site and its constituent parts (i.e., artifacts, features, chemical and instrumental anomalies).

The application of these principles to the Formative period Southern Gulf Lowlands significantly assists in the study of the Olmec paradigm. The landscape, as the material manifestation of the relations between humans and their environment, requires us to consider the concept of scale. Crumley and Marquardt (1994:9, 1990:73-74, 1987:7) point out that human societies “conceived” and “negotiated” reality at specific temporal and spatial levels. They recommend that the researcher select an “effective scale” to be employed at the “moment of analysis” that will produce the best comprehension of the detected patterns. They add that the scale of human action, as a factor in environmental change, fluctuates according to “time, space, and culture.” The authors articulate the significance of differences in temporal and spatial gradations by explaining that regions may be homogeneous at one scale and heterogeneous at another. Contextual settings ranging from trash middens, activity areas, households, communities, regions, and even continents become desirable comparative units. Not only is the study of episodes of human habitation essential, but examination of the localities and periods of non-occupation are equally significant. The plasticity inherent in this type of approach allows investigators to vary the scale of analysis at different times during their investigation in order to produce the most effective recovery of data and identification of patterns.

The concept of heterarchy is of central importance to landscape analysis. Heterarchies are defined as “complex systems in which elements have the potential of being variously unranked or ranked” relative to other elements, depending on systemic requirements (Crumley 1979:144, 1994:12-13; Marquardt and Crumley 1987:11). In other words, the researcher should not automatically assign levels of analysis into a ‘nested’ hierarchal system. Hierarchies constitute a method in which elements of the landscape can be ranked. Heterarchies provide another method of examining structural organization when diachronic and spatial perceptions of change in human and natural elements are to be observed.

A further consideration in a landscape approach is an understanding of the region’s geomorphology. The varied geological landscapes of the northern Isthmus of Tehuantepec that encompasses the Gulf lowlands are complex entities that can provide additional information about the physical activities of the human inhabitants. Knapp and Ashmore (1999:10-12) divide landscapes into three types: the first is the constructed landscape, which is identifiable as being altered by humans; the second is the conceptualized landscape, which includes natural features that may have been intentionally modified and hold a form of cultural value (e.g., religious or artistic) by members of the society; and the third landscape category is described as ideational, or one that illustrates sociopolitical or economic activity or organization on a cognitive level. At El Marquesillo, all three types appear to be represented. Through a comprehensive, dynamic, regional landscape approach many of the difficulties that have been encountered in the study of the Olmec paradigm can be alleviated. The following section examines some of these obstacles, why they occurred, and how they became enmeshed in the investigation of the Formative period Southern Gulf Lowlands.

Opening Investigations into the Olmec Paradigm

Many of the assumptions and resultant misinterpretations of the Formative period data have a long tradition that began almost 150 years ago. In the early 20th century, stylistic similarities were noted in various art media across Mesoamerica that were correlated with the Southern Gulf Lowland artistic suite (Covarrubias 1957; Guzmán 1934; Vaillant 1930, 1935). These attributions to the Gulf Coast led to a variety of hypotheses that were built solely on inference and presumption. Along the Southern Gulf Coast, a disjointed interpretation of the Formative period was emerging through uneven and unstructured searches for monumental sculpture (Blom and LaFarge 1926; Stirling 1939, 1943, 1955, 1965). The perceived similarities in style and symbolism led to the initial simplistic view of the Olmec as a static, monolithic entity that occupied a specific geographical region for a particular length of time. This notion has created deeply embedded misconceptions about these ancient people that are contradictory to present archaeological evidence, which does not support the assumptions of an unchanging society.

In 1892, Francisco del Paso y Troncoso employed the phrase “Olmec type” as a descriptor for a number of ceramic figurines that had been found in Guerrero and Morelos, Mexico (Pina-Chan 1989:25). Believing these artifacts stylistically resembled the artwork being discovered along the Southern Gulf Coast, he named the style after an indigenous community that lived along the coast at the time of Spanish contact. “Olmec” was a well-intentioned designation but, in actuality, a misnomer created by subjective interpretation, incomplete data, and unsubstantiated assumptions. The usage of the term initiated geographic and chronological confusion that created persistent problems (see Diehl 1989; Grove 1989).

The term “Olmec,” as used by Paso y Troncoso, referred to the Aztec’s Nahuatl term *Olmeca-Huixtotin*. The initial difficulties arose because the Nahuatl name denoted a Late Postclassic group of people who inhabited a limited portion of the Southern Gulf Coast (c. AD 1400-1500). This group had neither a connection with the Formative people who occupied the Southern Gulf Lowlands more than 2,000 years earlier (Diehl 2004:14; Scholes and Warren 1965), nor to the societies of Morelos and Guerrero where the artifacts were recovered. Thus, temporal and spatial discord was immediately embedded in the term itself.

The use of the term “Olmec Heartland” while providing a convenient geographical reference, as in the title of this dissertation, worsened the interpretive situation. The concept of a heartland implies a core and periphery, internal and external precincts, and a specific perimeter (Barth 2000; Stark 1998). The term necessitates consideration of the complexities inherent in the imposition of boundaries. Where are these boundaries and, if they exist, what was their material and symbolic significance? How did their meanings change over space and time as well as from differing sociopolitical perspectives (Anderson and O'Dowd 1999; Parkinson 2005)? Unfortunately, these questions are not generally addressed because the "Olmec Heartland" is presented as a fixed, uninterrupted region encompassing a rigid, highly structured culture (Figure 1.2).

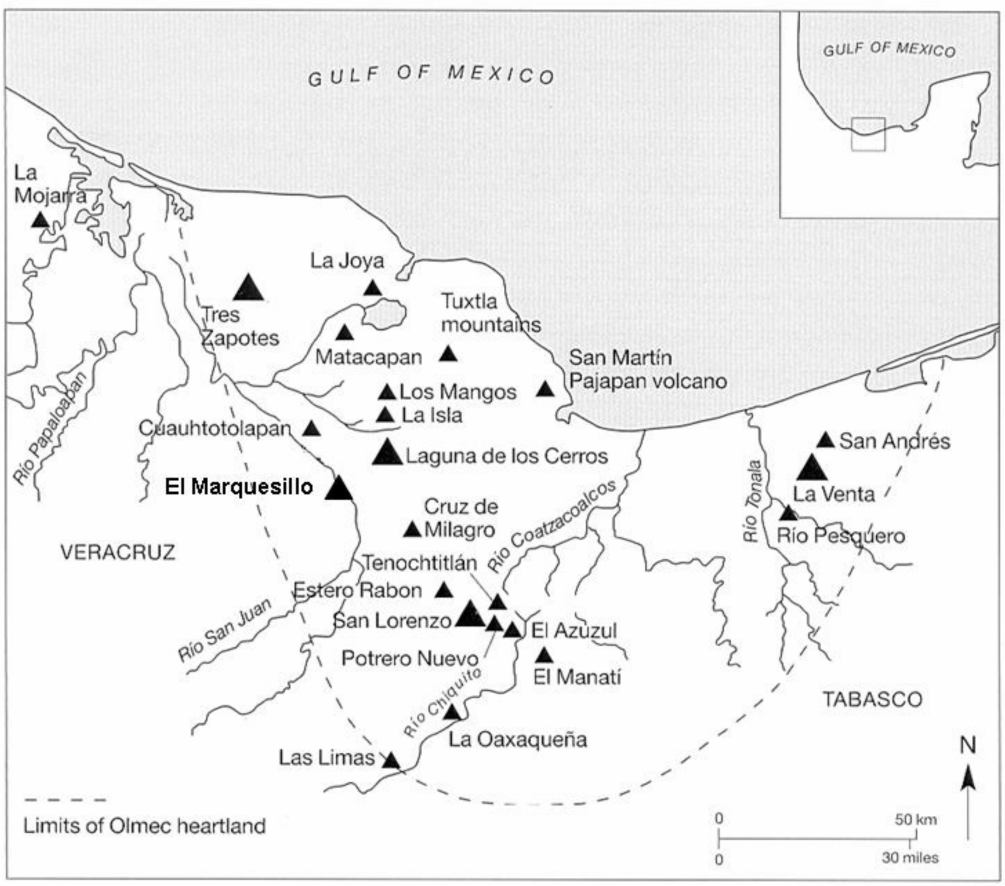

Figure 1.2. Map illustrating the theorized limits of the "Olmec Heartland" (after Diehl 2004:12).

The "Heartland" has been delineated by the region's geomorphology (Coe 1965:681; Coe and Diehl 1980a:11). This passive portrayal is difficult to defend, however, because the situation in the Southern Gulf Lowland region during the Formative period mirrors that described by Pye and Clark (2000:9) for Mesoamerica. It was a "flexible anthropological entity whose definition for any given time period depends on … certain cultural practices considered [Olmec] and … the contiguous territory occupied by the peoples following these practices." The movement of inhabitants across the landscape, environmental changes, and evidence of significant material and ideological transformations over time actually show the region to be dynamic and fluid (see Clark 2005).

Beyond the semantic and concordant issues, the generally accepted spatial demarcation itself is dubious (e.g., Coe et al. 1986:91, 94-95; Diehl 2004:12; Stuart 1993:94-95) (see Figure 1.1). The arbitrarily defined "Heartland" is generally considered to be delimited by the Southern Gulf Coast in the north, the Papaloapan River and Bay of Alvarado in the west, the Grijalva River in the east, and the uplands of the Isthmus of Tehuantepec to the south (Coe 1989:69; Diehl 2004; Lowe 1989).

The documented occupation areas of the historical Olmeca-Huixtotin, however, lay only to the west of this region, along the Papaloapan River; in the Tuxtla Mountains; and along the northern fringe of the coast, extending approximately 30 km inland (Berdan and Anawalt 1992; Scholes and Warren 1965; Shahagún 1970-1982). Spanish contact period accounts and Aztec tribute lists do not describe the interior of the "Heartland," only points along its periphery. Moreover, recent investigations demonstrate that the Formative inhabitants of the Tuxtla Mountains were not fully participating in the Olmec phenomenon (Arnold 2000; Santley 1992; VanDerwarker 2006). If this is the case, the Tuxtlas would not be part of the Heartland. This situation leaves the La Venta area as the only major Formative period site that may have been occupied within the Olmeca-Huixtotin lands. Finally, an estimated 80 percent of the area defined as the “Olmec Heartland” has not been surveyed and remains terra incognita; therefore, its classification as Olmec is speculation.

The earliest interpretation of the Southern Gulf Lowland archaeological record contained a subjective, unsubstantiated opinion that was delivered with presumptuous certitude. In 1862, at the Hacienda de Hueyapan in Tres Zapotes, Veracruz, José María Melgar y Serrano observed the first Olmec colossal head. Massive stone heads and thrones sculpted from imported basalt have become the hallmark of the Olmec presence on the Southern Gulf Lowlands. When Melgar y Serrano published his findings, he unequivocally attributed the sculpture to Ethiopians and cited it as proof of the prehispanic presence of Africans in the New World (Serrano 1869). Under scientific scrutiny, this case of erroneous assumption remains completely unproven and devoid of evidence (see Arnaiz-Villena et al. 2000; Haslip-Viera et al. 1997). Nevertheless, this unsubstantiated hypothesis has been, and continues to be, used by numerous individuals to promote political agendas (Chavero 1883; Jefferies 1953; Van Sertima 1976; Winters 1984).

Thus, the initial use of the term “Olmec” and the first description of monumental sculpture that has become synonymous with the Formative period Southern Gulf Lowlands were based on supposition. Both of these introductory events created misinterpretations and inaccuracies that researchers continually need to overcome more than a century after their occurrence. The following sections will demonstrate that the misrepresentations, misunderstandings, and misuse of the data were not limited to 19th century observations.

The Gulf Coast Olmec in Anthropological Social Theory

The recognition, identification, and interpretation of patterns of sociocultural integration among human societies has long been a primary goal of anthropology (e.g., Fried 1967; Morgan 1963; Service 1962, 1975; Spencer 2004; Tylor 1976). A significant alteration in the sequence of human social arrangement was the emergence of complex societies. The manifestation of these ranked relationships is remarkable because, for more than three million years, humans apparently lived in autonomous, relatively egalitarian bands. It is only within the last 7,500 to 10,000 years that these small, primarily nomadic populations aggregate into larger, more sedentary villages that displayed greater social, economic, and political complexity (Carneiro 1981:37-39; Earle 1997). Carneiro (1970:733, 1981:38) argues that the appearance of ranking or hereditary inequality was a major qualitative change in human history and that all modifications in social organization that followed (e.g., stratification, states, and empires) were merely quantitative.

Only a handful of “pristine” civilizations throughout the world are considered to have developed the consequential change to greater social complexity without previous archetypes upon which to model their social structure (Diehl 2004:11-12; Smith 2003:17-19; Trigger 2003). These cultures include the Egyptians and Sumerians in the Near East, the Indus civilization in India and Pakistan, the Shang culture in China, the Chavín or possibly the recently recognized Caral culture of Peru (Solis et al. 2001), and the Gulf Coast Olmec in Mesoamerica. The Early Formative inhabitants of San Lorenzo (c. 1500-900 BC) were the only one of these antecedent societies to emerge in a forested, tropical, lowland environment. The sui generis development of social complexity among the inhabitants of the Southern Gulf Lowlands is believed to constitute an example for the study of social theory both as a model and tool for evaluation. The uniqueness of their appearance and environmental circumscription, plus the legacy of their cultural traits adopted by subsequent Mesoamerican societies make investigation of their social maturation critical to theorists (see Joyce 2004a; Kirchoff 1943).

Social theorists have constructed the Olmec paradigm in a number of ways. Some have merged the Southern Gulf Lowland inhabitants into a monolithic entity and used aggregated assumptions to support their models. Others have imposed Eurocentric templates of emergent Old World cultures upon them. Still others have exploited specific traits or characteristics to establish their hypotheses, but neglected to include either all the applicable data available or have not considered extenuating circumstances that could undermine their claims.

The following examples provide a sense of how the Olmec paradigm has been incorporated into cross-cultural social theory and its significant impact upon the discipline. All the entries center upon the emergence or development of social complexity, and I have grouped them according to comparative or corroborative usage. Most of the theoretical hypotheses have been based on limited interpretations of the archaeological record, and are valid based on those specific interpretations. As noted earlier, however, many of those judgments have been derived from assumption and inference as opposed to evidence. To demonstrate the instability of some social theory as it relates to the Olmec paradigm, the review begins with an examination of the hypotheses of social complexity that are based on the institution of agriculture.

Generalized Development of Social Complexity

Trigger (1989:400) points out that evidence from San Lorenzo contradicts the commonly held assumption that the emergence of social complexity occurred only in dry, arid regions and required substantial irrigation programs. Earle (1987:286-287, 295, 298; Johnson and Earle 2000:265) views the Olmec as a complex chiefdom and the Mesoamerican civilization upon which later regional developments were based. He refers to numerous lines of evidence to support both statements: examples include the settlement patterns of independent centers containing planned mounded complexes, monumental art, and elite residences that imply central control. He believes that evidence of economic administration can be seen in the organization of labor and craft specialization, long distance trade, and the elite ownership of fertile productive agricultural lands. The scale and duration of labor-intensive projects demonstrate a long-term continuity of central organization associated with chiefdom level complexity. Earle (1991b) also recognizes that the emphasis on religious or sacred power held by the central authority may characterize the Olmec as a "theocratic state."

Bingham (1999:159) claims that advancements in weapon technology (i.e., bow and arrow or atlatl) were responsible to a significant degree in the development of sedentary communities and emergence of social complexity. He asserts that the appearance of this technology in the archaeological record of the San Lorenzo Olmec demonstrates weaponry's linkage to social development. He also admits empirical evidence for these weapons in the Formative period is lacking but the idea should be reinvestigated. In his continuing investigation of, and espousal for, the interaction between warfare and political authority (pleogenic theory), Cioffi-Revilla (1996:13) finds support in the Gulf Coast Olmec. He declares that San Lorenzo, La Venta, and Tres Zapotes constituted a *Protobellic Area*, a "pristine region where war occurred by spontaneous (undiffused) invention." It was in these types of complex polities that Cioffi-Revilla believes war initially arose and led directly to social complexity. There is no direct evidence to support these theories, however. Coe and Diehl (1980:392) state that San Lorenzo Olmec warfare can only be inferred, and the scant evidence can be explained by other, equally valid interpretations.

Ehrich's (1949) critique of the four fields of Anthropology presents possibly the earliest example of the Olmec described as the basis for the development of the Mesoamerican cultural tradition. His position was based on reports by Stirling (1943) of an isolated cultural complex (Ehrich 1949:346). Peebles and Kus (1977:429) repeatedly use comparisons with the Gulf Coast Olmec to provide analogies for levels of sociopolitical organization and control within cultural systems. In his examination of human evolution, Wright (1999:115) uses the Olmec, among numerous other cultures, to demonstrate the long-term trends of social complexity. Kohl (1978:470) alludes to the massive offerings of serpentine recovered at La Venta as a way to support social and religious systems, but states that the investigations do not reveal how these actions satisfy the needs apparent in this long-distance acquisition.

Sanders and Webster (1988:544) argue in support of Fox's (1977) "regal-ritual model" that necessitates small populations in and around political-religious centers. Associated centers were constrained by transportation and communication systems, a factor that made San Lorenzo, La Venta, and Tres Zapotes special places. The authors contend that these centers functioned primarily as ideological cores that emphasized symbolic ritual and ceremony that were, in actuality, a pretense for underlying political manipulation. They add that significant centers emerged in areas of abundant resources, which provided an exceptional potential for elite-controlled subsistence production. A further implication was that agriculture in the region led to greater social complexity through surplus production. The assumption of small populations limited to ritual and ceremony has been challenged by recent surveys that demonstrate intensive occupations at San Lorenzo (Borstein 2001; Symonds et al. 2002) and La Venta (Pohl 2001; Rust 1992; Rust and Sharer 1988) and the discovery of craft workshops and production areas at each of these sites (Cyphers 1996b, 1997b; Rojas-Chavez 1990; Rust 1988).

The presence of centralized authority and social complexity at population centers along the Southern Gulf Lowlands during the Formative period is suggested by the organization of major labor efforts, long distance resource acquisition, settlement patterns, and symbol systems. A primary question regarding this centralization is how was it achieved? In addition to those previously mentioned, numerous scholars have attributed the emergence and expansion of this power to military might and warfare (Borstein 2001; Coe and Diehl 1980a; Hassig 1992; Reilly and Garber 2003; Sheets 2003).

Cowgill (1993:754) summarizes the primary difficulties associated with the discussion of warfare in Mesoamerica. He argues that there is an uncritical acceptance of problematic and contradictory sources, and that there is a tendency to not consider the diversity within these societies. These lines of reasoning are particularly true in the case of the Gulf Olmec, and Coe and Diehl (1980:392) admit that warfare can only be inferred. I find the evidence expressed in these arguments for warfare tenuous. Much of the inference of war is derived from what are interpreted as depictions of "symbolic warfare" sculpted on stone monuments (Borstein 2001; Reilly and Garber 2003), although other tenable alternatives are possible. To me, it is unusual that a school of artisans as talented as those of the Gulf Coast Olmec, known for their ability to produce lifelike and expressive illustrations, did not compose a corpus of clear, unambiguous depictions of warfare. This lack of imagery is especially puzzling if warfare or military dominance was indeed the reason for the emergence or expansion of their authority.

Subsistence Systems and Complex Society

Numerous variations of social theory have developed from an agricultural perspective. For example, in his survey of the science of culture, Harris (1979) used the Olmec to associate maize agriculture with the foundation upon which chiefdoms were founded and how its continued development led to more complex levels of social organization. Moseley and Willey (1973:466), in their reevaluation of Aspero, Peru, and its agricultural transition, offer the San Lorenzo Olmec as an example of development from sedentary non-agricultural society to one of emergent agriculture in Mesoamerica.

Park (1992:90) presents the Olmec as an example of a major civilization that owes its success to intensive recession agriculture and water management techniques. He emphasizes that many societies that practiced recession agriculture in alluvial riverine environments went on to become advanced civilizations in part due to their ability to overcome risk (chaos) and the institution of common property. His hypothesis holds that the highest agriculturally producing lands remained in the possession of the upper levels of the social hierarchy. In a similar argument, Spencer and Redmond (1992:151-154) equate the high-yield recession-type agricultural practices of the inhabitants of the western Venezuelan llanos region to similar situations and successes among the Gulf Coast Olmec. They also suggest that the sociopolitical development of chiefdom level societies in the Late Glaván period (AD 500-600) mirrored the political economy model of the Olmec. The surplus created by the exceptional crop yields was a major factor in the increase in population levels, the appearance of a three-tiered settlement hierarchy, construction of mounded architecture, and differentiation of social status.

Price's (1977) cross-cultural discussion concerns how shifts in the mode of production led to alterations in the mode of social organization. She identifies the Gulf Coast Olmec as a "pristine" society (see Fried 1967) that defined the linear evolution of complex society. She contends that San Lorenzo, La Venta, and Tres Zapotes were "clearly peaks in local stratification networks" that had regular interaction with each other and belonged to a culturally and temporally unified society (Price 1977:212).

Strange (1982) examines how religious control is diminished as technological control over social and environmental systems advance, and posits that, when these socioeconomic systems break down, the culture collapses. To illustrate his point, he states that the Olmec attracted large populations to major centers. This rapid influx of people overloaded the existing agricultural system causing it to fail, which led directly to economic and cultural collapse.

These theories are reasonable and well presented, but what is the basis for their postulation? Prior to 2006, there was no direct evidence for maize agriculture being the foundation for the emergence of San Lorenzo's social complexity. In fact, there was little actual subsistence data that could be analyzed (VanDerwarker 2006:2). Assumptions relating agricultural production to tribute-based models of political economy among the San Lorenzo Olmec were derived from ecological studies, settlement pattern analysis, estimated carrying capacities, modifications in ground stone technologies, and comparisons to contemporary farming routines in the area (Borstein 2001,2005; Coe 1981; Coe and Diehl 1980a,b; Cyphers 1996b; Drucker 1960). The underlying premise that maize agriculture was the catalyst that led to the rise of an elite class is based on the quantity of ground stone manos and metates recovered during excavations, the presence of botanical remains, and the fact that modern farmers in the region grow a lot of maize (Coe 1981; Coe and Diehl 1980a,b; Cyphers 1997b).

Recently, VanDerwarker (2006) demonstrated possible misinterpretations of the archaeological record and the implausibility of attempting to apply the Direct Historical Approach back 3,500 years into prehistory. Her arguments are based on analyses of various lines of evidence and subsistence data. The combination of these data from recent surveys and analyses (Borstein 2001; Rust 1992; Rust and Leyden 1994) conclude that the "critical domestication/productive threshold for maize" at San Lorenzo occurred around 1,000 BC, meaning that maize "probably did not become the mainstay of the lowland subsistence economy until after the Olmec rose to power" (VanDerwarker 2006:37, 65). If the interpretations of these new data are correct, then much of the social theory relating agriculture to sociopolitical development will need to be re-evaluated and in many cases, revised.

Cross-Cultural Comparisons

The Gulf Olmec are cited by Oates (1993:414) in support of a social emulation model that she proposes for Late Uruk Mesopotamian societies (c. 3500 cal BC). She agrees with Flannery's (1968) inference that lowland Olmec influence was strongest among other developed societies in Mesoamerica, ones that would appreciate their advancements in complexity and its materialization. Kirch (1991:159) cites the "labor-intensive symbols" (i.e., monumental sculpture and architecture) of the Gulf Olmec are analogous to those of the Lapita culture. He believes that the creation and implementation of these types of symbols was used to broaden cultural integration over significant geographic areas.

In his multi-cultural examination of societal development, Sanderson (1995:65-66, 127) describes the large ceremonial centers at San Lorenzo and La Venta as places that witnessed the emergence of social complexity that would eventually lead to state formation. He cites the colossal carved stone heads as depictions of individual chiefs and alludes to the Olmec as the originators from which the subsequent Maya civilization arose. Younker's (1997) examination of the Moab society, in present-day Jordan, and their sociopolitical structure during the Bronze and Iron Ages, leads him to draw parallels to the Olmec region. He cites hieroglyphic writing, monumental architecture, planned ceremonial centers, and intensive agricultural systems as determinants of the level of social complexity in pre-state societies.

In his cross-cultural assessment of monumentality and its application to complexity in Hawaii, Kolb (1994) draws on the massive sculpture and mound complexes of the Olmec. His objective is to demonstrate the religious aspects of power and control within a complex society. He states that these examples show rapid centralization and social cohesion, and are symbols of new sociopolitical and ideological order. Drennan (1991:264-267) uses the Olmec at San Lorenzo, La Venta, and Tres Zapotes to illustrate chiefdom trajectories in Mesoamerica, and Central and South America. He alludes to their demographic and social change, labor organization, subsistence methods, long-distance acquisition and exchange. He goes on to add the possibility that the significant distances between regional centers along the Gulf Coast were designed so as not to impinge on the lands of others. Examination of the chronology of the ascendancy of these sites does not appear to support the latter supposition (Coe and Diehl 1980a; Coe and Koontz 2002; Diehl 2004; González-Lauck 1996a,b; Pool 2000).

Migration and Diffusion

Ford (1966) used the archaeological record to link the cultures of South, Central, and North America into a contiguous culture area that shared artistic and ideological characteristics. The evidence produced by the work at La Venta (Drucker 1952a, 1960; Drucker et al. 1959) was a primary factor in his comparative study. In his discussion of migration of ancient societies across the landscape, Adams (1978:491) submits that the

Maya are lineal descendents of the Olmec. He sees a shifting of population sites from the Gulf Coast to the lowlands of the Guatemalan Petén.

Meggers (1975, 1976) maintains that the Olmec are the earliest Mesoamerica civilization whose art, iconography, and technology were the foundation for all other Mesoamerican cultures. She suggests that their sudden appearance as a fully developed complex society, and the rapid dispersion of advanced traits across Mesoamerica, suggest diffusion from elsewhere in the world. Meggers makes her case based on stylistic similarities of the more ancient Shang Culture of China, and posits that they are the true founders of the Olmec. Schneider (1977) adds what he considers to be further support for claims of ancient transpacific contact between the Chinese Shang and the Gulf Coast Olmec at around 1200 BC. He contends that the diffusion of culture by the Chinese was directly responsible for the development of complex society in the New World, specifically along the Southern Gulf Coast. Schneider asserts that the underlying theory to explain diffusion is actually more important than any facts that may be present. Mundkur (1976:437-439), in his attempt to link the art-styles and ideologies of Asia to the cultures of the New World, identifies the Southern Gulf Lowlands as the Heartland of the Formative period Olmec and portrays them as recipients of Asian characteristics.

Referring to the San Lorenzo-La Venta Olmec as an example of an "occupational shift" brought about by climatic causal agents, Gunn and Adams (1981:94) suggest an unbroken cultural continuity between the two sites. They also identify climatic changes that would have been factors in the development of cultural complexity. Gunn and Adams note the end of the San Lorenzo dominance occurred at the same time as a "cold period." Spatial considerations would seem to question how climate factors would affect one site and not the other since they are at basically the same elevation and less than 100 km of each other.

Many of the hypotheses presented are drawn from, or supported by, cross-cultural analogies. Does the empirical evidence support these comparisons? Have the spatial and temporal distinctions been adequately considered? Some archaeological evidence does exist to support portions of these claims, but significant disparities are not considered and the “Olmec” are incorrectly portrayed as monolithic.

Concluding Remarks

Variations of theories presented by Lenski (1966, 1970), Harris (1979), and Wallerstein (1974), among others, have been applied to many of the discussions and assessments of the “Olmec” by anthropologists and sociologists. It is also evident that a number of these judgments refer to a unilineal evolutionary model for the development of complex society (Fried 1967; Sahlins and Service 1960; Service 1962). These simplified classifications support Haas’ (2001) comments regarding how superficial or indiscreet application of these models, without attention to detail, can facilitate the opportunity for error.

New evidence from the field demonstrates the incompleteness and unevenness of extant data. The Olmec paradigm varied significantly both spatially and temporally, so much so that it may be difficult to consider the Olmec a culture except under the broadest of definitions. The first usage of the term “Olmec” and the initial description of Southern Gulf Lowland monumental sculpture were derived from subjective, unsupported assumptions. Remarkably, the faulty conclusions reached by these early reports have continued to inhibit scientific inquiry for more than a century. Several of the social theory models and hypotheses presented contain insightful and accurate contentions, but others contain concepts based on incomplete data or unsupported assumptions. Although portions of the hypotheses may be supportable, often the insensitivity to chronological and spatial order and attendant processes invalidate their premise. What is known about this archaeological entity, and how do we know it? How are the new data being collected and what do they tell us? These questions are addressed in the following chapters.

Chapter 2. The Formative Period in the Southern Gulf Lowlands

Introduction

At the 2006 Society for American Archaeology Annual Meeting in San Juan, Puerto Rico, a gathering of the Mesoamerican Formative period researchers took place in the symposium, The Olmec and Their Early Formative Neighbors (SAA 2006:55-56). Most participants acknowledged that accurate chronology was a significant problem in Formative period studies. Clark's (2006) assessment that "without good chronology, we have nothing" would seem obvious but, outside of a relatively small group of investigators, the distinction between chronological segments of the Formative period have been merged, blurred, or disregarded. This lack of chronology building and the inattention given to its dynamic nature underlies many common misconceptions, as discussed in the previous chapter. It has resulted in the interpretation of the Formative inhabitants of the Southern Gulf Lowlands as what Diehl (2004:14) laments is "a single generic culture."

Theorists have furthered this equivocal assumption by attempting to standardize the social complexity and political organization perceived in the Olmec phenomenon. Much of social evolution theory strives to achieve a universal and sequential development of social organization (e.g., Fried 1961, 1967; Morgan 1963; Sahlins and Service 1960; Service 1962, 1975; Steward 1955; White 1959). Smith (2003:33) describes this attempted conformance as “a prospect on human history that visualizes an overall shape to human social development, a progress toward increasing complexity that can be explained in reference to a set of rational determinants.”

Any certainty contained in the Olmec paradigm is severely limited by the fact that only a small fraction of the Southern Gulf Lowlands has been investigated, evenly superficially, and data that have been recovered remain unavailable due to a paucity of publication (Diehl 2004; VanDerwarker 2006:35). Even though significant work has been conducted at San Lorenzo and La Venta over the past 60 years, there remains an unevenness or discontinuity in their investigations (Benson 1996; Diehl 1989). During the high points of their ancient development, these communities were socially and politically anomalous and not representative of other centers and the more frequent and typical secondary and tertiary settlements that fill the majority of the regions that have been examined (Borstein 2001; Symonds 2000; Symonds and Lunagómez 1997). Tres Zapotes is only now beginning to be investigated on a level from which valid comparisons can be made to other Early Formative period sites. Its Early Formative component has recently been uncovered but remains yet to be fully analyzed (Pool 2006). Other sites, such as Laguna de los Cerros and Las Limas have been frequently cited as major Olmec centers (Coe and Koontz 2002; Diehl 2004:57; Soustelle 1984:61).

When evaluating the basis for the Olmec paradigm, two primary issues arise. The first involves the question as to whether or not the proposed claims are sufficiently supported by the evidence recovered from the sporadic and limited investigations. The second asks if the spatially patterned arrangements of Formative period architectural complexes and the material traces left on the land surface by the inhabitants indicate a standardized political centralization or shared ethnic identity. One way to assess these issues is to consider models of site settlement organization. Various forms of centralized models have been postulated for Mesoamerican centers based on architectural patterns, features, and the spatial distribution of material remains. After a brief examination of these models, I review the sites of San Lorenzo Tenochtitlán, La Venta, Laguna de los Cerros, Las Limas, La Oaxagueña, and Ojo de Agua in light of these models. In the concluding section of the chapter I discuss the data previously recovered from the Formative period Southern Gulf Lowlands and how they have been interpreted.

Models of Political and Economic Organization

The models considered here are illustrative of various types of settlement organization that have been proposed for the Southern Gulf Lowlands and the interrelationships between their political and economic processes. Settlement centers are identified by common traits and practices that include "a variety of integrative institutions and activities [that] are centralized and which both serves and is served by a hinterland from which it is differentiated in size and population density" (Pool 2003:90). Although the function and effect of centralized organization are recognized (Blanton 1978; Sanders and Webster 1988; Stark 1999), the specific nature of the processes and the reasons for variation in size, scope, and arrangement are not fully understood. Recent surveys, however, are beginning to illustrate the substantial organizational and spatial variations among these centers in the Southern Gulf Lowlands (Borstein 2001; Cyphers 1997a; Killion and Urcid 2001; Santley et al. 1987; Stark 1991, 1999; Symonds and Lunagómez 1997).

The models used for evaluation of the evidence here include: a nucleated central place (Symonds 2000; González-Lauck 1997), a capital zone (Stark 1999), a confederacy of elite lineages (Pool 2003:96), and a feudalistic alliance between a vassal site and a regional sovereignty (Taschek and Ball 2003). The underlying premise of these locational models is the interpretation of economic practices relative to the spatial distribution of sites (Christaller 1966; Lösch 1954; Mayhew 1997). In other words, these models attempt to define the socioeconomic rules that determine the size, number, and distribution of sites within a settlement pattern. These conceptualized systems are then used to evaluate patterns in the placement of internal components of a site including activity areas, architecture, and features. From this evaluation, the political structure and economic system is inferred.

Although the initial central place theory was established by Christaller (1966 [1933], 1972) in the 20th century to examine a market-based capitalistic system in Southern Germany, there are sufficient parallels to Mesoamerican political economies to permit it to be employed as tool in their evaluation (Inomata and Aoyama 1996). This and other models can assist us to better understand why and how urban settlements evolved and how they were spatially related to one another along the Southern Gulf Lowlands. Marquardt and Crumley (1987) describe the spatial limits and patterned arrangements of an archaeological site as landscape signatures, the material traces left on the land surface by the distinct development of human groups. They state that use and non-use of space are material representations of the cultural principles that include towns, villages, camps, transport features, shrines, caches, and burials. Through analysis of these combined data, models of the sociopolitical and economic structure operating along the Southern Gulf Lowlands in the Formative period are examined.

The early models were built on the Central Place Theory that was developed in 1933 by German economic geographer Walter Christaller (1966). Three basic concepts were included in Christaller's hierarchal theory of economic activity: 1) centrality, the benefit of a having a centralized locality; 2) threshold, the point at which additional providers (sites) can be successfully admitted and maintained within the system; and 3) range, the acceptable distances over which products or services can be obtained or traded. The subsequent models are variants devised to explain the diversity of spatial patterns and artifact distributions found at Mesoamerican centers. These variations of the central place theory are primarily based on transportation factors (time, effort, and capacity) and administration (degree of centralization, nucleation, and market size).

Central Place Model

Mayhew (1997) defines a central place as a settlement or nodal point that serves the surrounding area with goods and services. In theory, the location of collection and redistribution centers can be determined or predicted based on least-cost transportation models that link producers to the centers and the centers to the final consumer. Central places may be primary or secondary centers that perform administrative and management control functions that can include resource acquisition and allocation, production, storage, and redistribution. These centers may also be sites for ritual ceremonies and religious functions (Smith 1979).

Central place theory has been used extensively in Mesoamerican research and a number of archaeological correlates have been identified (Flannery 1972; Hammond 1974; Marcus 1973, 1976). Major criteria used for identification of a central place include:

1) Relative site size; central places are larger than secondary and support sites;

2) Population density greater than in outlying sites;

3) Public architecture (e.g., platform mounds, open plazas, temple mounds) for administrative functions and localities for ritual activities;

4) Storage facilities required to hold goods for redistribution;

5) Craft specialization includes the production of prestige goods in workshops that are controlled by elites and are evidenced by presence of exotic raw materials (e.g., obsidian, jade, basalt), and production tools;

6) Length of occupation usually greater in central places, since they may represent the hearths of origin.

Capital Zone Model

This model was formally introduced by Stark (1999) to explain the architectural arrangement and spatial deposition of artifacts recovered at the site of Cerro de las Mesas in the Mixtequilla region of south-central Veracruz (Stark 1991, 1999; Stark and Heller 1991; Stark et al. 1998). "A capital zone is an extensive area with dispersed formal groups that, together, constituted an administrative and service core" (Stark 1999:201). Although the model is oriented toward the Classic period (c. AD 300-900), the author states that "Mesoamerican political and cultural development…built upon antecedents in the Late and Terminal Preclassic periods" (c. 600 BC-AD 300) (Stark 1999:197).

Therefore, precursors to the Capital Zone Model may be present and identifiable in Formative period sites.

To address the problem of the indefinite temporality of structures and complexes, Stark (1999:197) developed “two contrastive models as a tool to guide interpretation of Mixtequilla settlements: 1) a disconnected model, in which formal complexes are largely sequential or independent; and 2) a connected model, in which there is greater temporal overlap among complexes in a core zone that forms a superordinate capital, with more distant secondary and tertiary settlements.” From these models, five criteria were elaborated to evaluate the evidence:

1) Dating, major complexes are sequential but new constructions do not necessarily indicate the termination of older ones;
2) Spacing, the proximity of large and small architectural complexes suggest a united association;
3) Non-Domination, no individual formal complex is dominant within the site.
4) Non-Discreteness, location of major isolated structures suggest an integration of complexes indicating an internal linkage;
5) Layouts, smaller outlying groups appear to be nascent off-shoots of larger established major complexes;
6) Craft production, widely distributed across central complexes as well as in residential zones.

Confederacy Model

Pool (2000:150;2003a:92) believes that the mound complexes at Tres Zapotes may have served as seats of authority. If these plaza groups functioned concurrently, "the political system may have been organized more as a confederacy, with several elite lineages sharing and negotiating ruling authority" (Pool 2003:96). This model is primarily concerned with the processes of nucleation, the geospatial configuration of population and activity areas; and centralization, which refers to the concentration of political power and authority among individuals or factions. "By analytically decoupling these interacting processes we can achieve greater precision in our characterization of ancient urbanism and greater insight into the processes responsible for its variability" (Pool 2003:91). Similar in some respects to the Capital Zone Model (see Wells 2004b), this version differs notably in the consideration of site size and spatial clustering. Identifying criteria include:

1) Residential settlement, arranged in a concentric pattern extending outward from a central core;
2) Formal architecture, temples, concentrated at several locations, composed of conical mounds (temples) and long mounds (elite residences) surrounding plazas;
3) Spacing, central plaza group surrounded by intensive occupational zone (180 ha) with additional plaza groups around the periphery of this habitation area;
4) Craft production, frequent small-scale domestically centered ceramic and lithic production with little elite control.

Feudalistic Model

Although this model has not been specified as a Formative period representation, I feel its criteria could be representative of Southern Gulf Lowland organizational structure and should be considered. According to Taschek and Bell (2003), Nohoch Ek, a Classic period site in the upper Belize Valley, constitutes an archetypal example of the "minor center" type within a hierarchically structured settlement system. Its role within the social landscape mirrors the appearance and function very much like a medieval European agricultural manor. Nohoch Ek was sociopolitically autonomous but, the authors believe, “that its inhabitants recognized or owed allegiance, fealty, tribute, or some other form of subordinate association to the royal court based at nearby Buenavista-Cahal Pech” (Taschek and Ball 2003:388). This association entailed “kinship obligations as socioeconomic, political, civic, or coerced debt-the functioning corporate social unit occupying the Late Classic Belize Valley hilltop looked and worked very much like a medieval manor” (Taschek and Ball 2003:385). Determining criteria includes:

1) Artifact types, only domestic objects with no ceremonial or ritual association;
2) Spatial layout, clearly determined by the topography rather than by any cosmological or ideological considerations of directionality;
3) Residents, self-sufficient rural corporate group consisting of multiple nuclear units of a single extended family, lineage, or house;
4) Locality, contiguous integration with intensive agricultural system suggesting ownership, supervision, and utilization;
5) Architecture, significant elite residence but no ceremonial or public constructions and not on a monumental scale.

Limitations and Cautions in the Use of Locational Models

The effective application of the Central Place Theory was designed to operate in what can be considered a Utopian condition, and Christaller (1966 [1933]) acknowledged that it was developed in an idealistic situation. His conceptualized hexagons were placed on an isotropic plane that contained constant universalities in transport, distance, and effort, and the market demands were equivalent. There was no apparent consideration of geophysical obstacles or human agency.

Smith (2004) warns against both “mechanical absolutism” and “organic absolutism” in the analysis of space. He states that proponents of the mechanical ontological approach infer that space (landscape) has little effect on the socio-historical process, that spatial analysis is only a search for “the fundamental geometry that structures the world” (Smith 2004:36-53). He also cautions against a strictly organic approach, which attempts to determine the organizational processes of spatial relationships based entirely on the influence of the environment. Although both categorical positions have provided insight into spatial patterning and socio-historical change, they do not take into account the impact of the human agent, society, and ideology. In other words, “spatial patterns are produced within and between acting sociopolitical bodies, not in correspondence to an evolutionary narrative” (Smith 2004:75). This note of caution is echoed by Silverman (2002) who states that, “the principle of settlement pattern hierarchy cannot mechanistically [be applied] to ancient societies because ancient people ‘constructed’ social space under premises not necessarily amenable to western rational organization.”

Locational, political economic models must be employed with care, and the researcher should be cognizant of numerous variables when evaluations are made. Crumley and Marquardt (1990:73-74) point out that human societies "conceived" and "negotiated" reality at specific temporal and spatial levels. They recommend that the researcher select an "effective scale" to be employed at the "moment of analysis" that will produce the best comprehension of the detected patterns (Crumley 1994:9; Marquardt and Crumley 1987:7). Finally, the dynamic cultural, environmental, and geophysical landscapes must be thoroughly considered.

San Lorenzo Tenochtitlán

Matthew Stirling (1955) first reported on the site of San Lorenzo Tenochtitlán, where he uncovered 20 monumental stone sculptures in 1945 and 1946 (Figure 2.1). San

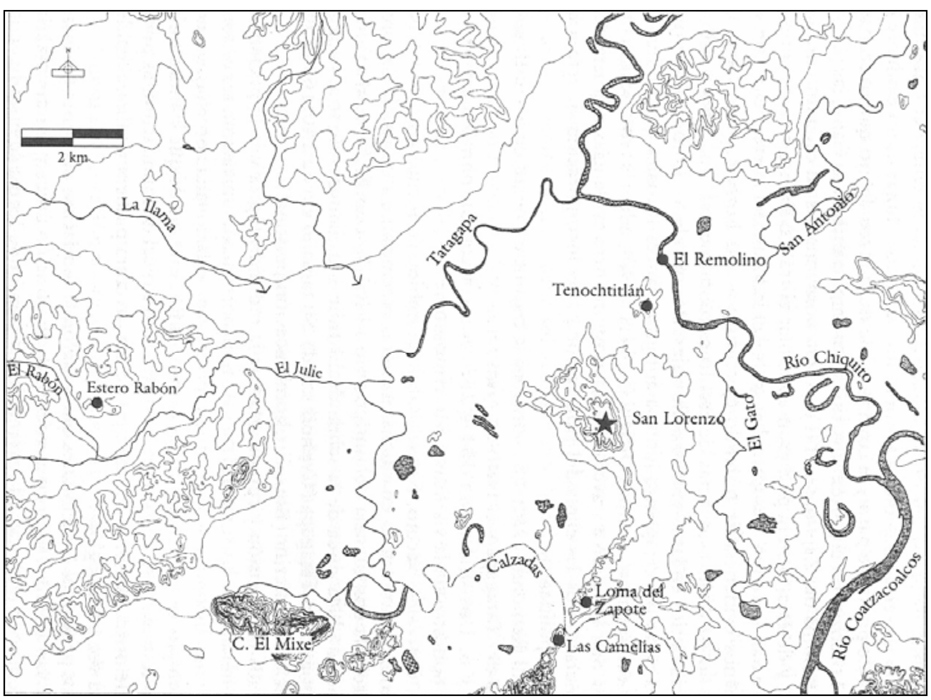

Figure 2.1. Map of the greater San Lorenzo area (Symonds et al. 2002:71)

Lorenzo is considered the earliest and largest Formative period regional center in the Gulf Coast lowlands and demonstrates evidence for a significant level of social complexity (Coe and Diehl 1980a; Cyphers 1996b, 1997b). From around 1300 to 900 BC, the site appears to have been pre-eminent in the Southern Gulf Lowlands' sociopolitical, economic, and artistic realms. Because of its apparent leadership position in these spheres, this temporal period is referred to as the San Lorenzo Olmec Horizon. This primacy does not necessarily imply military dominance, political authority, or economic control outside of the middle Coatzacoalcos River Basin, however.

San Lorenzo Tenochtitlán is actually a complex of three sites. San Lorenzo contains the primary Olmec occupational zone located atop a 45 m high natural plateau that was significantly modified by human effort. The artificially leveled, elevated ridge extends approximately 1.2 km in a north-south direction and contains elite-related activity areas and compounds (Coe and Diehl 1980a; Cyphers 1996b). The second component of the site is Tenochtitlán, another large Olmec occupational zone situated on the Río Chiquito, and the third section is Potrero Nuevo on the ancient of course of the Coatzacoalcos River.

Coe initiated the Río Chiquito Project to expand Stirling's earlier investigations. The excavations conducted by Coe and Diehl (1980) between 1966 and 1968 produced a well-developed chronology of occupation and the first detailed topographic map of a major Olmec center. Their conclusions, based on multiple lines of evidence recovered by the project, suggested to them that the San Lorenzo Olmec had developed a complex society that achieved, minimally, a chiefdom-level organization, and conceivably reached statehood. In 1968, Coe began a series of subsurface investigations that utilized a cesium magnetometer to search for buried magnetic anomalies. The success of this technique proved exceptional and the Instituto Nacional de Antropología e Historia (INAH), under the direction of Ignacio Bernal, extended the investigation to San Lorenzo in 1969 and 1970. Ultimately, 16 new basalt monumental sculptures were detected and recorded using this technique (Breiner and Coe 1972; Brüggeman and Hers 1970; Coe and Diehl 1980a:126-129). In 1990, Ann Cyphers (1997b; Symonds et al. 2002) resumed investigations as director of the San Lorenzo Tenochtitlan Archaeological Project. A primary contribution of this ongoing project has been to illustrate the extent of the supporting network of towns, villages, and farmsteads that were required to maintain the capital zone of San Lorenzo.

During the late Early Formative period (c. 1250-1000 BC), the tripartite segments of San Lorenzo Tenochtitlán were part of an island encircled by the Coatzacoalcos and Chiquito Rivers, and dozens of supporting settlements surrounded the central core. The settlement pattern survey conducted by Symonds et al. (2002) has determined that the nuclear community around San Lorenzo during this time covered 690 ha and included a seven-level site hierarchy, based primarily on the sizes of the sites. Architectural elements present on the elite upper platform of San Lorenzo that have been identified as Early Formative period constructions are limited to low platforms or building foundations and causeways (Cyphers 1997b, 2001:647; Symonds et al. 2002:109-117). Low mounded architectural remains (Symonds 2000: Type 5 and 6 sites) have been found away from the plateau on elevated terrain at primary and secondary fluvial junctures. The elevation of the mounds may simply be for protection against annual inundations (Symonds 2000).

Several lines of evidence suggest a highly stratified society that was organized around the exploitation of exotic resources. Analysis of the settlement survey indicates that an elite ceremonial core was located on the highest portion of the plateau and contained the most prestigious residences (Symonds 2000:56). Spaces were also allotted for ceremonial or ritual displays including the exhibition of monumental sculptures. Special activity areas for the production of elite crafts were also present on the summit in the form of ilmenite cube concentrations and stone sculpture workshops (see Clark 1997; Cyphers 1996b). Middle-range dwellings contain evidence of obsidian tool and greenstone ornament production.

The presence of numerous types of exotic materials and products indicate an extensive exchange network in which San Lorenzo's inhabitants participated. The leadership at San Lorenzo is thought to have controlled access to local and exotic resources. Three primary obsidian sources (Guadalupe Victoria in Puebla, Otumba in Central Mexico, and El Chayal in Guatemala) have been identified at San Lorenzo (Cobean et al. 1971, 1991). Magnetite mirrors from Oaxaca, basalt from the Tuxtla Mountains, ilmenite from Chiapas, and numerous types of metamorphic rock were imported through this trade network.

The interpretations of sociopolitical complexity are derived from the spatial deposition of materials and the implicit need for centralized organization in order to carry out the acquisition, transport, and carving of monumental basalt sculptures. At San Lorenzo, economic expansion through the import and export of goods was associated with the establishment of a complex political system and increased social stratification. Emergent elites demonstrated their authority and legitimized their right to authority, power, and wealth through differential access to exotic elite items and raw materials (Grove and Gillespie 1992:191). They created and maintained social distance through the construction of ceremonial centers and monumental art and architecture. The monumental sculpture (i.e., colossal heads, thrones, and individualized representations) promoted the power of individual leaders. Its assemblage into highly observable "tableaus" reinforced this power and made it visible to the community (Clark 2005:214; Cyphers 2004).

It may also be possible to identify the status of an associated site or center within the San Lorenzo socioeconomic system by the type and size of its stone sculpture. Bornstein (2001) and Cyphers (2004) suggest that outlying centers may have been acknowledged as part of the San Lorenzo political-economic system through the presence of sculpted stone monuments. For example, specific types of monuments, which are comparable in size, style, and iconography, are found at sites that may have acted as control points for the regional ingress and egress of goods and materials.

The subsistence system at San Lorenzo has been identified as based on maize agriculture. Coe and Diehl (1980a:16) conclude that maize agriculture was the primary food source due to the appearance of numerous manos and metates. Cyphers (1997b) reached a similar conclusion based on the presence of phytoliths and pollen residues. Both studies assume that contemporary maize farming was equivalent to Formative period practices (Coe and Diehl 1980a:16; Cyphers 1997b). These assumptions have led social theorists to hypothesize that the increase in political complexity was directly caused by a shift to year-round agriculture, which led to agricultural surpluses and, in turn, gave budding Olmec leaders control over vital resources and thus a power base on which to build authority and extract tribute.

Although evidence suggests that some level of maize cultivation was practiced, it does not demonstrate that it was the primary food source, nor does it necessarily demonstrate that the Formative period Olmec were an agricultural society. Hayden (1992, 1995 #4434) suggests that, in some cases, competitive feasting may give rise to agriculturally produced foods. Innovative, aspiring Olmec elites, for example, may have served novel, exotic domesticates, such as maize, to their communities, rivals, or factions to gain status and prestige. "Thus, burgeoning social inequality would have been marked by the small-scale cultivation of domesticates… that would not become important staples in the diet until much later" (VanDerwarker 2006:199). This hypothesis is supported by Early Formative period evidence from the Soconusco Coast as well (Rosenswig 2006).

One way to assess diet is through isotopic bone and tooth analysis (see Mays 2000; Tykot 2004,2006; Tykot et al. 1996). At the site of San Andrés, La Venta, a lower first premolar was recovered during archaeological excavations of a Middle Formative period Olmec horizon (c. 900-400 BC) (Pohl 2001; Pope and Pohl 1998; Pope et al. 2000). A stable carbon isotope analysis of the tooth enamel was conducted at the University of South Florida's Archaeological Science Laboratory (Specimen Identification Number USF 4307, San Andrés FS901-98). The results suggest that only about half of this individual's diet was coming from non-C3 plants and animals. This result cannot be interpreted as meaning maize, a non C3 plant, accounted for half the diet. It was not possible to distinguish whether it was C4 plants or seafood or a combination of the two that accounted for the results. San Andrés was located directly on the banks of the Barí River, which provided a direct connection, via the river system, to the Gulf of Mexico approximately 12 to 15 km away. Therefore, it is suggested that some portion of the individual's diet included seafood. Thus, although the consumption of maize may have accounted for a maximum of 50 percent of the diet, a significantly lower percentage is probably more realistic. These considerations require that caution be used in claiming the inhabitants of the Southern Gulf Lowlands, even by the Middle Formative period, were fully dependent on maize agriculture.

Further implementation of this method has demonstrated that, in Formative period Mesoamerica, the presence of crop cultivation does not necessarily indicate it is the primary method of subsistence (Blake et al. 1992; Clark 1991; Clark and Blake 1994; Rosenswig 2006). These investigations, based on direct testable data, support the hypothesis that the San Lorenzo Olmec developed social complexity prior to the institution of maize-based agriculture as a primary dietary component. Additionally, Killion (2006) has argued that house gardens and nominal horticultural measures do not mean the society was agriculturally dependent. On a broader basis, the initiation of sedentism and tribal life does not seem to be associated with development of domesticated plants or obvious changes in agricultural techniques (Clark and Cheetham 2002:311). Yet, without direct evidence for maize consumption as a dietary staple, a number of social theorists have implied it was "Olmec" agriculture that led to their rise to complexity (see Chapter 1).

The densest settlement occupation in the history of the lower Coatzacoalcos Basin occurred during the San Lorenzo Horizon (c. 1150-900 BC) of the Early Formative period (Symonds 2000:64). During the pre-Olmec phase (c. 1500-1150), there was a rapid growth of settlements and their associated populations that literally set the stage for the emergence of the San Lorenzo Horizon Olmec. During this temporal period, San Lorenzo appears to be a prototypical example of a central place model. The demographics, monumental sculpture, elite controlled craft production, among other sociopolitical and spatial aspects support this identification.

By the Middle Formative period (c. 900-400 BC), significant social and demographic transformations had occurred, however. Symonds (2000:66; Symonds et al. 2002:figures 4.4, 4.7) notes a 43 percent drop in the number of sites and more than a 90 percent decline in population in the region contiguous to San Lorenzo, and a coeval change in the site types and diminished organizational complexity. San Lorenzo rapidly declined in regional prominence and population as secondary sites moved away from the center (Coe and Koontz 2002:72; Cyphers 1996b, 1997b). During the Late Formative period (c. 400 BC-AD 100) the region was abandoned; only a handful of small sites remained in the area (Symonds 2000:68-69). The reasons for the abandonment of the area remain unresolved. Revolt, invasion, or natural hazards have been cited as possibilities (Borstein 2001; Coe and Diehl 1980a; Cyphers 1994). Changes in the ancient channels of the Coatzacoalcos River have also been attributed to the site's decline (Pérez and Cyphers 1997), and Symonds et al. (2002) conclude the lands surrounding San Lorenzo may have exceeded their carrying capacity.

La Venta

Based on early radiocarbon dating (Drucker et al. 1957) and chronological ceramic crossties from nearby San Andrés (von Nagy et al. 2001), we know that La

Venta reached and maintained its sociopolitical preeminence between approximately 900 and 400 BC. With its initial rise corresponding to the decline of San Lorenzo, the concurrence of dates have led social theorists and others to claim that following the decline of San Lorenzo, its power passed to La Venta (Coe and Koontz 2002:73; Weaver 1993:65). Due to the restricted investigation of La Venta since the 1960s, more is known about its hinterlands than the ceremonial center itself relative to secure chronology and construction sequences. It is, therefore, impossible at this time to ascertain when La Venta actually began its emergence as a major participant in Formative period Southern Gulf Lowland sociopolitical activities and what relationship, if any, existed with San Lorenzo.

The initial report about the site of La Venta in western Tabasco, Mexico, was made following a survey of the region in 1925 by Blom and La Farge (1926). Their account included photographs of a number of monumental sculptures and diagram of the site that illustrated a large pyramidal structure. In the early 1940s, Stirling was assisted by Drucker in his explorations of La Venta. Drucker later resumed investigations and, in 1952, published a book on the ceramics and artwork recovered at La Venta. The following year he published the results of a regional survey conducted near La Venta with Contreras (Drucker and Contreras 1953).

Drucker continued his work at La Venta in 1955, with Heizer and Squier (Drucker and Heizer 1956; Drucker et al. 1957, 1959) in a project that illustrated the scope and scale of dedicatory offerings and caches present at the site in addition to numerous examples of monumental sculpture. Heizer and Drucker revisited La Venta in 1967 and 1968 for further excavations and verified occupation dates through radiocarbon dating techniques (Berger et al. 1967; Heizer 1968; Heizer, Drucker et al. 1968; Heizer, Graham et al. 1968). In 1984, INAH initiated a new project at La Venta under the direction of Rebecca González-Lauck and, in 1988, the La Venta Archaeological Project was established to protect and investigate the site. Her efforts resulted in substantive investigations within the primary civic-ceremonial center and outside the core zone.

The civic-ceremonial center of La Venta is situated atop a natural salt dome that rises well above the surrounding floodplain. In the adjacent lowland zone, over 100 precolumbian settlement areas have been located within a 20 km radius of the site's core; 58 of these have been determined to have existed during La Venta's ascendancy (González-Lauck 1996b:80). In 1986 and 1987, William Rust conducted a series of surveys and excavations in and around La Venta (Rust 1988, 1992; Rust and Leyden 1994; Rust and Sharer 1988). Test units around the perimeter of the La Venta ceremonial district uncovered permanent Middle Formative period settlement features that included urn burials, ceramic offerings, house floors, storage pits, and a serpentine and greenstone workshop (Rust 1988:103, 1992:125).

Using aerial photography of the region, Rust plotted the course of an ancient riverbed associated with the Río Barí that had flowed around the northeast sector of La Venta. Surveys and test excavations located nine settlement areas, five of which had sites demonstrating extended Middle Formative occupations that ranged from 2-12 km away from the main center of La Venta. This evidence indicated a substantial Middle Formative occupation of the ceremonial center and showed conclusively that La Venta was not an empty center, as had been claimed by Drucker, but had evolved into a permanent, domestic settlement (Rust 1992:125; Rust and Sharer 1988:102).

Both the emergence and decline of La Venta as a major Middle Formative period center are associated with changes in the surrounding river systems. Between 1000 and 900 cal BC, elevated river levees and sandy point bars were created by the fluvial action. Population densities reached their peak between 800 and 600 BC, a period when La Venta was surrounded by closely spaced riverside hamlets (von Nagy et al. 2001:3). Around 500 BC, the intrusion of the Grijalva River system affected the course of the Río Barí and affected the development of the Mezcalapa Delta (Jiménez-Salas 1990). These natural events coincided with the significant decline in occupation at the riverine sites and, by 400 BC, the La Venta center and other sites in the adjacent river systems were essentially abandoned (González-Lauck 1996b:75; von Nagy 1999:13).

More intensive investigation of the dense riverine settlement surrounding La Venta indicated that a hierarchal support system was in place. Among secondary sites, differences in architectural remains, imported objects, ceramic assemblages, and subsistence items have been recorded, suggesting a clear differentiation of status in the sociopolitical hierarchy (Pope et al. 2001; Raab et al. 1995; Rust and Sharer 1988; Stokes 1999; von Nagy et al. 2001).

Complexes A and C in the archaeological zone of La Venta are the primary source for information pertaining to Middle Formative period life on the Southern Gulf Coast (González-Lauck 2001:799) (Figure 2.2). The Olmec occupation of La Venta is believed to have ranged from around 1200 to 400 BC (González-Lauck 1996b:73), when the site core reached an areal extent of 5 km^2. A number of characteristics differentiated La Venta from other Olmec sites. Architecturally, La Venta was unique. The site was laid out on a cardinal axis (8º west of magnetic north) and contained multiple elevations that appear to characterize it as a “ceremonial center” – a sacred landscape arranged in accordance with acknowledged tenets of Mesoamerican sacred space (Adams 1997; Freidel et al. 1993:132-137; González-Lauck 1996a, 1997; Heyden and Gendrop 1980:15; Reilly 1999,2002; Stuart 1993). According to these interpretations, the underworld is represented by massive buried offerings of stone, adobe blocks, clays, and sand constructed as giant mosaics and offerings; while pyramids, temples, and monumental sculptures delineated the heavenly cosmos.

The scale of labor-intensive projects conducted during the Olmec occupation at La Venta dwarfed any previous undertakings in Mesoamerica. For example, the stone to produce the 159 monumental sculptures recovered in greater San Lorenzo amounted to 150 m^3 with an approximate weight of 525 metric tons (see Cyphers 2004:12). The acquisition of these materials occurred numerous times over more than a century. At La Venta, the underlying foundation of the southwest platform in Complex A was apparently produced in a single construction episode and consisted of 387 m^3 of cut serpentine stone, weighing an estimated 1,000 tons (Drucker et al. 1959:97). This formation was only a portion of what the excavators referred to as “Massive Offering 1.” There are two additional Massive Offerings in the same court complex (Drucker et al. 1959:128-133). Much has been made of the similarities of colossal heads and thrones present at San Lorenzo and La Venta, but the apparent social perceptions and concepts embodied within these pieces change dramatically. Recently, Clark (2005) has identified significant differences in the art and its presentation at both sites. La Venta leaders depicted themselves as divine-kings, and jade and greenstone, which was practically non-existent at San Lorenzo, was the stone of choice at La Venta. Monumental sculpture was moved

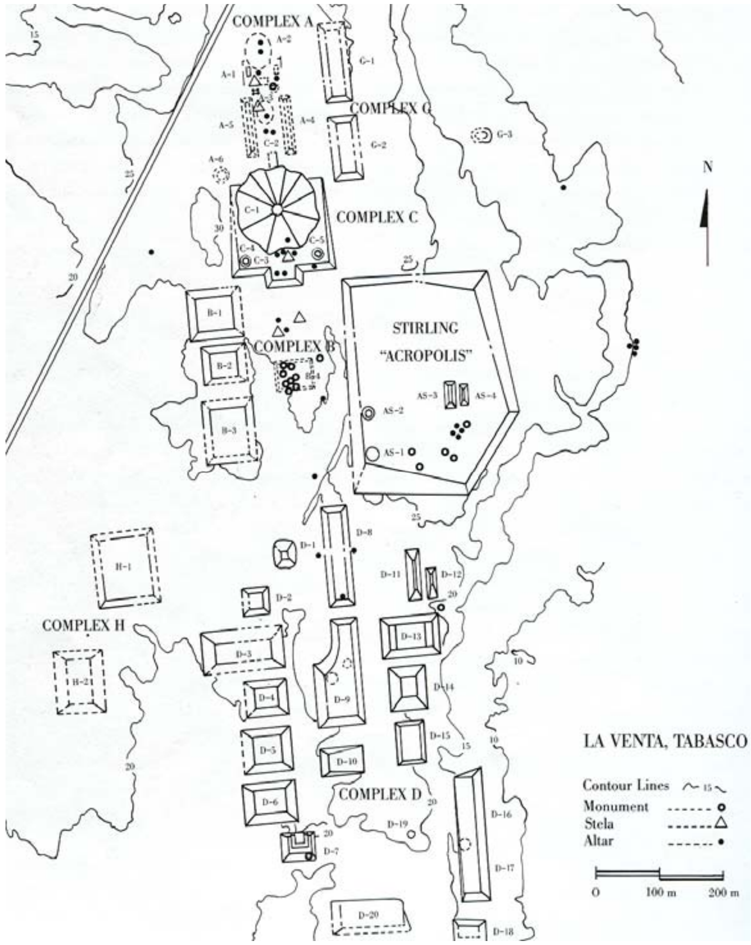

Figure 2.2. Map of central La Venta architectural complexes
(after González-Lauck 1996:74)

and repositioned around San Lorenzo (Cyphers 1997a), while at La Venta carved stelae were permanently implanted in the ground. Details carved into the sculptures were intended for intimate viewing and the communication of ideologies (Clark 2005:214).

The ideas of permanence and kingly authority were carved and painted on boulders, stone slabs, caves, and cliffs (Clark 2005:214-215). A distinctive series of monumental stone carvings were positioned along primary communication routes across Mesoamerica during an interval in the Middle Formative period (c. 900 to 700 BC) (Clark and Pye 2000:227). They contain comparable subject matter, art style, and iconographic detail, and appear to have been rendered according to the artistic canons developed by artisans at the La Venta ceremonial center (González-Lauck 2001:800). The stylistic and iconographic similarities are seen in the portrayal of clothing, headdresses, body positions, and adornments (Clark and Pye 2000:228).

Sculptural examples of this temporally limited and shared art-style are found at Chalcatzingo, Morelos (Grove 1984-68); Amuco, Guerrero (Grove and Paradis 1971); along the Soconusco Coast at Pijijiapan, Tzutzuculi, and Abaj Takalik; at the sites of Xoc, in central Chiapas; Loltún, in northern Yucatan; and the most distant image was found at Chalchuapa, El Salvador (see: Clark and Pye 2000:226-230; Sharer 1978) (Figure 2.3). Paintings found in Juxtlahuaca and Oxtotitlan, Guerrero may be an extension of these carvings (Grove 1970).

These sculptural examples appear to be evidence of exchange and interaction between the people of La Venta and those in distant dispersed locations, and may be indicative of some level of Gulf Coast influence within the territory (Grove 2001:557). The appearance of the stylistically and thematically similar monumental carved stone images may have been a public symbol of participation in the Mesoamerican exchange and acquisition system. Taube (2000, 2004) and Reilly (1991, 1995, 2005) consider various, primary iconographic elements in each of these sculptures as being related to maize.

By the Middle Formative period (c. 900 to 400 BC), corresponding isotopic and botanical evidence indicates that maize was a lesser part of the human diet along the Gulf Coast lowlands (Pohl et al. 1996; Pope et al. 2001). In the nearby Tuxtla Mountains, maize is not seen as a major portion of the diet until the Terminal Formative period (c. 100 BC to AD 200) (VanDerwarker 2006:190). With the wealth of alternative

Figure 2.3. Monolithic Sculptures from c. 970 to 800 cal BC
(Clark and Pye 2000:228; Drucker et al. 1959:217)

terrestrial and aquatic subsistence resources naturally available along the Southern Gulf Lowlands, concerted agricultural production may not have been required or desired (see Blake 2006; Coe 1981; Coe and Diehl 1980a). These data suggest that the inhabitants of San Lorenzo (c. 1300-900 BC) and later La Venta (c. 900-400 BC) may not have been fully agricultural societies. Thus, it is possible that the significance of maize among

Formative period Southern Gulf Lowland polities may have been more symbolic or ritual in nature than subsistence oriented (Blake 2006; Blake et al. 1992; Smalley and Blake 2003).

The scale of La Venta's monumental constructions and labor-intensive projects, craft production, subsistence methods, and long-distance exchange networks demonstrate a centralization of power and authority. The spatial and hierarchal arrangement of residences, specialized craft production areas, subsistence areas, civic-ceremonial architecture corresponds well with the central place model. The temporal duration and geographic scope of the site sociopolitical interaction further support this premise. Nevertheless, further investigation of the residential areas and activity areas in and around the site core is required to develop a more nuanced view of the sociopolitical organization and how it changed over time.

Laguna de los Cerros

"Laguna de los Cerros has long been a source of considerable and unwarranted confusion" (Diehl 2004:47). The Formative period occupation of the site may be the most widely misunderstood event in the investigation of the Southern Gulf Olmec. In many ways, the situation regarding this site can be viewed as a microcosm of the difficulties encountered in many phases of Formative period Southern Gulf Lowland studies. Limited investigations have led to unwarranted assumptions that form many generally held interpretations.

The site has been variously described as a principal Olmec site (Pohl 1999:21; Weaver 1993:53), an Olmec capital (Adams 1997), a primary Olmec center (Drennan 1991:267; Gillespie 2000a:95), and a site comparable to San Lorenzo and La Venta (Soustelle 1984). Other interpretations conclude that Laguna de los Cerros dominated the settlement hierarchy (Santley et al. 1997:203), was one of "the most powerful settlements in the realm of the Olmec" (Feder 2007:432), and was a great Olmec twin capital along with San Lorenzo (Coe and Diehl 1980a:293, 394). All of these conclusions, as to the significance of Laguna de los Cerros during the late Early Formative period, are based on the presence of numerous Olmec-style sculptures and extensive architectural remains.

The site is located a few kilometers south of the present-day town of Corral Nuevo in southern Veracruz (see Figure 1.1). For all of its notoriety, the site has been subject to only two brief on-site archaeological investigations spaced more than 60 years apart (Cyphers 2003; Medellín-Zeníl 1960) and a number of tangential studies of surface collections and artifact re-analyses (Borstein 2001; Bove 1978; Gillespie 2000a; Grieder 1968).

More than 40 stone monumental sculptures have been recovered in or near Laguna de los Cerros. As has been the case in many interpretations of Southern Gulf Lowlands sites, it is these carvings that draw the greatest attention of scholars and the public. At Laguna de los Cerros, the presence of these sculptures and the more than 90 mounds that cover the site have been interpreted as evidence for a large Formative period population (Diehl 2004:47) and have directly led to its assigned status as a major center as pointed out above.

Medellín-Zeníl (1960) found large quantities of late Classic ceramics across the site, including underneath the “Olmec-style” stone sculptures, and for this reason temporarily assigned the site and its contents to AD 600 to 900 (Diehl 2004:47). The ceramic materials recovered by Medellín-Zeníl was re-analyzed by Bove (1978) who convincingly demonstrated that there was also evidence for an Early Formative occupation. As a result of this analysis, he directly associated the Early Formative ceramics with the construction of the architectural remains in which they were recovered. The implication was that the buildings were of Formative period origin and the significant number of carved “Olmec” monuments indicated the site was a primary Olmec center.

In 1997 and 1998, Cyphers (2003:7) conducted dozens of excavations at the site, some adjacent to the locations of Medellín-Zeníl’s 1960 tests. She found that the Formative period material had been used as construction fill for the Late Classic structures. The stratigraphy in the excavations plus burials and their contents indicated that the older Formative material was deposited over newer Late Classic deposits (Cyphers 2003:6-8). Borstein (2001:168) also conducted surveys of the site in 1997 and 1998, and concluded that during the San Lorenzo Horizon, the period of the sculptural corpus at the site, Laguna de los Cerros was a small administrative site.

Various lines of indirect evidence suggest the site was established by inhabitants of San Lorenzo as a subsidiary or support site. For example, the absence of Pre-Olmec ceramics (i.e., Chicarras phase material) at Laguna de los Cerros (Coe and Diehl 1980a:150; Medellín-Zeníl 1960) and the abrupt appearance of diagnostic San Lorenzo pottery (Borstein 2001; Bove 1978; Cyphers 2003:7) suggest that the initial occupation of the site was tied to San Lorenzo. Additionally, the precipitous decline of population in and around the area temporally mirrors the demise of San Lorenzo (Borstein 2001), a situation that further suggests a client-patron relationship. Collectively, these data suggest Laguna de los Cerros may have been a central place but secondary or supportive of another larger or controlling site.

Cyphers (2003:6-8) states that she found no support for any Formative period constructions. On the other hand, the Late Classic Villa Alta phase construction complex presents an entirely different picture of the sociopolitical organization at the site. The stone sculptures attributed to the Formative period had, evidently, been moved by later inhabitants and their method and place of deposition did not appear to follow Formative period protocols for such items. Additionally, whereas San Lorenzo and La Venta are located immediately adjacent to major alluvial river systems, Laguna de los Cerros is positioned on a broad plain between two small streams, Zanja Prieta and Zanja Grande. The closest stream is approximately 1 km from the site, and both drain south-southwest to the San Juan River floodplain. These environmental conditions are not what would be expected for a large, highly populated center. Unquestionably, more thorough and directed investigations are required to elucidate a more accurate depiction of the site and its environs.

Las Limas, La Oaxaqueña, and Ojo de Agua

The sites of Las Limas, La Oaxaqueña, and Ojo de Agua are located upstream from San Lorenzo along bends in the Coatzacoalcos River. Early Formative period pottery has been recovered from all three sites, a basalt monument was recovered at Ojo de Agua, and the famous, iconographically rich greenstone figure was found at Las Limas (Figure 2.4). Mounds constructed at the latter site were assumed to be the result of Formative period activities (Diehl 2004:57-58). The ascription of significant architectural construction to the Formative period along with the Las Limas figure has led to the assumption that this was a major center, lying along the southernmost boundary of the presumed Olmec Heartland (see Figure 1.1).

The only investigation of Las Limas was conducted by Gomez Rueda (1989, 1996), and the majority of his work dealt with surface collection and mapping. Although the San Lorenzo Horizon ceramics indicate an Early Formative period occupation, the site's size and significance cannot be established. Further, as at Laguna de los Cerros, the

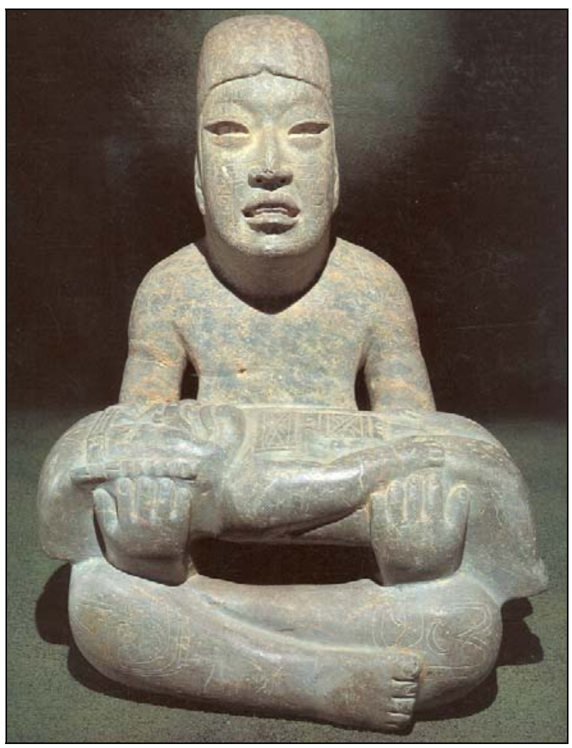

Figure 2.4. The Las Limas Figure (Clark 1993)

Formative period material appears to be construction fill for Late Classic constructions (personal communication, Ponciano Ortiz, Carmen Rodríguez, and Lourdes Hernández, 2005). Thus, the significance of the site may again be exaggerated by unsupported claims.

Little is known about La Oaxaqueña and Ojo de Agua. Cobean (1996) conducted preliminary investigations of the former, where he encountered large quantities of Early Formative period ceramics. He also detected an unusual 10-m-deep by 15-m-wide ditch of unknown significance. No sculptures were recovered there, but at nearby Ojo de Agua a basalt monument was uncovered along with Formative period pottery. Although locational data assist with settlement pattern analysis, the paucity of corroborative evidence does not allow confident statements to be made in regard to site organization, significance or the extent of cultural temporal associations.

Observations on Formative Period Southern Gulf Lowland Sites

The types of brief, preliminary investigations discussed in this chapter for the latter four sites are the norm along much of the Southern Gulf Lowlands. These cursory-type investigations provide clues of what might be present but, unfortunately, do not supply the level of direct evidence required to reach conclusions regarding the degree of participation of these sites in the Formative period interaction spheres. The meagerness of satisfactory data from the region has been recognized and, although recent investigations have generated a broader database, significant types of basic information regarding these ancient people and their lifeways are lacking (see Diehl 2000b). There are multiple factors that have created this condition. For example, essential and fundamental questions regarding subsistence, settlement, political organization, and ideology have either not been specifically addressed or adequately examined. An exception to this condition and a clear demonstration of the significance of this type of investigation is illustrated by the recent work of VanDerwarker (2006) on Formative period Southern Gulf Coast subsistence systems.

The lack of data is not an indictment of the researchers, but an acknowledgement of the limitations of inquiry caused by restricted funding, the limits imposed on field projects, and the lack of an overall investigative design that would contribute to a more focused approach and fuller understanding of the Olmec phenomenon. Stark (1997:10) has noted another difficulty that is shared by numerous researchers in that “many studies remain archival manuscripts and *licenciatura* theses, to which access is difficult for the profession.” In some cases field reports have not been made available to researchers as well.

Nevertheless, for those outside the sphere of Formative period Mesoamerican studies, these limitations have not prevented a diversity of models and inferences to be developed about the Gulf Coast Olmec. There has been much written about the Southern Gulf Lowland inhabitants and the breadth of their application to a variety of social theories has been discussed in Chapter 1. The majority of these models and hypotheses have been formulated from relatively limited direct information derived from the site of San Lorenzo, with occasional reference to La Venta. Therefore, the definition and usage of the “Gulf Coast Olmec” in cross-cultural social theory is based, almost exclusively, on two sites that are temporally and differentially distributed across the landscape.

The transitions that occurred during the Formative period were neither universal nor uniform; they occurred sporadically, in diverse places, and for numerous and varied reasons (Clark and Blake 1994:17). The duration of culturally associated activities exceeded 1600 years (c. 1800-200 BC). Almost invariably, these diverse events are consolidated into a static sociopolitical era based on perceived similarities that are derived from a superficial review of the data. These assumptions have established a conventional wisdom that suggests that unchanging sociopolitical, ideological, and economic systems occurred across space and time. As more data are collected, some of these assumptions of equivalence and uniformity have been shown to be inaccurate and misleading.

Chapter 3. El Marquesillo, Juan Rodríguez Clara, Veracruz, Mexico

Introduction

Prior to 2002, the archaeological significance of El Marquesillo in the Municipality of Juan Rodríguez Clara was restricted to a 32 m high precolumbian earthen mound known by locals as *Cerro de Moctezuma* (Hill of Montezuma). The earliest cartographic representation of the site appeared in an obscure nineteenth century map of unknown provenience. It depicted the monumental construction on the west bank of the middle San Juan River (Hernández 2003:3). The structure is also mentioned briefly in Aguirre-Beltrán's "Pobladores del Papaloapan" (1992).

In early 2002, El Marquesillo was brought to the attention of the contemporary archaeological community when photographs of a carved Olmec tabletop throne (Figure 3.1) were published in *El Liberal del Sur*, an Internet news outlet. This account was made after the monumental basalt throne had been fortuitously discovered by residents of the modern village in late 2001, and documented by Lourdes Herández, an archaeologist with Centro INAH Veracruz, in January 2002.

Evidence produced during the throne's archaeological recovery revealed it was ritually buried sometime during the Middle to Late Formative period (900 to 300 BC). Ancillary investigations suggested that the surrounding site was occupied on a consistent basis for the past 3,500 years, beginning in the pre-Olmec period (c. 1500 BC).

Figure 3.1. El Marquesillo throne with personage seated in niche

Archaeological evidence to suggest significant contact by precolumbian imperialists (e.g., Teotihuacanos, Toltecs, or Aztecs) is lacking. It also appears that early Spanish colonizers along with contemporary researchers also overlooked this region.

Preliminary evidence suggests 3,500 years of occupation began in the Early Formative period (c. 1500 BC) and extends to the present day. To understand this extended period of cultural continuity, it is beneficial to compile as comprehensive an assemblage of data regarding the site as possible. To accomplish this objective, this chapter examines the ethnohistoric, archaeological, and geophysical record of El Marquesillo. The initial section of the chapter describes the physiography of the surrounding landscape and the dynamic natural processes that continue to impact the site. The following section is a chronological assessment of the site's occupation based on regional ceramic cross-ties to well-documented collections that begins with the Early Formative period (c. 1500-900 BC) and continues through the Classic periods (c. AD

300-900). Historical documentation of the Late Postclassic, Spanish Contact, Colonial period occupations is also provided, and it incorporates ethnohistorical descriptions assembled from Aztec tribute lists and Spanish chronicles. Information on local and regional events is then presented for the periods of Mexican Independence, the Porfiriato, and the Revolution. The subsequent section describes the development of the contemporary *ejido* of El Marquesillo during the twentieth century. The final section of the chapter is a detailed account of the incidents that led to the 2001 discovery of the monumental Olmec throne. The 2002 rescue operation and ensuing 2003 investigation are discussed along with a brief overview of the significance of Olmec thrones.

The Physical Geography of El Marquesillo

For 3,500 years the San Juan River has remained a constant, dependable resource for natural and anthropogenic exploitation to meet the physical needs of the human occupants of El Marquesillo. Its waters naturally drew terrestrial and aquatic wildlife, provided the nourishment for vibrant and varied botanical growth, and afforded transport and communication. The unique physical geography of the location has acted as a protector and provider for all its living occupants. It is possible that to the precolumbian inhabitants of El Marquesillo the river and its surrounding landscape were a unifying factor, providing safety and security. To external Classic and Postclassic period cultures, however, the lands and natural barriers that encircled El Marquesillo permitted the region to remain distant and secluded. This assertion is based on the fact that stylistic and political influences from Teotihuacán, Tula, El Tajín, and Tenochtitlán are seen at the outer fringes of the area, but not within this region (Arnold 2003a; Daneels 1997; Diehl

2000a; Stark 1991). This apparent insulation from outside intrusion will be demonstrated throughout the remainder of the chapter.

At El Marquesillo, the San Juan River is the interface between two ecological communities, rolling uplands and low alluvial plains (see Castri 1992). The interface contains a greater than usual range of species, a situation attractive to hunters (see Coe and Diehl 1980, Appendices 1 and 2:157-187 for a comprehensive listing of regional flora and fauna). The west bank of the river, where the site is located, is an elevated prominence of a Miocene Epoch geologic feature that rises 8-12 m above the river (Figure 3.2). The east bank of the river is a low-lying alluvial plain, marked by levees and oxbow lakes. Annual alluvial flooding of the lower east bank creates excellent opportunities for agricultural production that results in high yields, and the inundations overflow the banks and levees transforming the extensive lowlying plains into veritable lakes that, in the past, teemed with aquatic resources (Coe 1981; Coe and Diehl 1980b).

Figure 3.2. Illustration of the cut bank at El Marquesillo. The site is situated atop the bank and is well above the flood stage river levels.

The features of the San Juan are characteristic of a meandering river system: a sinuous channel, a wide floodplain containing abandoned channel segments, point bars or areas of deposition on the convex or interior bank, and eroded banks on the opposing concave side. At El Marquesillo, the site is on the outside edge of the meander, it is on this outside arc of the curve where the water moves fastest. The speed of the water along this bank erodes the channel wall, creating a cut bank. Figure 3.2 illustrates the site of El Marquesillo atop this cut bank.

Figure 3.3 illustrates these features of a meandering river floodplain. This aerial image of the topography at El Marquesillo show the scars left by the meandering movement of the river course. Observation of the ancient channels suggests the maximum distance the river migrated from its present course was less than a kilometer; a distance that should not have caused any significant difficulties for occupants of El Marquesillo. This suggestion is supported by the fact that Formative period occupational areas and Late Classic architectural complexes are basically side by side; a situation that would not be expected to occur if the river course had changed significantly.

Sequent aerial photographs of the same area show the changes in the river channel and its effects on the archaeological site of El Marquesillo. Examination of aerial and satellite imagery of the river at this location indicates that since the early 1970s the river channel has remained constant and followed the 1991 course shown in Figure 3.3. Accounts by long-term residents of El Marquesillo suggest this flow of the San Juan River has remained unchanged since the late 1940s. The flow of the river is south to north or bottom to top in the photos.

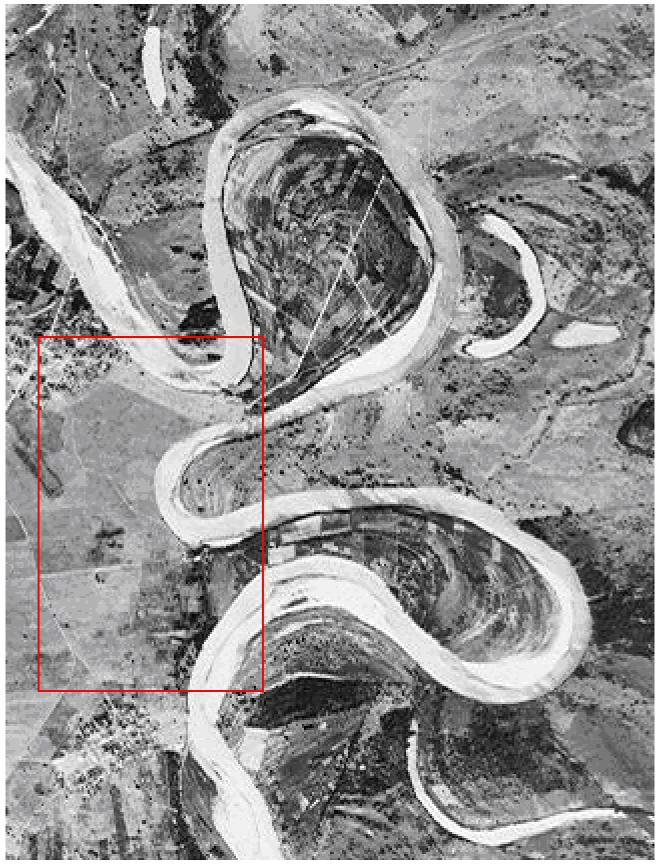

Figure 3.3. Aerial photo of El Marquesillo in 1991. River flow is from bottom to top of the photo, site is outlined in red (INEGI 1991).

In 1994, major changes in the river's course began to occur. Figure 3.4 shows the initial change of the channel in 1994. Flooding caused the channel to flow over the low banks and onto the plain at the narrow neck of the southern (lower) meander, effectively eliminating the loop from the river's flow, and creating a new channel. Figure 3.5 illustrates the same phenomena occurring to the northern meander that residents report occurred in 1998. Today, these bypassed loops have become isolated bodies of standing water called oxbow lakes. The cessation of the river channel into the southern loop or meander followed higher than normal flooding in 1994, and the closing of the northern loop occurred after monumental flooding in 1998. Both these abnormal inundations

Figure 3.4. Aerial photograph of El Marquesillo in 1994. Southern (lower) meander has been cut and eliminated from the river's flow (INEGI 1994).

Figure 3.5. Aerial photograph of El Marquesillo 2000. Northern meander has been cut through and eliminated from the river's flow (INEGI 2000).

occurred in conjunction with El Niño events (Duffy and Bryant 1999). Figures 3.3 to 3.6 illustrate the changing course of the San Juan that directly impacted the site.

Figure 3.6 shows the river in 1991, prior to changes in the course. The channel directly impacted El Marquesillo at three separate locations. This directional flow had been virtually unchanged since at least the early 1970s. In the photograph, letter 'A' indicates the area of the site where both pre-Olmec and Olmec period ceramic evidence was recovered and is considered to represent the earliest extant occupational zone. Letter 'B' denotes where the flow impacted the site where the Olmec throne was eventually exposed. The location illustrated by letter 'C' is where the Classic period Villa Alta phase architectural complex was breached by the collapse of the cut bank.

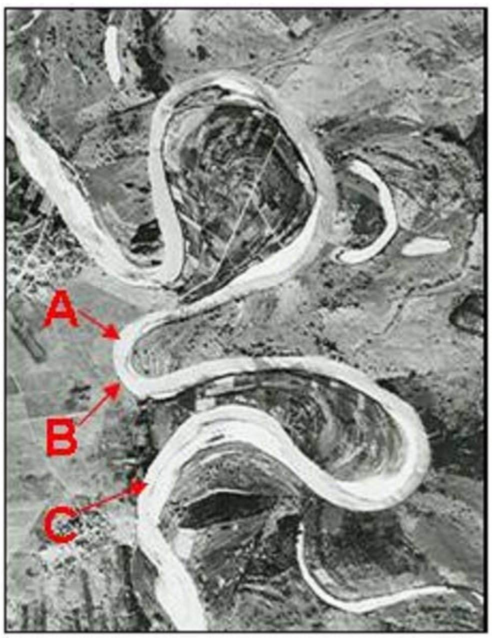

Figure 3.6. Aerial photo of El Marquesillo in 1991. "A" indicates the region of the site containing pre-Olmec and Olmec ceramics, "B" denotes location of the Olmec throne, and "C" is where the Classic period architectural complex is being impacted (INEGI 1991).

At each of these three points of contact, the river current encounters the elevated bank upon which El Marquesillo is situated. The flow of the river destroys the elevated landform by undercutting the banks at their base. The undercut deepens until the weight of the ground above can no longer be supported and a portion of the wall collapses; an effect analogous to the calving of glaciers (Figure 3.7). This phenomenon occurs during flood stage or when the river channel changes.

After the El Niño enhanced floods of 1994, the southern meander at El Marquesillo was cut off and the new channel intensified the destruction along the portion of the west bank that contained the Classic period Villa Alta phase architectural complex (Figure 3.8). The intensive flooding in 1998 caused the neck of the northern meander to be breached, which resulted in the loss of thousands of square meters of land surface at El Marquesillo. The loss included numerous homes of contemporary inhabitants (see Figure 3.7) and extensive archaeological constructions.

The San Juan River is more than a cultural and ecological border, however. Contemporary researchers have used the river as a topographically convenient line at or near which to halt their regional archaeological surveys (Borstein 2001,2005; Killion and Urcid 2001). The river has also been employed as an arbitrary dividing line between cultural and linguistic groups (Aguirre-Beltrán 1992; Delgado-Calderón 1997b,2000). This artificial boundary line has prevented a more complete consideration and understanding of the demographic and sociopolitical development in the region. El Marquesillo is on “the other side of the river,” and its existence has not been anticipated. Locational models and associated hypotheses that were assembled prior to its discovery will need to be reconsidered.

Figure 3.7. Stratigraphic river cut bank. Arrow indicates undercut line that led to the collapse of the upper wall. Note portions of a contemporary concrete house foundation remain atop cut bank (upper circle). Remainder of the slab has fallen to the bottom of the bank (lower circle).

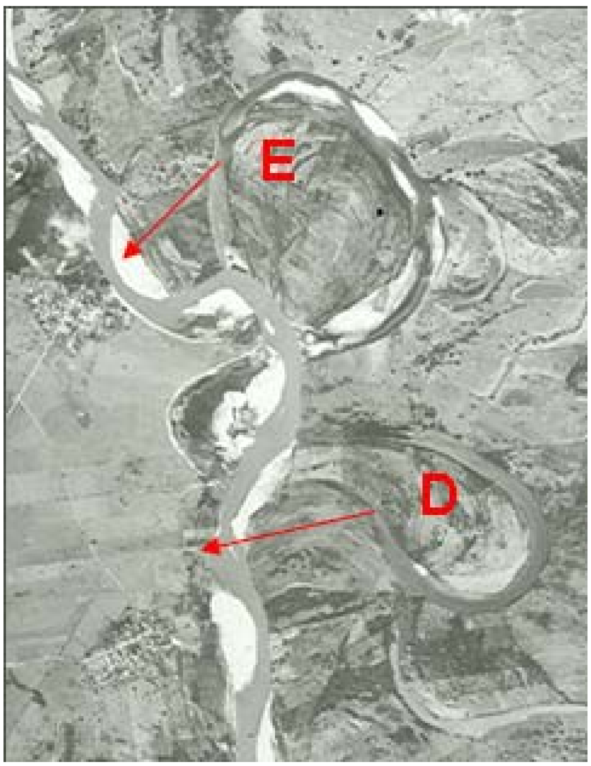

Figure 3.8. Aerial photograph illustrating areas impacted by river channel. ‘D’ indicates the Classic period constructions being impacted and ‘E’ illustrates the location in the contemporary ejido of El Marquesillo, which included numerous precolumbian constructions as well (INEGI 2000).

El Marquesillo's geographic location on the San Juan River provided strategic socioeconomic advantages. For people living in riverine environments, such as those in the Tonala, Coatzacoalcos, Papaloapan, and San Juan River basins, it has been established through archaeological and ethnohistoric data that water transport was the most effective and efficient mode of conveyance (Berdan and Anawalt 1997:113; Coe and Diehl 1980b:54-59; Doering 2002:97; Navarrete 1978; Rust and Sharer 1988; Scholes and Warren 1965:779). Grove (1968:182) contends that Formative period trade nodes were located on constricted passes along routes that were positioned to monitor the flow of goods. A cursory examination of the river network around El Marquesillo demonstrates that its position was a natural hub or focal point for multiple routes that connected a variety of localities, both nearby and distant.

Figure 3.9 illustrates that the tributaries of the San Juan create a broad network linking numerous regional ecological regions. One of the two primary tributaries of the San Juan is the Río La Lana whose headwaters begin at Cerro Mirador, Oaxaca (1536 m asl). La Lana's principal tributary is the Colorado River, which extends to the slopes of Nudo de Zempoaltépetl, Oaxaca (3412 m asl), both of these sources are deep in the Sierra de Juarez in Oaxaca. The second principal tributary to the San Juan is the Trinidad River, which is fed by the Chisme and Puxmetacán rivers. These waters drain the northern slope of Cerro Casa de Piedra (2348 m asl), which is less than 15 km north of the Tehuantepec River. The Tehuantepec flows out of the eastern end of the Valley of Oaxaca and empties into the Pacific Ocean at Salina Cruz.

To the northeast of El Marquesillo, Arroyo Zanja Grande and Arroyo Zanja Prieta flowed past either side of Laguna de los Cerros. These paleochannels resulted from

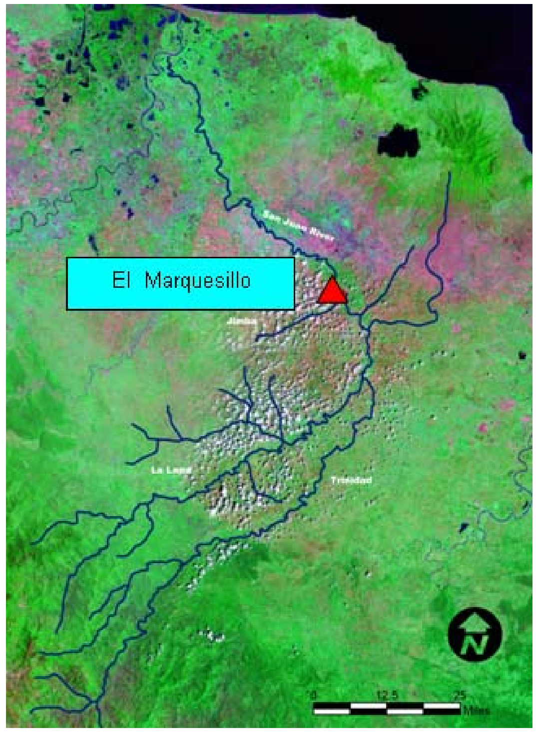

Figure 3.9. Illustration of the San Juan River and its primary tributaries

drainage off the southern slopes of the Santa Marta portion of the eastern Tuxtla Mountain Range. These rivers merged and entered the San Juan less than a kilometer upstream and on the opposite side from El Marquesillo.

The riverine network described lies upstream from El Marquesillo. On the route downstream, the Hueyapan, Zapoapan, and other rivers enter from the Tuxtla region well to the north. To reach the Gulf of Mexico, the San Juan flows through 30 km of perennial swampland before it joins the Papaloapan River at Tlacotalpan. These waters continue into the Laguna Alvarado and out to the Gulf.

The San Juan River System and the unique topographical features at El Marquesillo afforded the residents with a variety of sociopolitical and economic advantages. The following section will describe how inhabitants exploited the resources of the location for more than 3,500 years. Through archaeological, ethnohistoric, and ethnographic evidence the reasons for the continuity of human occupation at the site become apparent.

The Ceramic Chronology of El Marquesillo

The Formative Period (c. 1500-100 BC)

Ceramics recovered at the site indicate that a portion of the land that composes the contemporary ejido of El Marquesillo was inhabited after 1500 BC. Ojochi (1500-1350 BC), Bajío (1350-1250 BC), and Chicharras (1250-1150 BC) phase ceramics (Coe and Diehl 1980a), most in the form of tecomates, were recovered from a single, limited area of the upper embankment of the San Juan River. The quantity and location of these pieces suggest a small occupational area, but consideration must be given to the fact that the river action that exposed this area may have washed away evidence of a more substantial presence. The ceramic chronologies employed are derived from the work of Coe and Diehl (1980:131-222), and Ortíz (1975; Ortíz and Santley 1989).

Numerous examples of Calzadas Carved and Limón Carved-Incised ceramics, diagnostic of the San Lorenzo phase (1150-900 BC), among various other contemporaneous types (Coe and Diehl 1980a), suggest a slightly larger occupation towards the end of the Early Formative period (c. 1200-900 BC). Middle Formative period ceramics (900-400 BC) that correlate with the Nacaste and Palangana phases at San Lorenzo are notably more prevalent and widespread. Numerous types of black and white bichrome vessel forms are present as are variants of the double-line motif, transitioning from continuous to broken-line segments on the vessel rims. The greatest quantity of Preclassic ceramics is attributable to the Late Formative period (c. 400-100 BC). These diagnostic types include multiple varieties of differentially fired bichromes and polished blackwares.

Stratigraphic analysis, conducted during my investigation, of the exposed cut bank suggests that low platform construction occurred during the transition from the Early to the Middle Formative period. The spatial distribution of these constructions extended to the north of the Olmec throne location approximately 500 m.

The Classic Period (c. AD 100-900)

The subsequent proto-Classic and Early Classic periods (c. 100 BC-AD 500) are represented by a continuation in the evolution of the styles, forms, and decorations that developed during the Formative period. Variations of the double-line break continue to be prominent, but there is a notable difference in the pastes and firing techniques. It appears the local ceramic producers were consistently improving and mastering technologies that allowed them to produce finer wares. Similar conclusions have been reached by other investigators (Daneels 1988; Feinman et al. 1989; Killion and Urcid 2001; Pool and Britt 2000; Rice 1977; Stark and Arnold 1997:25; Stark and Curet 1994). At El Marquesillo, the evidence implies that cultural continuity extended into the Late Classic period, which is characterized by Villa Alta phase architecture and ceramics. Villa Alta related materials also appear to be produced consistently into the Postclassic era along the same evolutionary lines. There is no archaeological indication of interruption in the occupation of the site.

The extensive Villa Alta architectural complex at El Marquesillo (see Figure 3.10) is associated with the Late Classic and possibly the early Postclassic period. This type of compound has also been referred to as a long-plaza building complex (Killion and Urcid 2001:11) and, because of its consistent architectural arrangement, is easily recognizable on the landscape. There are significant variations in the scale and complexity of these compounds from site to site, and Killion and Urcid (2001:11-12) have developed a three-tiered site hierarchy from a comparative analysis of the data.

At El Marquesillo, the 32 m high earthen pyramid known as Cerro de Montezuma anchors the north end of a 165 m long plaza (see Figure 3.10). This grand plaza is bordered on the east and west by two parallel range-type buildings rising from 3-8 m in height. A smaller, ovoid-shaped mound completes the restricted enclosure on the south. This plaza complex is located approximately 250 m south of the Olmec throne location.

The central complex and its associated structures are in excess of 50 with a number of pyramidal bases supporting four or more superstructures. The true extent of this portion of the site will also never be known due to the elimination of structures by the river's erosive action. All of the constructions believed to be associated with this Late Classic complex lie to the south and west of the primary plaza group, and all are oriented on a roughly north-to-south axis.

A second, smaller and less complex Villa Alta architectural grouping is located approximately 1400 m northwest of the primary Late Classic complex. A limited, informal survey of the region produced evidence of at least six more Villa Alta complexes within 4 km to the south of El Marquesillo. There are more as one travels in any direction away from the site, but none rival the principal complex in size and quantity

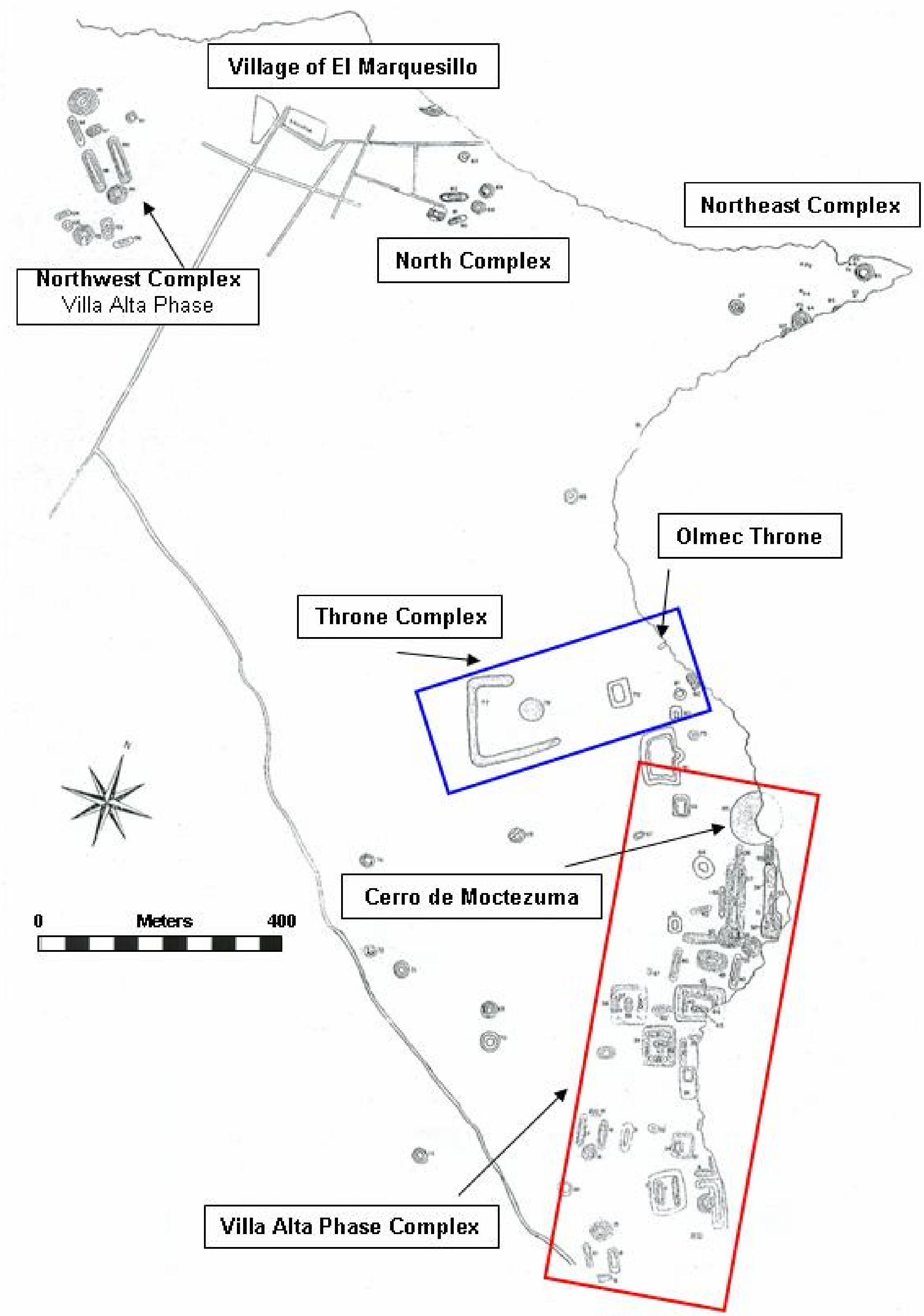

Figure 3.10. Map illustrating the Villa Alta Phase Complex at El Marquesillo (after Campos and Marín in Hernández and Barrera 2002)

of constructions. This formal architectural pattern is documented in central Veracruz (Daneels 1997), the lower Papaloapan drainage (Stark 1999), and throughout the Southern Gulf Coast lowlands (Blom and LaFarge 1926; Ceja-Tenorio 1997; Coe and Diehl 1980a; Killion and Urcid 2001). Although these types of complexes are a Classic period phenomenon, there is debate concerning whether the ancestral roots of this complex design extend back into the Middle Formative period.

Examination of the 400 m long river cut that intruded into the eastern border of the Late Classic period architectural complex does not reveal evidence of any previous occupations under the Villa Alta complex. Materials recovered from the surface collection in and around the complex also do not suggest any prior occupation of this particular space. Conversely, there is no evidence that any Classic or Postclassic period residences at Marquesillo were constructed where the original Early and Middle Formative settlement was established.

The area of the Early and Middle Formative period settlement is located to the north of the Late Classic Villa Alta complex and neither intrudes upon the other. Carmen Rodríguez (personal communication, 2006), a Centro INAH Veracruz archaeologist, commented that she encountered the same directional relationship between Formative and Villa Alta phase constructions at other sites in the Coatzacoalcos drainage including El Macayal and La Merced. In the Hueyapan region, however, Thomas Killion (2006, personal communication) has not found this type of spatial relationship.

Further investigation of this spatial relationship at other sites may prove beneficial because evidence recovered at El Marquesillo suggests that the later inhabitants were aware of the Formative settlement location. A series of Late Classic or Postclassic offerings were intrusively deposited into the basal level of a Formative platform. To date, three discrete offering events have been detected and are detailed in Chapter 5. The content, manner, and depositional placement of the ceramics suggest that the individuals making the offerings possessed knowledge of the specific location and construction of the Formative period structures. The later inhabitants did not build or live on these two Formative period structures; the only evidence of the subsequent inhabitants is these apparently intentionally deposited items. Consideration of the 1500 to 2000 years that elapsed between the construction event and the depositional activity may indicate that the makers of the offerings were demonstrating deference for this ancestral place. If this interpretation is correct, it also suggests occupational continuity and social memory.

The development of ceramic styles and technologies at El Marquesillo occurred over significant time periods and shared form, decoration, and technologies with groups, Olmec and pre-Olmec, located in the Coatzacoalcos drainage to the east. There are not any apparent intrusions of dominating or invasive influences from western external sources, however. Styles, forms, decoration, or iconography from Teotihuacán, El Tajín, Tula, or Tenochtitlán have not been detected at El Marquesillo. These influences appear at sites to the west and north, including Cerro de las Mesas and in the Tuxtla Mountain region (Diehl 2000a:172-173). Possible reasons for this anomalous situation are presented in the following section.

The extent and complexity of the Villa Alta architectural construction at El Marquesillo qualifies it for placement within the upper echelon of regional site hierarchy (Killion and Urcid 2001). During the Late Classic and early Postclassic periods, El Marquesillo was a major center with associations spanning much of the San Juan Basin.

To achieve and maintain this elevated position within the sociopolitical hierarchy would have required significant populations and the requisite organization for monumental construction, extensive subsistence, and productive exchange.

The Postclassic Period (c. AD 900-1523)

Throughout the Postclassic period, El Marquesillo and its environs appear to have been insulated from western aggression. There is no definitive evidence to suggest that Toltec or Aztec authority was ever imposed in the territory. Nevertheless, there does appear to have been an incident of an Aztec incursion near the region in the fifteenth century AD. According to Mexica accounts (Aguirre-Beltrán 1989:46; Berdan and Anawalt 1997:113), following the conquest of the upper Papaloapan River Basin in 1457, emperor and military leader *Motecuhzoma Ilhuicamina* (Montezuma I) sent troops to the Basin's lowlands. One military group made its way upstream along the *Río Michapan* (the Spanish designated San Juan River) but no claim of imperial conquest was made.

Three decades later, the exploits of Emperor *Ahuitzotl* (AD 1487-1502) expanded the territory of the Aztec realm and reasserted control over previously occupied areas. This increased acquisition appears to have been driven by the need for an expansion of income through trade and tribute to compensate for the dwindling economic resources of the empire (Berdan and Anawalt 1992). The emperor focused on the borderland regions, beyond areas incorporated by his predecessors, and possibly pushed near to the lower San Juan Basin, but records indicate this activity occurred well west of El Marquesillo (Aguirre-Beltrán 1989).

A system of *señoríos*, lordships or noble estates, predated even Aztec imperial dominions along the Southern Gulf lowlands (Delgado-Calderón 2000; Scholes and Warren 1965:779) (Figure 4.11). This well-established organization of feudal-type provinces was part of a hierarchal political and economic structure that was adhered to by the Aztec imperialists and adopted later by the Spanish conquistadors. These sociopolitical divisions contained major centers (*cabeceras*), and subsidiary towns (*sujetos*) that supported the centers.

The Aztec conquest of the Papaloapan Basin resulted in the establishment of a tribute collection center and military garrison in *Tochtepec* (Tuxtepec), near the present-day border of Oaxaca and Veracruz. Chronicles refer to the region as the Province of Tochtepec and describe a major tributary town of *Tlacotlalpan*, located on the lower Papaloapan near the Gulf of Mexico (Berdan and Anawalt 1992; Delgado-Calderón 1997b) (Figure 3.11). This province was the southernmost tribute-paying region along the Gulf Coast and may have included the eastern section of the Tuxtla Mountains (Berdan and Anawalt 1997:112-114; Scholes and Warren 1965:777).

The emphasis on the Papaloapan Basin and the Tuxtla Mountain region appears to extend deep into the region’s history. Diehl (2000a:173) speaks of the convergence of “natural communication routes” in these areas by Early Classic traders from Teotihuacán that, “exhibit evidence of sustained Teotihuacán contacts.” From the Early Classic to the Postclassic periods, the overland routes converged along the Papaloapan at Tuxtepec. From this point, they separated; one going south to Oaxaca and the Pacific side of the Isthmus of Tehuantepec, the other following the Papaloapan River north toward the Gulf and then east to the Tuxtla Mountain region. The Aztec *Pocheteca*, or long-distance

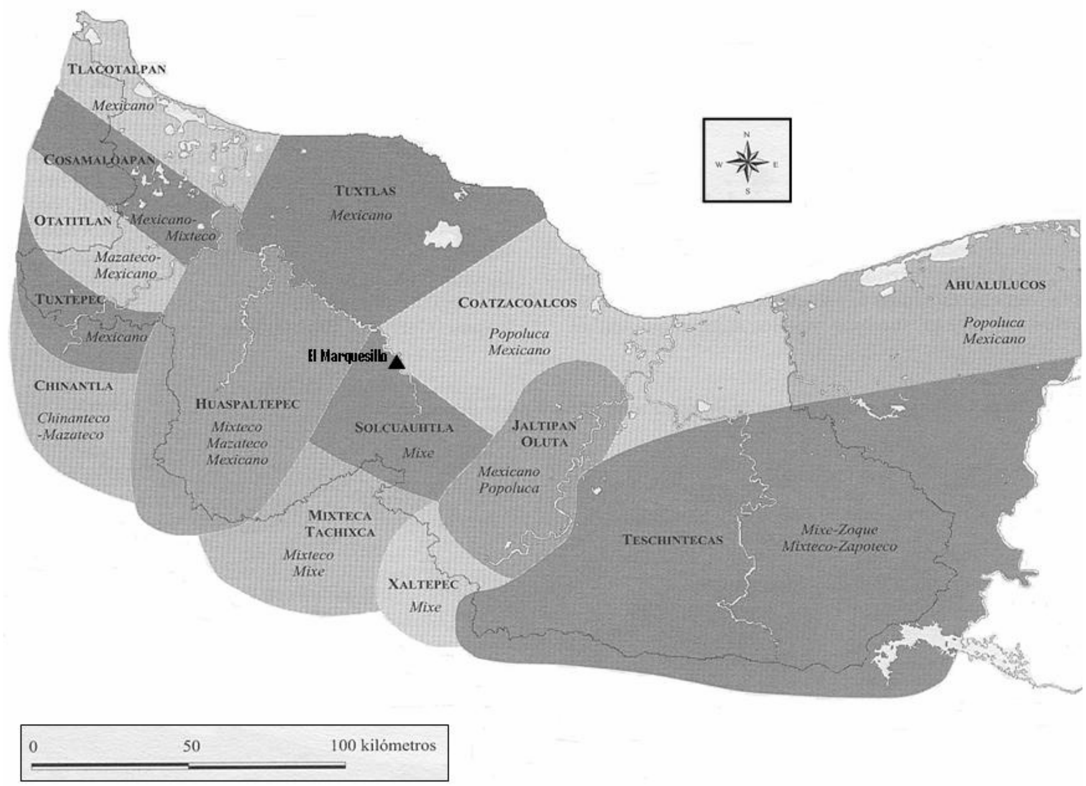

Figure 3.11. Map of the Southern Gulf Señoríos at the time of the Spanish Conquest (after Delgado-Calderón 2000:29)

traders, are known to have followed these same routes (Berdan and Anawalt 1992; Bittman and Sullivan 1978; Coe and Koontz 2002; Scholes and Roys 1948). Additionally, documents indicate that, during the Postclassic period, the region from the Coatzacoalcos drainage to Laguna de Términos was considered by the Aztecs to be enemy territory (Bittman and Sullivan 1978; Scholes and Roys 1948). This situation would indicate areas not included in the imperial domain, and seemingly insulated from exterior influence.

The Coatzacoalco señorío was the largest province in the region and was independent from Aztec imperial rule at the time of the Spanish Entrada (Berdan 1996; Delgado-Calderón 2000:28; Thomas 1993:555-557) (Figure 3.11). The *Solcuahutla* señorío, which included El Marquesillo, was adjacent and subordinate to the autonomous Coatzacoalco (Delgado-Calderón 2000:28). Solcuahutla was inhabited by Mixe and Popoluca speakers. Popoluca is a Nahuatl term meaning “foreigners” or those that do not speak the Aztec language. The Popoluca tongue of southern Veracruz is associated with Mixe-Zoquean languages, which is possibly a descendent idiom of the Olmec and continues to be spoken in the vicinity of El Marquesillo (Campbell and Kaufman 1976; Foster 1940, 1942; Justeson and Kaufman 2003; Scholes and Warren 1965).

Distinctive ceramic sculptural traditions similar to those from El Zapotal, Remojadas, and others from Central Veracruz did not make their way into the regions east of the Tesechoacán River. Stone yokes, hachas, and other stone sculpture that were associated with the rubber ballgame during the Epi-Classic florescence of El Tajín in northern Veracruz are not apparent in the region (see Bradley 2001; Filloy-Nadal 2001; Ortíz and Rodríguez 2000).

Conversely, Drucker (1947:7) argues that during the Formative period the lower reaches of the San Juan River were a “hopelessly uninhabitable morass of swamps [that] prohibited a westward extension of Olmec culture.” He adds that, “while some commerce may have been carried on through the tortuous network of channels that crisscross this no-man’s land, intimate contact…seems to have been made impossible by this geographic barrier.” The conclusion is that only limited sociopolitical interaction would have penetrated through this border region in either direction.

Together, these various lines of evidence suggest that the region encircling El Marquesillo was politically and economically insulated from western imperialist incursions. The Papaloapan drainage is consistently referred to as the eastern terminus of

Teotihuacán and Aztec trade routes, which either turn north or south along the river's course. The Tesechoacan region, immediately east of Tuxtepec, is identified as the eastern boundary of the documented Aztec tribute region (Berdan 1996).

The seclusion of the region may have been reinforced by natural geographical features. Sanders (1971) discusses large tracts of swampy savannahs and perpetually waterlogged areas that prevented contiguous occupations. An extensive 30 to 40 km marshland begins at the confluence of the Tesechoacan and Playa Vicente Rivers and extends eastward. This marshland area, which may have acted as a natural barrier to overland travel, expanded during the annual inundations; its eastern limits are west of El Marquesillo (see Grove 1996:15; INEGI 2003). The sociopolitical geography and topographical features may have combined to insulate El Marquesillo from western influence, while facilitating interaction with polities to the east.

Spanish Contact and Colonial Periods (c. 1524-1821)

Early Spanish chroniclers referred to the *Sotovento veracruzano* as a vast region encompassing the low-lying floodplains of present-day southern Veracruz and western Tabasco (Delgado-Calderón 2000) (Figure 3.12). This area was circumscribed geographically by the Papaloapan River to the west, the Tonalá River to the east, the Gulf to the north, and the Sierra Madre Mountains of Oaxaca and Chiapas to the south.

Following the Conquest, the initial Colonial political and economic organization mimicked that of the Aztec Empire. Territorial divisions within the Spanish colonial Sotovento corresponded with the recognized indigenous señoríos that were encountered during appropriation of lands (see Figure 3.12). Cortés was aware that the region around

Figure 3.12. Alcaldias Mayores of the Southern Gulf Lowlands. In the 16th to 18th Centuries this region was referred to as the *Sotovento veracruzano* by the Spanish (after Delgado-Calderón 2000:31).

the heavily populated Coatzacoalcos lower drainage was beyond the tribute boundary of the Aztec Empire and, in 1522, dispatched Gonzalo (Gustavo) de Sandoval on an expedition to rectify that situation (Thomas 1993:549-556, 2000). Sandoval "founded the *Villa de Espiritu Santo* on the right bank of the Rio Coatzacoalcos three leagues upstream" from the Gulf (Scholes and Warren 1965:777). There, he distributed land and natives to his Spanish counterparts, but the imposition was not accomplished without significant conflict with the indigenous inhabitants. These were some of the first *encomiendas* granted in New Spain, but the Spanish quickly realized the "wealth" of the land was not in the form of gold and silver and later abandoned the region. Therefore, there is little information regarding the native society or related details (Scholes and Warren 1965:778). What was accomplished by this entrada was the introduction of European diseases that rapidly decimated the population.

In other parts of the Sotovento, the secular Spanish administrators ensured that the continuation of the Aztec tribute system would provide a significant source of colonial revenues (Drucker 1970:ix). Colonial tax assessments from 1554 demonstrate that the region was an agricultural breadbasket. A diversity of native products including cacao, maize, beans, cotton, turkey, turtles, and honey were harvested in substantial quantities. The success of exotic crops is evident in the fact that sizeable quantities were being produced within a few decades of their introduction. Oranges, plantains, rice, cabbage, onions, watermelons, sugarcane, grapes, and mangoes became common foodstuffs by 1580 (Coe and Diehl 1980b:14). Cattle, pigs, chickens also proliferated in the region.

The hierarchal authority of these territories or provinces within the precolumbian señorío political and economic system was maintained by the Spanish colonizers. To accomplish this objective, the Spanish practice of erecting governmental and commercial centers on the site of major indigenous principalities (e.g., Mexico City; Merida, Izamal, and Valladolid, Yucatan) (Clendinnen 1989:31-40) was continued in this region, albeit on a smaller scale. Major Spanish mayoral capitals were established to act as provincial headquarters supplanting the indigenous centers that had controlled the same areas. More remote regions, like that around El Marquesillo, were slower to be organized into dependencies or tributaries of the Spanish regional centers.

During the later portions of the 16th century, an administrative reorganization affected the jurisdictional boundaries of the Sotovento in southern Veracruz and western Tabasco. The Postclassic señoríos were merged into a series of larger territories called *Alcaldías Mayores* (Figure 3.12). The lands surrounding El Marquesillo were incorporated into the *Alcaldía Mayor de Coatzacoalco-Acayucan* (Scholes and Warren 1965:776). The governing seat of the province was located in the town of Acayucan, 34 km east-southeast of Marquesillo. Greater control and development of the rural areas were accomplished through a hierarchal hacienda system that was established at locations the Spanish believed would protect and promote their agenda. The placement of these subsidiary political and economic nodes appears to correspond to portions of Late Classic and Postclassic exchange networks in the region (see Killion and Urcid 2001; Urcid and Killion 2003).

The hacienda system served to create economic opportunities for the European settlers, but it also initiated a chain of events that altered the human and ecological landscape. The consequences of these changes continue to be felt within the region to this day. The demographic landscape witnessed the decimation of the indigenous population and the introduction of slaves imported from Africa and the Caribbean (Carroll 2001).

The exceptionally high mortality among indigenous peoples was a result of introduced diseases, epidemics, and the effects of forced labor. Excessive tribute demands, seizure of communal lands, and physical abuses forced the survivors to flee into the Tuxtla Mountains to escape the Spaniards (Cook and Borah 1980). Colonial accounts report that in the region of Coatzacoalco between AD 1521 to 1580 the number of tribute payers dropped from about 50,000 to around 3,000. In the provincial center of

Huaspaltepec (Playa Vicente), between AD 1522 and 1600, 80,000 households were reduced to 12 families living as refugees in the neighboring village of Mixtán (Paso y Troncoso 1939; Tren 1992).

The dramatic reduction of indigenous populations meant that the Spanish would have to look elsewhere for a supplementary workforce if they were to benefit economically from their conquest. Recent evidence indicates that Africans, either as slaves or indentured workers, were brought to Mexico early in the 16th century (Seely 2006). During the Colonial era there were more people of African-Caribbean descent than Europeans in Mexico (Aguirre-Beltrán 1981). Following the encounter, the earliest presence of Afro-Caribes is attributed to Hernán Cortés and his heirs who used forced labor in the Tuxtla area as they initiated sugar production in the region. The imported laborers eventually infiltrated and settled in the region of the Middle San Juan River. Indigenous people were eager to befriend them due to their experience and abilities with European technologies (Delgado-Calderón 1995).

The ecology of the region was also significantly impacted by the implementation of the hacienda system. Following the military conquest of Mexico, the introduction of exotic cultivars and Old World grazing animals initiated the biological conquest of New Spain (Melville 1994). European expansion was facilitated through changes to the environment created by overgrazing, soil degradation, and vegetation replacement. These changes to the Mexican ecosystems directly affected social transformations through a process of land acquisition and indigenous depopulation that assisted in shaping colonial institutions.

Modifications to social and ecological systems occurred in the Sotavento as a result of the large-scale production of sugar cane and extensive livestock breeding. In 1780, more than 200,000 head of cattle and 25,000 horses were distributed among 20 primary haciendas and smaller community ranches (Delgado-Calderón 2000:32). Land clearing for sugar cane fields and grazing lands continued to expand since the middle 1500s and, by the end of the Colonial period, had permanently altered the human and ecological landscape.

The name ‘El Marquesillo’ first appears on registry lists in 1793, and these Colonial period records indicate that by this time, two prominent haciendas, Nopalapa and Solcuauhtla, were established along the Middle San Juan-Michapan River (Aguirre-Beltrán 1992) (see Figure 3.12). Hacienda Nopalapa is 15 km northwest of present-day El Marquesillo, and Hacienda Solcuauhtla is believed to have been approximately 15 km to the southeast. Further corroboration that this is indeed the “El Marquesillo” in question is the inclusion of El Zapote, Cerro del Indio, and Lomas de Hujuapan in the same records. The former are two nearby communities, while the latter is immediately adjacent to El Marquesillo. All of these places are associated with Hacienda Nopalapa.

Expansive cattle ranching and horse breeding took place in the area. This activity required the displacement of an already diminished indigenous population and the importation of enslaved people from the Caribbean and Africa. Census archives from 1793 indicate 53 *vaqueros negros, mulatos y pardos libres* (cowboys who were black, of mixed ancestry, and freed slaves) lived in the Nopalapa and El Marquesillo area (Aguirre-Beltrán 1981; Delgado-Calderón 1995). The family names of these individuals, as listed in these records, include Román, Molina, Romero, Domínguez, and Joachín. Today, families living in El Marquesillo share these same surnames.

Independence, the Porfiriato and Mexican Revolution (AD 1822-1920)

Although Mexico achieved independence from Spain in the early 1820s, the country was not a united entity, and continued political factionalism disrupted the nation (Bueno 2004). This internal conflict allowed colonial economic processes to continue and expand relatively unchanged.

It was not until the Porfiriato, which began in the middle of the 19^{th} century that significant changes began to affect the Sotavento (Garner 2001). The environment along the southern Gulf Coast was further exploited to help finance Mexico's growing economic debt (see Paz-Sánchez 2000). Commercial-scale mono-cropping was instituted, cotton and tobacco production escalated, and the cultivation of traditional crops including corn and beans was intensified.

The hacienda system continued to facilitate economic expansion and the subjugation of the people. Any land that had not been subject to clearing for grazing and agriculture was decimated through intentional deforestation. Ports along the coast were expanded to handle the increase in exports of the land's natural resources. In 1873 alone, 15,810 tons of mahogany, cedar, and other hardwoods were shipped out of the Port of Coatzacoalcos, most going to England and a lesser amount to the United States (Blázquez 1986). Sugar cane production in the region expanded as the forests were cleared.

Economically oriented international intervention throughout the 1800s, primarily by the United States and France (Coe and Diehl 1980b), led to a series of proposals to construct a canal across the Isthmus of Tehuantepec to link the Gulf of Mexico, and thereby the Atlantic, with the Pacific. All these designs naturally centered completely on the Coatzacoalcos River Basin, the most direct route between the oceans and the one of least resistance. Ultimately, Porfirio Díaz inaugurated the Ferrocarril Interoceánico de Tehuantepec in 1907.

By the end of the 19th century, the alterations to the landscape caused by the eradication of forests, forced mono-cropping, and extended grazing areas forced the human inhabitants to adapt to the changing environmental pressures. These changes further altered the regional ecologies and, in turn, negatively impacted the flora and fauna. Exploration and processing of petroleum, another natural resource of the Sotavento, was about to alter the region. Besides a further degradation of the environmental landscape, the petroleum industry would have major social, political, and economic consequences for land use, tenure systems, and social organization (Grayson 1980; Santiago 2006).

The Contemporary Period (c. 1921-2006)

An *ejido*, or communally farmed plot, is a uniquely Mexican method of redistributing large landholdings to farmers too to own for the land (DeWalt and Rees 1994). Under this process, members of the community could petition the government to seize private properties that exceeded specific limits. If the petition was reviewed and accepted, the government would expropriate the land and create an ejido. The Mexican government retained title but granted the community members (*ejidatarios*) the right to farm the land, either collectively or through individualized parcels, or both. The community members had to work the land regularly to maintain the right to use it and could not sell or mortgage the land, but could pass usufruct rights on to their heirs.

Commentary by lifelong residents of El Marquesillo suggest that occupation by extended families existed during the late 19th and early 20th centuries, but that the occupants had no legal claim to the land. In 1936, less than two decades after the Mexican Revolution, President Lázaro Cárdenas del Río began an agrarian reform program that re-invigorated the system of ejidos. This redistribution of land to *campesinos*, or subsistence farmers, was an effort to diminish the domination of the still active and extensive hacienda system that originated in the 16th century (Fallaw 2001). Cárdenas transferred 18 million ha from the haciendas to ejidos, increasing the cultivatable land in possession of ejidos from 13 percent in 1930 to 47 percent in 1940.

Juan E. Franyuti was the owner of the Hacienda Nopalapa-El Blanco in the early 20th century. According to the "Documentos Básicos que Amparan la Propiedad Social y Posesíon de la Tierra" issued by President Lopez Portillo (1939), Franyuti's estate included more than 13,000 ha (32,124 ac). On January 16, 1939, an official request was made to the Republic of Mexico on behalf of the 237 inhabitants of El Marquesillo, consisting of 59 families and individuals, to expropriate 980 ha (2422 ac) of this estate for the establishment of an ejido. This request was granted on May 6, 1939. Under the edict, 60 eight-ha parcels were distributed; one to each family or individual, and one additional parcel assigned to be used for community structures and schools. The remaining 500 hectares consisting of surrounding "fields and hills" were assigned for collective use by the inhabitants (Lopez-Portillo 1939:66-67).

Since at least the late 1800s, the ancestors of El Marquesillo's ejido families had also farmed the low alluvial levees and plains that lay on the opposite bank of the San Juan River, an area that became known as El Remolino. The lands of El Marquesillo were elevated meters above the river, and even at flood stage they were available for dependable rainfed agriculture. Alluvial farming on the low levees and plains on the opposite side of the river were attractive for convenient and substantial agricultural production, but they were susceptible to destruction by the unpredictability of the severity and timing of the inundations. Nevertheless, even with the threat of damage, the exceptional productivity of these low-lying lands induced some families to construct permanent residences there.

El Remolino was an ill-fated *rancheria* on the San Juan's eastern floodplain, immediately downstream from El Marquesillo. Located on a river levee, the residents consistently and successfully cultivated the rich, sediment enhanced soils on the river's floodplains for decades prior to the 1940s. In 1944, the Papaloapan River Basin and its tributary systems were severely impacted by an historically unprecedented inundation.

This monumental deluge caused the residents of El Remolino to flee their settlement. Their homes, fields, and livestock were destroyed. Most sought refuge on the elevated lands of El Marquesillo. Above average annual floods had forced Remolino's residents to leave their homes on prior occasions, but they had always been able to return once the water receded; this time was different. For the most part, the survivors of the great flood settled permanently at El Marquesillo, and they and their families remain there today.

The 1944 flood was a momentous event in the lives of the people and in the establishment of contemporary El Marquesillo. A survey of extant headstones at El Marquesillo cemetery demonstrates the trauma suffered during this ordeal as evidenced by an unusually high number of elderly and juvenile members of the families from El Remolino who died at this time. Memories of the catastrophic episode persist today among the survivors who use the event as a chronological marker.

Agricultural production was the primary attraction for the contemporary inhabitants. Corn production and dairy farming are utilized for both consumption and commerce. Residents, not only of El Marquesillo but, also of neighboring ejidos along the San Juan, prefer the annually inundated lowlands for the growing of crops. They consistently note a significant increase in production for less effort over upland cultivation. They attempt to time their plantings to avoid the annual flooding and balance the chances of crop loss with upland plantings as well. To accomplish this system the residents live and plant on the higher, west side of the San Juan and cultivate the low alluvial east side in all but the flood season.

The effects of the Great Flood of 1944 appear to be receding from the social memory of the younger generation at El Marquesillo. To reduce the time and expense of travel from their permanent residences to their planted fields in the alluvial lowlands on the opposite side of the river, they are building structures that are capable of providing shelter for short durations. Residents also move some of their cattle to graze on the naturally occurring, verdant grasses of the eastern lowland plain and river islets. The dangers of flooding still exist, however. Even with planning and care, crops are destroyed by flood waters and, in 2005 several head of cattle were lost when the river rose unexpectedly. The suddenness of the rising water level left them stranded, and they were washed away before they could be retrieved.

The Archaeology of El Marquesillo

Cerro de Montezuma is a 32 m high pyramid-shaped, precolumbian earthen mound that is a well-known landscape feature to area occupants. According to Aguirre Beltrán (1992:46), following the Mexica conquest of the upper Papaloapan River Basin in 1457, Emperor and military leader Motecuhzoma Ilhuicamina (Montezuma I) sent troops to the Basin’s lowlands. One group entered the *Río Michapan*, the Nahua name for the San Juan River prior to the Spanish designation, and made their way upstream. It may well be that this incursion of Montezuma’s troops affected the naming of the mound, which was probably more than 500 years old when the Aztec army passed by.

The next official mention of Cerro de Montezuma in an archaeological context did not occur until 1998. According to INAH archaeologist Lino Espinoza García (1994, 1998, 2001), the late Señora Cruz Reich Pitalua of El Marquesillo visited him 1994, while he was conducting the *Proyecto Rescate Arqueológico Autopista La Tinaja-Acayucan.* This cultural resource management type project was intended to identify and protect archaeological sites that could be impacted by the construction of a major interstate highway being built approximately 4 km from El Marquesillo. At that time, Señora Reich informed Espinoza that a number of precolumbian artifacts had been found in the area and were being sold by local residents. She also told him that she had appealed for assistance in protecting the site to then President Ernesto Zedillo, because a number of ancient structures, including Cerro de Montezuma, were being impacted by changes in the course of the San Juan River (Espinoza-García 1998:1).

Espinoza visited the site later in 1994 and sketched a partial map indicating the location of some of the more obvious architectural structures. In 1998, he revisited the site and submitted a brief unsolicited report to the Director of Centro INAH Veracruz that described possible detrimental effects of the San Juan River on El Marquesillo, Cerro de Montezuma, and other unidentified nearby sites (Espinoza-García 1998). In this account, Espinoza included a second sketch map made during his 1998 visit. This map reveals that, since his 1994 visit, thousands of square meters of the elevated site, including a five mound architectural complex, had been lost to the river's erosive action. Ironically, the years of Espinoza's visits to the site, 1994 and 1998, are the years of the El Niño enhanced floods that caused significant changes in the course of the San Juan River. At the conclusion of his 1998 report, Espinoza states he believes a survey to evaluate the endangered sites along the river is needed.

A major event occurred in October, 2001, when El Marquesillo resident Señor Angel Barrientos observed what he thought was a stone *metate* eroding out of the upper portion of a 9 m high cut on the western bank of the San Juan River. The stone was located in the ejido land parcel of Apolinar Capetillo. Further investigation by residents revealed a substantially larger piece of carved stone. When it was realized that the piece was actually an artifact of significant archaeological interest, municipal and INAH authorities were notified. The artifact turned out to be a monumental Olmec carved stone throne.

The representative INAH sent to the site was Espinoza García, who confirmed the piece was indeed an Olmec carved basalt monument in his report to the Centro INAH Veracruz director on December 18, 2001 (Espinoza-García 2001). In the first week of January, 2002, after analysis of the report and discussions with the INAH Consejo in Mexico City, Director Goeritz notified Centro INAH Veracruz archaeologist María de Lourdes Hernández Jiménez that she was to conduct the project to rescue the Olmec sculpture.

El Marquesillo Archaeological Rescue Project – 2002

Hernández entered the field less than a week later with a team of archaeologists and a time limit of one week to complete the project. The objective was to remove the sculpture from it precarious perch at the edge of an 8 m high embankment above the San Juan River and move it to a secure location (see Figure 3.13). At the same time, she was

Figure 3.13. Olmec throne exposed at top of elevated portion of the river cut. Spoil heap on lower slope was caused by excavation by El Marquesillo residents (photograph by Hernández, 2002).

to recover as much information as possible regarding the artifact and its deposition. Prior to the arrival of INAH archaeologists, the local inhabitants had cleared the soil along with a significant quantity of archaeological material away from the piece, depositing the fill down the elevated slope.

A grid of 30 contiguous 1.5 m x 1.5 m excavation units surrounding the Olmec Throne was laid out and excavations began. Figure 3.14 illustrates the location and identification of the units relative to the throne. The placement of the units served a dual purpose. First, they allowed a controlled excavation of the area adjacent to the throne that provided significant information regarding the archaeological context (Figure 3.15). Second, the removal of earth permitted the creation of an inclined ramp upon which the throne was moved to secure ground (Figure 3.16).

The rescue of the Olmec throne was successful. The monolithic piece, estimated to weigh in excess of 12 tons, was raised to higher firmer ground and turned upright with the assistance of community members. On January 19, 2002, for the first time in about 2,500 years the personage depicted on the front of the throne was visible to the residents of El Marquesillo (Figure 3.17). Eventually, it was placed in a concrete gazebo specially

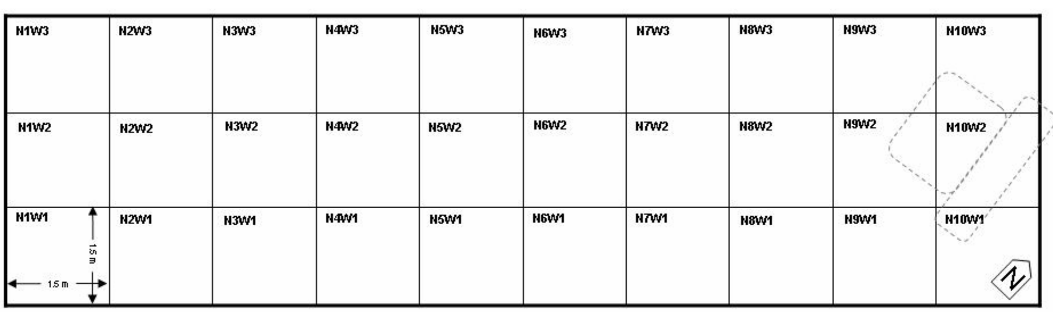

Figure 3.14. Plan view of the Olmec throne excavation units.
Throne position is marked by dashed line.

Figure 3.15. View to the east of Olmec throne excavation units. The red square indicates the throne's location (photograph by Rodríguez, 2002).

Figure 3.16. View to the west of throne being raised on ramp (photograph by Rodríguez, 2002)

Figure 3.17. Photograph of El Señor del Marquesillo on the day of recovery (photograph by Hernández, 2002)

constructed by the residents for the display of the monumental sculpture in the center of the ejido.

A preliminary topographic map of the area was made while the excavations were in progress (see Hernández and Barrera 2002: Levantamiento Planimétrico) (Figure 3.10). A pedestrian reconnaissance of the mapped area, including the exposed river cut, was conducted; a series of architectural complexes (*conjuntos*) were recorded; and aspects of the site and project were documented with photographs. The largest set of buildings at El Marquesillo is the Cerro de Moctezuma Complex, a major Villa Alta-type construction that covers 71.43 ha. This Late Classic to Postclassic compound is oriented on a north-south axis with most associated construction lying to the south and southwest of the main plaza. Ballcourts, plazas, pozos, and a variety of architectural designs of structures and superstructures, all in keeping with the Villa Alta tradition, are present (Killion and Urcid 2001).

The Northwest Complex covers approximately 2.8 ha and lies roughly 100 m west of the ejido's residential zone. The architectural pattern follows the well known Villa Alta phase construction complexes, and is a diminutive version of the main plaza group in the Cerro de Moctezuma Complex. The Northwest Complex differs from that of Cerro de Moctezuma, however, in that it is oriented roughly northwest-to-southeast. The North Complex and Northeast Complex are amalgamations of structures of indeterminate chronology. Ceramic evidence spans the Middle Formative to the Classic periods.

The Throne Complex is so named due to its spatial relationship with the Olmec monumental throne. Preliminary investigation suggests that the complex's construction occurred during the Formative period and may have been the result of more than one construction event. Since the initial survey, remains of other structures and complexes have been recorded.

El Marquesillo Archaeological Project – 2002-2003

Further exploration of the site was conducted by Hernández in November, 2002, and emphasis was placed on the investigation of the Formative period component of the site. She directed the excavation of seven 1.5 m x 1.5 m test units in the area of the Northeast Complex, which produced an excess of 35,000 ceramic artifacts. The determination for the location of these units was based on analysis of the cut bank material. Units 1, 2, and 3 were placed relative to where extensive ceramic deposits appeared in the exposed river cut. Unit 4 was placed near the base of Structure 84, a 6 m earthen mound, and Unit 5 was located near the center of the Complex's plaza. Units 6 and 7 were situated to determine the extent of the ceramic deposition. A systematic collection along the cut bank was also conducted, and the excavation of Offering II at the location of the Olmec throne was completed. Further pedestrian reconnaissance of the site was also performed.

In November and early December, 2003, Hernández conducted a 5,500 m^2 surface survey of the site. A 2,500 m^2 grid was then laid out across the precolumbian portions of the site; time and funding constrictions prevented the inclusion of a greater survey area. The grid was composed of contiguous 50 m x 50 m increments. A surface collection was then conducted across the grid with all cultural material being retrieved and identified according to the grid location in which it was recovered.

Following conversations between Hernández and I, from May to December, 2003, a proposal for a joint project to further investigate El Marquesillo's Formative past was instigated. Based on data recovered by the Hernández investigations, the Marquesillo Archaeological Survey Project was designed.

Regional Summary

Contemporary archaeological investigators have literally ignored the area along the Middle San Juan River, but this deficiency is not surprising given the history of the region over the past millennium. Early Spanish accounts of the Southern Gulf Coast Lowlands and its colonization continually refer to the Papaloapan Basin, the Tuxtla Mountain region, and the Coatzacoalcos and Tonala Drainages, but the San Juan region is rarely mentioned. Historic and ethnohistoric evidence has been presented that suggest El Marquesillo was, for the most part, insulated from external influences other than those emanating from the east. During the pre-Olmec period (c. 1500-1150 BC) and San

Lorenzo Olmec period (c. 1150-900 BC), social, political, and economic interaction appears to occur primarily with the inhabitants in the Coatzacoalcos River Basin. The Middle and Late Formative periods are not as clear, but the demise of San Lorenzo does not appear to have had any lasting impact on the development at El Marquesillo. It is unknown if the rise of La Venta had any consequence for the inhabitants of the Middle San Juan region but, as La Venta declined around 400 BC, Marquesillo entered what appears to be its Formative period sociopolitical florescence.

During the early Classic period, El Marquesillo appears to have been an autonomous settlement. By the Late Classic, occupants of the site were participating in the pan-regional sociopolitical structure referred to as the Villa Alta Cultural Complex (Killion 2006; Killion and Urcid 2001; Lunagómez-Reyes 2004). The presence of the imperial powers of Central Mexico during the middle and late Postclassic (i.e., Toltecs and Aztecs) has not been identified at El Marquesillo. This apparent lack of external incursions may be an effect of the natural protection afforded along the western geographic periphery or the exertion of sociopolitical power instituted by the earlier Villa Alta Complex, or both.

The lands to the west of the middle and upper reaches of the San Juan River have not been investigated archaeologically. Regional surveys have been limited to the areas peripheral to the region, to the west, east, and north (Santley 1992; Santley et al. 1997; Santley and Lunagómez 1991; Stark 1991; Stark and Curet 1994; Symonds 2000; Symonds et al. 2002; Symonds and Lunagómez 1997). There were surveys that looked outside of the Tuxtlas and Coatzacoalcos region but they stopped short of the San Juan River (Killion and Urcid 2001). The closest regional survey used the San Juan River as its termination line (Borstein 2001, 2005). Thus, this region has remained an archaeological terra incognita.

Because the investigative focus has been largely concentrated on the border regions to the north and east of the San Juan River, the accidental discovery of a carved basalt Olmec throne at El Marquesillo was unanticipated, to say the least (see Morales 2002). Diehl (2004:191) considers the consequences that this find may have on Olmec studies. To fully understand the implications of this monumental sculpture, a discussion of Olmec thrones is in order.

Olmec Thrones in the Southern Gulf Lowlands

The settlement patterns, craft production, stone sculptures, and subsistence systems at San Lorenzo during its primacy in the late Early Formative period (c. 1300-900 BC) demonstrate a recurring orientation toward the overt demonstration of social standing (Cyphers 1993; Stark 1993). Based on the documented archaeological evidence it appears that within the San Lorenzo polity size mattered. For example, the San Lorenzo Plateau was clearly a major central place, and at an estimated 690 hectares was by far the largest Early Formative period site in Mesoamerica (Cyphers 2001; Symonds 2000).

A recent compellation of 159 pieces of monumental stone sculpture from the environs of San Lorenzo (Cyphers 2004) illustrates that quantity and size were important factors in delineating a locality’s level within the sociopolitical hierarchy. No other site comes close to San Lorenzo’s 129 pieces. Loma del Zapote is a distant second with 15 pieces, and Estero Rabón has eight recovered pieces. The dominance in size, variety of type, and quantity of each is clear (see Cyphers 2004:Figure 9).

Of all of the monolithic “Olmec-style” sculptural forms, thrones are among the largest and most symbolically laden pieces known, and they are unique to the Southern Gulf Lowlands. Originally, Stirling (1943) had described these monuments as altars but insightful work by Grove (1973) demonstrated the pieces were more likely thrones of leaders; a seat of power. Grove (1999:267) further categorized these sculptures as tabletop thrones and sub-divided them into Type A, which depicts a solitary individual, and Type B, where the primary figure is holding a “baby.” The La Venta thrones (altars), include three Type A (La Venta Altars 3, 4, and 6) are two Type B (La Venta Altars 2 and 5). At San Lorenzo there is one Type A throne (Monument 14) and one Type B (Monument 20), but other modified carved stones indicate a number of other table top altars were subsequently reworked, divided, and recarved (Grove 1999:277). The monument from El Marquesillo is a Type A tabletop throne in Grove’s classification system, and shows no evidence of recarving or reworking for the purposes of reuse.

The variety in size, shape, and iconographic content of Olmec thrones provides comparative factors for deducing the ranking of the throne and, in turn, the site in San Lorenzo’s realm in which it was recovered. Four thrones have been recovered at San Lorenzo, including Monument 14 that measures 1.83 m high x 3.48 m long x 1.52 m deep (Figure 3.18). Monument 20 is another throne measuring 1.67 m high x 2.25 m long x 1.5 m deep. It is possible that this piece in its original form would have rivaled Monument 14 in size, but later modifications have substantially reduced its proportions. Monument 60 (see: Brüggeman and Hers 1970) and Monument 18 are fragments of thrones whose original dimensions cannot be accurately assessed.

Figure 3.18. Illustration of San Lorenzo Monument 14. An Olmec tabletop throne with personage seated in niche (Diehl 2004:39)

Monuments 53 and 17 from San Lorenzo are Olmec colossal heads that were re-carved from thrones. On Monument 53, the remnants of a niche figure are clearly visible behind the head's right ear (Porter 1989). As a throne, the piece would have measured 1.85 m high x 2.7 m wide x 1.35 m deep. Monument 17 contains the same evidence of a niche figure, in this case just in front of the head's right ear and would have measured 1.26 m high x 1.67 m long x 1.67 m deep. Assuming the niche figure was centered on the throne, as in all other known examples, the actual throne length would have been longer by almost a third. The reduction was probably performed during the recarving of the piece.

Only two other thrones, or throne segments, are known outside of San Lorenzo proper; Monument LZ-2 (Cyphers 2004:234-238), also known as Potrero Nuevo Monument 2, was originally said to come from Loma del Zapote (Coe and Diehl

1980a:366-368) (Figure 3.19). It differs from the other known thrones not only in size, but in style, form, and iconographic content. This piece is 94 cm high x 1.29 m long x 64 cm deep, literally half the size of the San Lorenzo thrones. There is no central niche personage, instead two dwarf-like figures support the upper tabletop portion of the throne. Monument ER-8 from Estero Rabón (Cyphers 2004:273) is extrapolated to be almost identical in size to the LZ-2 throne. Only the upper, tabletop portion remains, but its dimensions (1.3 m long, 75 cm deep, and 25 cm high) mirror the equivalent portion on the LZ-2 monument. As well, the style, form, and carved symbols are the same as those on the Loma del Zapote throne. Cyphers (2004:273) contends that Loma del Zapote and Estero Rabón were both secondary support centers that controlled areas of important river junctures, and the size and content of the thrones are indicative of their status within the sociopolitical hierarchy of the region.

The iconographic and symbolic content of these thrones is noteworthy. According to Gillespie (1994), the throne itself is a representation of the earth. The tabletop variety include a niche, which is interpreted as a cave opening into the earth where an individual

Figure 3.19. Illustration of Potrero Nuevo Monument 2 (Diehl 2004:35).

is seated transitionally between the spiritual underworld and the natural world (Reilly 1991, 1995, 1999; Taube 2004). This location places the individual in a seat of supernatural power. Grove (1973:135) asserts that these stone carvings are, in fact, thrones of Olmec chiefs that confirm the owner's divine right to rulership. Gillespie (1994:224) adds that these altars were markers of ancestral sacredness, "material symbols of high-status, kin-based corporate groups whose wealth and rank were associated with the ritual maintenance of ties to suprahuman ancestors."

The presence of this type of altar at El Marquesillo is suggestive of a highly complex society, elevated settlement status, and participation in the Gulf Coast Olmec hierarchal politico-religious system. The depositional position of the altar and associated offerings appear to indicate that the inhabitants of the site participated in ritual practices similar to those depicted at San Lorenzo and La Venta (Coe and Diehl 1980; Drucker et al. 1957). The Marquesillo altar, its ritualistic deposition, and the accompanying offerings are indicative of Gulf Coast Formative period ideological and political concerns (Drucker 1952a; Grove 1999). The discovery of this artifact at El Marquesillo was unexpected, but perhaps it should not be surprising when the site's geographic location on the landscape is considered. Due to El Marquesillo's physical position, it could provide strategic socioeconomic advantages as a nexus for exchange and communication throughout the region.

The significance of the throne at El Marquesillo as well as the evidence recovered in conjunction with its rescue operation demonstrates that the inhabitants of this undocumented site played a role in the Formative period development of the Southern Gulf Lowlands. To better understand El Marquesillo's sociopolitical position and development within the Gulf Coast lowlands of the Formative period, a further coordinated investigation was necessary. Toward this end, a research project consisting of multiple prospection and documentation surveys was devised. The results from the discovery and investigation of the site of El Marquesillo are providing a clarifying piece to the still nebulous mosaic that is the Olmec phenomenon, and are discussed in the following three chapters.

Chapter 4. El Marquesillo Archaeological Project: Prospection Surveys

Introduction

Preliminary formulation of the Marquesillo Archaeological Survey Project occurred in the summer of 2003, following my discussions with Lourdes Hernández, an archaeologist with the Instituto Nacional de Antropología e Historia (INAH) in Veracruz. Hernández was director of the salvage project that recovered the Olmec throne at El Marquesillo in 2002 and continued the investigation of the site in 2003. The new project would build upon Hernández' initial work that is described in the previous chapter and expand the scope of the investigation. The goal was to determine occupational sequences, identify spatial patterns, and assess any evidence for sociopolitical development at the site during the Formative period (c. 1500-100 BC). The resulting datasets could be used to address the type and extent of El Marquesillo's involvement in the Olmec paradigm. They would also offer the ability to evaluate El Marquesillo against models of sociopolitical complexity, organization, and centralization. Furthermore, the various types of data would permit the assessments to be conducted at various scales of analysis and from differing perspectives. Finally, it was anticipated that the results would allow the formation of research questions that would guide future efforts.

A factor that impacted this investigation was a decision by Mexican authorities not to allow any further excavations at the present time. Thus, the challenge was to formulate a research design that would accomplish the objectives of the project without the advantage of a significant investigative tool. The research program consisted of an integrated series of non-destructive survey, prospection, collection, and mapping techniques that detected and recorded the landscape signatures, site constituents, and subsurface deposits (see McManamon 1984). The sections that follow describe the prospection techniques and methods employed in the project and the rationale for their inclusion.

A primary objective of the Marquesillo Archaeological Survey Project has been to expand the research perspective of the project beyond the site level. The purpose was to more fully embrace a broader collection of theoretical and methodological devices that consider the temporal and spatial manifestations of the relationship between humans and their environment in order to better actions and behaviors. Therefore, an approach that considers the entire landscape; regional ecology, geomorphology, environmental history, as well as the biological and cultural diversity, was implemented. Cyphers (1996:63) accurately asserted that "[a]n understanding of the environment is a key to understanding the Olmec way of life. From subsistence adaptations to settlement patterns, the Olmec were meticulous observers of the natural landscape, a talent that fostered their survival and progress." Therefore, if we are to more fully understand the people of the region, it is in our best interest to attempt to appreciate the entire landscape.

In this case, the center of the landscape was the Southern Gulf Lowlands, the "Olmec Heartland," on which the Formative period people lived and produced the archaeological record. But in addition, there was also a broader landscape that impacted their ways of life; one that extended across much of Mesoamerica and introduced technologies, resources, and ideas (Clark 1997; Diehl 2004; Evans 2003; Flannery 1968;

Grove 1997; Tolstoy 1989). Landscapes can be viewed from the perspective of the human presence on the land along with accompanying memories and meanings (Ingold 1993), or associated wholly with the physical topography (Ucko and Layton 1999), or it can be viewed as a combination of social organization, cosmological order, and ideology blended into the natural environment and reflective of the culturally constructed settlement (Ashmore 2004; Barrett 1999; Joyce and Hendon 2000; Smith 2003).

Intertwined in this perspective is the archaeology of place. Through consideration of features on the present landscape that also existed in the past, it may be possible to better understand the ancients' relationship to the land around them (see Ashmore and Knapp 1999b; Basso 1996). Finally, the landscape evolves over time, through natural and anthropic activities. Thus, by it very nature, it is dynamic and should be recognized as a continual series of transformative events across the landscape (Van de Noort 2004; Waters and Kuehn 1996).

Survey and Prospection Techniques

The recovery of data in contemporary landscape archaeology makes use of a range of methods and techniques including ground-based surface and sub-surface surveys, satellite and aerial imagery, topographic modeling, stratigraphic excavations, assessments of the geomorphology, macro and microbotanical studies, and other types of prospection techniques. New techniques were integrated with more traditional methods to expand the capabilities and improve the proficiency of researchers to observe and envisage the landscape. Remote sensing techniques, Global Positioning System (GPS) technologies, and Geographic Information Systems (GIS) in combination with material science techniques have produced changes in survey methods and are transforming modeling approaches (e.g., Allen et al. 1991; Barcelo and Pallares 1996; Conyers et al. 2002; Kvamme 1999, 2001, 2003; Poe 1997).

The investigation of El Marquesillo was an opportunity to examine a previously undocumented civic-ceremonial center whose role within the social and economic landscape of the Formative period Southern Gulf Lowlands was unknown. It was also an opportunity to apply a variety of integrated survey and prospection techniques to document the landscape signatures and constituents of the site and its surroundings. Although the primary focus was site specific, informal surveys were made within a 10 km radius that revealed numerous smaller sites that extended chronologically from the Formative to Classic periods based on surface artifacts and architectural remains.

At El Marquesillo, the topography of the site was mapped using an electronic total station and Global Positioning System (GPS). Subsurface prospection was accomplished through magnetometry and soil surveys. Non-invasive, non-destructive methods were employed as a way to search for the material traces left on the land by human development. Recording the presence and nature of these surface and subsurface deposits generated an initial diachronic picture of settlement pattern organization, allowed recognition of activity loci, and permitted an assessment of the degree to which the site's residents were involved in regional socioeconomic exchange networks and political-ritual ideology.

Determination of the Survey Area

The area included in the surveys focused on the presumed Formative period segment of the site. These spatial limits were determined by analysis of data recovered during the earlier investigations by Hernández (see Chapter 4, El Marquesillo Archaeological Project – 2002). Extensive pedestrian surveys and surface artifact collections in the fields and along exposed river cut bank provided an idea of the spatial layout and limits of the site. The pedestrian surface inspections were conducted by archaeologists and a team of experienced field assistants. Spaced at 5 m intervals, teams inspected the surface of recently tilled fields to determine the extent and distribution of cultural material. The cut bank surveys were conducted from two perspectives. The first was from along the upper edge of the cut to observe in situ deposits and artifacts located in the upper 2 m; and the second was from the base of the cut to recover any artifacts that might have fallen down the embankment. These methods produced reasonable estimates as to the limits of precolumbian habitation. Diagnostic ceramic materials provided differentiation between Early, Middle, and Late Formative period and later occupations.

The contemporary landscape is divided by family-owned *parcelas* or fields that are used for agriculture or cattle grazing, and are demarcated by barbed wire fences (Figure 4.1). The existing division of these fields was used to divide the survey area into smaller segments that were arbitrarily numbered one through eight. This numerical designation was used throughout the project to identify spatial locations of artifacts, features, and survey segments.

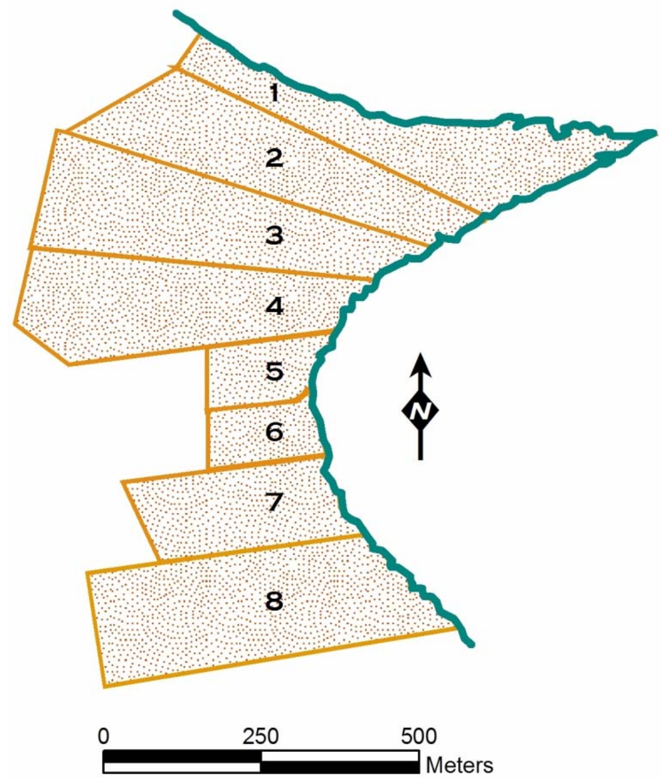

Figure 4.1. Map illustrating surveyed fields of the El Marquesillo Ejido. Numbers denote those used throughout the project, and the blue line indicates edge of river cut bank. Estimated survey area is 550,000 m².

The Formative occupation area was estimated by analyzing evidence produced during the 2002 Olmec throne retrieval and associated test excavations (Hernández 2003; Hernández and Barrera 2002), reconnaissance surveys in May 2003, and a full coverage pedestrian survey and surface collection completed in November 2003. A synthesis of the information garnered from the preliminary analysis of the recovered ceramic artifacts, data from field surveys of the river cut bank, and assessments of the landscape and architectural features led to the determination of the Formative period survey area.

Surface Mapping and Terrain Modeling

The overall objectives for GPS and total station mapping of the topography and terrain modeling at El Marquesillo were to: 1) provide horizontal and vertical control for the site; 2) locate and bound surface features; and 3) collect data with attribute information for merging in a Geographic Information System (GIS). In other words, the collected accurate spatial data could be visualized in a variety of formats. One method is terrain modeling, or the analysis of ground-surface relief and pattern through numerical techniques (Moore et al. 1991; Price 1998). GIS technology enables terrain-modeling results to be combined with other spatial and attribute datasets, such as tabular and descriptive information, which can be linked in the GIS to real-world locational data (Pike 1995). Using the plot by the 'X, Y' coordinate feature in the ESRI ArcMap 8.0 and higher software, survey data from the Southern Gulf Lowlands can be collected, processed, and presented in one integrated format for all surveys. Site locations can be shown using the reported UTM or Latitude/Longitude coordinates that have been processed and brought into the same coordinate system. The combination of spatial data collected from multiple surveys can assist with understanding settlement pattern development and changes across the landscape. Note that on several maps the specific locational coordinates are not shown. This information has been intentionally omitted due to the sensitivity of the site and the potential for misuse of these data. Readers who desire further information regarding this matter may contact the author through the Department of Anthropology at the University of South Florida.

The goals of the site-specific mapping portion of El Marquesillo's project were to: (1) understand the prehistoric site layout with respect to the landscape; (2) integrate the site surveys' spatial data with locational data obtained from other regional and site surveys; and (3) enhance comprehension of the site by understanding the site formation processes and changes in the landscape through time. The various mapping techniques employed at El Marquesillo permit the site to be examined from multiple perspectives. The earliest contemporary map depicting the site was made by Espinoza-García (1998) (see Figure 4.2). These sketch maps, which were included in his 1998 report on the condition of the site (see Chapter 3, The Archaeology of El Marquesillo), were essentially hand-drawn maps that are not to scale and are not completely accurate. These sketches do, however, illustrate a 0.15 km² architectural complex that was destroyed by a change in the flow of the San Juan River between 1994 and 1998. They provide an indication of the extent of the land loss during this period caused by the natural movement of the river.

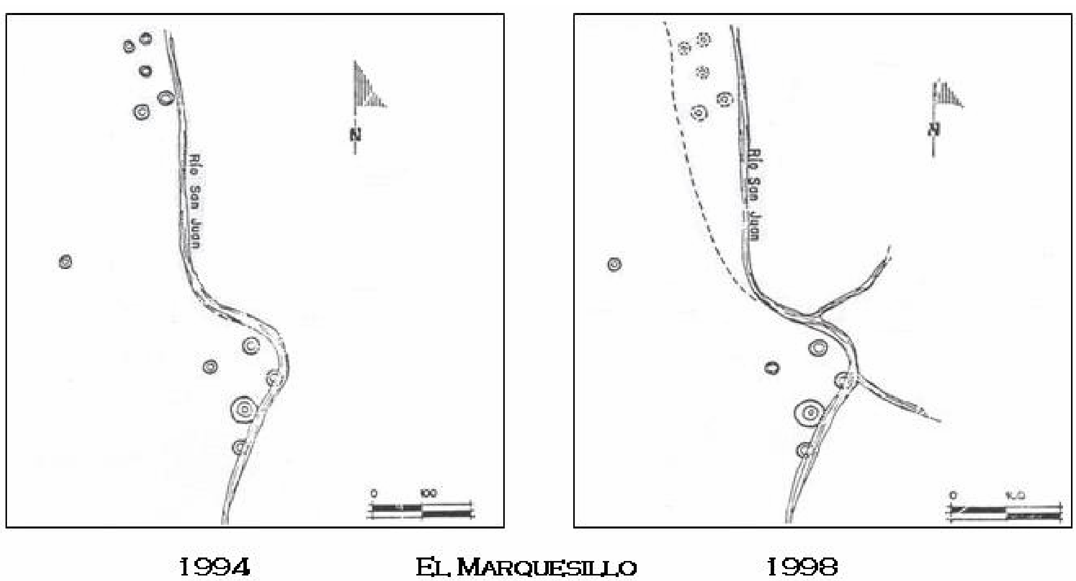

Figure 4.2. Sketch maps of a portion of El Marquesillo in 1994 and in 1998. The broken line in the 1998 map marks a 0.15 km² architectural complex lost during a collapse of the embankment over a four-year period (after Espinoza-García 1998).

Global Positioning System (GPS) Mapping

During the 2002 Olmec throne rescue and recovery project, a topographic map of the site was assembled by Campos and Marín (see Hernández and Barrera 2002:Figure 6) (Figure 4.3). This drawing was based on coordinates produced from a handheld land navigation GPS; the map proved to be a valuable tool in planning the 2004 field season. The handheld equipment is effective for navigational purposes but does not afford the precision or accuracy for most mapping applications (Garmin 2005). The horizontal accuracy ranged from approximately 10 to 30 m, with no fixed vertical or elevational data used.

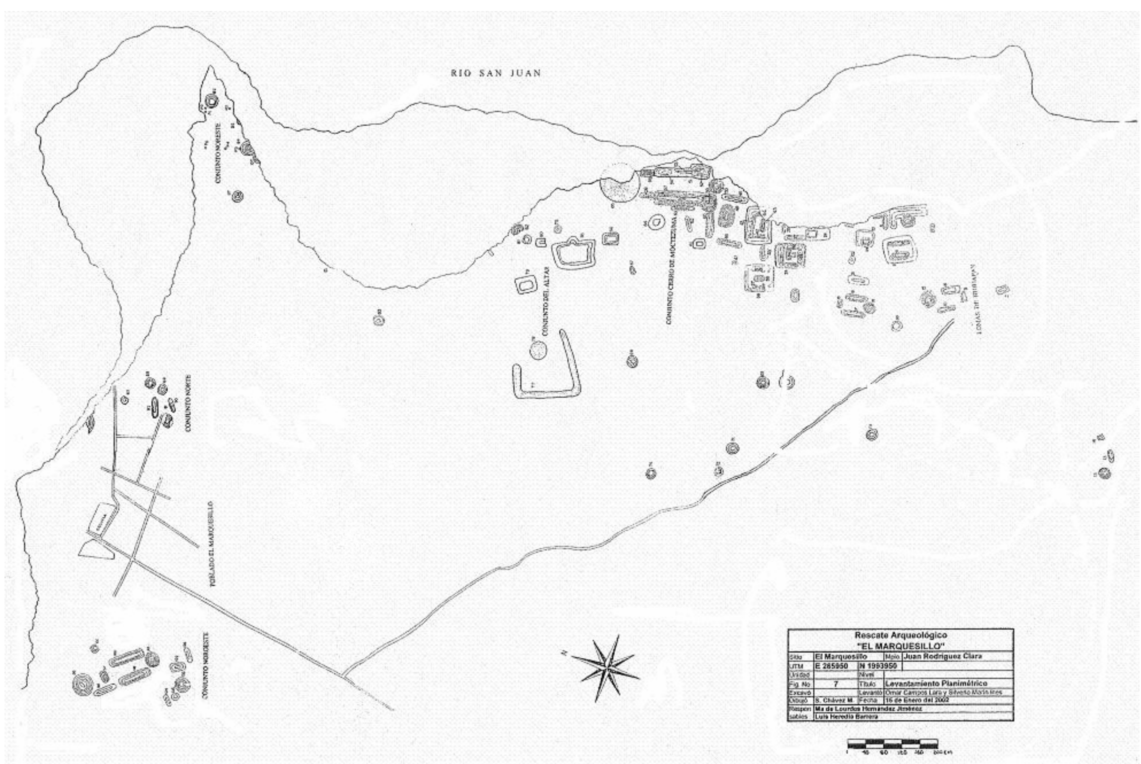

Figure 4.3. Map of El Marquesillo created by Campos and Marín Inés (Hernández and Barrera 2002:Figure 6).

Campos and Marín identified structures and features on their map and assigned them numbers 1 through 107. The numbering sequence is for identification purposes only and has no association with the feature’s spatial or temporal position. This system was used and supplemented in this report. The identification of additional structures documented during the current project begins with number 108.

A Leica GS20 GPS data collection unit was used during the 2004 field season and, in 2005, a Trimble Pro XR GPS unit was employed; both are mapping-grade GPS equipment. Mapping-grade GPS provides sub-meter accuracy and allows the collection of data not only as points but also as lines and polygons (Trimble 2005). Data collected by these systems can be integrated into Geographic Information Systems that permit correlation of aerial photo imagery, and geo-referencing of site locations (Magellan 2005).

In 2004, GPS coordinates were acquired at all survey locations. The edge of the river cut bank, fence lines, field boundaries, and apparent architectural features were delineated and recorded, as were the spatial locations of the Olmec throne and the soil survey test areas. The GPS was used throughout the magnetometer survey (Figure 4.4), and the location data layers were merged with the magnetic data to produce a spatially accurate map (see Magnetometer Survey section in this chapter).

During the 2005 field season, mapping grade GPS was again used to locate the control points for the total station topographic mapping segment described in the following section. The GPS unit used during this portion of the project was a Trimble Pathfinder Pro XR mapping grade receiver that provides real-time, submeter accuracy for regional and site-level surveys. The rover capability is ideal for large scale projects and

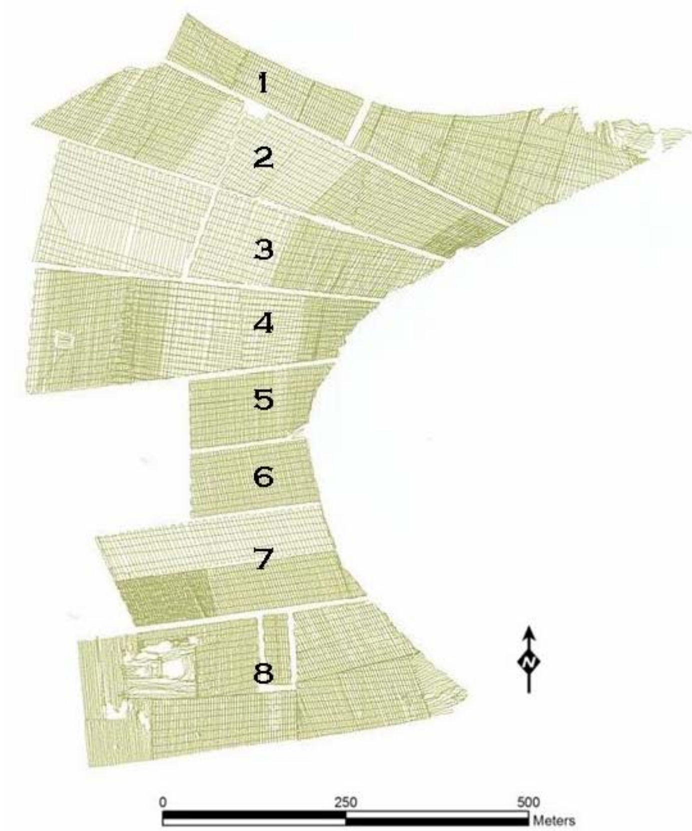

Figure 4.4. Map of El Marquesillo generated from GPS data. Data were collected simultaneously with the magnetometer survey and depicting walk lines of the survey coverage. Coordinates withheld by author.

complements other survey methods employed. The TSC1 datalogger utilized a manual 3D position mode and collected a minimum of 60 points at each acquired location.

Trimble planning software was used to determine the most advantageous satellite position information and appropriate duration and optimal times of data collection. This feature was important because satellite geometry and coverage was poor during certain times of the day when GPS activities were planned, and modification to the schedule was made to allow for collection during peak satellite coverage times. Real time corrected GPS location data are not always available for the site survey area, so differential correction of collected data was conducted during the post-processing procedure as a method of removing human-made and natural errors that affect GPS measurements. This differential correction post-processing of the data allowed for a more accurate rendering of location data collected, with corrections made using base correction data found through Pathfinder Office 2.9 software for the project area vicinity.

I used a Garmin eTrex Venture hand-held navigational GPS unit during my 2003 field reconnaissance survey to collect location data of specific site features. Comparison of these points with corrected mapping grade GPS data showed horizontal coordinate errors ranging from 10 m to 40 m error that can be exponentially increased with each point acquired. This comparison illustrates the need to: (1) define the locational accuracy required or desired; (2) fully understand existing field conditions (e.g., canopy vegetation and other types of signal interference or distortion); (3) consider the actual availability of enhancement techniques (e.g., Wide Area Augmentation System [WAAS]), ground stations, etc.); and (4) recognize the limitations of the techniques employed.

Electronic Total Station Mapping

Total stations are “highly accurate, distance-measuring electronic theodolites that are capable of diverse mapping and position-measuring tasks” (Rick 1996), and work efficiently on variable scales of landscape survey. They are effective on a small local scale, for example in the locating of excavation units and recording archaeological features and artifact locations. Total stations are used in conjunction with GPS to gain horizontal (GPS) and vertical (TS) control for the site. On larger scales, total stations have the potential to record points across an entire region with all points recorded to within 2 cm accuracy (Rick 1996).

In 2005, a Trimble 5503 Direct Reflex (DR) Standard Laser Total Station was employed to provide sub-meter vertical location of the topography of El Marquesillo. The data were combined with the GPS horizontal locations to fix the site spatially and relate coordinates collected to real-world positions. Figure 4.5 illustrates the total station set-up locations used in the survey. Each of these set-ups, or control points, is identified by the designation MQCP (El Marquesillo control point) and its corresponding number. Each green line extends from the control point on which it was taken to the data point acquired during the collection.

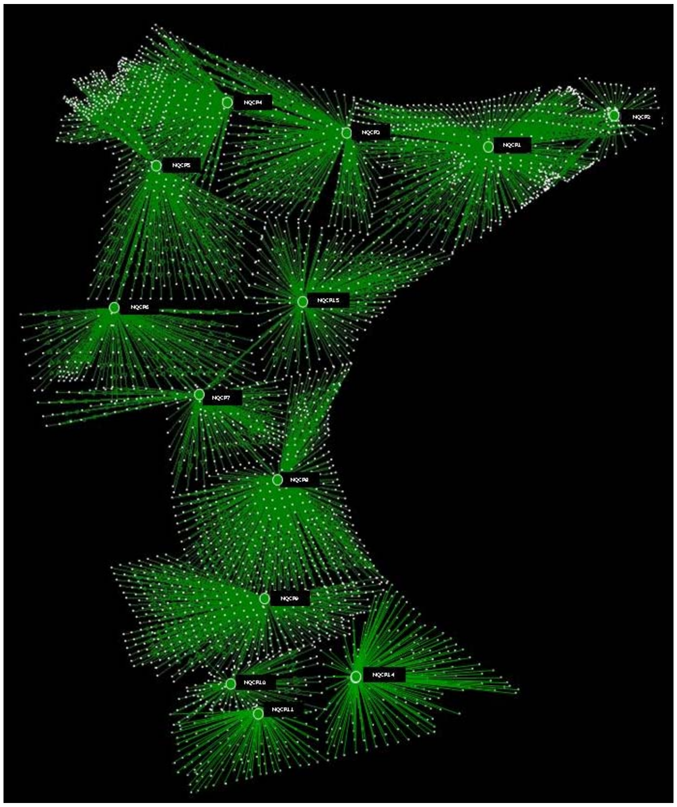

Figure 4.5. Vector map showing total station control and data acquisition points, coordinates withheld by author.

The total station was used to collect X, Y, and Z coordinate points, which were imported using Trimble Geomatic Office. Terramodel Software was used to process those data to produce a variety of map types. Figure 4.6 illustrates two examples; on the right is a point coverage map overlain on the contours, and on the left is a standard topographical map with elevation interval lines. Once the contour data are processed, topographic Digital Terrain Models can be developed using Terramodel 3D Visualizer software. Figure 4.7 displays images captured from oblique perspectives in a three dimensional interactive model of El Marquesillo. Data were also exported into an ArcView shapefile format for use in the ArcGIS software platform to combine the site-level spatial data with other regional survey data.

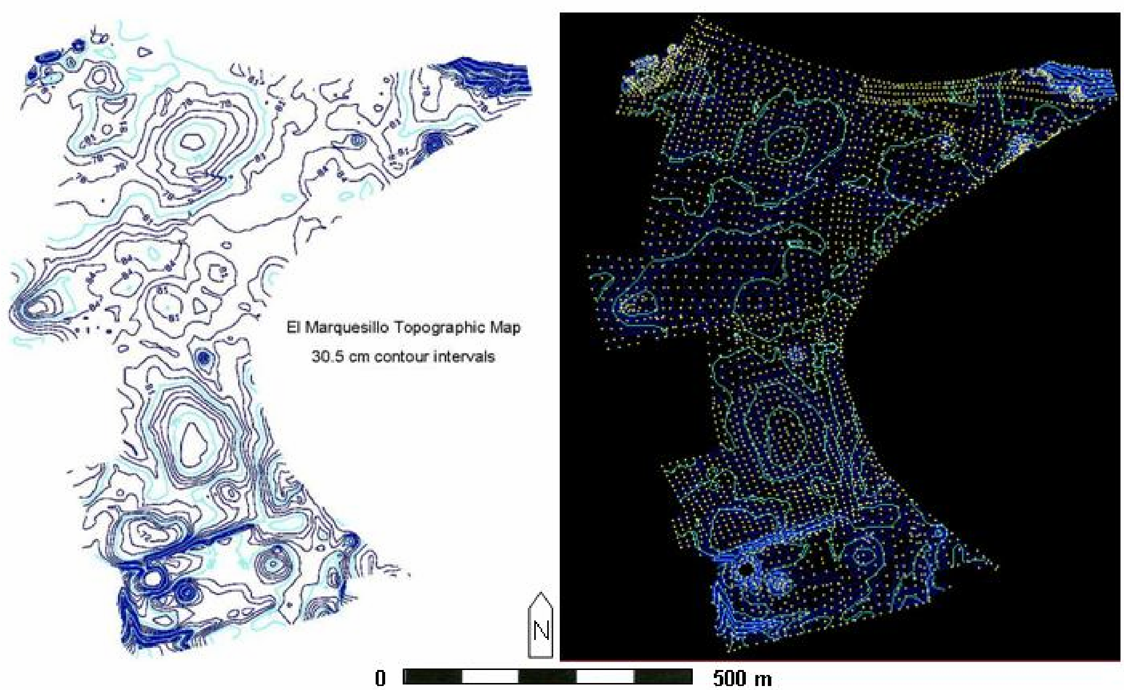

Figure 4.6. Maps generated from total station data. On the left is a standard topographic contour-line map, and on the right is a point coverage map. Coordinates withheld by author.

The topographic images and terrain modeling produced by the technologies employed during the project at El Marquesillo permit a visualization of the site that has not been previously attainable. In the field, it is difficult to perceive subtle variations along the surface due to distance and ground cover. A benefit of the total station mapping data was the ability to enhance elevations across the site to visualize better surface features and contours. Examples of the variability in visualization are illustrated in Figure 4.7.

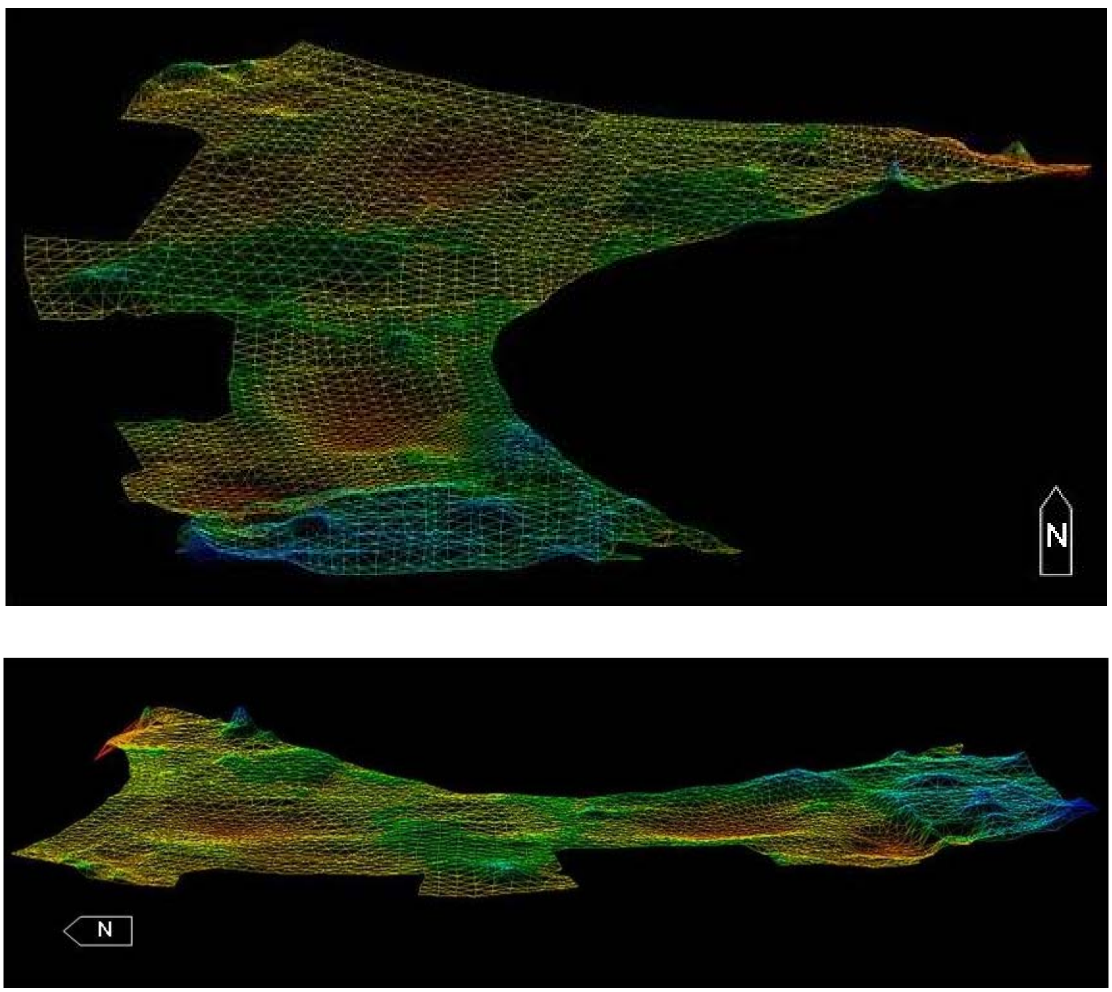

Figure 4.7. Two oblique views created from a 3-dimensional digital terrain model of El Marquesillo. Coordinates withheld by author.

The Throne complex is represented in blue at the bottom of the upper image and to the right in the lower one. In these images the elevation and volume of this complex can be discerned. In the field, however, it is difficult to fully comprehend and appreciate the nature and extent of this feature due to it sheer size, the land's natural topography, and the vegetative cover.

Architectural and Natural Features

The Surface Mapping and Terrain Modeling procedures produced details and unique perspectives of various natural and architectural features at El Marquesillo. Figure 4.8 is a different digital terrain model (DTM) that illustrates these features in a plan view. The range of color enhances visualization of the elevations and prominent architectural structures can be identified. The lowest surface areas are depicted in red and transition to a blue, which represents the highest elevations. These heights and depths are relative to the average surface level determined through the collected data points and are illustrated in the color scale. In this case, the low point is 8.99 m below the average surface level and the highest point is 8.08 m above.

The Northern Area

In the survey of El Marquesillo, the bottomland is adjacent to Structure 86 in Field 1, a sloping area that represents the natural land contour that has been relatively unaffected by actions of the San Juan River. The placement and form of Structure 86 is notable. Figure 4.9 demonstrates that the south side of the mound is level with the plaza. The north side, however, follows the natural downward slope of the land continuing to a

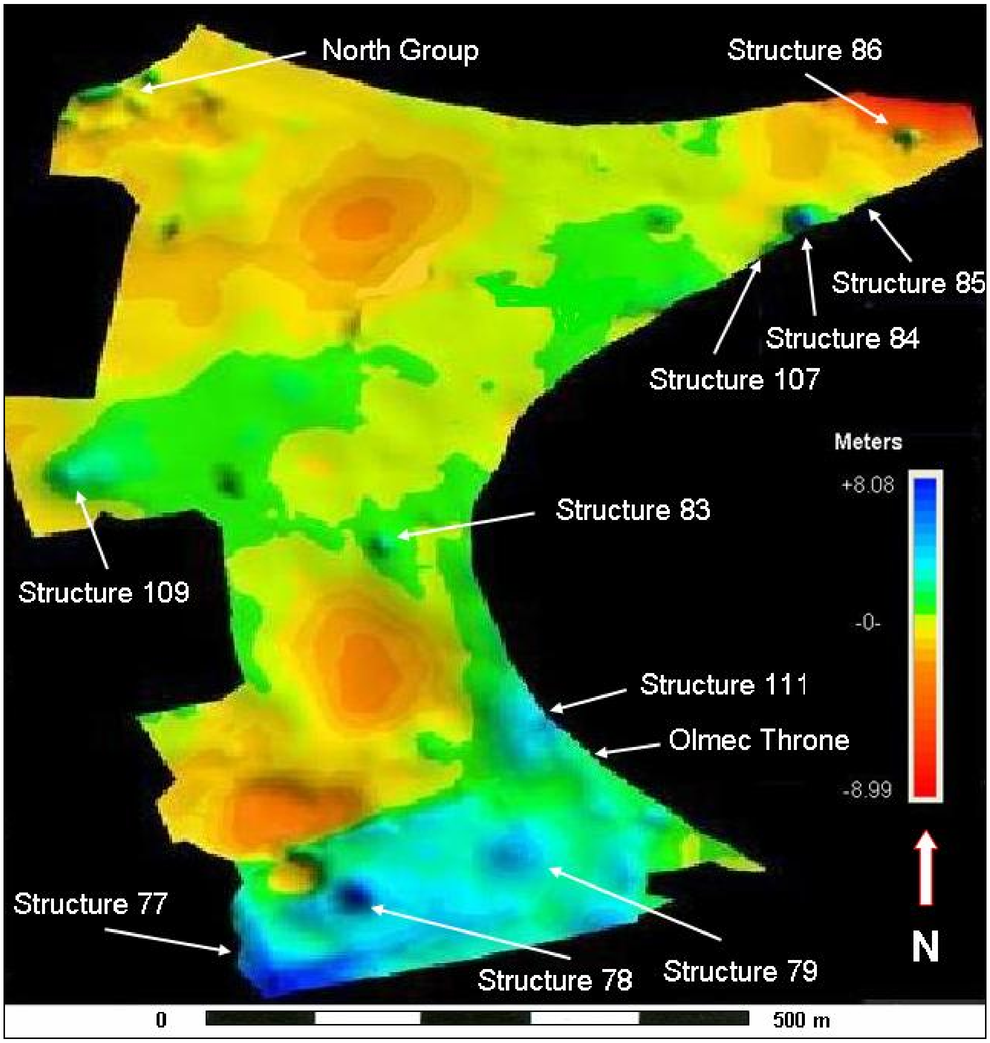

Figure 4.8. Digital Terrain Model of El Marquesillo with significant structures identified, coordinates withheld by author

Figure 4.9. View of Structure 86 looking east. Note south side of mound is at the plaza level, but north side follows the sloping surface contour.

lower elevation. Thus, the mound literally straddles the changing surface contour. This extant topography may be representative of the landform as it existed along the northern edge of Field 1 during the Formative period, prior to the erosion of land due to changes in the course of the San Juan River.

Approximately 100 m southwest of Structure 86 is a 7 m high pyramidal mound, Structure 84. This mound is being destroyed not only by the undercutting caused by seasonal flooding but also by rainfall runoff and cattle grazing, which have damaged the structure and further weakened the structural integrity of the embankment. Figure 4.10 is a view of the embankment directly below Structure 84 from river level that demonstrates the continued slumping of the river cut profile. The last vestiges of Structures 85 and 107 lie to either side of Structure 84 and may be completely removed by erosion in the coming years. These three structures stand atop a broad, low platform that can be seen in Figure 4.11, with Structure 85 on the extreme left, Structure 84 prominent near the center, and Structure 107 barely visible near the tree on the right.

Figure 4.10. View to the west of slumping embankment containing portions of Structure 84

Figure 4.11. View to the east of low platform supporting Structures 84, 85, and 107

The North Group, identified in Figure 4.8, is a complex of five or six earthen structures, some partially destroyed when portions were mined for construction and road fill. The location of contemporary residences prevented complete mapping coverage, but ceramics in the structures' construction fill were portions of tecomates from the Formative period. Two parallel long mounds, approximately 3 m to 4 m high and 3 m apart, correspond to the plan of an early Mesoamerican ballcourt (Taladoire 2001).

Structure 109 was not depicted on the 2002 site map by Campos and Marín. The 4 to 5 m high structure is detached from other structures. The building is a rectangular, truncated pyramidal platform with rounded corners and roughly a 15 x 15 m level summit area. The most notable feature of the structure is a ramp on the east side that begins at the top of the platform and gradually descends over a distance of close to 100 m. To the east-southeast, at a distance of 200-250 m, is Structure 83. This is a solitary 1.5 m high mound that is approximately 7 m in diameter. Within 10 to 20 m north and east of this mound are three or four low, 0.2 m to 0.3 m high gradual rises that may have been building foundations.

The Olmec Throne Architectural Complex

This architectural complex is composed of a series of earthen structures that are spatially associated with the depositional location of the monumental Olmec Throne (Figures 4.12 and 4.13). The primary structure is a long platform that extends approximately 300 m from the edge of the river cut bank to the west-northwest. Figure 4.12 is a Digital Terrain Model of the Throne Complex that demonstrates the immensity and form of the foundational platform structure. Almost certainly, the eastern portions of this structure have been lost to the river. This foundational platform is 170 m wide and supports six circular earthen mounds, the distinctive U-shaped Structure 77, and Plazas I and II. In profile from the north, the Throne Complex Platform creates a wedge-shape with the upper surface level and the base sloping downward following the natural contours of the land as it extends away from the river cut. Thus, the eastern end of the platform, nearest the river cut, is raised above the natural ground level only 0.5-1 m.

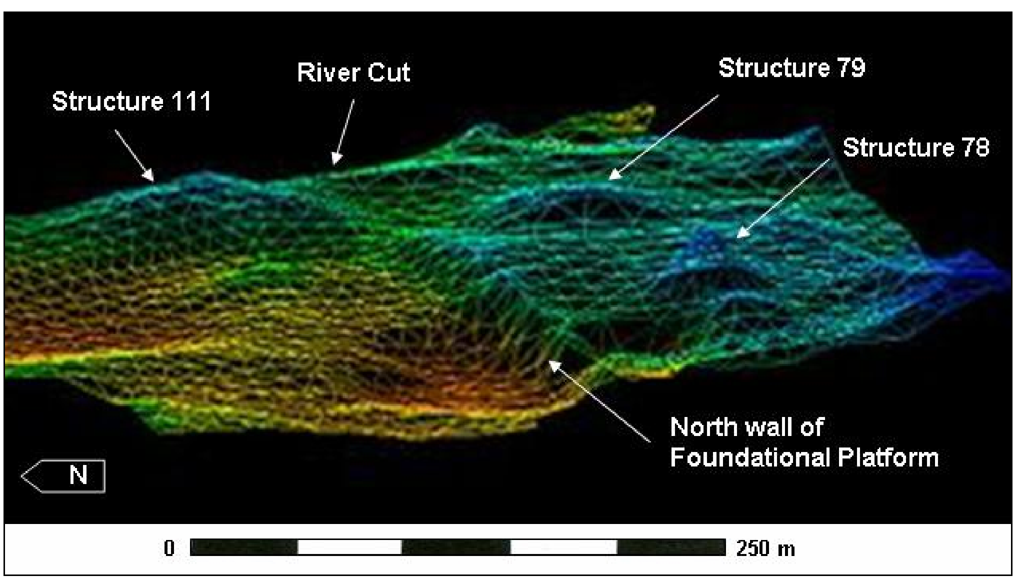

Figure 4.12. Digital Terrain Model of Olmec Throne Complex and Structure 111. Coordinates withheld by author.

The western third of the platform has been artificially raised to a height of up to 6 m. The south side of the platform takes advantage of the natural rise of the land; thus, minimizing the fill and labor required to level that portion of the structure.

A substantial architectural structure that sits atop this platform is Structure 77, a U-shaped mounded building that bounds the western limits of the complex. For descriptive purposes, this structure is designated 77a, b, c, and d (see Figure 4.13). The north (77a and 77b) and south (77d) arms of the structure define the northern and southern limits and 77c the west boundary of the Throne Complex. Each of these constructions has elevations that rise 2 to 5 m from the enclosed court floor. The opposite or exterior portion of Structure 77 range from 1 to 6 m above the surrounding ground elevation. Figure 4.14 is a view from the southwest corner of the structure looking north along the top of the west mound and offers an example of the nature of the earthworks that compose the structure. The line of trees at the upper right of the photo obscures the north wall of this structure.

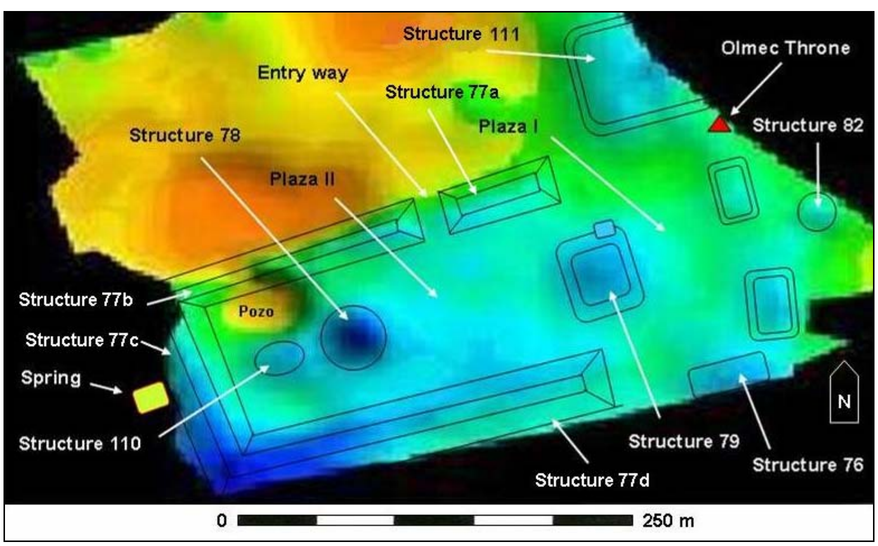

Figure 4.13. Outlines of Throne Complex structures superimposed over topographic map. Coordinates withheld by author.

Figure 4.14. View looking northwest along top of the west wall of Structure 77

Along the north arm of the structure, between 77a and 77b, is an opening that provides access to the main plaza. There is a broad ramp-like feature extending north from the plaza. Atop structures 77a and 77b, which flank the top of the access way into the plaza, there may have been structures built of perishable materials. This possibility is based on slightly higher elevations to the left and right of the entryway that are reminiscent of raised platforms, which served as foundations for structures. These raised portions are visible in Figure 4.15, a Triangulated Irregular Network (TIN) surface map, which presents a north to south view of the Throne Group and the entry ramp and opening in the north wall of Structure 77. This map also demonstrates some of the processing steps used in developing a three-dimensional model of the site by depicting the TIN mesh and color coding used in creating the surface contours and elevations.

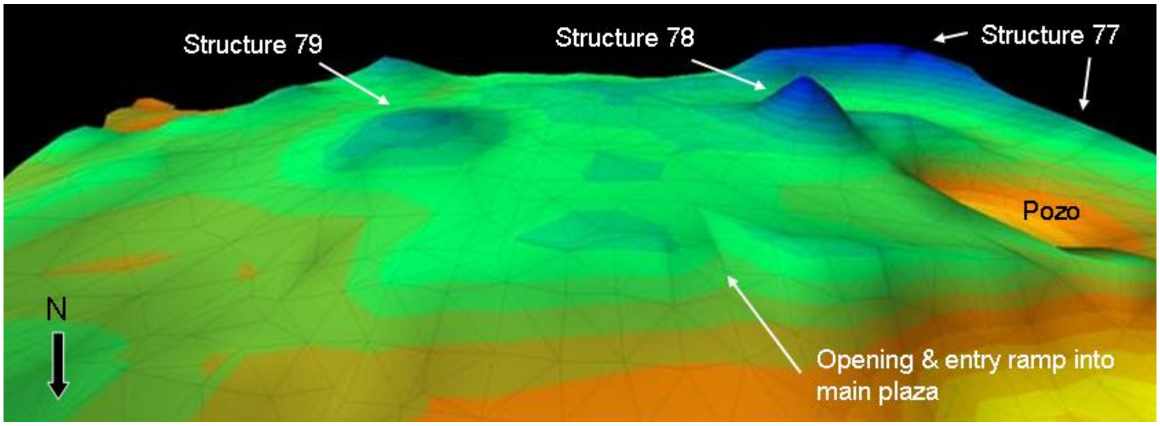

Figure 4.15. Elevated view of Field 8 from the north. Plaza II lies in the center between Structures 78 and 79.

Structure 78 is a 7 m high earthen mound that anchors the center of Structure 77 and acts as the western limit of Plaza II. The top of this structure is the highest point within the survey area. To the east of 78, across Plaza II is Structure 79, a 4 m high earthen, platform-like mound with a broad flat top surface. The west side of this structure forms the eastern border of Plaza II, and the opposite side forms the western border of the smaller Plaza I. On the northeast corner of Structure 79 is an unusual construction feature. A small platform-like projection extends approximately halfway up the platform's incline (see Figure 4.13). Structure 110 is a low, 1.5 m high, elongated mound immediately west of Structure 78, and Structure 82 is a 2 m high, low conical earthen mound close to the present-day river cut bank.

Figure 4.16 illustrates that an axis is formed by the center lines of Structures 110, 78, 79, and 82. This alignment lies at 72º east-northeast and establishes the medial longitudinal axis of the entire Throne Complex Platform and Structure 77. Running parallel to the axis is Structure 111, which is immediately adjacent to the Throne Complex Platform. Figures 4.12 and 4.16 demonstrate the size and elevation of this

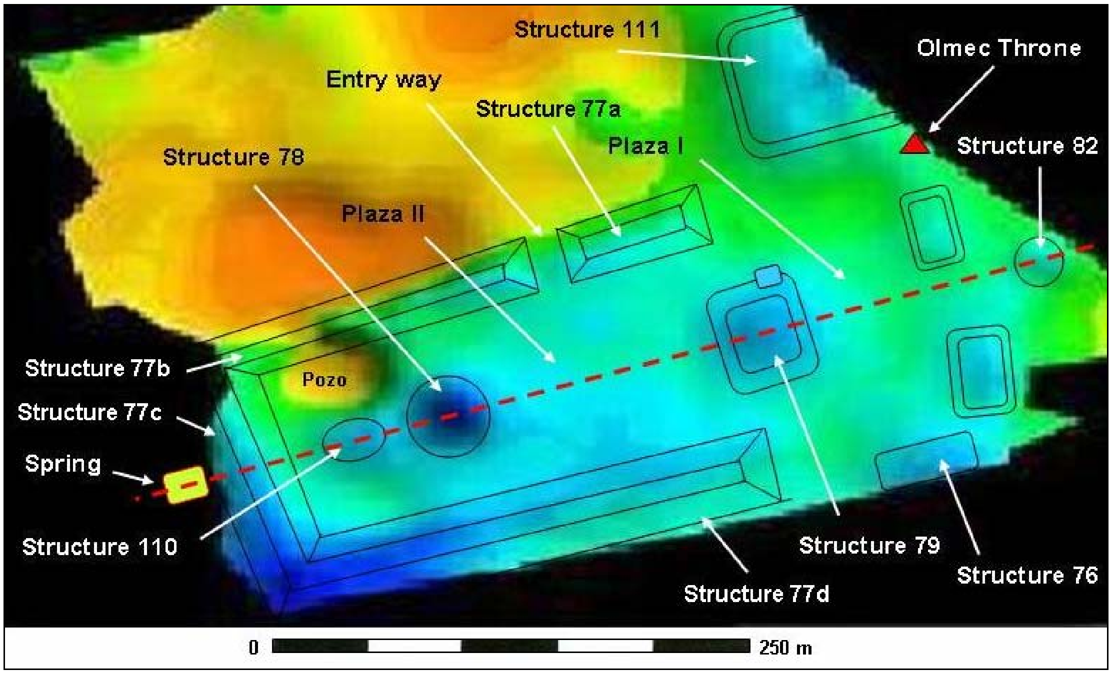

Figure 4.16. Olmec Throne Complex. Longitudinal medial axis is illustrated by dashed line. Coordinates withheld by author.

platform-like structure relative to the Throne Complex. The full extent of this structure will never be known due to the loss of land by the river's erosive actions. Nearby there are low areas that may have served as borrow pits for these elevated structures.

Depressions and Water Features

Along with the elevated constructions are a series of depressions, and Figure 4.17 points out four of these areas at El Marquesillo. Depressions B and C may be natural low areas that were subjected to human modification, possibly for fill or water retention. Depression D is a shallow, rectangular-shaped feature with a relatively level bottom. Its form and position relative to Structure 84 is reminiscent of a sunken courtyard or plaza. Depression A may have been used as a borrow pit for the fill used to elevate and level the north side of Structure 77. In Villa Alta phase complexes, which are to the south and

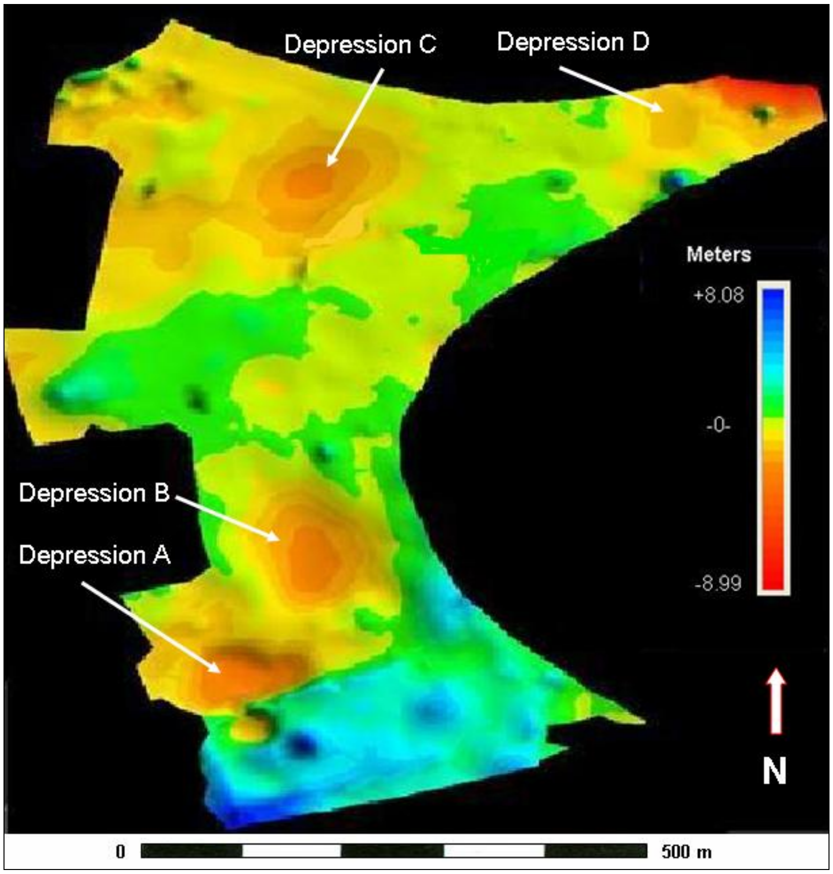

Figure 4.17. Topographic map of El Marquesillo. Prominent Depressions are identified. Coordinates withheld by author.

northwest of the Formative period areas, there are a number of shallow depressions that were coated with clay. These basin-like formations are situated adjacent to probable residence complexes and continue to retain rain and water today.

Tucked into the interior northwest corner of Structure 77 is a shallow, almost perfectly round, pond-like feature approximately 30 m in diameter and 1.5 m deep (Figure 4.18). The owner of the property and other long-time residents of El Marquesillo claim that the pool or *poza* has "always been there" and no one remembers it ever being dry. In the late 1970s the landowner attempted to expand the size of this feature, which he uses to water his cattle. This effort ended after two hours when the operator of a front-end loader had managed to scrape only a few centimeters from the northeast portion and refused to continue due to fears the indurated lining would damage his machine.

Due to the heavy undergrowth and thicket of trees along a portion of the west segment of Structure 77's north wall near the poza (77a), neither total station nor GPS data could be collected without disturbing the area. This unmapped area was the only one encountered during the survey. Due to the lack of spatial data, the pozo appears to be connected to Depression A (Figure 4.17). In actuality, there is a ten meter wide mound separating the two and the poza is completely contained within Structure 77, as the photo in Figure 4.18 illustrates.

A second natural water feature lies adjacent to the west end of the Throne Complex's basal platform. The westward extension of the Throne Group medial axis line, illustrated in Figure 4.16, passes neatly over the center of this natural seep spring (Figure 4.19). The exuberant growth of the vegetation attests to the abundance and persistence of surface and near-surface water.

Figure 4.18. View looking north across the poza. Trees and undergrowth in the upper left conceal portions of the north side of Structure 77 prevented data collection in that area.

Figure 4.19. Northwest view of spring located at the exterior base of Structure 77

Remote Sensing and Geographic Information Systems (GIS)

Scientific and technological advancements in the field of archaeology over the past fifty years have occurred with increasing frequency and greater methodological and theoretical impact (Hyder 1996), including remote sensing and GIS applications. In its broadest sense, remote sensing may be defined as the acquisition of information about an object without being in physical contact with it (Elachi 1987). Thus, remote sensing techniques in archaeology are non-destructive methods that can be employed to rapidly and accurately survey, detect, predict, record, and quantify natural and artificial features above and below the land surface. Benefits of these non-invasive techniques are that the archaeologist can obtain visual and computer generated images of land surfaces and sub-surfaces that are site or region specific. This information can be used to address issues of human settlement, subsistence, environmental interaction, and climate change (e.g., Conyers et al. 2002; Kvamme 2001, 2003) (Madry 1987). Analysis of these types of information assists the archaeologist in determining what is on and under the Earth's surface prior to the implementation of any destructive techniques. This ability can direct and prioritize areas for survey and investigation and, in some cases, may even eliminate the need for excavation (Piro et al. 2000; Tyson 1994).

GIS are collections of computerized technologies used to capture, manage, display, and analyze various forms of spatial and geographically referenced information. GIS is a powerful tool that allows the archaeologist to organize and analyze spatial information by linking maps to databases that contain data about the Earth's surface (Harris 2002). Archaeological applications of GIS can examine relationships of the constructed environment with natural environmental characteristics such as soils, geologic, topographic, hydrologic, or other biotic conditions (Kvamme 1996; Wheatley and Gillings 2002). Data sources for GIS include analog maps, orthophotos, tabular data, remotely sensed digital data, and numerous other pre-existing and newly produced types of datasets.

GIS Visualization of the Landscape

In this survey project, I used a variety of analyses and observations to assist me in determining the chronological sequence and the spatial and organizational development of the site. To better understand conditions at El Marquesillo, I wanted to know if I could detect patterns that were occurring at neighboring contemporaneous sites. Were those sites experiencing and reacting to the same ebb and flow of life as El Marquesillo, and did factors change over time? Toward this objective, I employed a Geographic

Information Systems (GIS) approach that allowed for large study areas of variable scales and datasets to be analyzed in a dynamic spatial manner (see Whitley 2000;2001).

I collected information from previous archaeological settlement surveys that had been conducted in the region, and merged them with available environmental data. The recorded locational and temporal data were produced from surveys that had been conducted by Borstein (2001), Kruger (1996), and Symonds (2000;1997). Because the data were collected by different researchers the level of consistency and standardization between the surveys may not be uniform. Nonetheless, the observations are satisfactory to provide a broad overview of internal and regional settlement patterns.

These data were integrated into a GIS format by plotting X and Y coordinates and bringing all the datasets into a consistent projection that enabled depiction of site locations relative to available satellite imagery. Site chronology data from the surveys were assigned to Early Formative (c. 1500-900 BC), Middle Formative (c. 900-400 BC), and Late Formative (c. 300 BC-AD 150) designations. Sites sizes and types ranged from small artifact scatters to primary centers. The intention of this initial effort was simply to see if patterns within the surveyed settlement areas could be detected and observed across time.

Figures 4.20, 4.21, and 4.22 show the results of these analyses. Through the visualization of these datasets, it appears that a substantial decline in population occurred following the Early Formative period and continued through the Late Formative period. Although the survey reports that produced these data held that populations and settlements declined during this time, the visualization of the data immediately provoked questions of causation and scope. At the same time, they led me to examine the phenomenon from perspectives I had not previously considered.

These images raised issues that are well beyond the scope of this investigation, but I could not help asking if the posited hypotheses of warfare, invasion, or the collapse of a social network adequately explain this process? What other causes could contribute to this drastic demographic change? How large an area did it affect? Regarding the investigation of El Marquesillo, by being aware of these dynamic factors I became more sensitive to the evidence that might concern occupational continuity and other demographic issues.

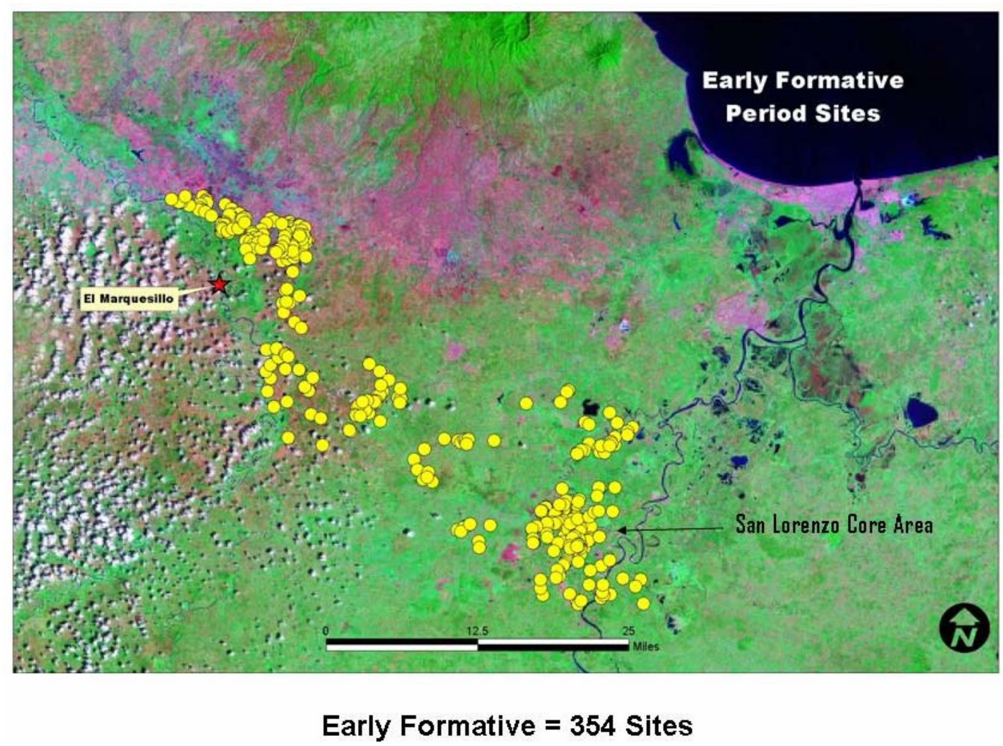

Figure 4.20. Illustration of documented settlement sites from c. 1500-900BC

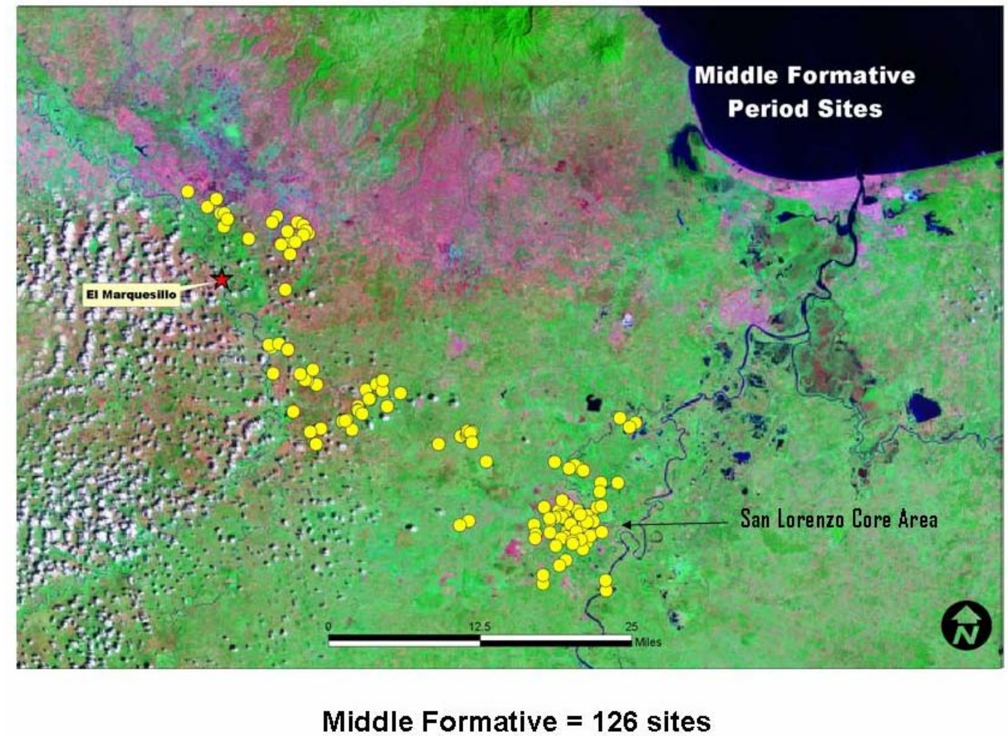

Figure 4.21. Illustration of documented settlement sites from c. 900-400 BC

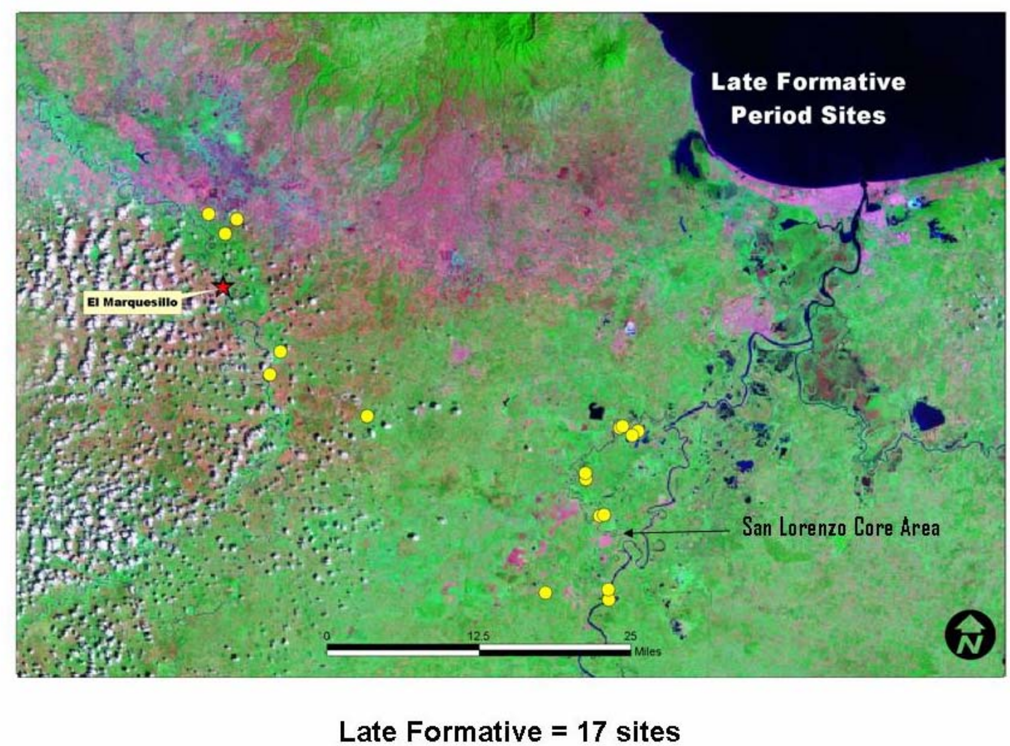

Figure 4.22. Illustration of documented settlement sites from c. 300 BC-AD 150

Geophysical Magnetometer Survey

At El Marquesillo, the recovery of a monumental basalt throne led to the reasonable assumption that more stone sculpture may be present at the site and could be detected by a magnetic survey. At contemporaneous Formative period Southern Gulf Lowlands sites such as Loma de Zapote, Tenochtitlán, Estero Rabón, El Remolino, Tres Zapotes, and Laguna de los Cerros, numerous monumental basalt sculptures have been found (Cyphers 2004; Lowe 1989). San Lorenzo and La Venta are sites where table-top thrones of a size and iconographic content comparable to El Marquesillo's throne have been recovered.

Magnetometer survey is one of the most productive methods of archaeological subsurface prospecting. The technique is used to measure minute variations, computed in nanoTeslas (nT), in the Earth's magnetic field across an area. Its primary objective is to identify the location of changes in the Earth's magnetic field (Breiner 1999; Reynolds 1997). These variations are caused by contrasts between the magnetic properties of an archaeological object or feature and the magnetic properties of the surrounding soil (Breiner and Coe 1972). Igneous rock such as basalt or andesite, dense deposits of fired ceramics, or burned material such as hearths or kilns, are detectable through magnetic survey (Breiner 1999; Weymouth 1986). The geophysical conditions present at El Marquesillo are conducive to magnetic prospection techniques and are detailed in the following section of this chapter.

Magnetic Properties of Basalt

The magnetic properties of basalt are essential to the success of this survey. The sources of the basalt used in monumental sculpture in the Southern Gulf Lowlands are located in the Tuxtla Volcanic Ridge (Coe and Diehl 1980a; Heizer et al. 1965; Williams and Heizer 1965). These basalts are extruded, mafic igneous rock emitted as magmatic material at the earth's surface during volcanic eruptions in the form of lava rich in ferromagnesian minerals. As the molten material solidified, its iron-containing minerals aligned with the Earth’s magnetic field. More precisely, as the volcanic rock cooled past the Curie Point, a transition temperature that marks a change in the magnetic properties of the rock, it begins to produce an induced magnetic field (Dunlop and Özdemir 1997). Below the Curie Point, the blocking temperature is reached, a stage at which the ferromagnetic grains within the material are no longer free to move. It is at this point that the magnetic properties of the rock become stable and produce a permanent directional orientation, a property known as thermoremanent magnetization (TRM) (Butler 1992; Dunlop and Özdemir 1997). It is the alignment of the stone’s directional polarity that provides its magnetic coherence, and the level of amplitude demonstrated on the magnetic anomaly maps are produced by TRM.

This formation process results in two primary magnetic attributes of basalt, magnetic susceptibility and remanant magnetization (Dobrin and Savit 1988; Dunlop and Özdemir 1997; Tarling and Hrouda 1993). The measure of magnetic strength of a mineral or rock is called magnetic susceptibility, which is a function of two factors: 1) the amount of iron, and to a lesser extent nickel or cobalt, present in the rock and particularly carried in magnetite, hematite, and related minerals; and 2) the measure of alignment occurring between like poles of adjacent individual atoms, which create a magnetic dipole effect. The dipole effect is significant because it results in both positive and negative perturbations in the magnetic anomaly map associated with a single block of basalt. The magnetic anomaly observed on a map due to magnetic susceptibility changes as a function of the strength and orientation of the Earth's magnetic field. In contrast, TRM is acquired at the time the rock cools from lava. The magnetic anomaly due to TRM is independent of the strength and orientation of the Earth's magnetic field. In basalt rocks, TRM creates larger magnetic anomalies than those associated with magnetic susceptibility. Thus, for practical purposes, the magnetic anomalies mapped at El Marquesillo are a result of TRM.

The TRM of basalt is many orders of magnitude greater than that measured for sediments (Connor and Sanders 1994:7/7), even in sedimentary deposits containing a sizeable volcaniclastic component (Tarling 1983). Individual blocks of basalt cooled from a lava flow have a consistently large TRM. Therefore, large blocks of basalt have a large magnetic contrast with the surrounding sediment and will produce large and coherent anomalies on maps. Structures created from many basalt blocks, such as walls or pavements, have more complex anomalies because each block adds its individual magnetic signal to the map anomaly. For example, if the blocks are laid down in orientations other than the orientation they were excavated from in the quarry, their magnetic signal will change. Features such as fire pits also carry TRM, but these anomalies have lower amplitude.

Magnetic Data Collection, Conditions, and Field Methods

A magnetometer survey is a passive, non-invasive, geophysical remote sensing technique employed to measure the physical and chemical properties of near-surface deposits (Clay 2001; Kvamme 2001, 2003). The most effective range of this equipment is the uppermost 1 to 3 m of the surface, which is the maximum depth in situ cultural material has been noted or recovered at El Marquesillo. Kvamme (2003:441) states that, “it is almost as if nature designed archaeological sites to be made visible by the magnetic variations they exhibit.”

The geophysical conditions along the Southern Gulf Lowlands are conducive for the implementation of magnetic geophysical surveys, and previous surveys have provided outstanding results at other regional Olmec sites (Breiner and Coe 1972; Morrison, Benavente et al. 1970; Morrison, Clewlow et al. 1970; Welch 2001). At these sites, magnetic prospecting of stone sculpture and architecture was positive due to the high contrast between the volcanic rock and the sedimentary fill. The favorable soil composition, postulated intrusive magnetic elements, exposed open terrain, plus the technique’s rapidity and effectiveness all suggested that a magnetometer survey should be an integral part of the project’s design.

Successful magnetometer prospection is due primarily to the contrasts between the magnetic properties of natural or intrusive material and the surrounding soils. The sedimentary soils that compose the region around El Marquesillo are neutral in their magnetic content. The Pliocene basalts used in the production of Formative period monumental sculpture, constructions, and features retain a high level of remanant magnetization. Williams and Heizer (1965) describe the basalt used in the monuments of

La Venta as olivine with scattered magnetite grains. Conversely, the sedimentary soils and clays of El Marquesillo contain much less magnetic material and do not carry TRM. In addition, the depth of cultural features at the site likely lay within 2 m of the surface. This ideal combination of factors generates contrasts that make magnetic anomalies exceptionally amenable to detection at El Marquesillo, and allows for a rapid, efficient, and effective survey.

A Geometrics G858 cesium-vapor magnetometer was used to survey the site. A grid interval system was designed that attempted to maximize the detection potential for the type and size of a cultural feature or artifact that could be expected. A minimum target size of 0.5 m and an estimated depth of 0.5-3 m were deemed to be appropriate. These decisions were based upon the minimal size of most basalt sculptures recovered in the Southern Gulf Lowlands, and the depth of cultural material and features present along the exposed stratigraphic river cut. To detect objects of this size and depth, a survey interval of 2 m was used. It is recognized that smaller anomalies may not be resolved at this scale, and a smaller interval would improve detection of smaller sized anomalies.

A mapping grade Leica GPS accompanied the magnetometer throughout the survey. The sub-meter accuracy of this equipment allowed precise tracking and location of all collected magnetic data. The chronometer mechanisms in the magnetometer and the GPS unit were synchronized at the start of each survey segment. This procedure allowed the two data sets to be merged seamlessly during post-processing in order to generate a spatially accurate map of the magnetic anomalies. Figure 4.5 illustrates the lines walked during the magnetometer survey.

The magnetometer was set to the base station mode to check for possible natural or artificial interference. Once conditions were found to be acceptable, the G858 was set to the Survey Mode and data were acquired in the continuous recording setting; this high sampling rate allowed the operator to survey an area at a rapid pace (Geometrics 2001:28-32). One magnetic storm occurred during the survey, which was quickly detected and the affected area was resurveyed. The overall survey area was divided into manageable segments by using the eight contemporary ejido fields as individual sectors. They were identified accordingly and each field was subdivided into 100 m east-to-west segments. These segments were traversed in a generally north-to-south direction at 2 m line intervals, with locational marks taken every 2 m as well. Upon completion of a transect, a perpendicular survey was conducted at 5-15 m intervals to permit a cross verification of readings and location. Data collection readings were checked at various intervals during the day. Each evening, data from the GPS unit and the magnetometer were downloaded to the project computer and checked for completeness and coverage.

Electroconductivity surveys were conducted across the areas of detected magnetic anomalies to determine if they may have been caused by metal objects. The terrain conductivity surveys were made using a Geonics EM-31 and ground conductivity measurements ranged between 5 and 14 millisiemens per meter (mS/m), a scale consistent with sand, silty sand, and loam (Bevan 1998). Metal objects would be expected to generate in excess of 200 mS/m (Peace et al. 1996:7); therefore, metallic materials are not believed to be the cause of the magnetic anomalies.

Magnetic Data Analysis

For the purposes of this survey, a magnetic anomaly is an observed irregularity or deviation from the normal total magnetic field strength at a location as measured by a magnetometer. A positive anomaly is where the field strength is stronger than expected, a negative anomaly occurs where the field strength is less than expected (Marshak 2001:67). Variations in the intensity of magnetic fields registered by a magnetometer are measured in nanoTeslas (nT). At El Marquesillo, the Earth's total field intensity based on the International Geomagnetic Reference Field (National Geophysical Data Center 2005), is 40921.6 nT. The measured intensity of the magnetic field varied about this value, ranging from a low of 40800 nT to a high of 41040 nT, or a peak to peak amplitude of 240 nT. Numerous and varied positive and negative anomalies were detected by the survey and classified into basic types.

Two notable anomalies are linear in nature and of varying length and amplitude. Structure 109 contains a ramp-like appendage that runs to the east-northeast of the structure. At the end of this ramp is Linear Anomaly 1, a 100 nT amplitude magnetic anomaly that extends straight for approximately 120 m. This anomaly is not randomly oriented, but is highly coherent. In Figure 4.23 the magnetometer data have been laid over a topographic base map. This image illustrates that Linear Anomaly 1 is aligned with the surface features, and if the direction of the anomaly is extended it intersects Structure 84 and the large anomaly buried below it. Other magnetic anomalies parallel Linear Anomaly 1 but have lower amplitudes and are shorter in map length.

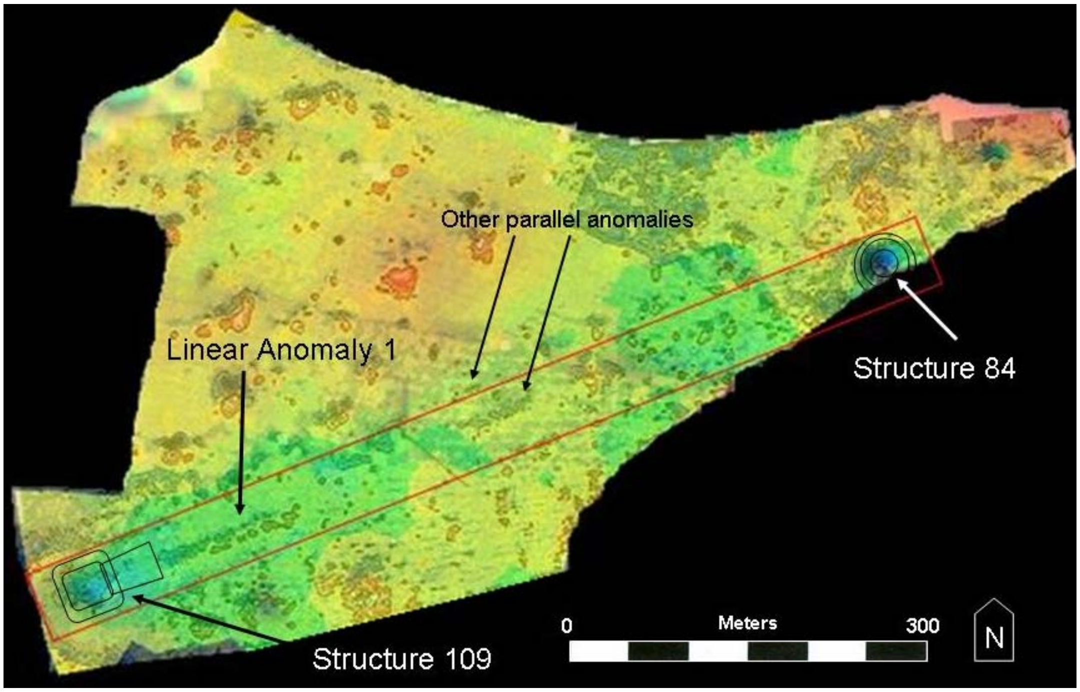

Figure 4.23. Topographical base map with magnetic data overlaid. Red line highlights the path of Linear Anomaly 1 from Structure 109 to 84. Coordinates withheld by author.

Linear Anomaly 2 is striking. It is a larger 150 nT amplitude anomaly aligned to the west-southwest and extending for 100 m, and demonstrates the same noteworthy uniformity and cohesion. Specifically, Linear Anomaly 2 consists of a broad negative anomaly, bounded along its lateral sides by lower amplitude positive anomalies. The anomaly begins approximately 30 m west of the Olmec throne location in Field 8. The medial axis of this anomaly is aligned with Structures 77a and 77b and, if it were extended eastward, it would intersect with the throne (Figure 4.24). Beyond the clearly delineated 100 m long anomaly, the anomaly continues but weakens, causing a loss of the positive values, coherence and amplitude. This decrease may be due to the combined effects of the Throne Complex Platform and Structures 77a and 77b covering and,

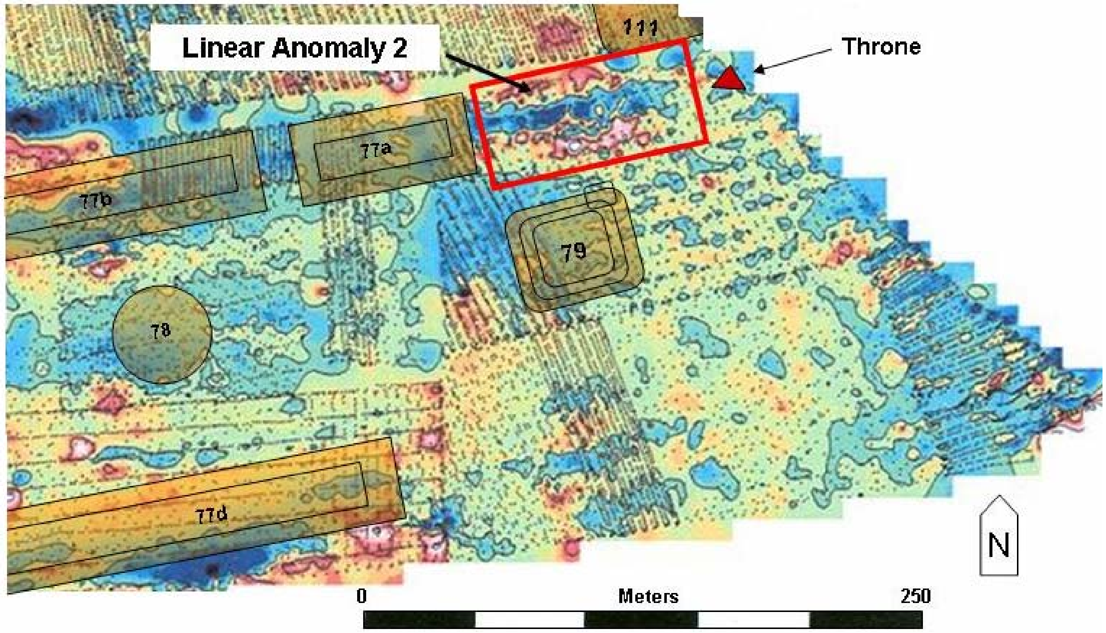

Figure 4.24. Magnetic base map of the Olmec Throne Complex. Shaded outlines of architectural structures added. Linear Anomaly 2 is indicated within the red rectangle. Coordinates withheld by author.

thereby, obscuring the magnetic readings. It is possible that this anomaly may extend significantly further to the west-southwest underneath the constructions. Both Linear Anomalies 1 and 2 have the appearance and amplitude that could be attributed to buried basalt. Their evenness and arrangement suggests intentional placement and alignment as a wall or pathway.

Another magnetic anomaly detected at El Marquesillo is associated with Structure 84 and can be described as elongated and coherent, and has an amplitude of 175 nT. Data filtering, enhancement algorithms, and modeling techniques were conducted at the Geophysics and Volcanology Laboratory in the University of South Florida's Department of Geology. These procedures indicated that the anomaly is likely a rectangular body of basalt with significant depth (possibly greater than 2 m) and estimated to be up to 10 m long by 10 m wide. This size would preclude that the anomaly is caused by a single piece of basalt, but instead, a body of stone placed in a fashion similar to the “Massive Offerings” of serpentine at La Venta (Drucker et al. 1959:127-133).

The coherence, or continuousness, of this anomaly is remarkable. To produce the anomaly associated with Structure 84 would require that the individual stone blocks in this structure were deposited together and in the same orientation. In other words, each individual block of stone would have been placed into the ground at El Marquesillo maintaining a similar orientation with respect to the magnetic field and in respect to the other blocks in the structure. The constructors of this feature had literally replicated the same pattern and orientation of the stone as it was in its original source matrix. Evidence from the Gulf Coast and other Formative period sites demonstrates that the inhabitants were acquainted with the principles of magnetism and the presence of magnetic poles within basalt (Breiner and Coe 1972; Carlson 1975; Fuson 1969; Guimarães 2004).

There are other anomalies that are associated with architectural features. Positive and negative anomalies with peak-to-peak amplitudes of 90 nT are associated with Structure 83 and another with Structure 86. These anomalies appear to be produced by basalt blocks located beneath the structures. In addition, there are two types of random, isolated anomalies found throughout the site. The primary difference between these latter types is their size and magnetic susceptibility. The smaller anomalies have a peak-to-peak amplitude of approximately 100 nT, while the larger ones have an amplitude of 150 nT. The smaller anomalies may indicate hearths and the larger ones ceramic kilns that may be spatially related to the concentrations of ceramics recovered in the surface collection and observations of quantities of potsherds along the exposed river cut bank. Overall, the results confirm that all the individual anomalies at El Marquesillo present a high level of magnetization within the relatively low magnetic context produced by the surface soil and earth matrix. Moreover, the magnetic data display a high degree of uniformity, regularity, and cohesion.

Geographic Information Systems (GIS)

Data collected at El Marquesillo were processed, correlated and integrated with other data sets and entered into a GIS. Topographic data from total station and GPS surveys were integrated with spatial data from the soil and magnetometer surveys. Non-georeferenced aerial photographs and regional satellite imagery were brought into a uniform coordinate-projection system and used as base maps for the assembled data sets. The ability to visualize collectively these diverse data sets permitted comparisons and analyses to be performed at varying scales, and allowed relational and attribute values to be queried, measured, and evaluated. Examples of the utilization of this analytical tool are dispersed throughout this dissertation.

Examination of the topographic and magnetometer survey maps of the site, along with observations made in the field, suggested a series of directional alignments created by the centerlines of multiple architectural structures and sub-surface anomalies. Locational positions derived from the GPS and total station surveys were used to plot five different alignments (see Figure 4.25). This series of directional alignments were digitized in a GIS and geo-referenced to the collected spatial data. Directions for the alignments are presented in the following format; 0º equals Magnetic North, 90º East, 180º South, and 270º West. Alignment A was plotted to 68º NNE and passes through the medial axis of Structures 109 and 84 and along Linear Anomaly 1 and the major anomaly

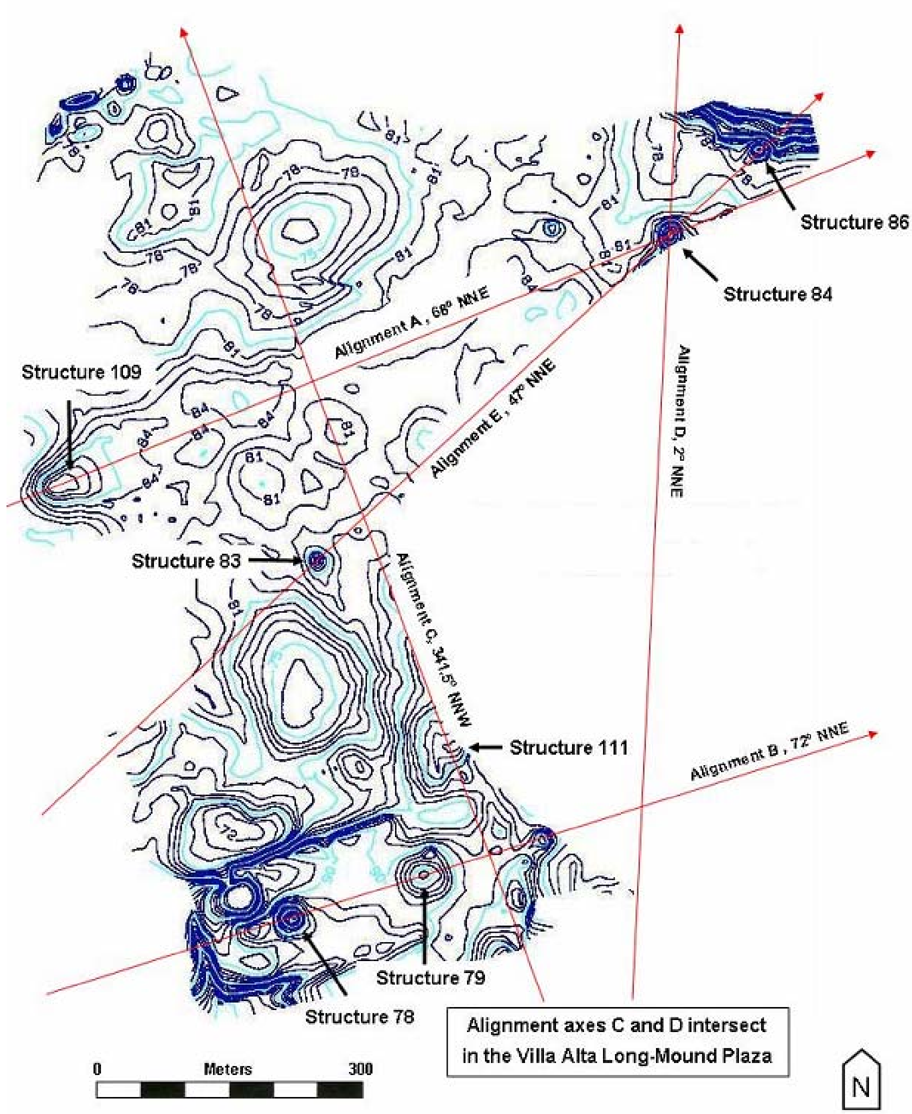

Figure 4.25. Topographic contour map illustrating the five alignments created by the medial axes of features at El Marquesillo, coordinates withheld by author.

that underlies Structure 84. Alignment B lies on a direction of 72º NNE and is created by the longitudinal medial axis of the Olmec Throne Complex. This axis line bisects Structures 77, 78, 79, 82, and 110 as well as passing directly across the center of the seep spring immediately west of the complex’s basal platform. This axis line also is parallel to

Linear Anomaly 2. Alignment C follows 341.5 NNW, which is created by the medial axis of Structure 111 and the alignment of Offerings I, II, and III. This same directional alignment is also created by the medial axis of the secondary Villa Alta phase long-mound complex located 400 m northwest of Field 4.

The centerline of the principal Villa Alta long-mound complex, 300 m south-southeast of the Olmec throne deposition site, is plotted at 2º NNE. Referred to as Alignment D, this line longitudinally bisects the complex's 150 m long courtyard and the pyramidal mound structures at either end of the plaza as well as passing directly through the center of Structure 84 and the major subsurface anomaly. Alignment E adheres to 47º NE and it formed by an axis that passes directly through the centers of Structure 83, 84, and 86.

Anthropogenic Soil Survey

The soil survey portion of the research project was designed as a prospection tool aimed at analyzing spatial relationships between different activities at the site. Through ethnoarchaeological investigations and a series of archaeometric studies in Mesoamerica (Barba and Ortiz 1992; Manzanilla and Barba 1990; Middleton and Price 1996; Parnell et al. 2002; Terry et al. 1999; Wells 2004a), it has been indicated that the preparation and consumption of food and drink is associated with the presence of phosphates in the soil. Residual traces of sodium and potassium enter the soil as a result of wood ash, often generated in hearths and kilns or used in craft production. Hematite and cinnabar, which were used as coloring or additives on artifacts, leave concentrations of iron oxide and mercuric sulfide in the soil. Therefore, through an elemental analysis of soils, it may be possible to detect traces of different activities.

Phosphate compounds and metallic ions are fixed quickly and remain stable in soils for extended lengths of time (Ball and Kelsey 1992; Johnston and 75:371-381.; Wells 2004a; Wells et al. 2000:450). At El Marquesillo, anthropogenic soil surveys were conducted in two plazas to prospect for evidence of various types of activities. The specimens were examined through a weak acid-extraction ICP–OES analysis performed to obtain multi-elemental composition of anthropogenic soils from the plazas.

Pedogenesis is the process of soil formation, and of interest here are those soils that have been subjected to human cultural activities. Geoarchaeological researchers have made significant progress in archaeological applications of soil science over the past 50 years (Holliday and Gartner 2007; Middleton 2004:47-48). Initially, soil chemistry was used as a prospection tool to identify archaeological sites and later to clarify their formation processes (Arrhenius 1963; Bidwell and Hole 1965; McDowell 1988; Woods 1977). Advanced computerized technologies have facilitated the development of multi-elemental characterizations of soils, and expanded their applications to the examination of settlement organization and activity patterns at multiple scales. Projects have ranged from discrete activity areas within individual households (Manzanilla and Barba 1990; Parnell et al. 2002; Wells et al. 2000) to landscape-wide surveys and applications (see Holliday 1993).

By analyzing the chemical residues in the anthrosols (i.e., soils modified by human activity) patterns can be detected in archaeological contexts where little artifact material exists (Wells 2004a:67). Recent tests have demonstrated the potential power of this method when applied to investigation of communal activity areas, households, and subsistence systems (Barba 1986; Fernández et al. 2002; Linderholm and Lundberg 1994; Manzanilla and Barba 1990; Wells 2004a; Wells et al. 2000). Spatial and quantitative elemental patterns can imply activity area locations associated with eating and drinking as well as where the processing, preparation, consumption, and deposition of food may have occurred.

It has been demonstrated that the collection and analysis of soils from within and around the perimeter of precolumbian plaza groups has consistently revealed evidence of specific human activities (Wells 2004a; Wells et al. 2007; Wells et al. 2000). A caveat to this methodology is the recognition that elemental concentrations alone are not necessarily reliable indicators of human activities. The chemical data are used in conjunction with other lines of archaeological evidence to provide support for the understanding of the organization and spatial distribution of activities. Studying the elemental composition of anthrosols can be conducted prior to, or in conjunction with, field excavation and other investigative techniques, which are essential for inferring the activities that generated chemical residues in soils. Only through an integration of these methods, along with consideration of the archaeological and spatial contexts, can inferences be proposed and evaluated concerning the type and location of activities.

The soil surveys conducted at El Marquesillo provide an opportunity to observe and evaluate the effectiveness of this methodology over a significantly greater time depth then has been previously attempted in Mesoamerica. Prior experiments have examined Classic period sites (c. AD 200 to 900) including Piedras Negras, Guatemala and El

Coyote, Honduras (Terry et al. 2000; Wells 2004a; Wells et al. 2000). The soil tests at El Marquesillo push the limits of temporal analysis back to c. 1200 to 200 BC.

Sampling, Methods, and Collection

Two separate plazas in Field 8 were selected for sampling. The decision to focus on these two locations was based on the recovery of Formative period ceramics on or near their surfaces, their proximity to the Olmec throne, and the spatial relationship to surrounding architecture. Offerings I and II suggest that a Formative period feasting event occurred on or near the Olmec throne next to Plaza I. The surrounding architectural features enclose and restrict entry to this smaller area, a feature that suggests a more private space (Grove 1993).

Plaza II is larger and has controlled access from other portions of the site that implies a more public character (Heyden and Gendrop 1980). Therefore, sampling from these two plazas could provide opportunities for detection of various activities and possibly comparative spatial relationships. The survey in Plaza I was not conducted closer to the throne location due to the excavation and mixing of soils created during the rescue operation.

Soil Survey Field Methods

A total of 279 soil specimens was taken from the two plazas, 117 from Plaza I and 162 from Plaza II. Rectangular grids were laid out in each plaza as illustrated in Figures 4.26 and 4.27, and specimens were collected at each point designated by an “x” on the grid maps. Each specimen was identified according to survey plaza and its position of

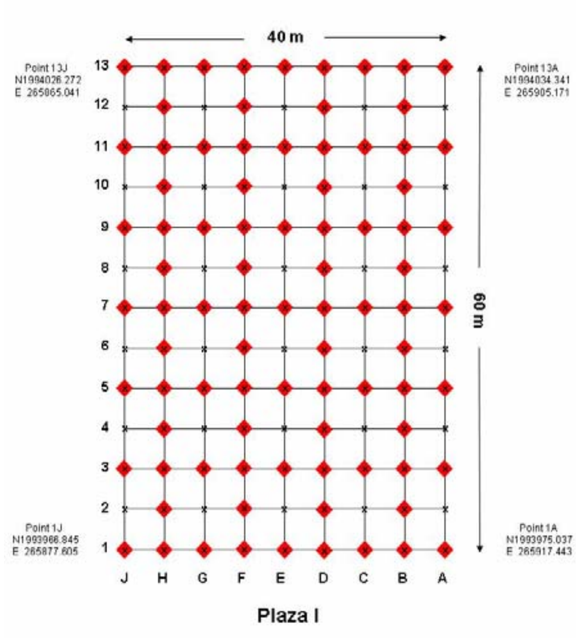

Figure 4.26. Illustration of soil specimen grid in Plaza I.
Red markers indicate analyzed sample locations (N=87).

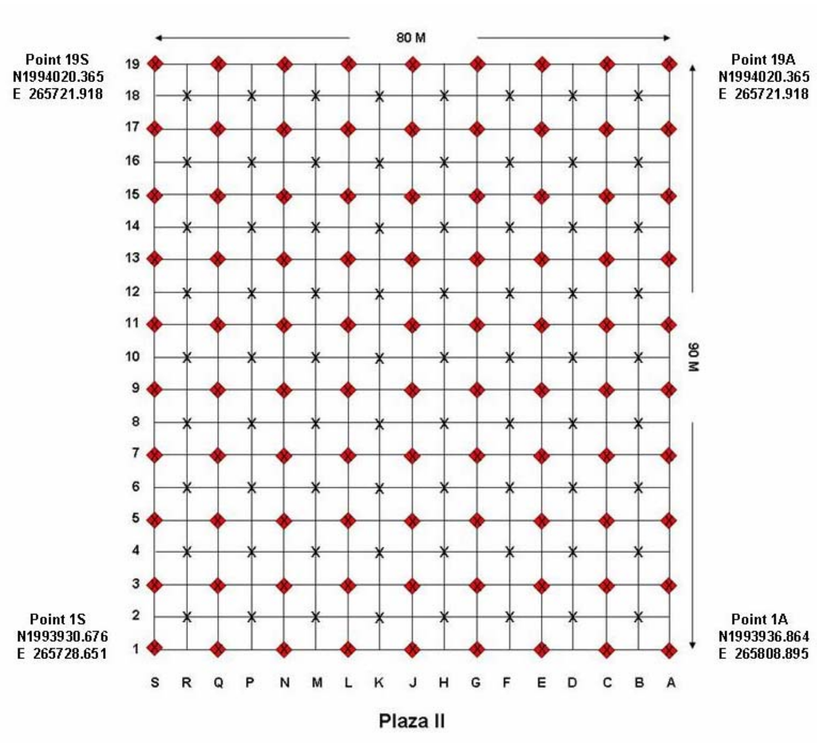

Figure 4.27. Illustration of soil specimen grid in Plaza II.
Red markers indicate analyzed sample locations (N=90).

intersection on the numbered rows and lettered columns. The red diamonds indicate which specimens were used in the subsequent elemental analysis. At the four corners of the grid maps are the GPS coordinates for the corner points that define the limits and location of each collection zone.

Posthole diggers were used to remove the upper 0.25 to 0.30 m of humus at each extraction point in order to obtain soils below the plowzone. This measurement was determined by the relatively consistent plowzone level observed along the exposed river cut. The extracted upper level soils were deposited next to the hole and checked for cultural material. Some burned clay fragments and ceramic sherds were recovered (see Ceramic Section in Chapter 5). Specimens from Plaza I (Soil Survey I) were taken from a 40 by 50 m unit using a sampling matrix where samples were collected at regular 5 m intervals (Figure 4.26). In Plaza II (Soil Survey II) an 80 by 90 m area was laid out in a similar grid matrix, but the collection points were staggered on alternating rows (Figure 4.27).

The soil specimen was collected from the bottom of each of the original postholes. The sample was extracted from a depth of approximately 0.3 to 0.4 m. A stainless steel trowel was used to take each sample. The soil was placed in sterile plastic bags that had been marked with the proper survey and grid coordinates. After the soil had air-dried, the bags were sealed and packaged for return to the University of South Florida for analysis.

Laboratory Procedures

A total of 177 specimens were used in the weak acid-extraction ICP–OES analysis, 87 from Plaza I (Figure 4.26) and 90 from Plaza II (Figure 4.27). The location of these specimens is identified by a red diamond on the grid maps. Each sample was prepared for analysis by James Hawkin and Claire Novotny of the University of South Florida, Department of Anthropology, under the direction of Dr. E. Christian Wells. Each sample was homogenized through thorough mixing, and a 2.0 g sample was weighed out. The fine consistency of the soil precluded the need for sieving or pulverizing. The sample was mixed in a polyethylene vial with 20 mL of extract composed of 50 mL HC1, 10 mL HNO_3, and diluted with 1000 mL of Type II deionized H_2O (0.60 M HC1 + 0.16 M HNO_3). Sample mixtures were highly agitated for 30 minutes on an electric platform shaker at 200 rpm. The solution was then filtered through ashless filter paper and decanted into a clean polyethylene vial. The mild acid extraction method was used because recent studies have demonstrated this procedure illustrates the anthropogenic components in the soils (Burton and Simpson 1993; Middleton and Price 1996).

The prepared samples were sent to the Paleoclimatology, Paleoceanography and Biogeochemistry Laboratory at the University of South Florida's College of Marine Science on the St. Petersburg Campus. There the samples were analyzed using a Perkin-Elmer 4300-DV ICP-OES (Dual View Inductively Coupled Plasma-Optical Emission Spectrometer) equipped with a cyclonic spray chamber and Meinhard C3 High-Solids nebulizer. The equipment was calibrated using known solution standards for elements of interest.

The results were reported in parts per million of the element, which were then standardized to allow discussion of elemental enrichment and for comparing the plazas. The figures were multiplied by the dry weight of the analyzed portion of the sample and converted to milligrams per kilogram of soil for each sample assay. Each element was then divided by the respective value of aluminum (Al) in the sample. Since aluminum is a natural constituent of the soil, it is not expected to vary significantly over space. Finally, the numbers were factored by log base-10 to allow them to be compared. The complete data files for the El Marquesillo soil specimens are presented in Appendix 5.

Analytical Methods

The purpose of the soil chemical analysis was to study the "soil memory," a concept that relates to the physical, biological, and chemical traces that various human activities leave in the soil (Wells 2006). Depending on the supporting or collaborating evidence, specific elements can be associated with certain human activities and the area in which they occurred. In the original ICP-OES analysis, various levels of 15 chemical elements were detected.

In Soil Survey I, cobalt (Co), mercury (Hg), strontium (Sr), titanium (Ti), and zinc (Zn) were not present in quantities sufficient for accurate measurement and were removed from consideration. Nickel (Ni) is not currently considered in anthropic soil analyses in Mesoamerica and was removed from the analysis (Barba and Ortiz 1992; Middleton 2004; Middleton and Price 1996; Parnell et al. 2002; Wells et al. 2000). Calcium (Ca) was also removed due to its natural occurrence in the substrate of the soil, which may unduly influence the results. Aluminum (Al), considered to be naturally and evenly distributed in the soil, was used to standardize the usable elements and was not included on its own in the final analysis. The same procedure was followed in Soil Survey II, but Sr was present in sufficient amounts to be considered.

Box plots were constructed to summarize the datasets (Figures 4.28a and 4.28b). The greater the standard deviations and ranges, the more spatially heterogeneous the element is across the survey area. In both Plazas I and II, potassium (K), manganese (Mn), and phosphorus (P) exhibit the characteristics required to produce identifiable contrasts and patterns. Alternatively, barium (Ba), iron (Fe), magnesium (Mg), sodium (Na), and strontium (Sr) illustrate a relative homogeneity that suggests that their levels of contrast are not sufficient to provide the distinctions needed to discern their depositional arrangement.

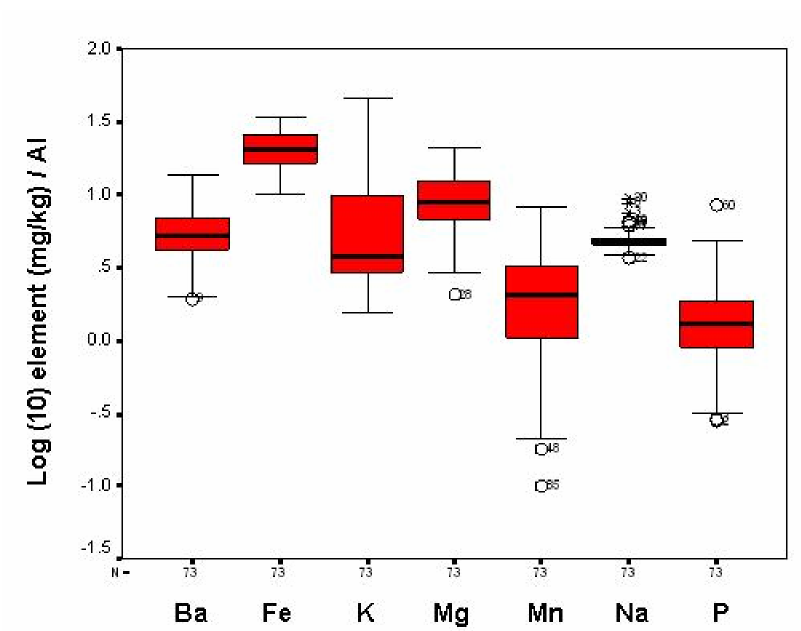

Figure 4.28a. Box plot summaries of elemental data from Plaza I

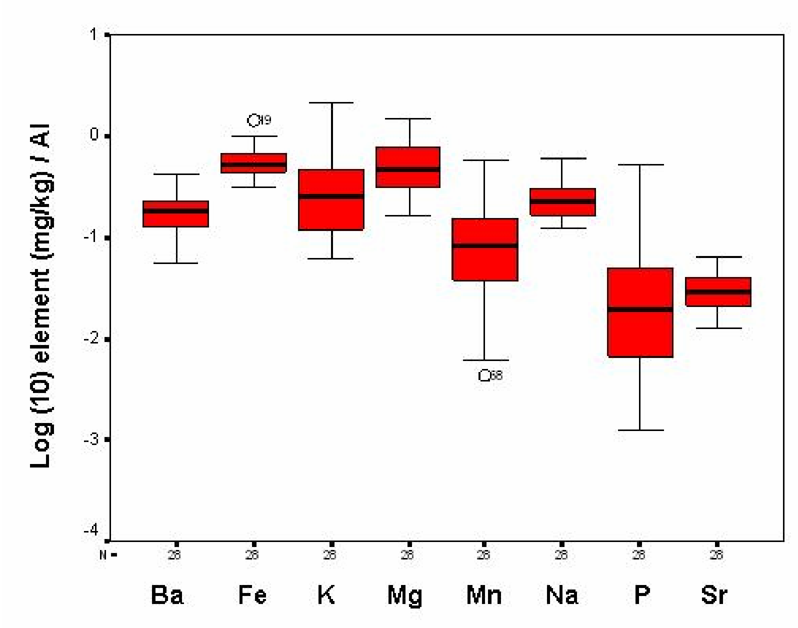

Figure 4.28b. Box plot summaries of elemental data from Plaza II

A primary objective of the soil analysis was to illustrate the chemical signatures in the soils and to see how those markers may indicate spatially discrete activities, such as food preparation, cooking, or ceremonial events. Kriging, a method of geostatisitcal analysis, was used to spatially interpolate and illustrate the differences across the entire area under analysis. This technique provides statistical methods that interpolate unknown values based on the known values in the plot. Autocorrelation determines the quantitative relationships among known, measured points, which is effective in producing a prediction surface. Variation in the surface is explained through a mathematically produced spatial correlation of the distance between sample points. Kriging involves a two-step process that first generates variograms and covariance functions that statistically approximate the spatial correlation values, and second, uses the known values to predict the unknown ones. All points and distances are considered in the determination of the output value for each location. Because kriging is most appropriate when spatially correlated distance and directional data are known, it is used frequently in soil science studies (McBratney and Webster 1986; Oliver 1990).

Surfer computational software version 8.01 was used to illustrate the soil chemical data. A point-type, linear variogram model was constructed with the slope and anisotropy or directional measurement equal to 1, and the angle equal to zero. The linear error variance was set at one. The data for K, Mn, and P in Plazas I and II were then plotted on standard xyz grids that were produced by the known points and a probability model of the unknown points.

A series of recent Mesoamerican ethnoarchaeological studies have been conducted in efforts to relate observed human activity patterns with soil chemical data (Barba 1986; Barba and Ortiz 1992; Fernández et al. 2002; Middleton 2004; Middleton and Price 1996; Wells and Urban 2002). These studies demonstrate a correspondence between high levels of P with food consumption and the discard of other organic substances. Conversely, low levels of phosphorus were detected near cooking areas, such as hearths and ovens. High levels of Mn have also been related to food preparation and consumption areas and its spatial patterning is similar to that of phosphorus. Manganese has additionally been associated with pyrolusite (manganese dioxide, MnO_2), a black pigment used in various types of craft production (Wells et al. 2000). Wood ash, charcoal, and burned earth from fireplaces, hearths, and ovens produce elevated levels of K in the soil (Wells et al. 2007). In contrast, residues of this element were low in areas of food consumption (Middleton and Price 1996).

Elemental Analysis of the Soils from Plaza I

In Plaza I, elevated levels of the chemical element present are illustrated in red, low levels are in blue. The high levels may indicate the locations of fires or hearths (see Figure 4.29). In the upper right quadrant of the image map there is a sweeping arc that extends from 1994018N/265893E to 1994018N/26910E and down to 199407N/265908E.

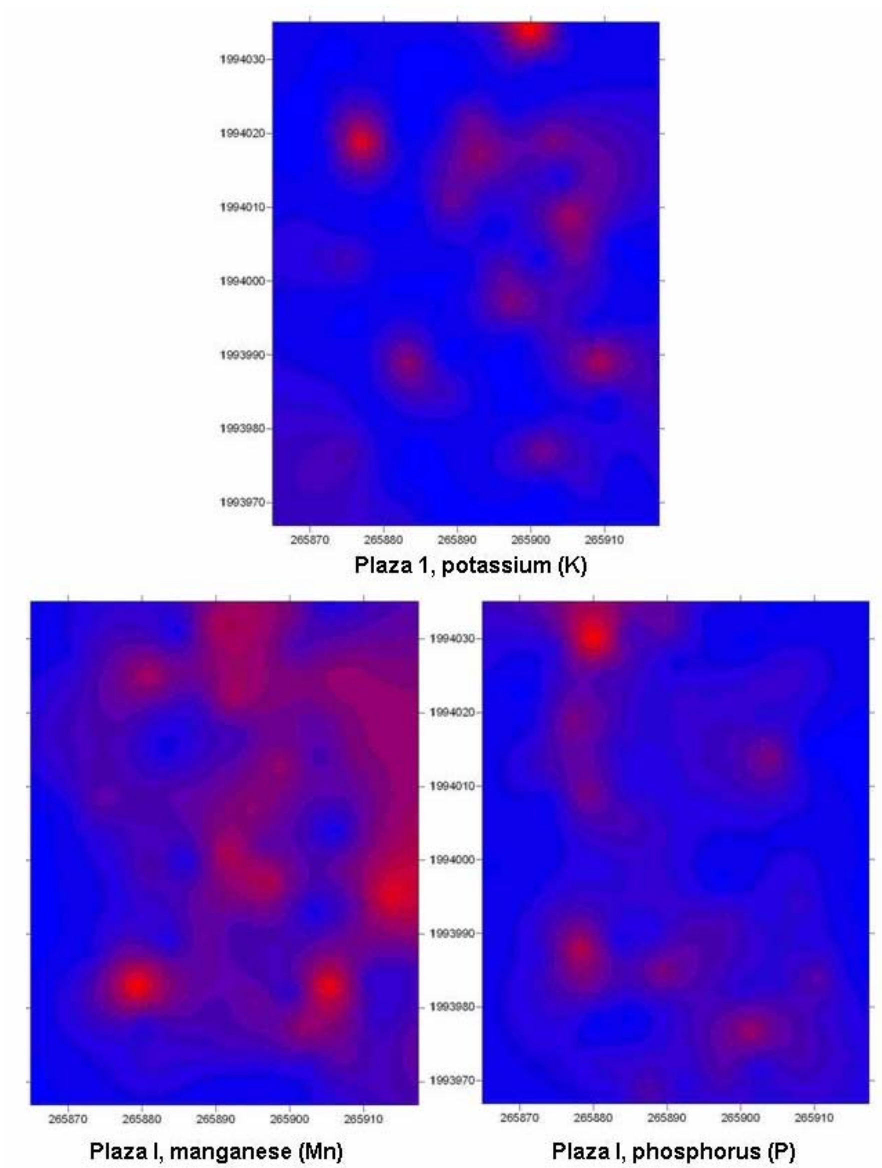

Figure 4.29. Kriged image maps of soil chemical elements in El Marquesillo Plaza I

There are also high concentrations of K centered at 994033N/265900E, 1994019N/265877E, 1993988N/265882E, 1993998N/265898E, 1993990N/265910E, and 265903N/1993977E. All of these images show a decidedly circular and relatively equal lessening of P concentrations as it moves away from the center. This distribution appears to be consistent with fireplaces where wood ash or charcoal is distributed evenly around the feature (see Middleton and Price 1996).

The concentrations of Mn are extensive across the survey area in Plaza I, but they do not occur in spaces where high levels of K are present. The footprints of Mn actually wrap around or are adjacent to the possible fireplaces. The activities that produced these patterns, whether they are food preparation, ceramic craft production, or both, demonstrate clearly significant human activity in the plaza. Phosphorus is also present in varying concentrations and also spatially correlates with Mn, but is not present at the sites of high K deposition.

Elemental Analysis of the Soils from Plaza II

In comparison to Plaza I, the chemical concentrations of K, Mg, and P in Plaza II are low to say the least (Figure 4.30). A single substantially elevated level of K is present at 1993965N/265787E, and there are other lower concentrations scattered across the plaza. If these are indeed indicators of fires, they are significantly larger than those detected in Plaza I, ranging up to 10 m in diameter. Manganese and P concentrations are aligned and have a significant degree of overlap. The infrequent and lower levels of these three elements may indicate that this plaza was cleaned repeatedly following activity events, thereby not allowing chemical residues to become fixed in the soils.

Summary of the Soil Analyses

When the kriged maps of P, K, and Mn are overlain on a base map with the architectural features outlined, the spatial relationship of the activity areas becomes clearer. Potassium tends to be associated with the deposition of wood ash. Although the presence of wood ash may suggest fires, it may also represent refuse areas or the result of activities such as corn slaking, ceramic production, or ceremonies. Whatever the cause, Figure 4.31a illustrates the potential location of a number of human activities in Plaza I. In Plaza II, the major concentration of K is aligned with the medial, east-west axis of the Throne Complex between Structures 78 and 79. The chemical residues appear to form a ring around the center portion of the plaza. Manganese and P demonstrate significant activity in Plaza I, but the residue is restricted in Plaza II. Nevertheless, the central portion of this plaza does not demonstrate any element residues.

Examination of Figures 4.31 a, b, and c demonstrates a greater concentration of specific elements in the soils. This condition would suggest significant and varied activities occurred in Plaza I. These activities may have included food preparation and consumption, craft production, and ceremonial events. Plaza II demonstrates a substantially lower level of element residues in the soil, which may be attributed to the occurrence of fewer events or the cleaning of the plaza surface immediately after the events.

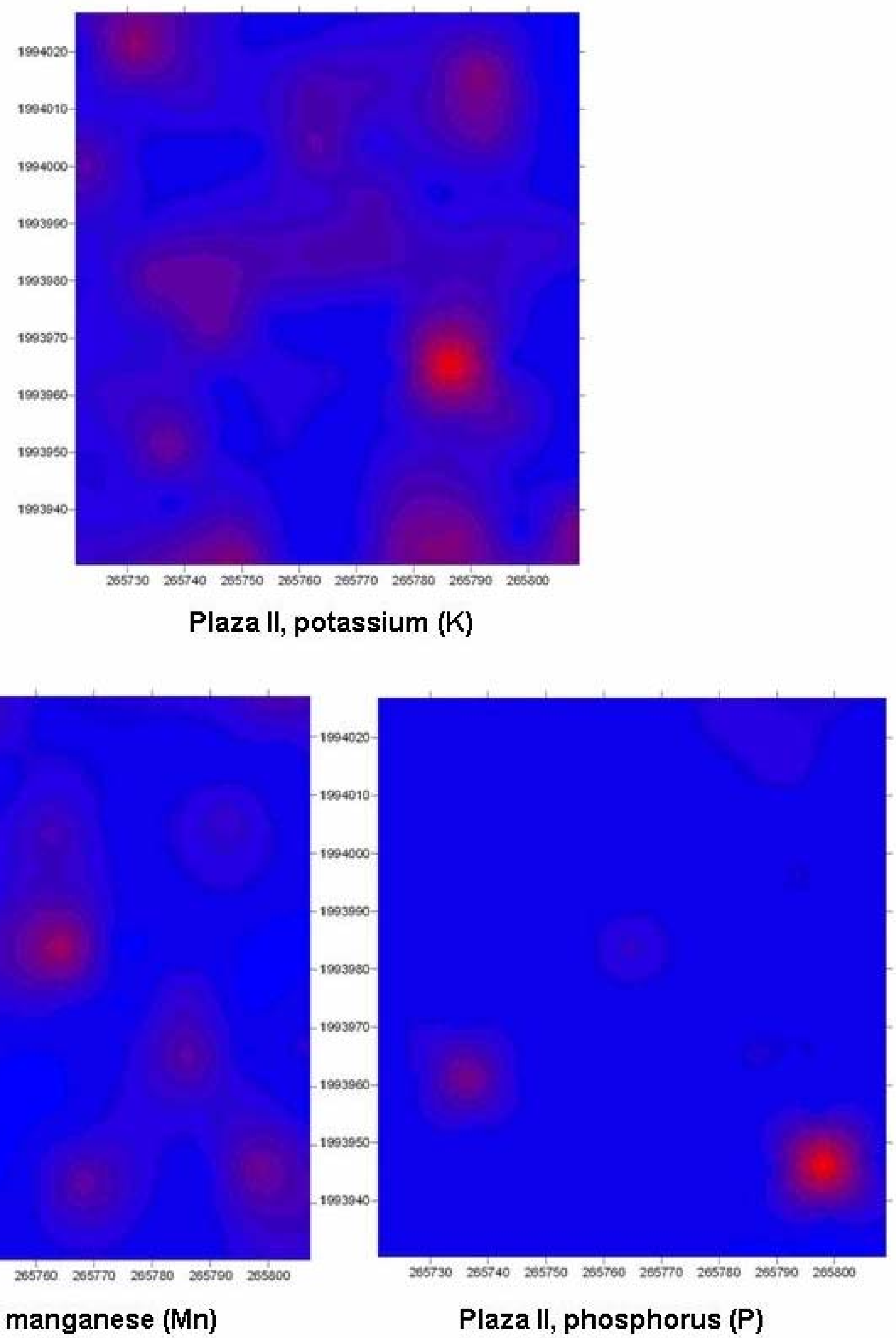

Figure 4.30. Kriged image maps of soil chemical elements in El Marquesillo Plaza II

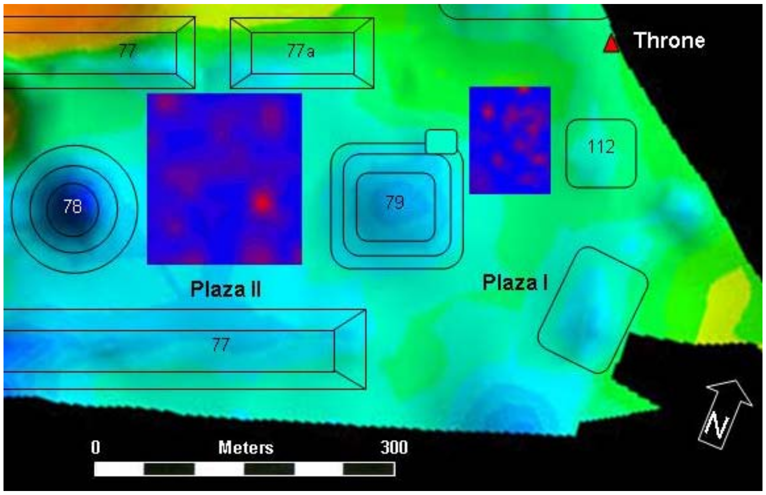

Figure 4.31a. Potassium distribution in Plazas I and II

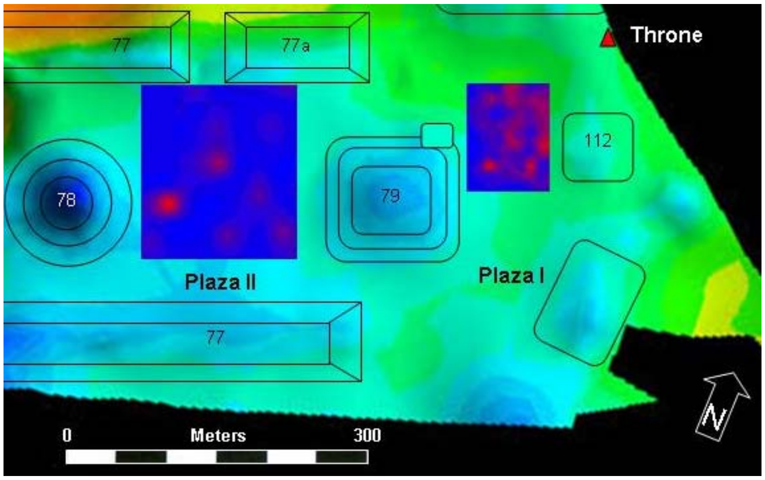

Figure 4.31b. Manganese distribution in Plazas I and II

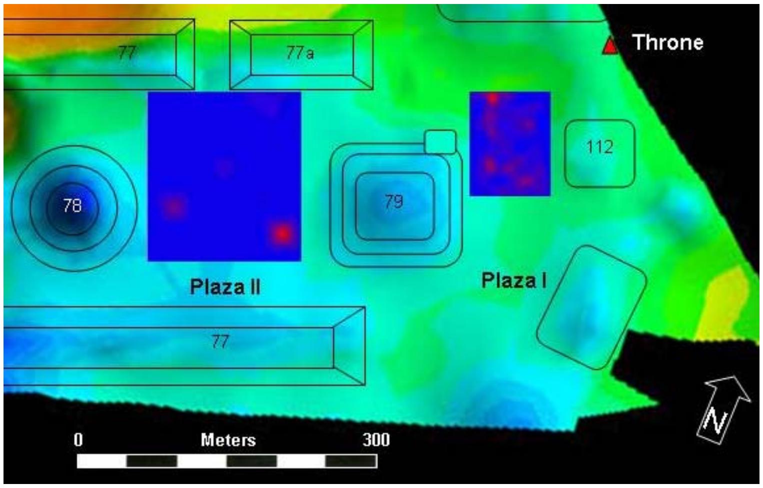

Figure 4.31c. Phosphorus distribution in Plazas I and II

Chapter 5. Artifact and Feature Analysis

Introduction

This chapter includes an examination and analysis of the features and artifacts that have been observed, recovered, or documented at the site of El Marquesillo. Assemblages of ceramic and lithic artifacts were gathered during a variety of collection surveys and are described and discussed. A series of five discrete offerings, which I consider to be ritualistic in nature, are presented individually. The presence of a monumental Olmec throne at El Marquesillo has significant sociopolitical implications; therefore, a section has been allotted to an examination of the physical nature, sculptural elements, and depositional details of this monumental basalt block. The chapter begins with the stratigraphic documentation of selected segments of the river cut bank that provided an opportunity to evaluate various portions of the ancient site.

River Cut Stratigraphic Wall Profiles

Rationale and Methods

Erosion and changes in the course of the San Juan River have caused the loss of substantial portions of the site, and with it, significant archaeological material. Nonetheless, aspects of these processes have presented an unexpected opportunity to study the site in greater detail, and provided a strategic advantage considering the restriction prohibiting further excavations. These natural processes created a 1.5 km long stratigraphic profile across the site (Figure 5.1). At numerous locations, the river's actions have exposed archaeological features and significant quantities of cultural material, the most prominent of which was the exposure of the Olmec throne. The majority of exposed artifacts are ceramic artifacts, however (Figure 5.2).

Figure 5.1. View of river cut bank extending south across the site. River is at a moderate flood stage.

Figure 5.2. Example of exposed stratigraphy containing ceramic deposits

Each annual river inundation causes further undercutting and collapse of the embankment while runoff from normal rainfall events also exposes new stratigraphic details and more materials as the land is continually eroded away. The results of numerous surveys and collections along the dynamic, cut embankment are reported in the ceramic and offering sections of this chapter. Slump and collapse events are common along the 1.5 km-long elevated river cut bank and Figure 5.3 illustrates a 5 m-wide example of the result.

Figure 5.3. Collapsed section of embankment

The average depth of any observed ancient cultural material along the exposed cut bank extended to about 2.5 m from the present surface (Figure 5.4). Below this lens of cultural material is a substratum of sedimentary deposits creating a vertical wall ranging from 7 m to 12 m in height. In order to access the upper portion of the embankment, I constructed a harness with a supplemental safety line and lowered co-director Hernández over the edge to conduct the profiling (Figure 5.5 and 5.6).

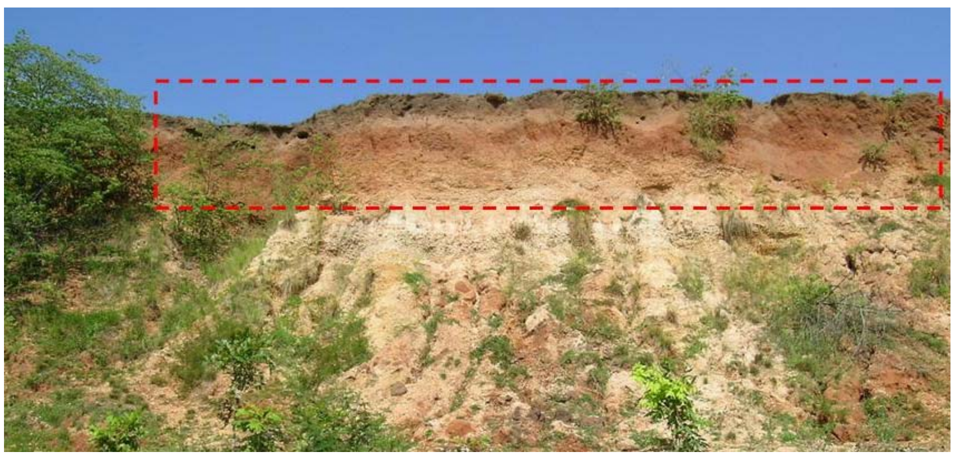

Figure 5.4. View to the west of cut bank in Field 7. The cultural material is outlined in red and is limited to upper 2.5 m of profile.

Figure 5.5. View to the west during the profiling of segment 1A


Figure 5.6. View of profiling river cut bank segment

<u>The Profile Segments</u>

A series of five individual locations along the river cut bank in Fields 1 through 7 were selected for collection and profiling (Figure 5.7). The locations were selected based on in situ cultural artifacts and features that were visible along the face of the bank. Each stratigraphic profile was 2 m wide and varied in height according to the cultural deposits present.

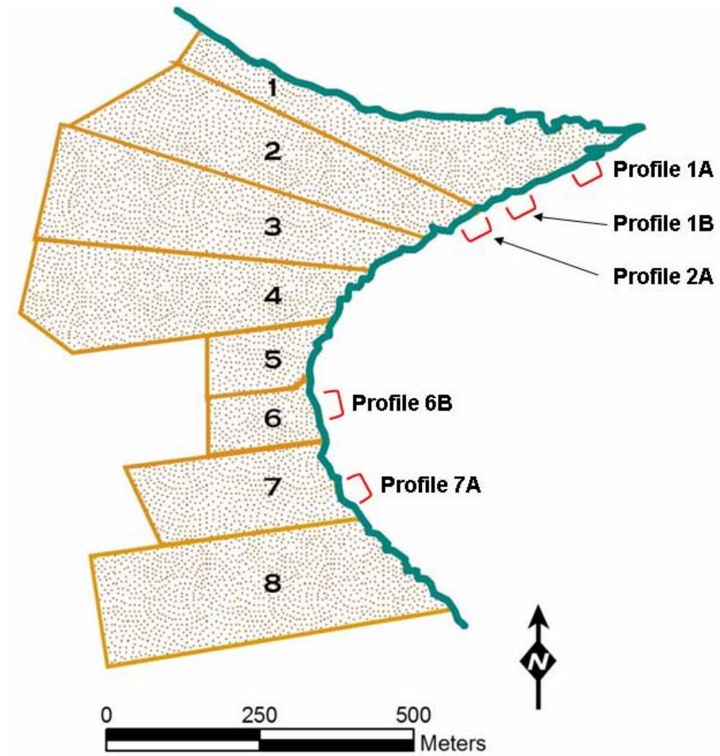

Figure 5.7. Site map illustrating locations of river cut bank profiles.
Note that red brackets are not drawn to scale.

In each of the five profiles illustrated in Figures 5.8 through 5.12, the lettered red asterisks identify locations where soil specimens were taken for future analysis. The numbered blue icons indicate places where ceramic specimens were extracted. The pottery pieces were selected in an attempt to recover diagnostic types to assist in the chronological and spatial interpretation of the profile. The frequency (light versus heavy) and location of ceramic artifact concentrations are denoted by other symbols. In the descriptions of the profile ceramics, four chronological phases are referred to: Early Formative (c. 1500-900 BC), Middle Formative (c. 900-400 BC), Late Formative (c. 400-100 BC), and the Protoclassic period (100 BC-AD 200). The master list of the ceramic types, classifications, and descriptions is contained in Appendix 1a and 1b.

Level I throughout the site is consistent. This uppermost layer is made up of semi-compacted dark grey humus (Munsell 7.5YR3/2) that, for the most part, contains little cultural material. Mechanized tilling over the past three decades has effected whatever artifacts were present in this upper level and all are small, broken, or highly eroded. The colors used in the computer generated profiles do not portray the true color of the soils, and were employed to more clearly differentiate changes in the stratigraphy.

River Cut Profile 1A

This segment is located on the southeast perimeter of Field 1 and is representative of several locations along the river cut bank in Fields 1 through 7. Level I is a natural layer of soft to semi-compacted humus (Munsell 7.5YR3/1) (Figure 5.8). The few ceramics present in this level are small and diagnostically unrecognizable due to damage caused by repeated agricultural cultivation, cattle grazing, and natural erosional effects. This situation is true of Level I in all profiles. There is evidence of insect and rodent activities and effects of plant and tree roots. Gravel fill is present, but well dispersed from repeated manipulation of the surface.

The presence of gravel anywhere on the site within the top 2 m is significant. River gravel (~0.5 to 5 cm in size) is ubiquitous, but natural sedimentary deposits only appear at levels that are more than 3.5 m below the present surface. Any occurrence of this gravel near the surface is a result of intentional human activity that is generally associated with the construction of architectural features.

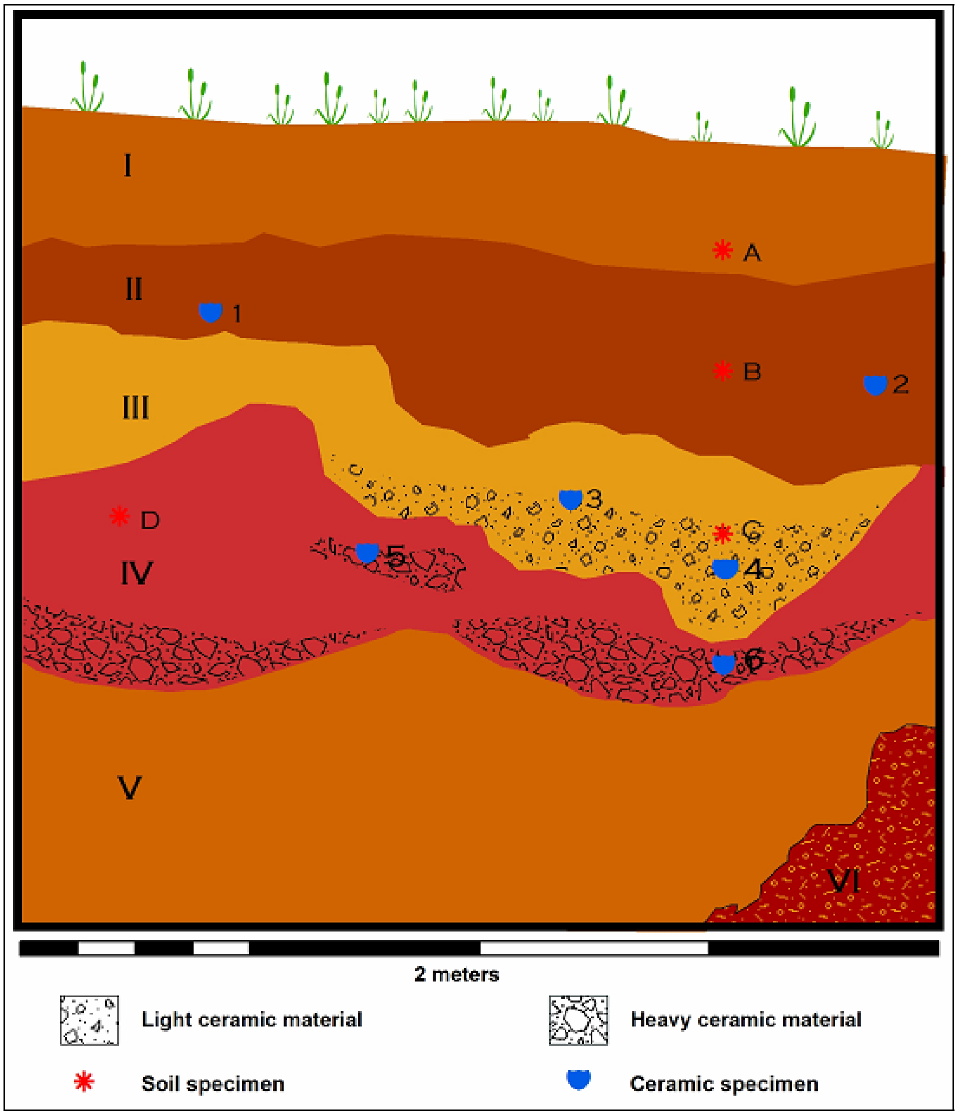

Figure 5.8. River cut profile 1A

Level II is composed of soft, dark brown to dark grey sandy loam (Munsell 7.5YR3/2) (see NRCS 2006). Gravel is slightly more abundant than in Level I as are ceramic sherds, but they are still small and eroded. Level III is a yellowish brown sandy loam (Munsell 7.5YR4/3) that contains less gravel but significantly more ceramic material that is generally larger and better preserved. The density and compaction of ceramic material increased toward the bottom of the level, possibly suggesting an intentional deposition.

Level IV is a well-compacted mixture of reddish loamy sand (Munsell 7.5YR3/4), and ceramic artifacts comprise virtually all of cultural artifacts in this layer. Sizes of the sherds vary widely, and the high concentration at the lower levels suggests a refuse deposit. The lack of organic or other domestic-related artifacts may indicate that this material is waste from ceramic production as opposed to normal household debris. Reddish sand constitutes Level V, an apparent natural level that contains no cultural material. Level VI is the uppermost appearance of natural river gravel.

The ceramics in this profile section present a mixed context. In Level II, the recovered ceramics identified as 1 and 2 are diagnostic of the Middle Formative period (Type 11.1). Level III contains the same type (11.1) plus examples from the Early Formative (11.4), and Late Formative (11.4a and 21.1) periods. Type 420.1 is also present in this level and is considered transitional between the Late Formative and Protoclassic periods. Level IV contains Early (31.2) and Late Formative (21.2), and Late Formative to Protoclassic transitional (81.4). The deposition and mixture of these pieces from various periods is demonstrated throughout much of the Field I area and may suggest a long term waste disposal site for an enduring ceramic production tradition.

River Cut Profile 1B

This profile lies on the southern embankment of Field 1 between Mound 84 and the remnants of Mound 107. Level I is similar to that in Profile 1A, with the upper 10 cm to 20 cm containing the same soil type and dispersed gravel (Figure 5.9). Below this

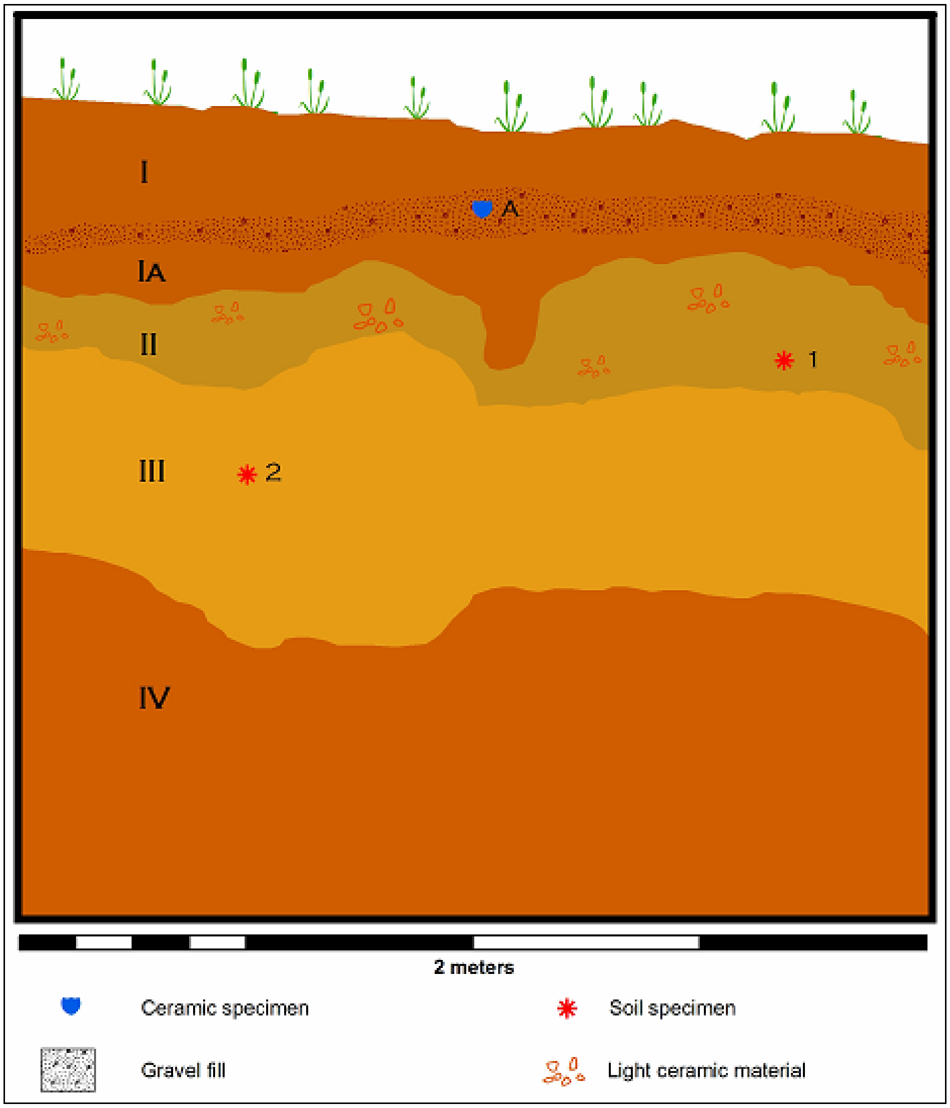

Figure 5.9. River cut profile 1B

initial layer, however, is a 10 cm deep stratum of sand and river gravel that is believed to be the base of a constructed platform. The presence of Early and Middle Formative ceramics (Types 11.1 and 31.2) in this stratum appears to support the hypothesis that this was construction fill.

The yellowish soft sandy loam in Level II (Munsell 10YR5/4) contains small amounts of cultural material and differs significantly from the second level in nearby

Profile 1A, a condition that may indicate construction or an earlier modification event. The reddish, semi-compacted sand of Level III in this profile location corresponds with Level IV in Profile 1A. The lack of ceramics in this location may be a result of the construction outlined above. The precise demarcation between Level III and the culturally sterile Level IV is difficult to distinguish visually, but the underlying layer is extremely hard and rocklike. Late Formative (41.1) and Transitional phase (320.1 and 420.1) ceramics in Levels II and III maintain the idea of a later construction in Level I using older fill material.

River Cut Profile 2A

The upper level of Profile 2A is consistent with the previous profiles (Figure 5.10). Level II appears to be a trash midden. Near the top of this level are pieces of burned clay suggestive of construction material, and pieces of basalt groundstone objects. Immediately below these items are a series of ceramic deposits that appear to have occurred during four deposition episodes (identified as 1, 2, 3, and 4). The layering of ceramics from four separate events suggests the long term use of this deposit site, and their relative positions are consistent with repeated, sequential dumping.

The soil is made up of a dark brown to yellowish mixture of sandy loam (Munsell 7.5YR4/4) and, although ceramics, basalt, and burned clay are present, there is no obsidian. The feature is intrusive into Level III and possibly into Level IV. Ceramic specimen 1 potsherds include Early (11.4), Middle (11.1, 11.2), Late (11.4a, 21.2, and 21.5), and Transitional (81.1). The 25 pieces of the Late Formative incised polished blackware (21.3) appear to be from a single vessel. Ceramic specimen 2 sherds contained

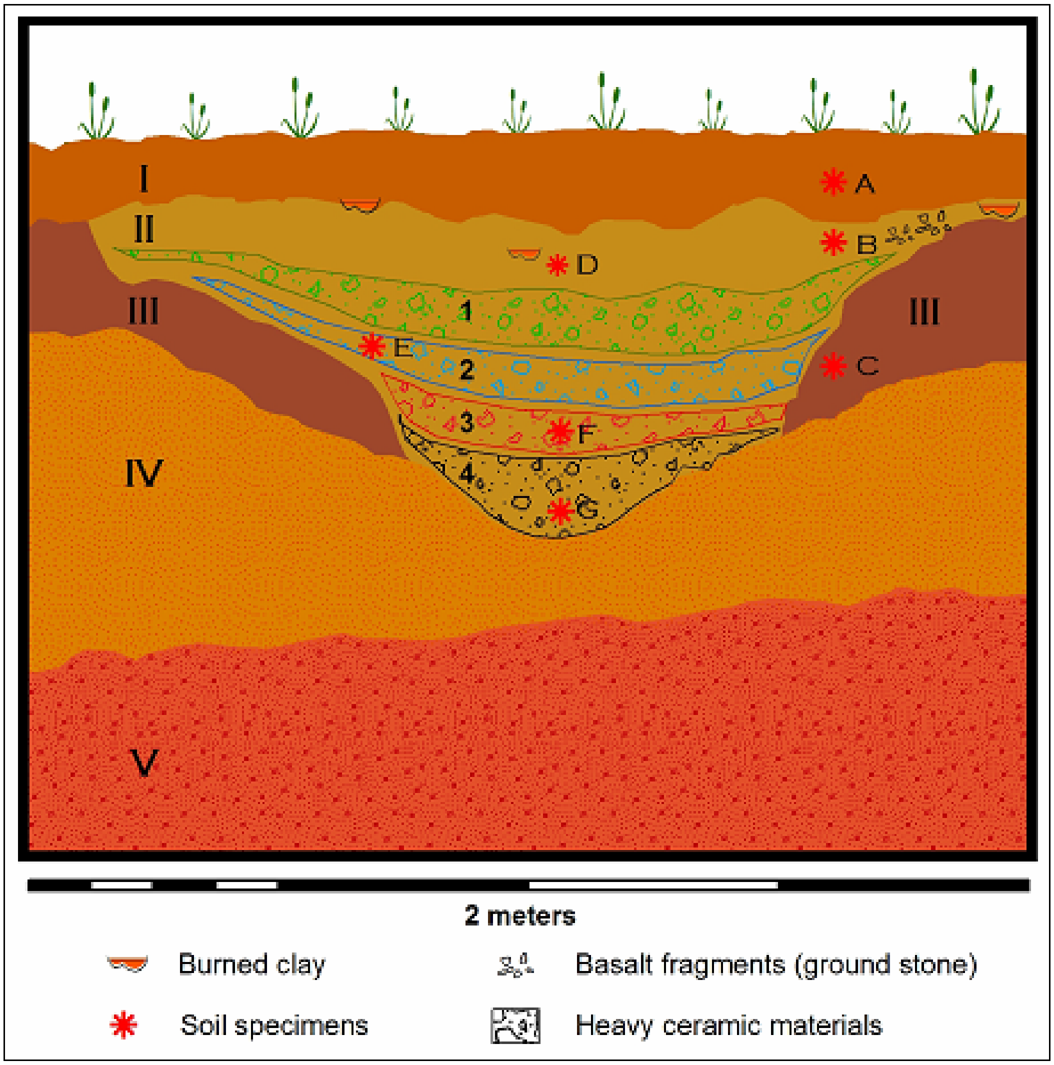

Figure 5.10. River cut profile 2A

Late Formative (21.1), and ceramic specimen 3 sherds had all four periods represented (11.1, 21.1. 31.2, and 420.1). Ceramic specimen 4 contained Middle (11.1) and Late (21.1) Formative period pieces. Various slipped and undecorated differentially fired bichromes were the primary diagnostic types and numerous pieces of Coarse Orange, considered to be non-diagnostic domestic wares, were also present and appear to be from the same vessel.

Level III is a reddish semi-compacted sand (Munsell 5YR4/6). A few ceramic pieces are present but only at the interface with Level II. Level IV is a culturally sterile, hard, rock-like natural substrate that overlies the sedimentary river gravel of Level VI. These types of depositional layers are found primarily in Fields 1, 2, and 3.

River Cut Profile 6B

Other than the equivalence of Level I to the rest of the site, Profile 6B demonstrates a different stratigraphic pattern than those previously presented (Figure 5.11). Although ceramic artifacts are sparse, this location appears to be part of a low earthen platform and is approximately 10 m south of an area containing significant quantities of Early and Middle Formative pottery. This spatial distribution along with the stratigraphic evidence may suggest that a building occupied the top of the platform and that waste was deposited off to the side. Soil specimens were taken for future analysis from locations noted in the drawing.

Level II is a relatively consistent layer of yellowish soft sandy loam (Munsell 10YR5/4) that contains little cultural material, At the bottom of this level is a line of highly compacted red sand that ranges from only a trace to 4 cm in thickness. Level III appears to be a mixture of sand and ash that is divided into four layers by three hard compacted, red sand lines. These lines diminish in thickness left to right and disappear over the right half of the profile where the soil becomes highly mixed. There is even less cultural material in this layer than in Level II.

Mixed sandy ash with some clay comprises Level IIIa. It is fairly well compacted and divided from Level IV by a well-compacted red sand line. A slightly greater quantity

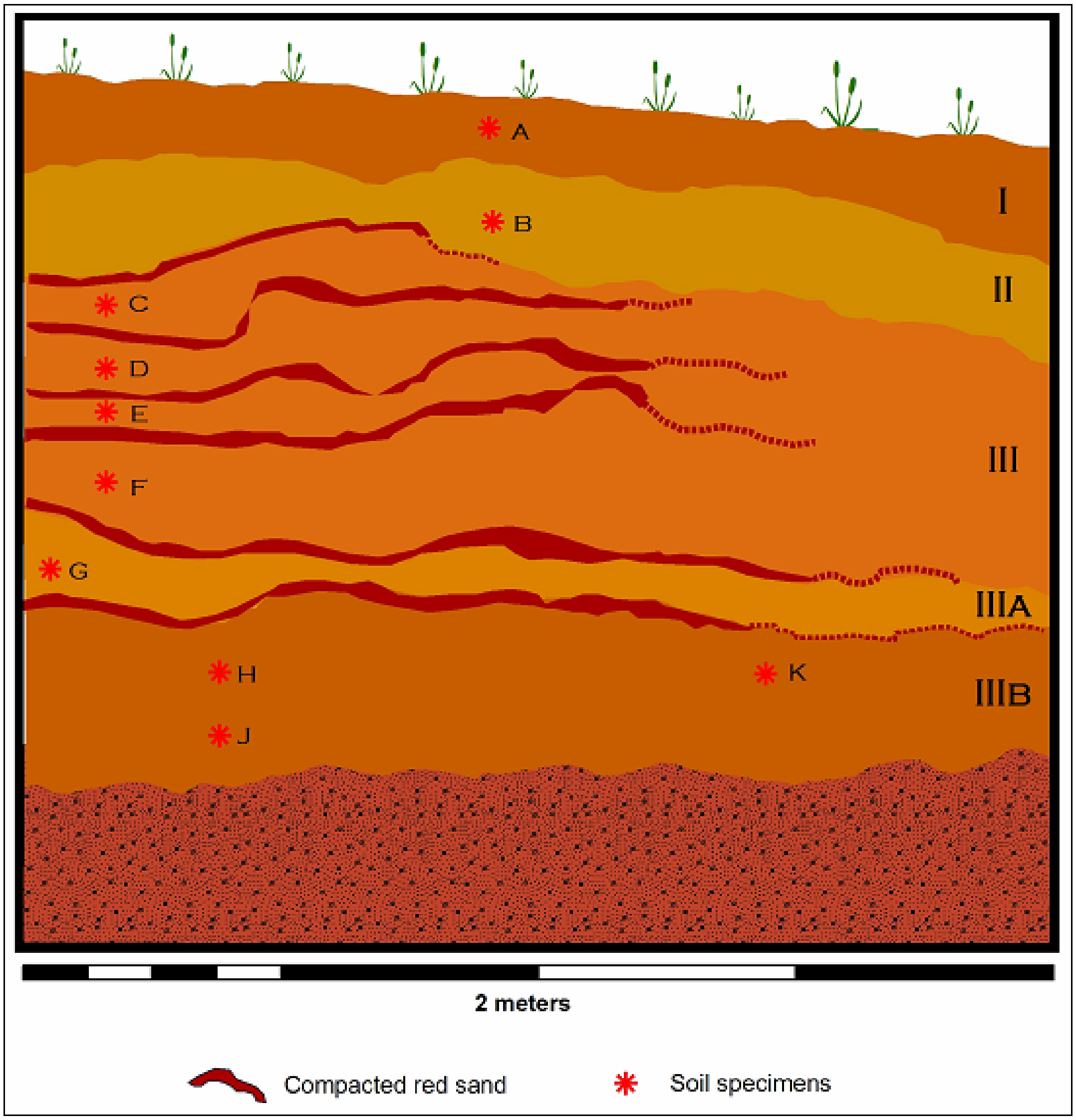

Figure 5.11. River cut profile 6B

of ceramics is present including Early (31.2 and 71.7), Late (21.2 and 21.5), and Transitional (420.1) period specimens. Level IIIb is a sandy clay mixed with ash and contains the same measure of ceramics as the previous level. The red sand lines may be evidence of floors of the types recorded at San Lorenzo (Vega 1998). Below this layer is Level IV, a natural segment of gravel and sand.

River Cut Profile 7A

This profile is contained within Platform 111. The uppermost level continues to be consistent with all others depicted. Level II is composed of four separate layers of highly mixed sandy loam that are divided by lines of highly compacted red sand (similar to lines described in Profile 6B) (Figure 5.12). This level is not consistent with other site profiles, and its complexity suggests numerous activities and events. Transitional Late

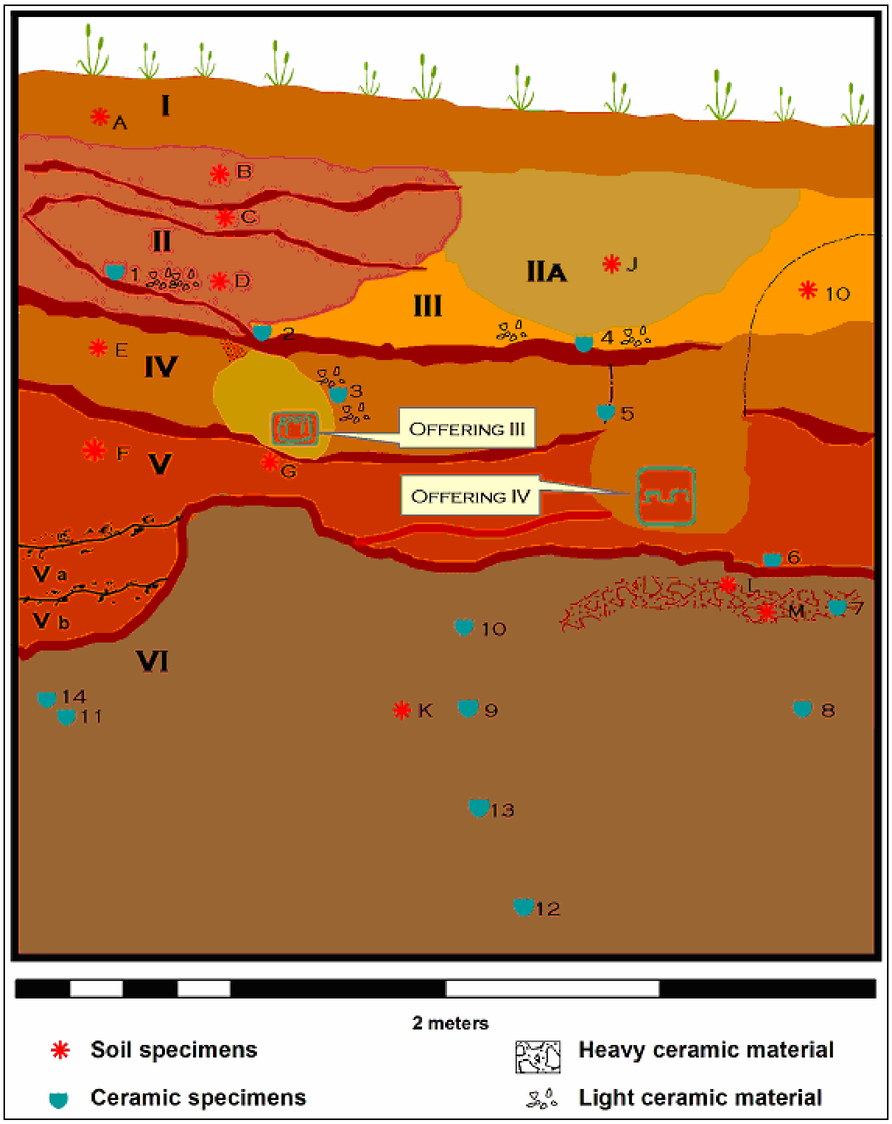

Figure 5.12. River cut profile 7A.

Formative to Protoclassic ceramics (420.1 and 81.4) were recovered from ceramic specimen location 1. Level IIA is an area of highly mixed sand and silt that is void of cultural material and is possibly intrusive into Level III. Level III is a highly mixed composite of reddish-yellow, semi-compacted, sandy and silty loam, and contained Early (31.2) and Late (11.4a) Formative ceramics in the area directly below Level IIA.

Level IV is a mixture of reddish colored, semi-compacted sand and ash or ash-like substance. Offering III was located in this level, and the small sand wedge directly above it is an indication of intrusion. The angle and degree of erosion to the river cut bank at this point have masked the remainder of the intrusive pit above the offering. In the profile drawing, the thick, red sand line above the offering appears unbroken when, in fact, it is actually behind the offering. There is another similar red sand lens lining the bottom of the level. Ceramic specimen location 3 contains a mix of Early (71.7) and Late (11.4a) pieces possibly the result of the disturbance caused during the deposition of Offering III.

The intrusion of Offering IV passed completely through Level IV and was placed midway into Level V. Ceramic specimen 5 is Early Formative (31.2) and appears to have been relocated during the intrusion of the offering. The quantity of ash-like material mixed with sand is much higher here than in previous levels. A third line of highly compacted red sand underlies this level as well. These three lines are wider than the ones observed in Level II and may represent floors similar to the sand floors documented at San Lorenzo (Vega 1998). Levels Va and Vb contain less ash and sand, and dispersed gravel is mixed into this aggregate. This area appears to be a deposit at the bottom of Level V. On the opposite side of the profile, Early Formative Calzadas Carved and Limon Incised (11.4) were recovered in ceramic specimen location 6.

Level VI is a layer of sand and gravel that was mixed and modified. Contained in a portion of this level is a quantity of burned clay that acted as a floor with small amounts of ceramics scattered on its surface. All diagnostic material recovered in the ceramic specimens from this level are Early Formative (11.4).

The Ceramics of El Marquesillo

In the area of study, newly tilled fields continually reveal potsherds, and the upper portions of the exposed river cut contains 0.5 to 1.5 m deep layers of ceramic pieces that, in some cases, extend for hundreds of meters. The ubiquity of ceramics within specific, albeit sizable, areas of the site suggest possible long term production. On the contrary to this prominence of pottery is the absence of other types of associated artifacts or materials. Occasionally, 5 to 10 cm pieces of river gravel are noted that, after macroscopic examination (10x magnification), may have been used as polishing or burnishing stones based on their form and wear.

Ceramic artifacts were recovered through a surface collection, a collection along the base of the river cut bank, the 2002 Olmec throne excavations, the 2003 test unit excavations, and the stratigraphic cut bank profiles. For comparison, 1.3 obsidian artifacts were recovered per cubic meter of excavated soil. Ceramics, on the other hand, were recovered at a rate of 264.4 pieces per cubic meter. Unquestionably, the elimination of sampling bias would lessen the disparity, but the overwhelming prominence of potsherds would probably be little diminished.

The analysis of El Marquesillo's ceramic assemblage provided chronological cross-ties to well-established contemporaneous regional ceramics through comparison of fabrication methods, technologies, forms, and decoration. The result was a ceramic chronology that is used to assess the spatial distribution of temporally diagnostic types in order to understand the occupation of the site. The qualitative analysis of the ceramic artifact assemblage informs also on the socioeconomic structure and political economy of the site. Counts of identifiable types are provided in Appendix 2.

As more work is done, however, El Marquesillo's role and level of participation in interregional exchange systems and interaction spheres can be better identified. These future analyses will permit a varying scale of analysis that ranges from discrete intra-site locations (e.g., middens or offerings) to site-wide considerations. As well, regional considerations can be made when ceramic distributional occurrences are recovered and evaluated at neighboring and intraregional sites.

The following is a summary of the methods of analysis, an explanation of the primary types of chronologically diagnostic wares, and examination of where and how the artifacts were recovered. At this stage of the investigation, the chronology remains rather coarse. Temporal segments include the Pre-San Lorenzo period (c. 1500-1150 BC), the San Lorenzo Olmec period (c. 1150-900 BC), the Middle Formative period (c. 900-400 BC), the Late Formative period (c. 400-100 BC), and the Protoclassic (c. 100 BC-AD 200), Early Classic (c. AD 200-550), and Late Classic periods (c. AD 550-900). Transitional period wares are also identified, and the spatial distribution of all chronologically diagnostic pieces across the site is demonstrated, including 18th to 20th century Spanish Colonial and European wares.

Analytical Methods

The procedures used for ceramic analysis were modeled after those employed by Rodríguez and Ortíz (1997) during the Manatí Project in the Coatzacoalcos Basin. This system combines the type-variety system with modal characteristics. Ceramic categories and classification were defined according to paste color, compactness, type and size of temper, surface finish and color, plastic or painted decoration, and form (Rodríguez and Ortíz 1997:74). Identification incorporated analysis of ceramic specimens from the Tuxtla Mountains (Ortíz 1975; Ortíz and Santley 1989), San Lorenzo (Coe and Diehl 1980a), Tres Zapotes (Drucker 1943a, 1952b; Pool 2003), and Laguna de los Cerros (Bove 1978). Hernández has extensive experience in regional ceramic analysis and oversaw the examination that was conducted in the INAH laboratory in Veracruz. Ortíz (Universidad Veracruzana) and Rodríguez (Centro INAH Veracruz), recognized specialists in Southern Veracruz ceramics, were consultants to the analysis. They reviewed procedures and determinations and provided direction, support, and advice throughout the process.

Chronologically Diagnostic Ceramics

The chronology of ancient El Marquesillo was proposed through the identification of temporally diagnostic pottery recovered at the site that conforms to an acknowledged ceramic timeline that has been developed for the Formative and Classic periods (see Coe and Diehl 1980a; Ortíz 1975; Ortíz and Santley 1989; Pool and Britt 2000). The ceramics recovered and analyzed at the site of San Lorenzo offer a realistic comparative sample for some of the Formative period wares at El Marquesillo and are referred to when appropriate.

Analysis of chronologically diagnostic ceramic types conducted in 2003 used a four digit classification system; in 2004 and 2005, a more refined two digit system was employed for identification. The ceramic type numbers are presented below in parentheses following their descriptive label and reflect one or both of the systems. Appendices 1a and 1b contain listings of all the types contained in both systems along with their chronological assignment (for further details see Hernández 2003; Hernández and Doering 2004, 2005).

The Pre-San Lorenzo Olmec Period (c. 1500-1150 BC)

The pre-Olmec period is represented primarily by tecomates; curved walled, restricted rim jars with no neck (Lesure 1998:19). Examples at El Marquesillo include, among others, Ojochi phase Achiotal Gray type (c. 1500-1350 BC) (Figure 5.13), Bajío phase (c. 1350-1250 BC) rocker-stamped (Figure 5.14) and Chicharras phase (c. 1250-1150 BC) Tatagapa Red types (Coe and Diehl 1980a:139, 150-158) (Figure 5.15).

Figure 5.13. Examples of Early Formative, Ojochi phase tecomate rims

Figure 5.14. Examples of Early Formative, Bajío phase tecomate rims

Figure 5.15. Examples of Early Formative, Chicharras phase tecomate sherds

The San Lorenzo Olmec Period (c. 1150-900 BC)

Two of the traditional types representative of this period, are Limón Incised (1201) (Figure 5.16) and Calzadas Carved (1202) (Figure 5.17). Figure 5.18 illustrates a variant of San Lorenzo's Limón Incised pottery (1201) (Coe and Diehl 1980a:171-174). This flat bottomed vessel was found in situ among other Early Formative period pieces in Field 6, and it is representative of numerous other sherds containing the same type of decorative pattern, incision, paste, and color.

Figure 5.16. Examples of Early Formative, San Lorenzo phase, Limón Incised

Figure 5.17. Examples of Early Formative, San Lorenzo phase, Calzadas Carved

Figure 5.18. Example of late Early Formative ware

The Middle Formative Period (c. 900-400 BC)

Tecomate forms continue from the Early Formative into the early Middle Formative period. The same holds true for the plain White and Black Differentially Fired Bichromes (Type 1101). A change to notably finer pastes and new forms occurred in the Middle Formative period and is represented by type 11.1. Figure 5.19 illustrates examples of incised double line break variants of this ware (1102 and 11.2).

The Late Formative Period (c. 400-100 BC)

This period witnessed a transitional Fine Gray ware (3101) that began in the Middle Formative period. Markers of the Late Formative are Polished Black wares; many include incised designs (Types 21.1-21.4 and 2101-2103). The Remplás phase, Ixpuchuapa Incised wares from San Lorenzo is a near duplicate of the Late Formative El Marquesillo wares illustrated in Figure 5.20 (Coe and Diehl 1980a:208-213). At El

Figure 5.19. Examples of Middle Formative, double line break variants

Marquesillo, slipped versions of Differentially Fired Bichromes (1101.B, 11.3, 11.4A, 11.5, and 11.6) and variations of them that include enlarged or elaborated borders around the rim, medial, and basal portions are also considered diagnostic of the Late Formative, but appear to be modifications to the standard type from the Middle Formative period (1103).

Figure 5.20. Examples of Late Formative, Remplás phase variants

The Protoclassic Period (c. 100 BC-AD 200)

The Protoclassic period wares all appear transitional. They extend into the period from the Late Formative and continue into the Early Classic period. There are several examples of the former, including Red Paste wares (81.1, 81.2, 81.4, and 81.5), an Eroded Gray (320.1), Eroded Gray with a red slip (310.2), and a similar Eroded Orange (420.1) and Eroded Orange with a red slip (420.2).

Two types of Differentially Fired Bichromes include a Black and White with a fine to medium sand paste (11.11) and a Black and Light Cream with a fine to medium sand paste (11.12). A Black and Orange Plain (1105), Black and Orange Medium Sand Temper (1105A), and black and orange incised (1106) continued into this period from the Late Formative. We reason that these types of Differentially Fired Bichromes are continuations or variations of traditional wares that began in the Middle Formative period. They underwent technological modifications in the Late Formative and again in the Protoclassic.

The Early Classic Period (c. AD 200-550)

A Fine Cream ware with an orange slip (5102) and another Fine Cream with medium temper (5103) are believed to be transitional from the Protoclassic period, as are the Eroded Red wares (8101, 8102, and 8105). A series of Fine Orange wares are also identified from the Protoclassic and include Fine Orange Incised (4102), with red slip (4103), Polished Orange (4111), and Brown slip on cream or orange/cream paste (4201).

The Late Classic Period (c. AD 550-900)

A series of Fine Orange wares are assigned to the Late Classic or Villa Alta phase. These types include an undecorated or plain variant (41.1 and 4101), one with a dark core (41.2), Fine Orange with an orange slip (4104), and another with a white slip (4105). The vessel forms of these later types vary significantly from any of the earlier types, and there is substantial advancement in the production and firing technologies as well. Offerings III, IV, and V described in this chapter provide examples and further information about the ceramics of this period.

Postclassic Period (c. AD 900- 1500)

At this point in the investigation, no ceramic wares have been linked definitively to the Postclassic period at El Marquesillo. Continued work by Hernández in southern Veracruz suggests that little change occurred in the El Marquesillo region and in areas further east of the San Juan Basin during periods subsequent to the Villa Alta occupations (Lourdes Hernández personal communication, 2006). Recent work in the region has indicated that ceramic wares and associated technologies of the Late Classic period extended well into the Postclassic, possibly up to the time of European contact (Arellanos-Melgarejo and Beuregard-García 2001; Esquivias 2002; Pool 2006; Santley and Arnold 1996).

Colonial and European Ceramics (c. AD 1500-1940)

A variety of post-contact period ceramics are present at El Marquesillo. Identification of these ceramics was made with the assistance of Judith Hernández

Aranda, a Centro INAH Veracruz archaeologist and specialist in Colonial and European ceramic wares. Identifiable wares date from the 1700s to early 1900s. Ceramic artifacts from this time period were recovered during the 2003 surface survey and collected in site quadrant N13-W23, an area approximately 500 m west of Field 1 (Figure 5.21). The diagnostic types recovered include Mexican and European wares. The recovery of these artifacts demonstrates a restricted pattern of deposition that suggests the Formative period features were not impacted by early European occupations.

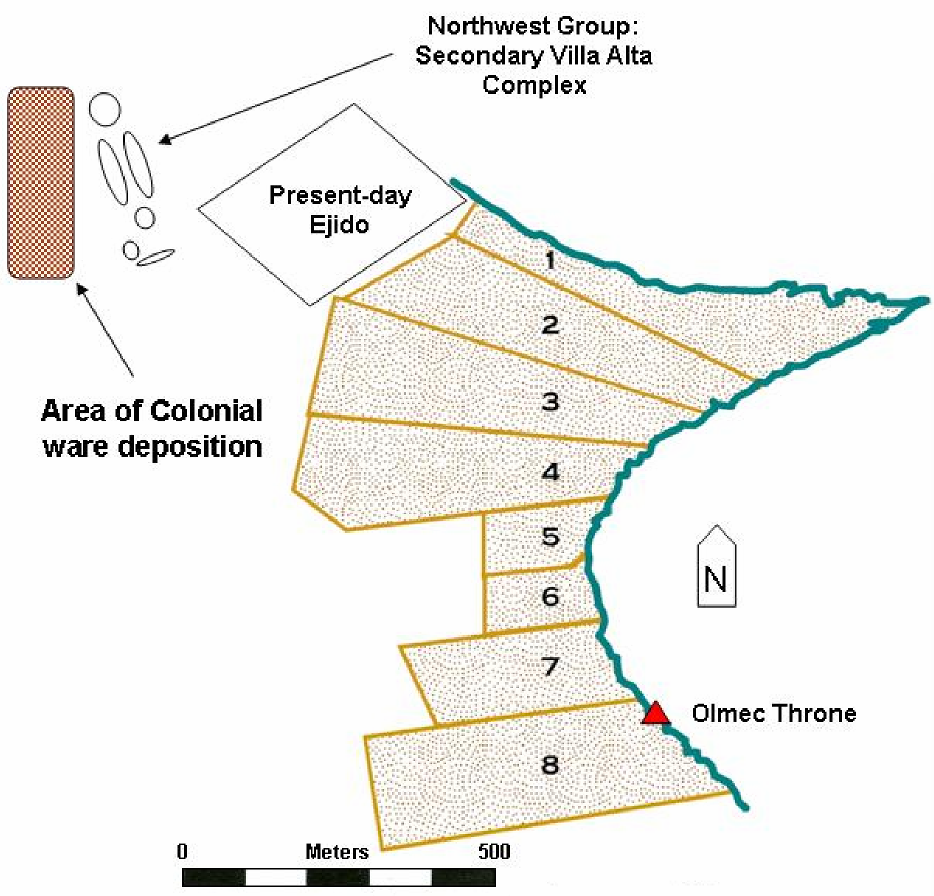

Figure 5.21. Map of El Marquesillo illustrating location of Colonial ware deposits

English annular ware (c. AD 1785-1840) are ringed or banded ceramics consisting of plates and shallow bowls that were mechanically turned for the painting of the designs (Hume 1972) (Figure 5.22). Examples of English blue, red, and black transfer-printed wares common during the early and middle 1800s were also recovered. The decorations are usually varieties of pastoral, naturalistic, or commemorative designs on plates and shallow bowls (Hume 2001: 209-222) (Figure 5.23). Pieces of Loza Fina Blanca, a hand painted white porcelain (c. 1815-1860) contained the traditional floral patterns, which were painted prior to glazing (Figure 5.24). Various types of English refined earthenwares, known as pearlwares, were also represented at El Marquesillo including plain fine white and blue edged, both of which were produced c. AD 1785 to 1840.

Mexican wares referred to as colonial red and colonial vidriado were identified as used in utilitarian vessels. Examples of the Puebla Majolica Tradition wares of the type produced from the 17th to 19th centuries were present as well (Figure 5.25). Specimens of German brown earthenware (c. 19th century) were also recovered as was a portion of a white bottle from Glasgow, Scotland dating between the late 1700s and the 1800s (Judith Hernández Aranda personal communication, 2005).

Figure 5.22. Examples of English annular ware c. AD 1785-1840

Figure 5.23. Examples of English blue, black, and red transfer-printed wares c. 1815-1860

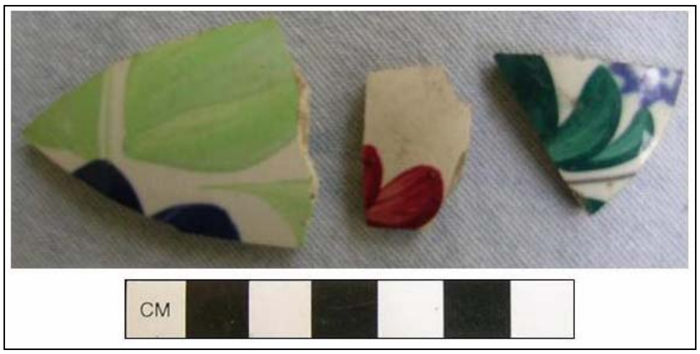

Figure 5.24. Examples of Loza Fina Blanca, a hand-painted white porcelain c. 1815-1860

Figure 5.25. Examples of the Puebla Majolica Tradition wares, 17th to 19th centuries

Ceramic Collection Areas

The identified ceramic collection from El Marquesillo contains in excess of 34,000 potsherds that were assembled from numerous locations and by various methods (see Table 5.1). Thousands more were unidentifiable due to the erosional effects of the acidic soils, high humidity, and anthropogenic activities (Coe and Diehl 1980a:131). The unit excavations around the Olmec throne during its rescue operation included 3,894 sherds. The associated Offerings I and II contained 3,348 and 1,055 additional pieces respectively, and a concurrent pedestrian collection of the cut bank profile generated 7,057 pieces (Hernández and Barrera 2002). In late 2002, seven 1.5 x 1.5 m test units were excavated in Fields 1 and 2 where 14,315 potsherds were recovered (Hernández 2003). In 2003, a surface collection was conducted that accounted for 4,756 ceramic pieces (Hernández and Doering 2004). In 2004 and 2005, collections were conducted during stratigraphic profiling of the cut bank that amounted to 209 pieces. Additional surface collection surveys of the river cut bank and agricultural fields in and around the survey area provided supplemental chronologically diagnostic ceramics (Hernández and Doering 2005).

Table 5.1. Ceramic Collections conducted at El Marquesillo

Ceramic Collection Area	Quantity
Olmec Throne Recovery Excavations	3,894
Olmec Throne – Offering I	3,348
Olmec Throne – Offering II	1,055
River Cut Profile	7,057
Northern Test Units	14,315
Surface Collection	4,756
Stratigraphic Profiles	210
Total	34,671

Ceramics from the Surface Collection

In October 2003, a surface collection was conducted, and artifact recovery identification was made according to a site grid composed of units measuring 50 x 50 m (2,500 m^2) (Hester et al. 1997:208-212). The datum point, identified as N0/W0, was arbitrarily placed approximately 10 m west and 5 m south of the Olmec throne location. Each grid unit was identified by the number assigned to the north-south and east-west lines that intersected at the northwest corner of the square. The survey grid eventually covered an area in excess of 2 km^2 (2,000,000 m^2), and extended well beyond Fields 1 through 8.

The surface visibility of El Marquesillo Fields 1 through 8 was medium and relatively consistent. The cultural visibility or obtrusiveness of the site is high. Most architectural remains are clearly identifiable and there are no modern structures present. The uppermost 20 to 30 cm of the surface has been subjected to manual and mechanical farming techniques (e.g., plowing, tilling, and disking), as well as grazing livestock. Nevertheless, surface and plowzone collections can provide informative data when properly applied (Dunnel and Simek 1995), and can support inferences about site types, occupation, and activity areas (Schlanger and Orcutt 1986).

Of the 4,756 ceramic sherds recovered during the surface collection, 1,330 were chronologically diagnostic (Figures 5.26 and 5.27). Because some pieces were identified as transitional between two periods, such as Middle to Late Formative or Protoclassic to Early Classic, these quantities were arbitrarily divided equally between both periods and added to the appropriate period and plotted according to their site grid location. The

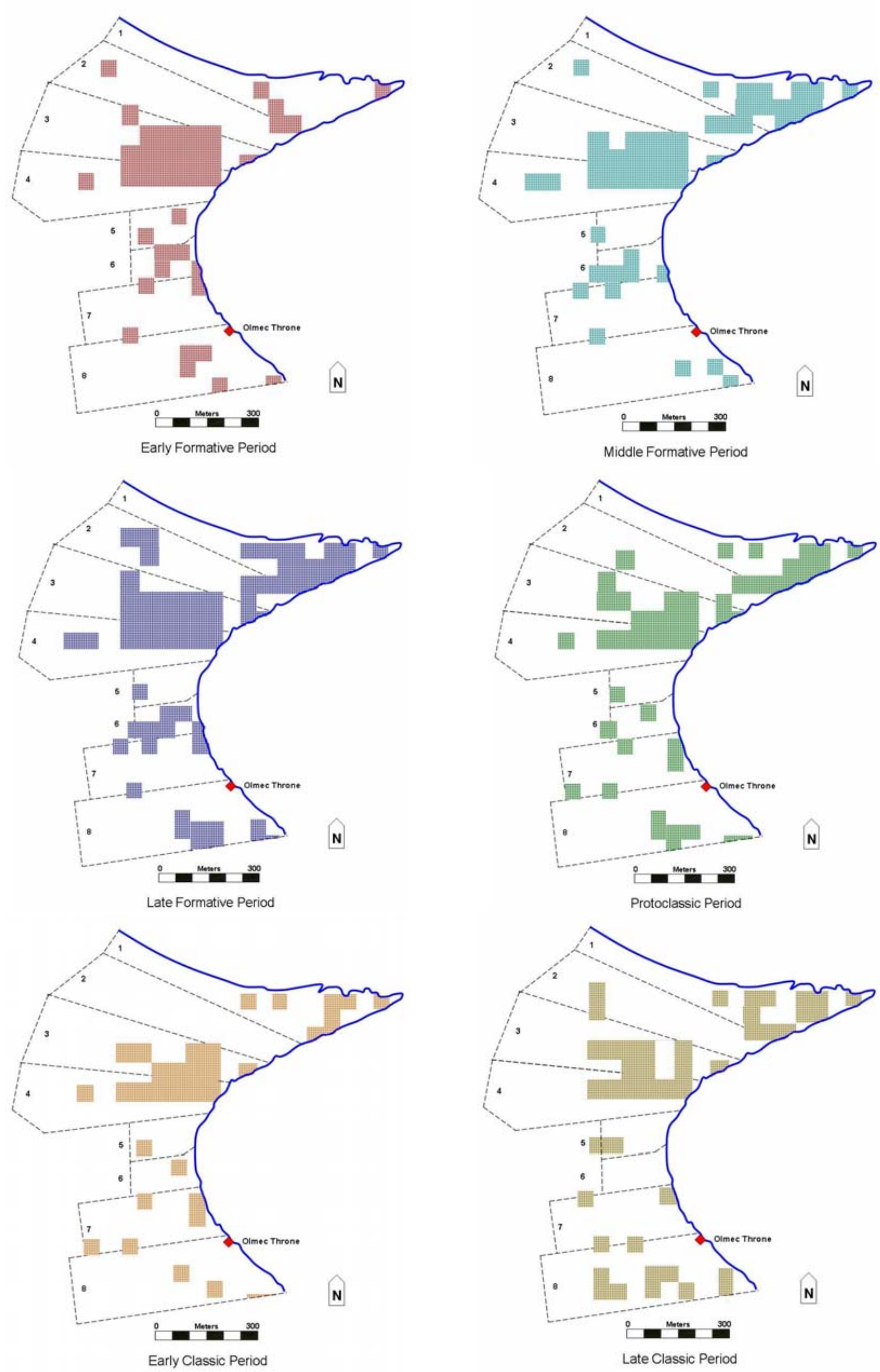

Figure 5.26. Distribution of ceramic artifacts recovered during surface collection

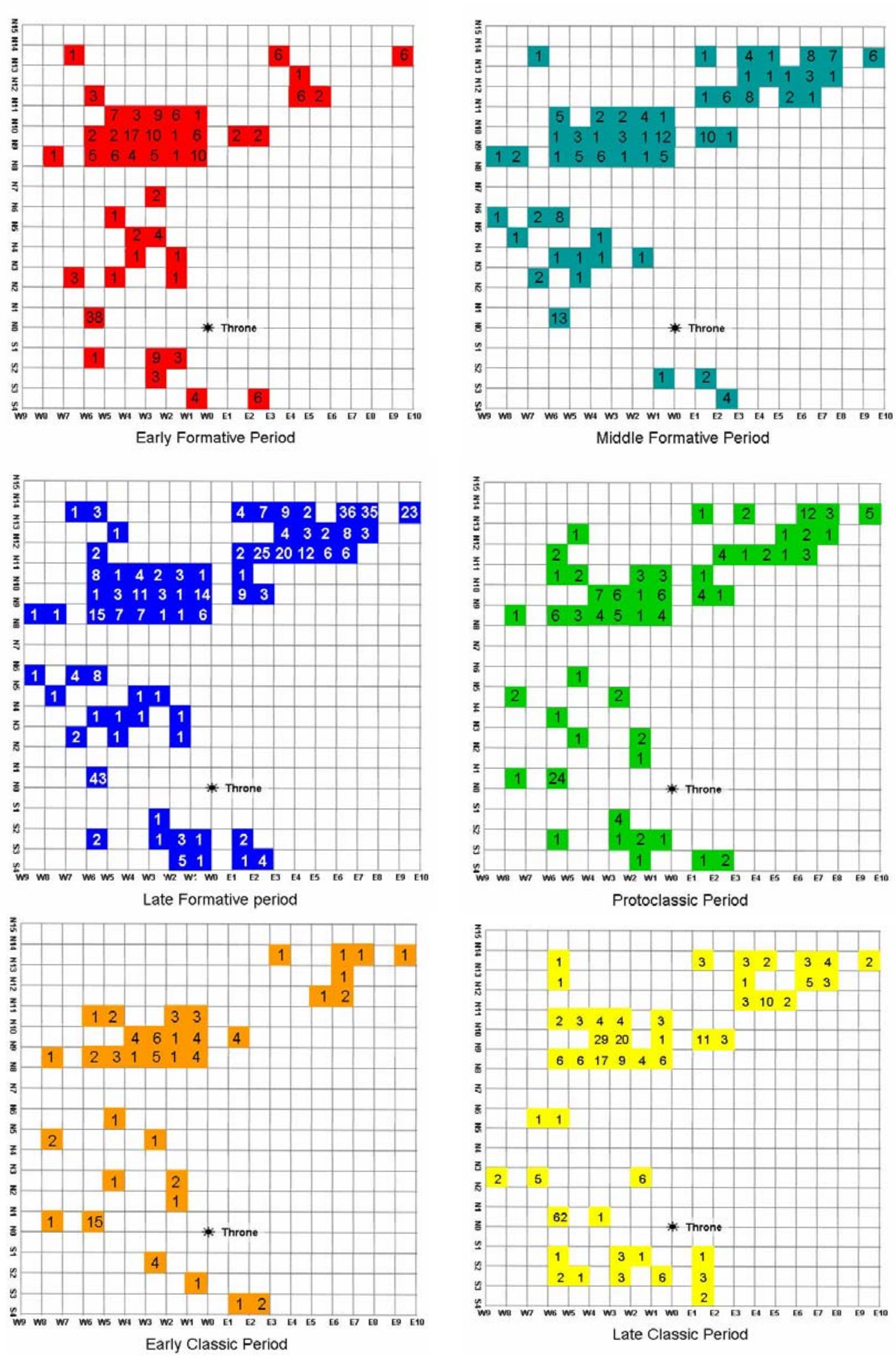

Figure 5.27. Quantities of chronologically diagnostic ceramics recovered during the surface collection at El Marquesillo

Formative period accounted for 785 pieces covering 76 units or 190,000 m^2. The Classic period material amounted to 545 pieces contained within 70 units or 175,000 m^2.

Figure 5.26 illustrates the distribution of chronologically diagnostic ceramics recovered during the surface collection across Fields 1 through 8. Field numbers are provided along the western border of the field. A clearly distinguishable factor demonstrated in these comparative maps is the consistency and repetitiveness of the depositional pattern through all time periods. Figure 5.27 demonstrates the quantities of chronologically diagnostic ceramics present within the deposition grids for each time period. Although the quantities change significantly, as noted, the general areas of deposition remain quite uniform. Whether this indicates similar residential or activity locations has yet to be determined, but the stability of these factors suggests a strong continuity in the use of space at the site.

<u>Ceramics from the River Cut Bank</u>

Numerous separate collections were made along the river cut bank from 2002 to 2005. The initial collection was conducted in conjunction with the Olmec throne rescue project in January 2002, and was performed along the approximately 1.5 km-long base of the west bank of the San Juan River (see River Cut Stratigraphic Wall Profiles in this chapter). The artifacts were recovered on the surface of the ground immediately below the 6 m to 8 m high embankment, but they were not found in situ. It was the early annual dry season in Southern Veracruz at the time the collection was carried out, and the flood waters from the previous rainy season had recently receded from the lower river bank. The collected material had been repeatedly submerged and subjected to movement by the river's actions. Figure 5.28 illustrates a portion of the upper and lower embankment during the river's August 2004 flood stage. Due to these conditions, the 7,057 recovered ceramic pieces were highly mixed and displaced from their original deposition location. While they can offer support for the chronological occupation of the site, they cannot provide dependable spatial information on their primary place of disposal. Appendix 2 includes a listing and count of all identified types.

Figure 5.28. View to the west of river cut bank and San Juan River near flood stage. Note ceramic pieces embedded in darker, upper cultural layer. Structure 84 is to the upper right.

The survey was conducted along the base of the bank, which was divided into approximate 50 m long segments. Fields 1 through 8, our area of interest, were identified as segments 2 through 55 (see Hernández 2003). Within these segments, significant quantities of ceramic material, representative of all temporal periods and transitional phases, were recovered. A rough estimate shows Formative period materials accounted for 32 percent of the entire river cut bank assemblage; Protoclassic and Early Classic transitional objects amounted to 5 percent and Late Classic ceramics 7 percent. Non-chronologically diagnostic pieces that are considered domestic wares accounted for 31 percent, and the remaining 25 percent consisted of other types of non-temporally diagnostic pieces. On a strictly quantitative basis, these percentages suggest that the occupational presence in these portions of Fields 1 through 8 was most significant during the Formative period, an assumption that is consistent with inferences drawn from the surface ceramic analysis.

From November, 2003 to December, 2005, four additional surveys and collections were conducted along the river cut bank. These inspections were performed in response to the continued collapse of weakened portions of the embankment that exposed or displaced in situ artifacts. Also, following normal rainfall events, run-off from the surface washed away small amounts of soil along the upper portions of the bank. The cumulative effect of these erosional activities was the exposure or dislodging of additional in situ artifacts and their deposition further down the slope.

The artifacts collected during these surveys had not been subject to movement by river action; they had simply fallen from their place of origin. In respect to these fallen pieces, I conducted a series of drop tests over various slopes and descent distances to determine the lateral movement of these artifacts as they tumbled down the embankment. The results from these experiments consistently showed that ceramic sherds of assorted sizes, shapes, and weights landed no more than three to four meters to the left or right of their original position at the top of the bank. Due to these findings a lateral range was accorded to the recovery location of displaced ceramics that were not affected by inundation or any other taphonomic movement processes.

These later collections focused on the recovery of chronologically diagnostic materials. Analysis confirmed the presence of substantial quantities of Middle and Late Formative period ceramics along with lesser amounts of Early Formative, Protoclassic, and Early and Late Classic ceramics along the northern and eastern borders of Field 1. These findings are in accord with those from the surface collection, and the river cut bank in Fields 2 and 3 produced similar results. Greatly reduced quantities were recovered along the embankment in Fields 4 and 5. The embankment at the north sector of Field 6 contained significant Early Formative pieces, both pre-Olmec and San Lorenzo Olmec phase ceramics. The southern section of Field 6 and all of Field 7 produced Early, Middle, and Late Formative period sherds, but quantities from the later Classic periods were negligible.

Ceramics from the Olmec Throne Area Excavations

In January 2002, during the Olmec throne rescue operation, 30 contiguous 1.5 x 1.5 m units were staked out and excavated (see Hernández and Barrera 2002). Only six of the excavated units contained diagnostic ceramics, however. Figure 5.29 illustrates a plan view of the excavation units and the yellow shaded units indicate where these pieces were

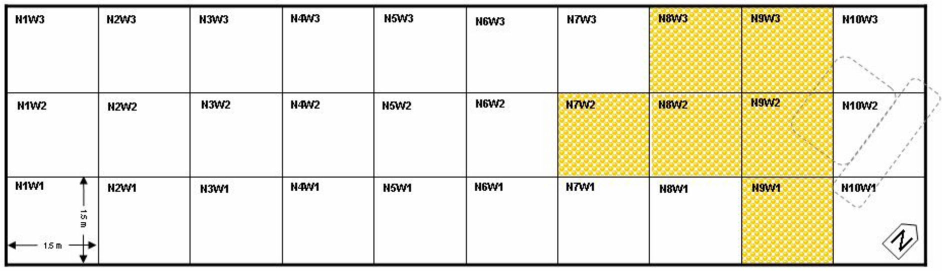

Figure 5.29. Diagram of Olmec throne excavation units. Shading indicates units where diagnostic ceramics were recovered, and the dashed outline illustrates the throne's position.

recovered relative to the throne's location. Each excavation unit is identified by its northwest corner coordinates (e.g., N1W3, N2W3, N3W3). Included in the assemblage of 3,894 pieces identifiable by type were 1,517 Formative period pieces, 255 Protoclassic to Late Classic pieces, and 1,920 pieces non-diagnostic domestic wares. Complete type counts from these six units are presented in Appendix 2. Note that materials from Offerings I or II are not included. Details of these offerings are discussed later.

The deposition of chronologically diagnostic pieces recovered near the throne is notable. All ceramics were encountered below 0.4 m below the surface, and the profile drawings illustrate that this upper layer is unbroken, effectively creating a sealed context (see Hernández and Barrera 2002). Between the 0.4 to 1.1 m levels in each unit, the soils and chronologically diagnostic ceramics are highly mixed. Early, Middle, and Late Formative potsherds are intermingled with Protoclassic, Early, and Late Classic pieces. In this stratum, the Formative period diagnostics account for 1,331 pieces and the Classic pieces amount to 250 specimens. Below the 1.1 m level, however, only Formative period pieces were recovered. The sole exception was Type 5103, a Fine Cream (Buff) ware that previously was considered indicative of the Classic period. Pool (1997:49) has recently shown that the initial appearance of this type occurred in the Late Formative period. This earlier development would explain its presence in the lower portions of Unit N8W3.

To reiterate, a layer of highly disturbed soil was documented between the 0.4 to 1.1 m levels and contained chronologically mixed ceramics. This disturbance also included a few pieces of obsidian, small pieces of basalt, and some burned clay (Hernández and Barrera 2002). No chronologically identifiable ceramics or other cultural materials were recovered in any of the other excavated units. It was also noted that the disturbance of the soil and mixing of temporal ceramics did not breech Offering I or II, which were located immediately below the outer eastern edges of this disturbance. Collectively, these conditions suggest an approximately 2m wide, basin-like hole was dug at some point during the Late Classic period to a depth of 1.1 m. The hole was then re-filled with a mixture of the unearthed Formative period materials and Late Classic period wares. Finally, this digging event was limited to this specific area.

Ceramics from the Test Unit Excavations

In November 2002, Hernández reentered the field and directed the placement and excavation of seven, 1.5 x 1.5 m test units in Fields 1 and 2 (Figure 5.30). These locations were selected due to the high density of both Formative and Classic period in situ ceramics that were present in the upper 2 m of the nearby river cut bank as well as on the surface. Also, the surface features differed substantially from the Olmec throne complex over 750 m to the southwest, suggesting a divergent type of activity area. The following is a description of the chronologically diagnostic ceramic artifacts recovered and their depositional patterns (Table 5.2).

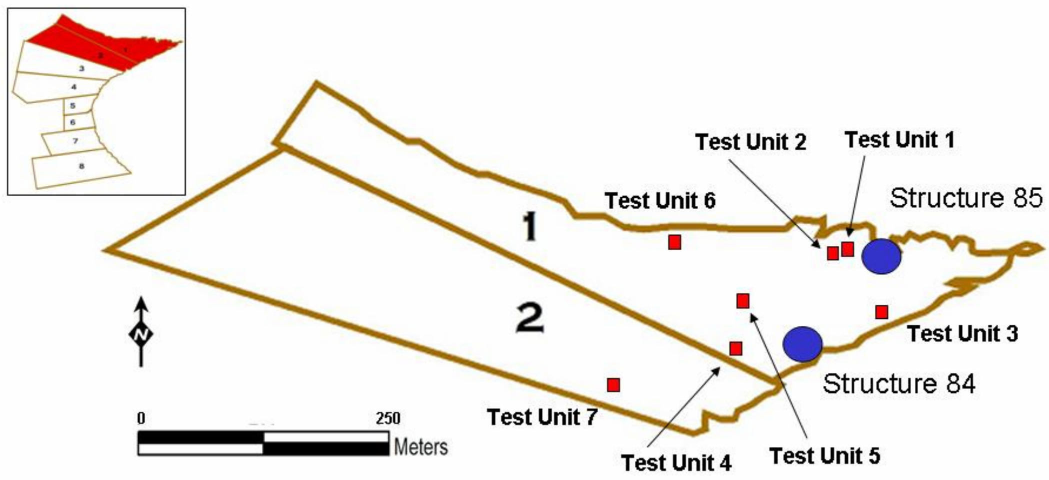

Figure 5.30. Map illustrating the location of the test unit excavations

Unit 1 was located 3 m west of Structure 86. Three stratigraphic layers were encountered. Level I (0-20 cm) is a layer of soft to semi-compacted humus that contained few ceramics. Those present are small and, in most cases, diagnostically unrecognizable due to damage caused by repeated agricultural cultivation, cattle grazing, and erosional effects. This situation is true of Level I in all test units. Levels II and III of Unit 1 contained substantial quantities of ceramics. At a depth of 1 m, a layer of highly compacted, culturally sterile clay was encountered. The unit contained ceramics from the

Table 5.2. Ceramic artifacts recovered from test unit excavations

Unit	Early Formative	Middle Formative	Late Formative	Proto to Early Classic	Late Classic	Non-Diagnostic	Totals
1	62	323	525	167	153	1040	2270
2	127	324	462	129	52	1034	2128
3	244	671	263	438	794	2368	4778
4	32	36	52	18	4	202	344
5	74	147	113	184	96	1036	1650
6	4	4	10	1	7	38	64
7	15	311	137	1965	75	614	3117
Totals	558	1816	1562	2902	1181	6332	14351

Early Formative (62 pieces), Middle Formative (323), Late Formative (525), Protoclassic and Early Classic (167), Late Classic (153), and non-diagnostic wares (1040). The temporal phase material, Early Formative through Late Classic, was highly mixed at practically every level of the excavation. There was no indication of stratigraphic separation. At this time, it is impossible to determine how this depositional pattern was formed, but it may be possible that the areas were open trash middens, and the later material was naturally transported down the inclined slope created by previously discarded sherds.

Unit 2 was located 5 m west of Unit 1 and extended to a depth of 1.5 m. No cultural material was encountered until the 0.4 m level, at which point a mixture of ceramics from all temporal periods were encountered. The mixed material continued to the culturally sterile levels at the bottom of the unit. The chronological segments included Early Formative (127 pieces), Middle Formative (324), Late Formative (462), Protoclassic and Early Classic (129), Late Classic (52), and non-diagnostic (1034).

Unit 3 was placed 31 m south of Structure 86 and 3.5 m from the edge of the river cut bank. It extended down to a layer of hard packed gravel at a depth of 2.5 m. The stratigraphy and contents matched those illustrated in Profile 1A. Nine stratigraphic stages were identified. Little cultural material was encountered in Levels I and Ia (0-70 cm), but Levels II and III included quantities of ceramics. Level IV contained a denser concentration of ceramics along with pieces of obsidian, ground stone, and burned clay. Level IVa and b illustrate a drop in ceramic quantities and Levels IVc and V had no cultural material but were composed of a highly compacted mixture of sand and gravel. The ceramic content included the Early Formative (244 pieces), Middle Formative (671), Late Formative (263), Protoclassic and Early Classic (438), Late Classic (794) and non-diagnostic material (2368). The Late Classic material recovered in this unit accounts for the highest quantity of sherds in any of the test excavations.

Unit 4 was placed approximately 5 m north of Structure 84. A layer of naturally deposited gravel was reached at a depth of 1.7 m. Only a handful of potsherds were recovered in the upper stratum, and there was only a slight increase in quantities in the lower levels. The contents and deposition in this unit differed significantly from the other excavations. Ceramic wares consisted of the Early Formative (32 pieces), Middle Formative (36), Late Formative (52), Protoclassic and Early Classic (18), Late Classic (4) and non-diagnostic (202).

The location of Unit 5 was 20 m north of Structure 84. The upper 50 cm contained little cultural material. Increasing amounts were recovered through the next meter, the material decreased over the following 40 cm. All cultural material ceased at a depth of 190 cm where a thin stratum of sand and gravel was encountered. Below this level was a sterile, highly compacted layer of clay. The 60-70 cm level contained small fragments of obsidian, basalt, and burned clay. Ceramics diagnostic of the Early Formative amounted to 74 pieces; Middle Formative, 147; Late Formative, 113; Protoclassic and Early Classic, 184; Late Classic, 96; and non-diagnostic, 1036. Unit 6 was north of Unit 5 and approximately 25 m from the river cut. A total of 26 potsherds, the lowest concentration of any of the test units, were recovered from depths of 20 to 60 cm. The Early Formative accounted for 4 pieces; Middle Formative, 4; Late Formative, 10; Protoclassic to Early Classic, 1; Late Classic, 7; and non-diagnostic, 38.

Unit 7 was located in Field 2, 35 m northeast of Structure 83, and extended to a depth of 2.1 m. Cultural material appears with increasing frequency at the 30 cm level and continues in this manner to 120 cm. Immediately below the 120 cm level, a significant change occurs; the quantity of ceramic artifacts doubles. This rate then begins to decline with depth until the 170 cm level at which point there is relative doubling of material again. At 180 cm, the cultural material basically ends. Again, as in the other test units, Formative period ceramics are mixed with those of the Classic period, even at maximum depths. The quantities of chronologically diagnostic ceramics from this unit differ from all other units, however. Whereas in all other units Formative period artifacts accounted for the majority, here the Protoclassic to Early Classic transitional material dominated. The Early Formative consisted of 15 pieces, the Middle Formative, 311; the Late Formative, 137; the Protoclassic and Early Classic, 1,965; the Late Classic 75; and non-diagnostic wares, 614.

The analysis of excavated material from the seven test units confirms the observations made of in situ ceramics along the upper 2 m of the river cut bank. These potsherds were not deposited in isolated dug-out middens, but strewn along natural depressions in what are considered sheet middens or broadcast scatters (Johnston and Gonlin 1998). The density and thickness of these scatters is exceptional. The quantities and depositional consistency of ceramic artifacts across all time periods also support the idea of a continuous use of the northern portion of the site. These ceramic deposits line the upper 2 m of the northern and eastern river cut banks of Field 1, and continue rather consistently along Fields 2 and 3. Their frequency decreases in Field 4 and 5, and increases again in Fields 6 and 7, but not to the degree of the northern fields. Figure 5.31

demonstrates an analogous situation occurring relative to the deposition of refuse in the same location by today's residents.

Figure 5.31. View north from the top of Field 1 into a depression on the Embankment. Note deposition of trash in the foreground.

Ritual Offerings

Dedication, termination, and other rituals and their attendant deposits were a shared trait across time and space in Middle America (Suhler and Freidel 2003). Their presence, content, and context offer significant insight into sociopolitical events, religious beliefs, ritual activities and their roles in the legitimation of ancient political leaders (Davis-Salazar 2004). Formative period occupants of various centers in the Southern Gulf Lowlands have left us a significant record of these events. At La Venta, dozens of caches of jade, shell, amber, ceramic vessels, figurines, and other exotic items have been documented (Drucker 1952a; Drucker et al. 1959). Similar finds have been made at Cerros de las Mesas (Drucker 1943b) and Tres Zapotes (Weiant 1943). The established regularity of Formative period repositories of this nature are demonstrated across Mesoamerica at San Isidro, Chiapas (Lowe 1981); Cuello, Belize (Hammond 1999); and Puerto Escondido, Honduras (Joyce 2004c). One of the most outstanding examples of ritually deposited items occurred at El Manatí, Veracruz, where deposits were made at discrete intervals from circa 1650 to 900 BC (Ortíz and Rodríguez 2000; Rodríguez and Ortíz 1997).

At El Marquesillo, Offerings I and II were discovered and excavated in 2002, and appear associated with the termination of the Olmec throne (Hernández 2003; Hernández and Barrera 2002) (Figure 5.32). Offerings III and IV are spatially and temporally associated, and consist of Classic period ceramic vessels that were deposited within a meter of each other (Hernández and Doering 2005). Offering V is a noteworthy cache that may be related to Offerings III and IV. It is composed of five Late Classic ceramic vessels and was recovered 50 m north of Offerings III and IV.

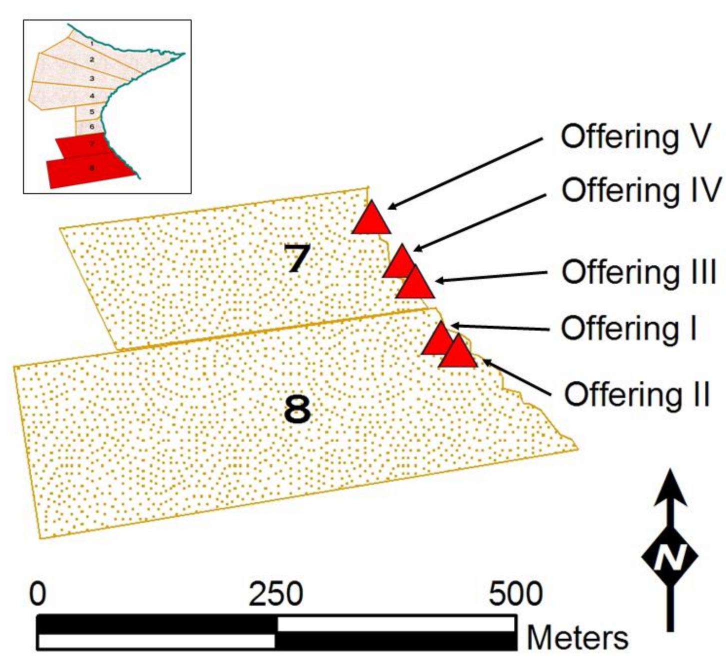

Figure 5.32. Locations of five offerings recovered at El Marquesillo

Offering I

This offering was excavated during the Olmec throne rescue project. It is composed of broken Formative period ceramic vessels deposited immediately southwest of the throne. In Figure 5.33 the placement of the Olmec throne and Offerings I and II are illustrated. The dashed lines represent the 1.5 x 1.5 m units that were excavated during the recovery of the monumental sculpture (see Ceramics from the Olmec Throne Area Excavations section in this chapter). Each unit was identified by its northwest corner on the overall grid system and is shown in the figure. The red line marks the edge of the river cut bank and the blue line delineates the area around the throne that had been cleared by El Marquesillo residents prior to the arrival of the INAH archaeologists.

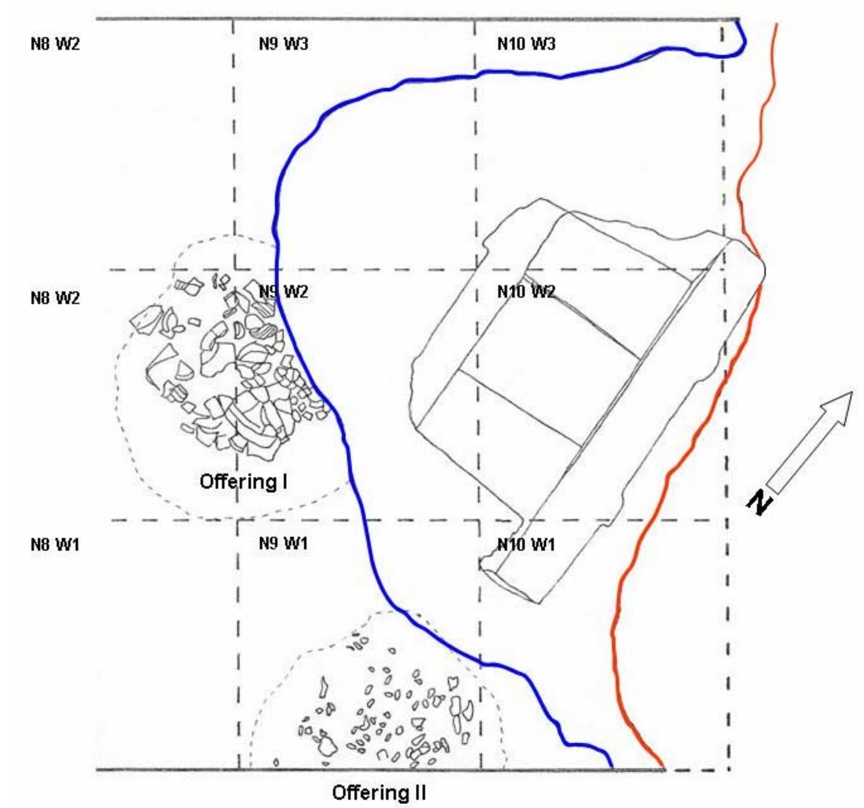

Figure 5.33. Plan view of Olmec throne and Offerings I and II. The red line indicates the river cut bank, while the blue line illustrates edge of El Marquesillo residents' digging (after Hernández 2002).

The offering filled a U-shaped pit that had been dug close to the throne's depositional location. The ceramic assemblage began at a depth of 1.10 m below the present ground surface (Figure 5.34) and extended to a depth of 2.25 m. The inverted conical offering had an upper diameter of 1.6 m and tapered to 1 m at its bottom (Figure 5.35). Obsidian prismatic blades and flakes, basalt fragments, pieces of chapapote or asphalt, portions of burned clay, and fine sand were all mixed with the ceramic pieces in the lowest portion of the feature. Pieces of very small bones, attributed to an unidentified species of bird, were also present (Hernández and Barrera 2002:27).

Figure 5.34. Offering I is at the center, and Offering II is in the semi-circular excavation at the upper left-center. The Olmec throne is to the left in the position in which it was uncovered (photo by Hernández, 2002).

The ceramic component included pieces that represent the Early Formative (75 pieces), Middle Formative and transitional to Late Formative (666), and Late Formative periods (974) (see Appendix 2). Other pieces that totaled 1,633 were not chronologically diagnostic and were composed primarily of domestic wares. All wares were recovered consistently throughout all levels of the offering. During analysis it was found that the ceramic potsherds were pieces of complete vessels. There were missing pieces whose absence was attributed to the digging up of soil around the throne by the local residents and the deposition of the surrounding material down the side of the embankment (Figure 4.13).

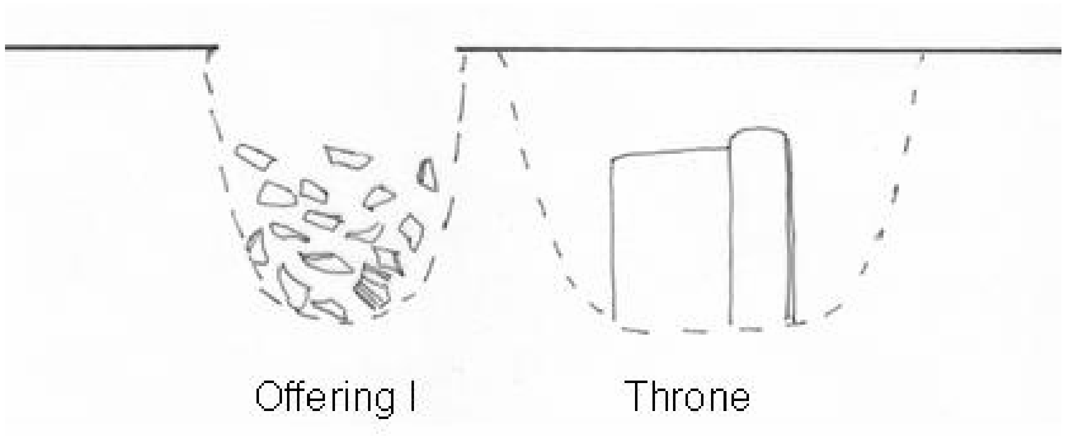

Figure 5. 35. Drawing of hypothesized depiction of Offering I and the Olmec Throne

Figure 5.36 illustrates two reconstructed Middle Formative period vessels. Each is a flat bottomed, flared side plate with double-line break motifs around the interior rim. This form and the decorative elements are considered diagnostic of Middle Formative period ceramic wares (c. 900-400 BC) (Love 2002; von Nagy 1999). Figure 5.37 shows three vessels, the upper two appear to be containers for liquids and the lower composite silhouette bowl suggests an individual serving vessel. All are assigned to the late Middle Formative period. Ceramic types, diagnostic of Early, Middle, and Late Formative period wares, were present within the 120 cm deep cavity that contained the offering (see Appendix 2 for details on the other ceramic types identified). Analysis of this offering has led Hernández and Ortiz to reconsider the temporal appearance of wares that have been previously associated with phases of the Classic period. They believe that types of orange and buff wares may have occurred at El Marquesillo by the Late Formative. Pool (1997:49) has arrived at similar conclusions regarding ceramics in the southern Tuxtlas.

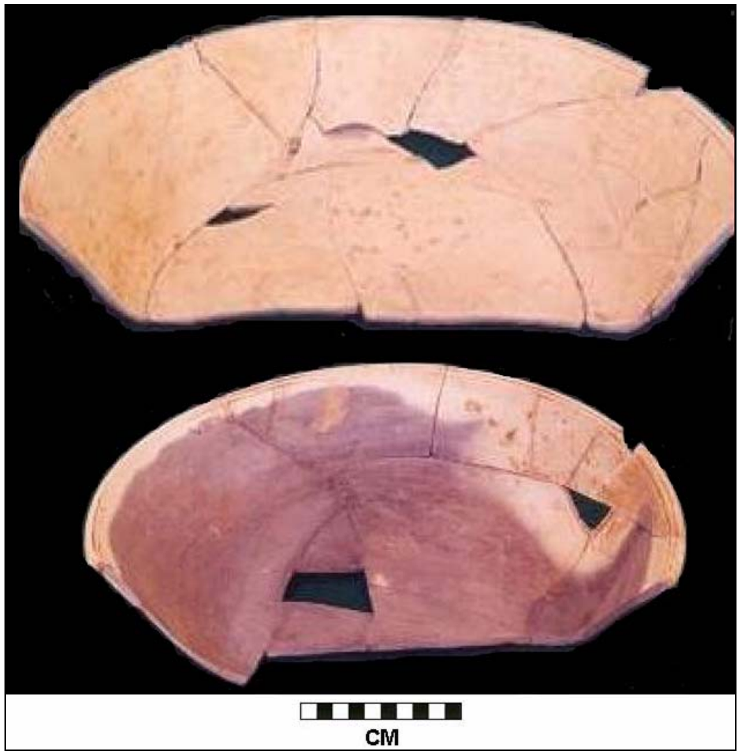

Figure 5.36. Two reconstructed plates with double-line break designs from Offering I (photographs by Hernández and Ortiz 2004)

Figure 5.37. Three reconstructed Formative period vessels from Offering I (photographs by Hernández and Ortiz 2004)

Offering II

This deposit was located less than 1 m south of the throne and 1 m southeast of Offering I. Offering II was also encountered at a depth of 110 cm and extended another 1.60 m to an overall depth of 2.7 m below the present ground surface. This feature's inverted conical form had an upper diameter of 2.0 m and contained an assortment of burned clay fragments, an ash-like material, and a significant quantity of organic material. Ceramics were recovered in the upper portions of the feature and represent the Early, Middle, and Late Formative periods but in substantially smaller amounts than in Offering I, amounting to a total of 416 diagnostic pieces. Hernández (2003:18-22) noted that there was a considerable amount of burned clay that appeared to line the bottom and sides of the cavity. The major portion of the offering was composed of a thick layer of organic material. Figure 5.38 illustrates this layer, which appears in the shape of a

Figure 5.38. Offering II is the dark crescent-shaped feature on the rear wall of the excavation within the red dashed line. The partially excavated Olmec throne is to the lower left (photo by Hernández, 2002).

crescent with its concave and convex radius to the bottom. This particular outline could be the result of a layer of plant, flower, or other organic material being deposited in the pit and then covered with fill. Due to the weight of the earthen fill, the organic material would be compressed and assume the shape of the pit.

Offering III

Offering III was observed during a pedestrian survey along the top of the cut bank. It was recovered 1 m below the present ground surface from the cut's profile in the southern portion of Field 7 (see River Cut Profile 7a above), and was composed of three ceramic pieces. One was a spouted vessel (Figure 5.39), a second was a flute (Figure 5.40), and the third element was an intact composite silhouette bowl (Figures 5.41). The

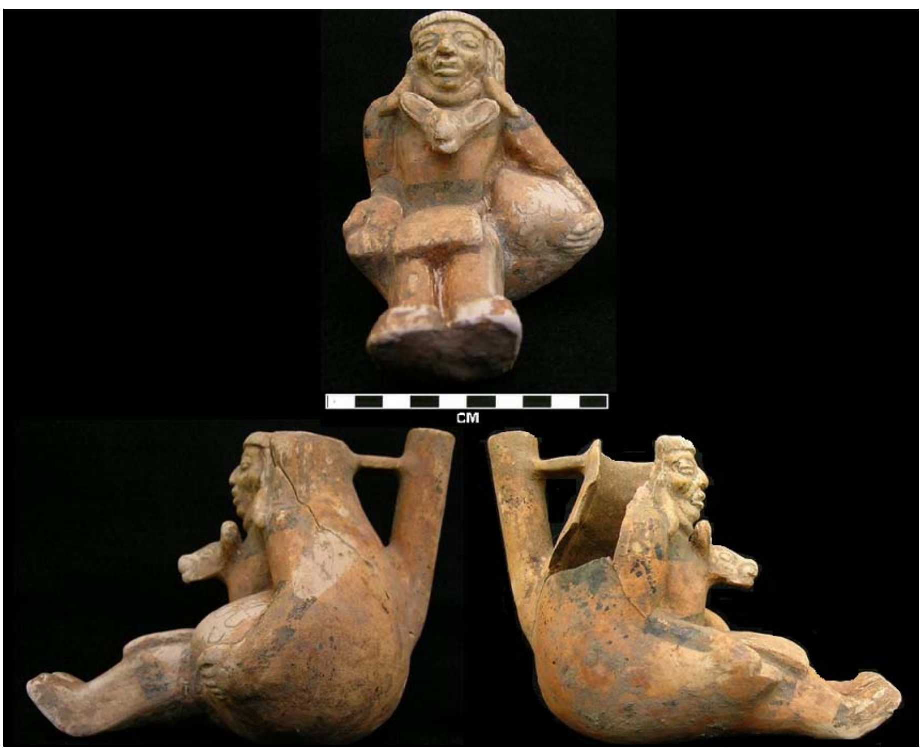

Figure 5.39. Front and profile views of the spouted vessel from Offering III

Figure 5.40. Ceramic flute figurine from Offering III; front, left profile, and rear

Figure 5.41. Two oblique views of the composite silhouette bowl from Offering III

flute and spouted vessel appear to represent the same individual. The physical features and characteristics are identical but were produced in different vessel forms. The bowl was recovered in an inverted position directly beneath the two figurines. A description of the stratigraphic profile where this offering was recovered is contained in the Profile section of this chapter.

The two figurine types are common to the Late Classic period (c. AD 550-900). These vessels follow the white-slipped mold-made figurine tradition at Classic period Matacapan and Tres Zapotes in their method and technology of production (Christopher Pool personal communication, 2005), but the origin of their anthropomorphic and accoutrement details have yet to be determined. The composite silhouette bowl is a polished orange ware that is assigned to the Late Formative period along the Southern Gulf.

The two mold-made figurines were found side by side. The flute or whistle figure's head was to the west and face down; the spouted vessel figure's head was to the north but facing west. These two figurines depict the same individual in two different positions; one standing or lying in a rigid pose, the other sitting with legs in a semi-flexed position. In both figures the hair, headpiece, ear ornaments, collar, belt, and loincloth are alike. The right arm of each is extended next to the body and an oversized right hand is open with the palm facing the viewer. The left arm of each figure is wrapped around a spherical, bulging bag-like item that is decorated with U-shapes. An unidentified animal head or effigy hangs from the spouted vessel figure's necklace. The flute figure may have had the same element on its necklace, based on the remnant outline, but it was broken off in antiquity as were the ankles and feet of the figure. The spouted vessel has four parallel black bands painted across the shoulders, midsection, knees, and feet. The flute figure does not have any evidence of paint. The high degree of detail is on the front of these objects only; the rear is smooth and without elaboration. The flute has a rectangular blow hole at the top of the figure's head and an exit hole at the back. The tone or finger hole is located in the loincloth. Figure 5.42 illustrates a detail of an interior portion of the spout.

Figure 5.42. Interior of spout revealing apparent imprint of a textile

The fabric-like imprint appears to be the result of a textile that was used to form the interior core of the spout during production of the molded vessel.

Offering IV

Offering IV was located 1 m north of Offering III, at approximately the same horizontal level. The offering consisted of two flat-bottom tripod bowls, both 23 cm in diameter that were deposited in a lip-to-lip fashion, one inverted over the other. This type of offering was known and practiced across Mesoamerican during the Classic period (Chase and Chase 1998:308-309; Fox et al. 1996; Taschek and Ball 1999). Their breakage in antiquity and the erosional action along the river cut bank caused the loss of several pieces of each bowl and prevented the recovery of any substance that may have been originally placed in the bowls. As with Offering III, these are Classic period ceramic vessels that were deposited into a Formative period structure. Each vessel was made with a fine tempered paste and was steep-sided with a narrow rim border. The tripod legs of both vessels are very similar to those on Vessel 5 from Offering V. Figure 5.43 contains two views of the offering in situ taken during their excavation. In the photograph on the left, the intrusional cavity into the Formative period layers and the offering's placement at the bottom can be seen. Figure 5.44 shows a partial reconstruction of the upper vessel.

Figure 5.43. Offering IV in situ, a lip-to-lip vessel deposit (photos by Hernández, 2004)

Figure 5.44. Partially reconstructed upper bowl from Offering IV

Offering V

The recovered portion of Offering V is composed of five, complete or partial, dish-like ceramic vessels identified as Late Classic in origin. The vessels that compose this offering were found during a pedestrian survey of the river cut bank in Field 7, located approximately 50 m south of Field 6. Only one of the vessels was found in situ, in the upper meter of the cut bank, while the others were retrieved along a vertically eroded gully in the nearly 12 m high bank.

The discovery of Offering V was made in December 2005. This area had been inspected twice in August 2005, as well as on earlier occasions, and the artifacts would have been plainly visible from either above or below if they were present at those times. It is probable that the upper portions of the vertical cut bank that held the offering was eroded by the run-off from the annual rains that were amplified by the extensive, wind-driven precipitation that accompanied Hurricane Stan, which passed directly over El Marquesillo in early October. Four of the recovered pieces had fallen from their original place of deposition and tumbled down 2 to 5 m.

Vessels 1, 2, and 3 are similar in shape, size, and form; two of the three are shown in Figure 5.45. Vessel 3 is on the left of the photo and was found in situ; Vessel 2 is on the right and is pictured after its contents had been removed for analysis. This container was recovered approximately 3 m below the in situ vessel, and the size and shape of a negative imprint in the wall immediately below Vessel 3 suggests its original location. Vessel 4 is unique to the group and is shown in Figure 5.46. The upper photo shows the interior and ash-like contents, and the lower photo is a view of the inverted exterior illustrating the short tripod legs and coating of the same ash-like substance. Only a

Figure 5.45. Two of three similar small bowls. The one on the left was recovered in situ

Figure 5.46. Vessel 4 from Offering V. Left photo is interior with ash-like contents and the right photo is the exterior

portion of Vessel 5 was recovered (Figure 5.47), but it contained remnants of the same substance, which also coats the exterior. This bowl is reminiscent of the lip-to-lip vessels in Offering IV. Each of the vessels contained a fine ash-like substance that may be volcanic in origin; analysis of this material is in progress. The surface coating of this material had hardened into a crust-like surface and had protected the interior portions. Although four of the five vessels assigned to this offering were not found in their place of ancient burial, there are reasons to believe they are likely part of a single depositional event. The substance within all five vessels is visually identical. The coating of this same


Figure 5.47. Vessel 5 from Offering V

material on the exterior of the vessels suggests they were stacked upon one another at the time of interment. This premise is also supported by the location of the in situ piece and the naturally formed, partial earthen mold immediately below it and in which Vessel 2 fits neatly.

Vessel 3 was recovered from within a low platform, 1 m below the surface. This platform is practically imperceptible on the surface but is apparent in the stratigraphy. Formative ceramics were found under, in, and above this platform suggesting it was constructed during this early period, circa 1200-500 BC. All the recovered vessels in the offering are considered to be of Late Classic origin (AD 500-900); thus, their presence is believed to be intrusional. This is the same situation demonstrated for Offerings III and IV, which were located in Structure 108, approximately 30 m to the south.

Obsidian and Lithic Analyses

The Obsidian of El Marquesillo

The obsidian analyzed at El Marquesillo amounted to 126 pieces that were recovered from the controlled excavations conducted in conjunction with the rescue project of the Olmec throne and the test excavations in Fields 1 and 2. The total estimated volume from these two excavation projects is in excess of 87 m^3, which produces a ratio of 1.44 fragments of obsidian per cubic meter. The quantity of volcanic glass unearthed in the excavations is consistent with the results from the surface and river cut collections. Alternatively, only two very small pieces of chert were identified.

Although the collection is not extensive, there are notable inferences that can be drawn from its examination. In the initial step in the analysis, each obsidian piece in the assemblage was macroscopically examined under 10x magnification, and visual identifications were made based on comparisons to known samples. Five specimens were selected and sent to the Missouri University Research Reactor (MURR) in Columbia, Missouri and underwent abbreviated neutron activation analysis to determine their trace element composition (Table 5.3).

The NAA results supported my visual source attributions. Therefore, the 126 obsidian artifacts were assigned sources based on my comparative assessment. The Guadalupe Victoria, Veracruz source accounts for 62 percent (n=78) of the assemblage and 34 percent (n=43) is from the Zaragoza, Veracruz source. A single piece is identified as originating in Ucareo, Michoacan; one from Pachuca, most likely the Cruz de Milagro source; and three pieces were visually unidentifiable (Table 5.4). Examination of the

Table 5.3. Element levels determined by NAA at MURR and source attributions

ID	Al (%)	Ba (ppm)	Dy (ppm)	K (%)	Mn (ppm)	Na (%)	Source
TFD162	6.81	518	4.98	3.98	277	2.99	Zaragoza, Puebla
TFD163	7.16	878	1.40	3.31	542	3.30	Guadalupe Victoria, Puebla
TFD164	7.03	933	1.86	3.41	542	3.33	Guadalupe Victoria, Puebla
TFD165	6.86	938	1.81	3.36	538	3.31	Guadalupe Victoria, Puebla
TFD166	6.28	111	3.63	3.88	173	2.75	Ucareo, Michoacan

Table 5.4. El Marquesillo obsidian by source and production type

SOURCE	BLADES			FLAKES	BIPOLAR	QUANTITY
	PROXIMAL	MEDIAL	DISTAL			
Guadalupe Victoria	2*	6*	0	60	10	78
Zaragoza	6	17	3	16	1	43
Pachuca	0	1	0	0	0	1
Ucareo	0	0	0	1	0	1
Unknown	0	0	0	3	0	3
Totals	8	24	3	80	11	126

* Possibly assignable to the Orizaba source

production typology shows that prismatic blades segments accounted for 28 percent (n=35), flakes amounted to 63 percent (n=80), and bipolar reduction represented 9 percent of the assemblage.

The spatial distribution of the collection is presented in Table 5.5, which shows that the Olmec Throne Unit excavations produced 40 pieces that were assigned to Guadalupe Victoria and 12 to Zaragoza (see Appendix 3b). The individual Ucareo and Pachuca pieces were recovered around the throne as well as one unidentified piece. In the seven test units located in Fields 1 and 2, only Units 1, 2, 3, 4, and 7 contained obsidian; a total of 24 artifacts were attributed to Guadalupe Victoria, 30 to Zaragoza, and two were unknown. From within Offerings I and II, 14 pieces were recovered from Guadalupe Victoria and a single piece was from Zaragoza.

Table 5.5. El Marquesillo obsidian by source and deposition location

	Source	Blades			Flakes	Bipolar	Quantities
		PROXIMAL	MEDIAL	DISTAL			
Throne Units							
	GV	1	5	0	29	5	40
	PAC	0	1	0	0	0	1
	UCA	0	0	0	1	0	1
	UNK	0	0	0	1	0	1
	ZAR	2	5	0	5	0	12
Test Units							
	GV	0	0	0	21	3	24
	UNK	0	0	0	2	0	2
	ZAR	4	11	3	11	1	30
Offerings I & II							
	GV	1	1	0	10	2	14
	ZAR	0	1	0	0	0	1

The presence of four identified sources differs substantially from the eight to twelve sources possible at San Lorenzo (Cobean et al. 1971, 1991; Coe and Diehl 1980a) or the nine sources identified for La Venta and San Andrés (Doering 2002, 2003). Obsidian analyses performed at Tres Zapotes demonstrated at least eight sources were present at the site throughout its history (Hester et al. 1971; Knight 2003). It is not known how many of these sources were present during the Formative period alone, however. Nevertheless, Hester et al.'s (1971) survey indicates Zaragoza supplied over 93 percent of Tres Zapotes' obsidian during at least 1500 years of occupation. Guadalupe Victoria material was also present but in a minimal amount, accounting for 1.4 percent of the material. The other six sources combined to represent 5.5 percent of the total. Work at Tres Zapotes has recently uncovered evidence of an Early Formative period occupation (Christopher Pool, personal communication 2005), and will provide greater insight into the Formative period obsidian industry there.

The discrepancy between sources at El Marquesillo and the other sites mentioned may be due to sample error; nevertheless, this limited number of sources may suggest that El Marquesillo may have been autonomous from the San Lorenzo or the later La Venta exchange spheres. More than 38 percent of El Marquesillo's obsidian originated at the Zaragoza source, but none of this material is identified at San Lorenzo.

During extended periods at El Marquesillo, I observed additional obsidian material on the surface. As well, portions of prismatic blades were recovered in situ with San Lorenzo phase ceramics (c. 1150-1000 BC) along the river cut. This association indicates that blade technology and its implications for elite control were present at El Marquesillo at this early time (see Clark 1987; Clark and Blake 1994). Based on the formal surveys and informal observations a significant relationship is demonstrated with Zaragoza (400 km) and Guadalupe Victoria (300 km) during the Formative period.

Lithic Analysis

No stone material, other than river gravel, is indigenous to the alluvial river basins of southern Veracruz and Tabasco (Sisson 1976). Igneous rock such as basalt, pumice, rhyolite, and andesite were favored for ground stone tools and had to be imported to El Marquesillo (see Appendix 4a and 4b). The sources for these types of rock are located in the volcanic Tuxtla Mountains, 30 to 40 km to the north. Apart from the Olmec throne, the lithic collection from El Marquesillo is unremarkable for a Formative period site; nonetheless it demonstrates participation in regional economic interaction spheres. The form of involvement in these systems may have been through collective actions with inhabitants from other sites, or independent activities by persons from El Marquesillo, or a combination of both.

The lithic artifacts examined were recovered during the surface and river cut surveys and collections. Various types of grinding and polishing implements compose the majority of the imported lithic assemblage. The primary grinding tools included fragments of manos, metates, mortars and pestles. Most appear to conform to Formative period conventions as to size and form, but reuse after breakage was common. The collection includes a number of celt-form pieces made from a variety of exotic rock types. Several basalt stones were ground to a narrow point along a lateral edge (Figures 5.48 and 5.49). Most examples of these distinctly formed pieces were reworked metates; the purpose of this modification is not known.

Figure 5.48. Basalt fragment ground to point along lateral edge

Figure 5.49. Basalt fragments ground to point along lateral edge

Relative to other lithic tools, the proposed polishing implements appear with exceptional frequency and in various forms. These pieces were recovered across the site in all chronological contexts (Figure 5.50). Some were fashioned from igneous rock, others from nuggets of river gravel, still others from unidentified fine-grained stones. Macroscopic examination revealed these pieces to have highly smoothed edges and striated wear patterns consistent with the smoothing and burnishing of ceramics as well as other stone items (Sinopoli 1991:24-26; Sullivan 1988).

Polishing stones recovered in the Southern Gulf Lowlands have been identified as tools used in the finishing of stone and ceramic artifacts. Fine polishing was required to produce celts, masks, discs, and figurines of jade, serpentine, and other greenstones (Benson 1981b; Ortíz and Rodríguez 2000; Pohl et al. 2002). The brilliantly polished concave mirrors fabricated from iron oxide ores (hematite, ilmenite, and magnetite), pyrite, marcasite, and obsidian are examples of the advanced technological skills of Formative period lapidaries (Carlson 1981; Heizer and Gullberg 1981). Polishing stones

Figure 5.50. Examples of stones thought to be used as polishers

were also used to burnish ceramics to achieve luster and smooth blemishes or imperfections on the vessels' surface (Santley et al. 1989; Sinopoli 1991:25-27). Ethnohistoric and ethnographic evidence also demonstrates the uses of these stones in the finishing of ceramic wares (Druc 2000:82).

The analysis of obsidian and other lithic material recovered at El Marquesillo informs us as to the participation in long-distance exchange or acquisition networks by the site's occupants. The apparent consistency of obsidian sources indicates a stable, long-term relationship with suppliers or a consistent method of direct procurement (c. 1500 BC-AD 400). The presence of prismatic blades in Early Formative period contexts suggests the presence of elites who may have controlled portions of El Marquesillo's political and economic activities.

The scenario surrounding the importation, production, and use of the other lithic material is more ambiguous. It is currently unknown if the acquisition of the materials was conducted by individuals or organized and controlled by the elite members of the society. The production and use of these materials may be related only to personal or family use or they may have been part of a unified, community-wide demand.

Monumental Basalt Olmec Throne

In the Archaeology of El Marquesillo section in Chapter 3, the discovery and rescue of the monumental basalt sculpture was described. Additionally, the sociopolitical significance of Olmec thrones is discussed in the Olmec Thrones of the Southern Gulf Coast segment. Due to the implications associated with the presence of a monumental Olmec throne at El Marquesillo, a section is presented here that examines the physical nature, sculptural elements, and depositional details of the monumental basalt block.

Physical Attributes

The monument is carved from a solid block of coarse grained basalt that, minimally, would have measured 255 cm x 125 cm x 115 cm, and weighed 11,037.2 kg or 12.17 metric tons (Figures 5.51, 5.52, and 5.53). This igneous rock is not indigenous to the alluvial lowlands and would have been brought to El Marquesillo from the volcanic ridge of the Tuxtla Mountains or its foothills, a straight-line distance that ranges from 15 to 50 km. Crossing the irregular terrain of the region could double the travel distance, and substantial elevations and water courses would have to be overcome.

Figure 5.51. El Marquesillo throne dimensions, front

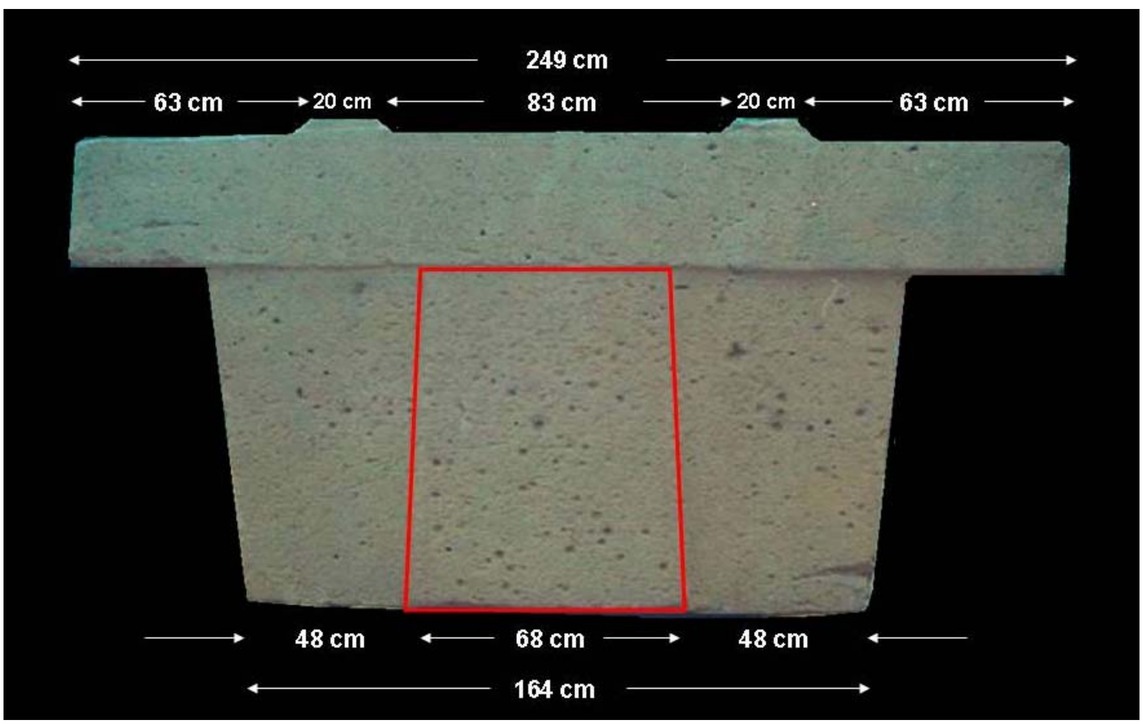

Figure 5.52. El Marquesillo throne dimensions, back

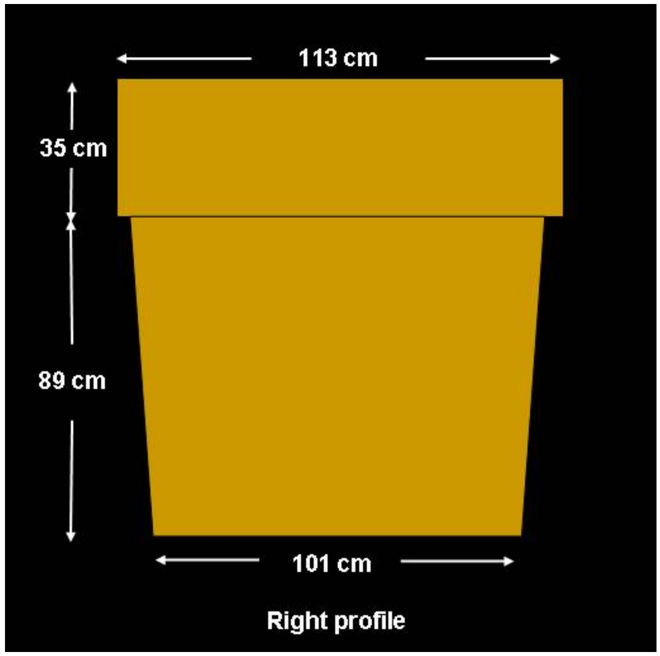

Figure 5.53. El Marquesillo throne right profile dimensions

Sculptural Elements

The throne is carved in a simple, angular form without detailed elaboration. The proportional symmetry is notable; during extensive field measurements it was found that the variation between left and right side elements was less than 2 cm. Note that the dimensions presented in Figures 5.51 and 5.52 are correct; the camera angle was not perfectly perpendicular to the throne and, therefore, the photographs may appear slightly skewed. Two raised ridges run across the top of the throne from front to back, and a raised trapezoid feature is centered on the back. In Figure 5.54, this feature has been outlined in red for easier visibility. Overlaying a duplicate trapezoid on the front opening of the piece demonstrates that the rear element closely replicates the niche on the front.

It appears that attempts were made to remove all iconographic symbolism or any type of personal identification from the monument. This effacing of identity was not accomplished through violent blows to the face, body, or hands; instead, the details were literally erased, smoothed away (see Grove 1981). A similar type of sculptural "erasure" is demonstrated on the side panel of San Lorenzo Monument 14 (see Figure 5.55 and Cyphers 1993:160). The clean, almost abstract lines and surfaces of the remaining

Figure 5.54. The red outline demonstrates the correspondence of size and shape on the front and back of the throne.

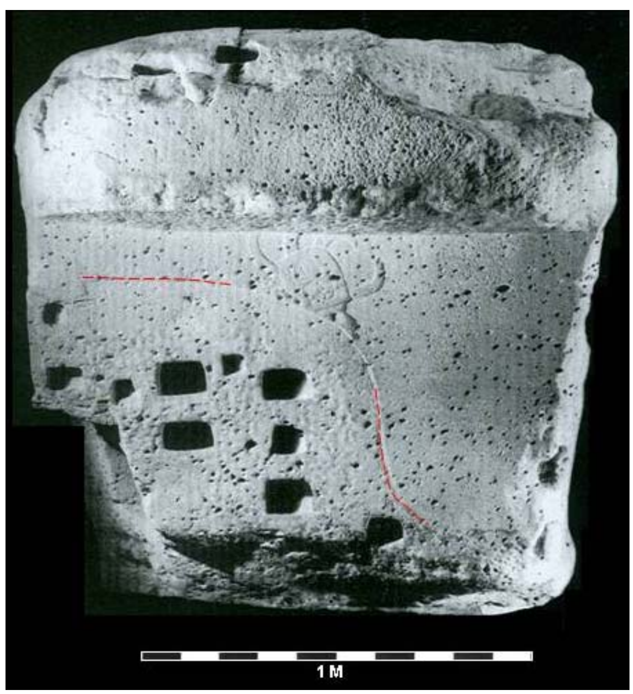

Figure 5.55. View of the side of San Lorenzo Monument 14. Red dashed lines indicate edge of ground surface that has partially eliminated the previously carved figure (Cyphers 2004:72).

portions of the El Marquesillo throne raise the possibility that additional iconographic details may also have been erased prior to its deposition.

The robust figure within the niche is seated in a cross-legged, forward-leaning position (Figure 5.56) and fills the niche, side-to-side and top-to-bottom. It is anatomically correct and conforms to the artistic canons of human proportions and position demonstrated on the La Venta and San Lorenzo thrones with seated niche figures (see Grove 1973; Parramon 1990). Still evident are the personage's headpiece, pendant, sash-like belt, and rectangular loincloth.

Because stone sculpture is a reductive art, meaning material can be removed but cannot added, Figure 5.57 clearly illustrates that attempts were made to eliminate the eyes, nose, and mouth from the original sculpted face. Upon closer inspection, vestiges of the eyes, nose, and mouth can be discerned, however, along with other personal adornments. The figure wears a necklace supporting a rectangular pendant with a diagonal cross-band design and has crenellated ear ornaments. At the sides of the head covering are the faint remains of carved iconographic elements. It is possible that remnants of a red, paint-like substance are also present. The hands had been removed at the wrists prior to burial, but other details have not been touched. On the left foot, the ankles, toes, and toe nails are distinct, and on the lower arms the extensor *Capri ulnaris* muscles are well defined. Even though specific identifying features and details have been effaced, discernable remains suggest the figure on the El Marquesillo sculpture was intended to represent a specific individual. Furthermore, this individual is distinct from those portrayed on the La Venta and San Lorenzo thrones.

Figure 5.56. Close-up of the figure seated within niche

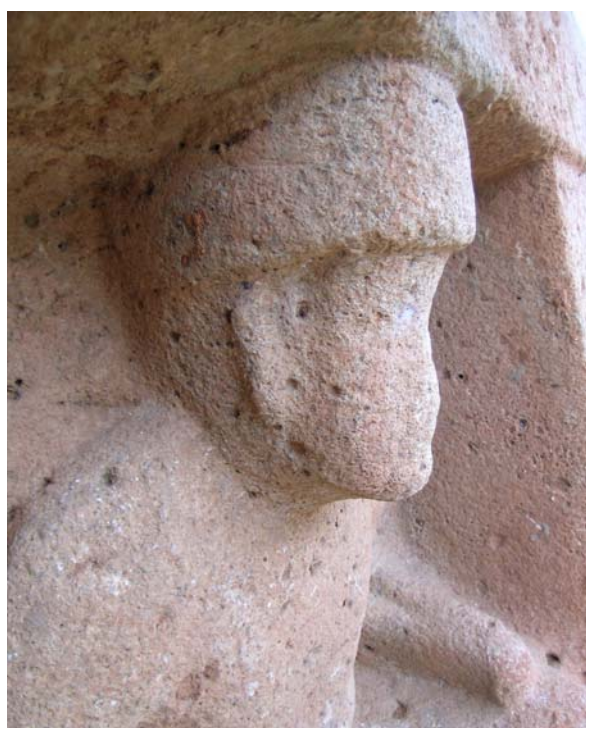
Figure 5.57. Close up of niche figure profile.

The monument is not damaged except for a small piece from the lower rear that was broken during its recovery. There are, however, what Porter (1989:24) refers to as "cupping" depressions or circular ground holes with smaller, slightly deeper central holes. Two of these are present on the El Marquesillo monument; one on the left side of the personage's loincloth, to the viewer's right, and the second under the left tabletop extension. Both are shallow, reaching a depth of perhaps 1.5 cm.

Depositional Details

The throne was buried with the face of the seated individual downward. The axis plane created by the top of the throne was oriented approximately 15º to 18º west of magnetic north. Based on observations of the stratigraphy made by Hernández during the throne's rescue project, it is hypothesized that the monument was lowered into its depositional position by removing the supporting soil at the front of the monument and allowing it to gradually slide from its original position and turn downward into a prepared cavity. Prior to its interment, the hands were broken off, the facial and identifying features removed, and the cupping or shallow circular hole was ground into the loincloth. Once the throne had been lowered and turned, the cupping hole could have been ground into the underside of the table top extension. This hole is visible in Figure 5.56 at the center of the underside of the table-top extension. The throne was buried at a depth of 245 cm and covered with 30 to 50 cm of soil.

Figure 5.58. Illustration of magnetic north and the depositional plane of the throne (Photograph by Hernández, 2002)

Chapter 6. Observations and Interpretations

> *"Viewed from the perspective of a living system, an occupation can be defined as the uninterrupted use of a place by participants in a cultural system. The material consequences of an occupation represent a document regarding an organizational aspect or phase of operation of the cultural system under study"* (Binford 1982:5).

Introduction

This chapter examines the landscape signatures at El Marquesillo, the material traces left on the land surface by its human occupants. A series of discrete and interconnected features are defined and elaborated according to the available evidence. The data used to evaluate and define El Marquesillo was recovered from a series of non-invasive techniques and, in some cases, may be considered preliminary.

This investigation of El Marquesillo has been a study of its human occupation. Binford's succinct description of occupation that opened this chapter prefaced his comments on how archaeologists can better understand past cultural systems. He maintains that greater perception of past activities can be achieved if the relationships of formation and organization of differentially used places are recognized. Analysis of the data collected at El Marquesillo suggests that its ancient inhabitants left a material record (e.g., ceramic wares and architectural features) that demonstrates occupational and activity patterns. Furthermore, it appears that a spatial uniformity of these activity areas extended from the Early Formative to Postclassic period (c. 1500 BC to AD 1500).

Modifications to this pattern occurred following the arrival of Europeans and continued into the contemporary period.

For this evidence to be evaluated, it must be placed within its appropriate context. Referring to the Olmec phenomenon, Cyphers (1993:156-158) stresses that interpretation and meaning cannot be conceived in isolation. She contends that, to be effectively considered, the evidence must be placed within an “archaeological and sociological” context. “Ideally, a context implies not only the single object, but those objects found together with it, including constructed architecture and/or modified landscapes, immediate or more remote” (Cyphers 1993:158). In turn, the specific contexts must be placed within a broader setting, “which defines a situation, reminds occupants of the appropriate rules and hence of the ongoing behaviors appropriate to the situation defined by the settings” (Rapoport 1990:12). Thus, the interpretations presented here are constructed from evidence recovered within the context of the site of El Marquesillo. These conceptual constructions are then evaluated relative to the setting of the Formative period Southern Gulf Lowlands.

Contextual Background

The Formative period inhabitants of El Marquesillo began a process that led to a development of social complexity and participation in the Gulf Coast Olmec paradigm, a shared array of concepts, values, and practices that established a communal worldview and imparted meaning to their cultural and physical surroundings. Through an assessment of the occupational continuum, settlement patterns, and activity areas that are evident at the site, it appears that ancient people at El Marquesillo continued to exhibit a series of long-held social, cognitive, and material traditions from the Formative to Classic periods (c. 1000 BC to AD 1000). Consideration of the long-term life history of a particular structure or topographic place on the landscape can demonstrate a development of symbolic and ritual meaning over time (Ashmore 2002; McAnany 1995, 1998), a concept Bowser (2004:1) refers to as a "notion of place."

Based on the spatial distribution of chronologically diagnostic ceramics recovered during the site's investigation, the initial occupation of El Marquesillo occurred during the Ojochi phase of the middle Early Formative period (c. 1500-1350 BC) and was restricted to a small portion of the site. By the late Early Formative, or the San Lorenzo Olmec phase (c. 1150-900 BC), the residential and activity areas had spread to portions of the entire surveyed area. Although expansion of the inhabited area occurred during the Late Classic period, the initial spatial organization of the site that was established during the Early Formative period (c. 1500-1000 BC) was retained, relatively unchanged, over the following 2,500 years. Ringle (1993:185) observes a similar situation among the Formative period Maya Lowland sites where he notes, "clear continuities between the Formative and Classic sites." He believes that, "one reason the early urban templates could persist was that later growth was largely additive and did not force a drastic hierarchal restructuring of society." The same conditions and resulting social development appear to have occurred at El Marquesillo and other communities along the Southern Gulf Lowlands as well.

Along with the increasing early populations that are documented in the Southern Gulf Lowlands (Borstein 2001; Symonds and Lunagómez 1997), is the rise of an incipient elite (Cyphers 1996b; Stark 2000). It is believed that the emergence of a ruling class occurred only in the presence and with the cooperation of a community of labor and support groups (Earle 1989; Gilman 2001; Widmer 2003). Of concern here is the critical balance between the competitive needs of an emerging leadership to demonstrate its influence and stability and a growing population whose fundamental requirements must be met if they were to remain within the community (Price 1977). At least initially, it would appear that this equilibrium required compromise and collaboration by both segments if either was to prosper. Clark and Blake (1994:19) maintain that the competitive and cooperative issues are interrelated, “To compete effectively, [elites] require the cooperation and support of indebted clients.” They add that elite competition “is undertaken to maintain and enlarge this cooperative unit.”

To launch and maintain a successful sedentary community during the pre-Olmec period (c. 1500-1150 BC), and for that community to expand significantly during the San Lorenzo phase (c. 1150-900 BC) would require the attraction of outsiders. Thus, “recruitment and retention of migrants must therefore have been a central concern among the leadership of these emerging polities” (Ringle 1993:189-190). Stability of the environmental landscape to continually produce sufficient levels of foods, goods, and services were also necessary. The fact that this community succeeded and endured while San Lorenzo and La Venta rose and fell suggests that, at El Marquesillo, these needs were successfully met.

The Initial Occupation of El Marquesillo (c. 1500-1150 BC)

For centuries, it appears that the initial occupation of El Marquesillo was confined to a small restricted area that, today, is located along the river cut bank in the northern portion of Field 6. It is possible that this location was occupied by the site's leaders whose descendents would, over time, become recognized, minimally, as chiefs (Fowler 1991:3; Stark 1997:283, 288; Tolstoy 1989:293). This restricted area is the only locality in the survey area in which chronologically diagnostic, pre-Olmec ceramics have been recovered. These interpretations are based on the existing evidence, and it is noted that the erosive action of the San Juan River has led to the loss of land at this location of the site. Therefore, it may be that the areas that remain today are only portions of the original Formative period settlement.

Ojochi phase, Achiotal Gray type tecomates (c. 1500-1350 BC) constitute the earliest evidence of settlement at El Marquesillo and have been recovered only in the northern portion of Field 6. Rocker-stamped pieces from the succeeding Bajío phase (c. 1350-1250 BC) indicate the continuance of this spatially limited occupation. The presence of Chicharras phase (c. 1250-1150 BC) ceramics, which are considered transitional to the subsequent San Lorenzo Olmec phase (c. 1150-900 BC) (Coe and Diehl 1980a:150), also demonstrates the occupational continuity of this small hamlet. The spatially concentrated presence of obsidian and groundstone implements along with these ceramics suggests a residential context.

It is possible that social complexity emerged over time at this early occupation site, a suggestion that is based on a series of factors. The first is the initial appearance of ceramics. The Soconusco Coast is a region that had demonstrable resource exchange, symbolic sculptural similarities, and linguistic ties to the southern Gulf Coast (Campbell and Kaufman 1976; Cheetham 2005; Clark 1997; Cobean et al. 1971; Cobean et al. 1991; Graham 1989; Grove 1997; Rodríguez and Ortíz 1997; Taube 2004). There the first appearance of ceramics occurred during the Barra phase (c. 1550-1400 BC) and is considered a marker of the region's sedentism and the initiation of the emergence of ranked society. The subsequent Locona phase ceramics (c. 1400-1250 BC) were closely associated with elite activities and the materialization of a chiefdom level society (Blake 1991; Clark and Blake 1994).

Another factor of emergent complexity is concerned with regional sociopolitical relationships. Clark and Blake (1994:20) maintain that incipient ranked societies do not appear in isolation but, instead, evolved within a network of socially equivalent and interacting groups that emerge simultaneously. This type of collective group emergence and requisite interrelationships is widely recognized in the rise of social complexity across Mesoamerica (Earle 1997; Feinman 1991; Hayden 1995b; Schortman and Urban 1991). At El Marquesillo, during its period of the initial occupation, analogous situations were also occurring nearby in the Southern Gulf Lowlands. The closest similar habitations with pre-Olmec ceramics transpired at Cuatotolapan Viejo, approximately 20 km downstream from El Marquesillo, and to the southeast, at Estero Rabón-San Isidro, near the juncture of El Julie and El Rabón Rivers (Borstein 2001). The most celebrated initial occupation at this time occurred on the San Lorenzo plateau along the Coatzacoalcos River (Coe and Diehl 1980a). Therefore, consideration of contemporaneous regional occupations and similarities of ceramic artifacts appear to demonstrate the connections between these sites. There may be others that demonstrate the same evidence as well.

At this point in the investigation of the Southern Gulf Lowlands, there are little data relating to the social and economic developments that occurred in the pre-Olmec period (1500-1150 BC) and, therefore, these developments are relatively unknown (Sanders and Price 1968). Nevertheless, there are political and geographic analogies among El Rabón, Cuatotolapan Viejo, San Lorenzo, and El Marquesillo. Each became strategic centers in their own right, and all were tied directly to river courses and areas of annual inundation (Cyphers 2004:273; Killion and Urcid 2001). In summary, these four centers all began during the same temporal phase and are the only sites known to contain the earliest ceramic horizon in the region. Their ceramic inventories were restricted but highly uniform. Each site evolved as centers of socioeconomic development, and all were situated at similar geophysical locations. Cumulatively, this evidence suggests that the initial deposition of pre-Olmec ceramics could be seen as a marker for the initiation of archaeologically detectable sedentism and eventual sociopolitical development.

Continued Occupation and Expansion at El Marquesillo

Based on analysis of the ceramic evidence from a site-wide surface collection, repeated surveys of the 1.5 km-long exposed river cut, and excavations conducted during the Olmec throne rescue project, the pre-Olmec phase occupational area appears to be spatially restricted to the northern portion of Field 6. In contrast, the appearance of ceramics associated with the San Lorenzo Olmec phase (c. 1150-900 BC) marks a point of significant change in the scale of El Marquesillo's 350 year-long settlement history. The distribution of ceramics from this later period indicates an expansion of occupation to sectors across the entire survey area of Fields 1-8.

Interpretation of the location of numerous surface and sub-surface features, along with differential artifact and ceramic deposition patterns suggests that the site contained a series of interrelated residential, civic-ceremonial, and craft production zones. Within some of these sectors, circumscribed special activity areas can be detected. The most notable aspect of this segmented settlement pattern, however, is that it would remain consistent for at least the next 2,000 years.

A number of potential reasons for sedentism at El Marquesillo were detailed in Chapter 3. These factors included environmental diversity that ensured subsistence security and readily available local resources that provided economic opportunity. Riverine routes simultaneously facilitated importation of non-local resources from diverse ecological zones and established a structure for exportation or redistribution. As well, the elevated lands on the west side of the San Juan River provided natural protection against the annual inundations of the river. Another factor that may have contributed to the longevity of El Marquesillo's occupation was its inhabitants' participation, at some level, in the Gulf Coast Olmec phenomenon that could assist in the facilitation of the development of the site during the Early and Middle Formative periods (c. 1500-300 BC). Socioeconomic support for the residents may have been provided by the open interaction spheres operating along the Gulf Coast at this time (Clark 1997; Coe 1968; Hirth 1978; Stark 2000).

Subsistence issues have not been directly addressed primarily because of the limitations imposed on the survey methods. Nevertheless, comparison with San Lorenzo (Coe 1981; Coe and Diehl 1980a,b) and La Venta (Pohl 2001; Pope et al. 2001; Rust and Leyden 1994; Rust and Sharer 1988) would appear appropriate due to environmental and ecological similarities. The conditions surrounding El Marquesillo would have been exceptional for incipient horticulture or to eventual fully developed agriculture. Prior to agriculture, native plants, terrestrial and aquatic animals, and possibly animal husbandry would have provided a broad base for a variety of subsistence systems (Rosenswig 2006; Wing 1978; Wing 1981).

Residential Zone

The original pre-Olmec residential area, along the contemporary river cut in Field 6, continued to be occupied during the Early Formative period San Lorenzo phase (c. 1150-900 BC) as well as throughout the Middle and Late Formative periods (c. 900 to 300 BC). During this time the occupation area expanded alongside to the south into Field 7. Additional observations of the area regarding these temporal phases support the hypothesis that this area was a site of the earliest demonstrable occupation and that, over time, developed into an elite residential zone.

The San Lorenzo phase ceramic types Limon Incised and Calzadas Carved cannot stand alone as markers of an elite presence. Nevertheless, when placed in association with other lines of evidence, the area appears to have evolved into the residence of privileged occupants. The deposition of San Lorenzo phase ceramics was restricted to this area and was contiguous with the earlier pre-Olmec artifacts. Repeated construction events involving floors and structures suggest a continual long-term occupation. The zone's location directly adjacent to the Olmec Throne Complex implies a relationship with the elite-based activities that occurred there. Similar ceramic findings and the analogous development at the contemporaneous sites of Cuatotolapan Viejo, Estero Rabón, and San Lorenzo into elite centers also support this interpretation.

The Early Formative period appearance of obsidian prismatic blades may also be an indicator of elite areas. At San Lorenzo, Coe and Diehl (1980:258-259, 391) and Cobean et al. (1971) demonstrated that obsidian importation and tool production were associated with the elite. Clark and associates (1987; Clark and Blake 1994; Clark and Lee 1984; Clark et al. 1989) have argued that prismatic blades and their requisite technologies were initially tied to elites and their sociopolitical and economic activities.

Over the course of my field work at El Marquesillo, I noted that this specific area contained more obsidian blades and flakes, both on the surface and in situ in the river cut bank, than anywhere else at the site. In December, 2005, a collapse along the northern edge of the Field 6 river cut exposed significant portions of this area and revealed new evidence. Obsidian prismatic blades were found in direct association with Limon Incised and Calzadas Carved ceramics. At this point, it cannot be definitively concluded that blades were present during the earlier pre-Olmec phases, but it is possible. Thus, the presence of prismatic blades at this early date in El Marquesillo suggests elite occupation. When compared to other areas of the site and considering later intra-site developments, the argument is maintained that this was the elite residential center of El Marquesillo during the Formative period. The sources of the obsidian material also demonstrate that, although El Marquesillo participated in acquisition networks to obtain long-distance commodities, its operation and import practices differed from other contemporary sites. This differentiation of obsidian sources at El Marquesillo suggests a level of sociopolitical and economic autonomy.

Architectural features are also present in this zone. River cut Profiles 6B and 7A demonstrate a series of Formative period construction events. Formations depicted in

Profile 6B suggest a low platform-like structure with a series of compacted red sand floors that are associated with the original pre-Olmec occupation location. Profile 7A demonstrates more substantial and complex construction efforts that occurred between the Early and Late Formative periods (c. 900-300 BC), based on the deposition of chronologically diagnostic ceramics. A series of superimposed constructions indicate four major construction events that are separated by thick lines of compacted red sand. The uppermost feature, identified as Levels II, IIa, and III in Profile 7A, represent a series of disturbed floors. Below this feature is a 20 to 30 cm thick layer made up of a mixture of rose colored semi-compacted sand and an ash-like, possibly volcanic, substance. This material is not natural to this location and would have had to have been intentionally mixed and deposited here. The thickness of the layer is relatively uniform and extends beyond the profile a few meters to the south and into Field 6 to the north. Another red sand line marks the lower border of this feature. Below is Level V, another relatively uniform layer, around 30 cm thick, that contains less ash and sand than the level above but has river gravel mixed into the aggregate, a material not found in the upper level constructions. Level VI is a layer of mixed and modified sand and gravel with portions of burned clay that may represent a floor.

A diachronic analysis of the deposition of chronologically diagnostic ceramics indicates that the lower two levels, V and VI, were constructed during the Early Formative period. Level IV contains no definitive ceramics and the multiple intrusions may have moved diagnostic material; this level is attributed to sometime between the Early and Late Formative. The upper levels were constructed and modified during the Late Formative and possibly early Protoclassic period according to ceramic deposits.

Evidence of these constructions is also present on the surface. Results of the topographic mapping survey indicate a raised circular area at the location of the pre-Olmec ceramic deposition (Figure 6.1). Structure 111 is also clearly defined in the topographic image immediately to the south. A ramp-like appendage appears to extend north northwest from Structure 111 directly toward the slightly elevated circular mound containing the pre-Olmec ceramic deposit. Examination of the alignment of Structure 111, its ramp, and the circular building shows that the directional axis of these buildings is oriented to 18.5º west of magnetic north. Further observations on the significance of this directional alignment are discussed in the Site Planning and Concepts of Directionality section below.

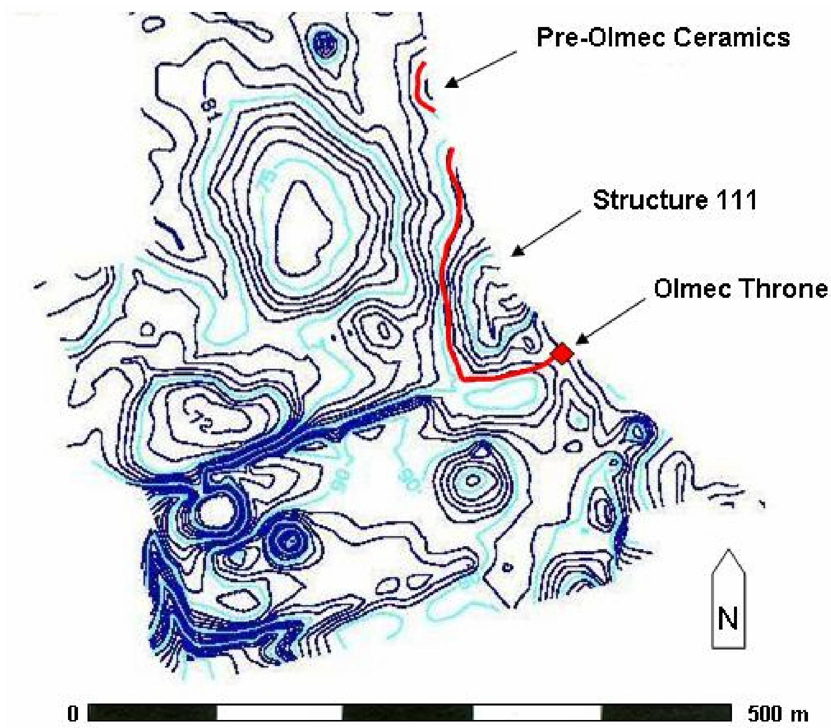

Figure 6.1 Contour map illustrating location of Structure 111, Pre-Olmec ceramic deposits, and the Olmec throne

Based on recovered ceramics, both of these locations were occupied simultaneously during the San Lorenzo phase and for the remainder of the Formative period. The deposit of mixed sand and ash identified as Level IV in Profile 7A and Level III in Profile 6B is continuous across the exposed river cut and match the horizontal dimensions of Structure 111, suggesting this layer was foundational to the surface structure. Along the southern perimeter of Structure 111, the Olmec throne was buried.

Surveys of in situ cultural material along the river cut in Fields 6, 7, and 8 have produced no evidence to suggest any residential occupation of this zone beyond the Formative period. Late Classic period ceramics are present here but are all found only in four limited and intrusive contexts. It appears that these invasive Late Classic period episodes were calculated events and are related to each other.

Offerings III, IV, and V are all attributed to the Late Classic period and were intentionally deposited within Structure 111. Also, at the southern edge of this structure, approximately 3 m west of the throne's interred location, an intrusive hole had been dug that reached 110 cm in depth. When this cavity was refilled, it contained a mix of chronologically diagnostic ceramic sherds from the Early Formative to the Late Classic periods. No offering or artifact assemblage was found in the refilled space. An uninterrupted 40 cm earthen layer above the disturbed soil literally sealed the entire activity area. The event is ascribed to the Late Classic period based on the latest ceramic phase present.

Jones (2001:87-88) describes Mesoamerican offerings or caches as "intentionally hidden objects…that by content, grouping, or context appear to have votive, dedicatory, or ceremonial function." The specific function or social meaning of Offerings III, IV, V, and the excavated pit is not known, but spatial analysis of their deposition may provide some clues as to their general objective. A total of 10 ceramic vessels were recovered in the three, apparently formal, offerings and are attributable to the Late Classic period. The three offerings are diverse and distinctive in their content, and their individual interments were precise in their location and arrangement. The location and possible meaning of these offerings is discussed further in the following section.

The Olmec Throne Complex

This architectural complex is so named due to its proximity to the depositional location of the monumental Olmec throne. At this time, no reliable evidence was recovered that would indicate any Formative period occupation or activity occurred to the south of the Olmec Throne Complex. A number of surface and subsurface architectural features are present within this complex and suggest it was the site's religious and ceremonial center during the Formative period. Furthermore, the interpretation of the ceramic evidence implies that this area remained a center of ritual or ceremonial significance through the Classic period. The context of the architectural, artifact, and natural features in this complex is described below. When the cumulative evidence is considered, it appears that the El Marquesillo elite were involved in ideological legitimation as it was practiced within the setting of the Olmec area of the Southern Gulf Lowlands during the Formative period.

It has been recognized that specific architectural complexes within Mesoamerican sites contained locations where monumental architecture served as a setting for performance of ritualized ceremonies, rites to venerate ancestors, or reenactments of creation (Reilly 1999:15; Schele and Freidel 1990:64-77). In these public venues, rulers demonstrated and validated their political power. Within the Olmec Gulf Coast, Cyphers (1993:155) states that, "display of rulership may be directly associated with the control of two resources, water and stone," both of which are prominently displayed at El Marquesillo. Regarding the setting, Reilly (1994:13) describes how, at La Venta's Complex A, "the court itself was a constructed sacred landscape" (see also Grove 1999:256; Grove and Gillespie 1992), again this endeavor and intention appears to be present at El Marquesillo. At El Marquesillo this monumental construction and associated features suggest a display of power, authority, and social leadership. The sheer monumentality of this complex alone reflects a substantial expenditure of energy, planning, and organization required for its construction.

During the Formative period along the Southern Gulf Lowlands, the public expression of Olmec ideology appears to have seamlessly blended two seemingly opposing functions. At a time when the emergence of social complexity compelled the establishment of sociopolitical order and power, it also required the enlistment and cooperation of supporters. Turner (1969, 1974) defines this dichotomy where, on the one hand, there is the concept of "*communitas*," a social bonding that provides a sense of identity, affiliation, and homogeny, on the other are the distinctions required of hierarchy. Turner's "inclusiveness," or communitas, is demonstrated through unifying rituals of earth and fertility, those rites representative of shared equal values common to the entire populace. His "exclusiveness" is shown through acts of ancestor veneration, which is used to demonstrate distinctions of power, authority, and self interest among specific lineages, houses, or factions.

For the Gulf Olmec, monumental exhibitions of ideological imagery allowed leaders to operate within an ideological structure that created social cohesion through public expressions of earthly cults (e.g., water, fertility, or landscape) (Freidel 1995; Kapplemen 2001; Reilly 2005; Taube 1995). At the same time they could confirm their sanction to rule through illustrating contact with or descent from sacred ancestors. Although the ideological structure and meaning of these exhibitions were similar across the landscape, the intentions and relationship of individual leaders with their communities may have been very different.

Monumental Basalt Olmec Throne

The monumental Olmec throne is the most significant artifact recovered at El Marquesillo was a motivating influence for the site's investigation and as such deserves further discussion of its observed attributes. The iconographic detail, original location, burial position, and a series of related depositional events are essential to understanding the local and regional contexts in which the throne was used. Additionally, the ancient significance of the throne appears to have extended from the Formative to the Classic period.

The helmet-like head covering and the wide sash-like belt worn by the individual depicted on the throne are reminiscent of the ball player gear worn by rulers, which are evident on the San Lorenzo sculptures (Clark 2005:212; Coe and Diehl 1980a:269). The carved niche represented cave entrances or portals to the underworld from which the ancestors could be contacted (Clark 2005:212). Thus, the person represented with these symbolic adornments and seated in this supernatural location might be interpreted as a ruler or lineage founder or protagonist. The importance and esteem of this individual or the faction they represent can also be inferred from the amount of wealth, power, and organization required to acquire and construct a 12-ton monolithic throne.

The depositional location and placement of the throne, as well as those of associated Offerings I and II, are noteworthy because they appear to be related to a ritual termination event. By examining the method and placement of deposition it may be possible to reconstruct the original position of the throne. Furthermore, it is possible that Classic period activities occurred a millennium after the deposition of the throne were affected by the method of its interment.

Figure 6.2 illustrates the hypothesized method by which the throne was interred based on observations by Hernández during the 2002 rescue project. By digging a hole in front of the monument, it was then possible to turn and lower the sculpture into the hole by removing the earth supporting the front of the piece. This manner of burial would provide control of the movement of the object and allow it to be positioned rather

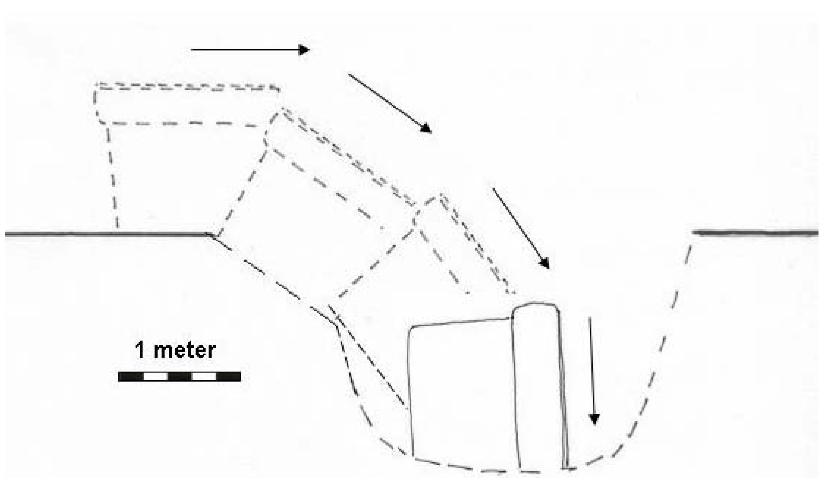

Figure 6.2 View to the north of the hypothesized lowering of Olmec throne

precisely. This method would also move the throne 2 to 3 m from its original upright position on the landscape; the significance of this point will become clear shortly. The throne was turned so that the face of the personage was positioned downward. If the throne was re-erected by turning it upright on the axis on which it was uncovered, the figure in the niche would be facing an east-northeast direction, approximately 78º east of magnetic north.

Equally significant to the understanding of the sculpture are the symbolic features of the throne itself, the seated personage, and the iconographic elements depicted on the accoutrements of the person. Prior to the throne's deposition, the hands of the figure were removed, the facial features were obscured, attempts were made to erase the iconographic details, and a cupping hole was ground into the loincloth of the personage. After the throne was lowered and turned, a second cupping hole was ground into the underside of the right tabletop extension. It appears that all traces of elements that could identify the individual were removed, literally erased or wiped away. This type of sculptural "erasure" is demonstrated on the left panel of San Lorenzo Monument 14 (Cyphers 1993:160). On El Marquesillo's altar, there is an unequivocal deletion of surface details relating to the niche figure, but the clean, almost abstract lines and surfaces of the remaining portions of the altar raise the possibility that additional iconographic details may also have been erased prior to its deposition.

The attempt to eradicate identifying iconographic features was not fully successful, however. It is possible to distinguish that the person seated in the niche wears a necklace with a pendent of diagonal cross-bands and has crenellated ear ornaments, both associated with Formative Gulf Coast water imagery (Coe 1968:112; Joralemon

1971:90; Taube 2004:91). San Lorenzo Monument 52 is a depiction of the Olmec rain deity wearing identical adornments (Diehl 2004:40). The relationship of the Monument 52 to water elements is reinforced by the fact that the back of this figure is carved into the typical trough-shape and size of the basalt drains used atop the San Lorenzo plateau (Coe and Diehl 1980a; Cyphers 1993) (Figure 6.3. At El Marquesillo, the sides of the head covering are faint remainders of iconographic elements. It is possible that remnants of a red, paint-like substance are also present.

Figure 6.3. San Lorenzo Monument 52, basalt sculpture of the Olmec Rain Deity. Note necklace with cross-band pendent, crenellated ear ornaments, and head piece. Right photo is reverse side illustrating u-shaped drain (Cyphers 2004:112).

An earlier discussion suggested stylistic similarities between the Olmec tabletop thrones at San Lorenzo, La Venta, and the example from El Marquesillo. Although the resemblances are compelling, the differences may be equally telling. The defacement of sculptures may have been intended to release the power and danger inherent within the monument (Cyphers 1996a, 1997a; Gillespie 1993; Grove and Gillespie 1992). “The brutality accorded some monuments, but not others, indicates selective desecration and iconoclasm rather than ritual decommissioning” (Clark 2005:212). Unlike the forceful mutilation and disfigurement of monuments present at San Lorenzo and La Venta, the throne from El Marquesillo was not subjected to violent blows or battering (see Coe and Diehl 1980a:297; Grove 1999). There is also no evidence of fracturing, slotting, grooving, or other recarving or reuse of the stone. In comparison to the condition and deposition of many monumental sculptures at other contemporary sites on the Gulf Coast, the throne at El Marquesillo could be considered to have undergone a more deferential effacing process and a more venerable interment (see Coe and Diehl 1980a:297-374; Cyphers 2004; Heizer 1960; Porter 1989).

Some observations regarding the throne have been made that, initially may appear inconsequential, but, when added to the totality of evidence from El Marquesillo and other sites, suggest a more profound pattern of Mesoamerican directional alignment and measurement systems. The axis plane created by the top of the throne was oriented approximately 16º west of magnetic north (Figure 5.84). Implications for this alignment are discussed further in the Site Planning and Concepts of Directionality section below.

Offerings I and II are associated with the ritual termination and deposition of the throne. The intimate placement and depths of the offering pits, relative to those of the throne, support this idea. Evidence from the offerings implies that a feasting event may have been held in conjunction with the throne’s termination ritual and the debris from this event was deposited in the two pits. Early, Middle, and Late Formative ceramics (c. 1150-300 BC) were recovered from Offering I, which suggests some of the deposited objects were heirloom items. It is also possible that the substantial lens of organic material in Offering II was a result of the deposition of flowers or grasses into the opening.

During the investigation at El Marquesillo, Hernández related that the discovery of this monumental sculpture had elicited speculation that the throne was not intended to be here, that it was in transit to another location (see also Diehl 2004:190-191). The preparation and method of deposition along with the proposed ritualistic termination activities (i.e., elimination of identify symbols, feasting event, artifact deposition) associated with the interment seem to demonstrate behaviors that would not have occurred if the monument were in transit. Another argument that the throne was indeed a cenotaph, or monument erected in honor of an El Marquesillo forebear, is that it is an integral part of a sacred symbolic scene. The scene is composed of multiple monumental features present within the Olmec Throne Complex, which are described in the following section. Therefore, the throne does not appear to be an anomalous in transit monument, but instead, a valued memorial expressive of the sociopolitical status of the people of El Marquesillo.

Revisiting the locations of Offerings 3, 4, and 5, we know they were located in Structure 111 and were positioned near the vertical mid-point of the Formative period structure (i.e., Level IV and V in Profile 7A and in Level III slightly south of Profile 6B), approximately 100 cm to 120 cm below the present surface. This is the same depth to which the anomalous hole at the southern edge of Structure 111 had reached. Each of these four intrusions fall on a single axis line. In other words, all the intrusions were placed in a straight line, both vertically and horizontally. The horizontal direction of this axis is 341.5º, identical to the orientation observed for the Structure 111 in which they were deposited.

Although these offerings are not of the monumental nature as is the Olmec throne, they may provide substantial information about the early and later inhabitants and the origins and development of their settlement pattern. The occupation of Structure 111 in the elite residential zone began in the Early Formative and continued through the Late Formative period (c. 1150-300 BC). During this time, a series of construction events in the form successive platform layers were completed with the last being assigned to the Late Formative. No evidence for residential occupation beyond this period has been uncovered. Then, 800 to 1300 years after the constructions were completed, an aligned series of Late Classic offerings (c. AD 550-900) were inserted into the center of the structures along the same axis as the architectural structure.

Two major questions arise. Why were the offerings placed in a precise linear fashion, and why was a large hole dug along that axis but nothing deposited? I submit that it is possible the Late Classic inhabitants of El Marquesillo may have performed a type of dedication ceremony designed to end in the locating and recovery of the Olmec throne. The empty Classic period excavation was made where the throne “should” have been. If this proposal is correct, the reason the Late Classic people missed their target was because the throne had been moved from its original location during its interment by the

Formative period people (see Figure 6.3). There is evidence that Late Classic inhabitants of other Southern Gulf Lowland sites relocated Formative period monumental sculptures from their original positions of deposition and moved them to Villa Alta phase architectural complexes. This activity has been illustrated at San Lorenzo Tenochtitlán (Coe and Diehl 1980a:293), Laguna de los Cerros (Bove 1978:9), and probably at Las Limas (Rueda 1996). Also supporting this hypothesis is the fact that the southeasterly extension of the offering and Structure 111 axis intersects the longitudinal medial axis of the courtyard in the primary Villa Alta phase long mound complex (see Site Planning and Concepts of Directionality section below).

The Basal Platform

The Olmec Throne Complex is composed of multiple architectural and natural features that are situated atop a massive earthen platform. The extant portions of this monumental construction measure approximately 500 m by 250 m, and its elevation above the surrounding landscape ranges from 1 to 8 m. It is probable that this foundational platform was formed through the modification of a natural rise, based on observation of the surrounding topography. The extended depression along the north side of the structure appears to be a borrow pit, the fill from which was used to level and shape the rectangular platform.

Constructed atop the platform are a series of earthen buildings of various sizes and shapes. The placement of these buildings created a series of enclosed spaces, two of which are major plaza or courtyard areas. It is possible that the complex of structures that are visible today was built or modified over a series of construction episodes.

Nevertheless, the structural design and specific features present within the complex may offer clues as to its origin and purpose. To assess these clues it is necessary to observe the archaeological features and landscape signatures within the context of El Marquesillo and the setting of the Formative period Southern Gulf Lowlands.

Water Features

There are two natural water features associated with the Olmec Throne Complex. One is an apparent spring located immediately outside the west perimeter of the complex (Figure 6.4). This feature is notable because it is bisected by the longitudinal medial axis line that divides the basal platform and its surface structures. The second water feature is an almost perfectly spherical pool of standing water that is located in the northwest corner of the basal platform. Present day inhabitants who have lived here since the 1940s say the pool, which they refer to as the *poza*, has never been dry. Based on these observations and the consistency in the level of the water noted in three-years of field observations, this feature also may be the product of a natural spring. The depth and position of the water table in the Southern Gulf Lowlands were irregular, and Cyphers argues that elevated points in the table made them a “circumscribed resource” (Cyphers 1993:165).

There appears to be another water feature present atop the platform that is not natural, but was produced through human planning and labor. Figure 6.4 is an elevational contour map of Field 8 produced from the total station survey data, and the natural seep spring and standing water feature are identified. In Plaza 1, in the northeast sector of the platform, is an area of significant depression. This sunken area is clearly noticeable in the

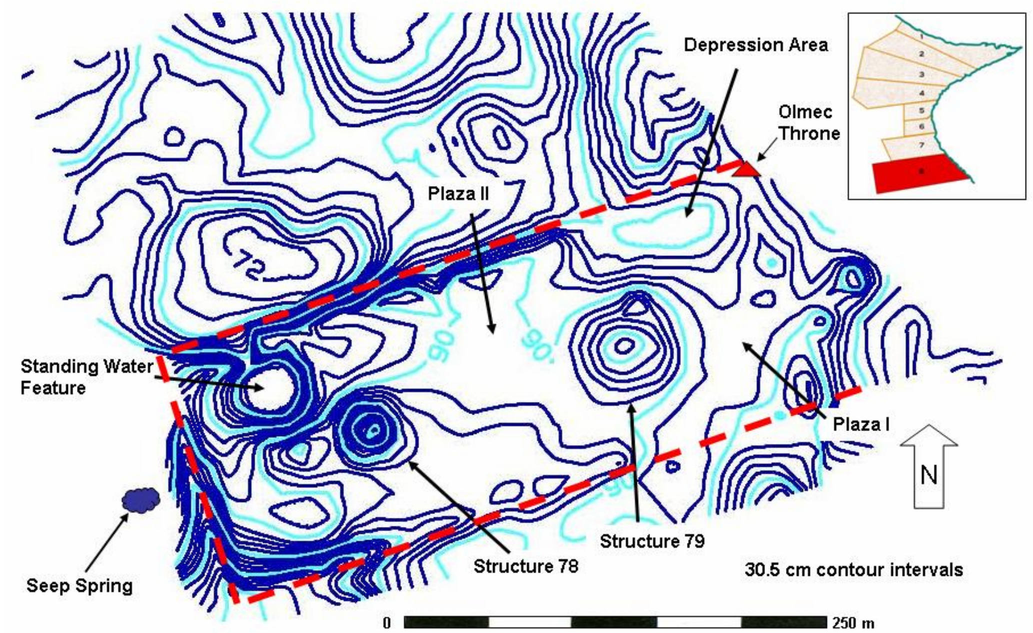

Figure 6.4. The red dashed line outlines the basal platform of the Olmec Throne Complex. The depression area is identified by concentric contour lines that illustrate the sloped surfaces that drain the surface of Plaza 1.

field, and the sloping of the surrounding surface effectively drains and retains the rain run-off from Plaza I. Due to the inhabitants' ability to create large level surfaces, as demonstrated by the major portions of Plazas 1 and 2, it would appear that the depression is an intentionally constructed feature and that it can serve as a water retention basin. The skill, detail, and planning evident in all other aspects of the complex suggest that this depression was not inadvertent or an unintended result.

This type of surface drainage system is also present and clearly identifiable around the standing water feature in the northwest corner of the platform. The surface of Plaza II is drained by the sloping terrain immediately north, south, and west of Structure 78 that carries the run-off into the standing water feature. Surface water features of this nature have been referred to as ponds or *lagunas* at San Lorenzo, where there has been discussion about the antiquity of these features (Cyphers 1993; Diehl 2004). Ultimately, it appears that the laguna originated in the Formative period and may have been subjected to later modifications, a situation considered analogous to the one at El Marquesillo.

Examination of the magnetometer and GPS data shows a linear anomaly located in the northeast sector of Field 8. This anomaly begins 60 m west of the depositional position of the Olmec throne and extends west-southwest for approximately 90 m where it apparently ends. Closer examination of the surface indicates that the spot where the visualization of the anomaly ends coincides precisely with the eastern edge of Structure 77a (see Figure 6.5). Therefore, it is possible that the anomaly actually continues underneath the building, but that the strength of the magnetic signal, captured by the magnetometer, was significantly reduced as a result of the interference caused by up to several meters of intervening fill that was used in the construction.

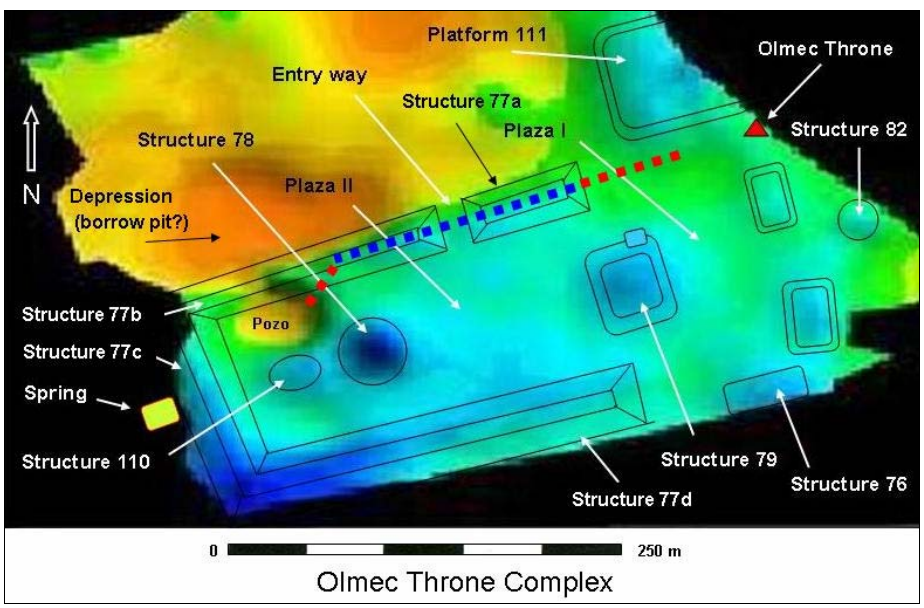

Figure 6.5. Topographic base map of Fields 7 and 8 with depictions of features and structures. Detected linear anomalies are illustrated by red dashed lines, hypothesized anomaly is illustrated as blue dashed lines.

Another, shorter, linear anomaly appears 150 m to the west-southwest of the primary linear anomaly. This 30 m-long anomaly runs from the northeast to the southwest. Here, the northeast end of the anomaly disappears from the magnetic data at precisely the point where it coincides with the edge of Structure 77b. The southwest end of the anomaly ends at the edge of the standing water feature.

It is possible that these two linear anomalies are connected and may represent portions of a basalt drainage system the empties the recessed retention area in Plaza I to the standing water feature to the west. Figure 6.5 depicts various features and buildings associated with the Olmec Throne Complex. Portions of a linear anomaly that are clearly represented by the magnetic data are shown as a solid red-dashed line, and the hypothesized portions are represented by a blue-dashed line. Thus, the abruptness of the disappearance and reappearance of the anomalous features are seen to be attributable to the presence and absence of the surface structures.

There is substantial support for the hypothesized anomaly from various lines of evidence. The probable source of this anomaly is basalt, and the reason for its linear aspect is that it is a drainage system comparable to those demonstrated at San Lorenzo and La Venta. The San Lorenzo system was composed of carved u-shaped segments of basalt and matching covers that extended for 171 m (Coe and Diehl 1980a:118-126) (see Figure 6.6). The apparent purpose of the drains was the transfer of water between basins or reservoirs, all of which were used for ceremonial as well as utilitarian purposes. San Lorenzo Monuments 9, a basalt basin carved in the form of a duck, is unmistakably symbolic of water and Monument 52, which depicts the Olmec water deity, were both associated with the drain system (Cyphers 1993:161-163; Diehl 2004:37-40) (see Figure

6.3). At La Venta equivalent basalt troughs and drainage systems are present (Heizer, Drucker et al. 1968). In Group E at San Lorenzo, Laguna 8 is a standing water feature similar to that at El Marquesillo. The laguna has been linked to the drain system, and the entire area has been identified as, “a clear hotspot of elite activity” (Cyphers 1993:159-161; Diehl 2004:39).

Stirling (1955:15) reports that San Lorenzo Monument 14, a table top throne, corresponding in shape, form, and with similar symbolic content to the throne at El Marquesillo, was found submerged within Laguna 8 and was visible only during the dry season when the water level dropped. Further investigations showed that Monument 14

Figure 6.6. Linear system of basalt drains unearthed at San Lorenzo (Coe and Diehl 1980:119

originally sat on a patio-like structure on the northeast corner of the laguna (Cyphers 1993:163). If the presumption concerning the deposition of El Marquesillo's throne made by Hernández and myself is correct, then its original placement and location, relative to the water retention area, duplicates that of Monument 14 and Laguna 8. Moreover, excavations of the floor upon which Monument 14 sat at San Lorenzo contained offerings that included numerous ceramic vessels, evidence of burning, and bird bones, all of which were present in El Marquesillo Offerings I and II that are directly associated with the throne.

At first glance, the extensive seasonal rains and annual river inundations of the region under investigation would seem to eliminate water as a potential source of ideological or material concern to the ancient inhabitants. Cyphers (1993:175), however, makes it clear that, "the conventional assumption that, in the human Gulf Coast environment, water is seldom, if ever, a limiting factor" is not correct. She adds that all aspects of the Olmec environment are closely tied to water "in all of its manifestations" (Cyphers 1993:165). The importance of potable water in the area identified as the Gulf Coast Olmec heartland has been repeatedly demonstrated (Cyphers 1997b; Diehl 2004; Reilly 1999; Rodríguez and Ortiz 2000), and its inclusion in symbolic as well as material forms substantiate its significance on multiple social and political levels (Reilly 1994; Scarborough 1998; Taube 1995).

The temporal depth of these sacred places and symbolic representations is apparent at El Manatí, where initial offerings began around 1600 BC (Ortíz and Rodríguez 1993; Rodríguez and Ortíz 1997). Places of pooled water were sacred portals that are closely associated with Formative period architectural complexes and linked to shamanistic ritual and rulership (Freidel 1995; Reilly 1994; Scarborough 1998). Here, individuals could pass between the natural world and the underworld to contact ancestors and deities (Reilly 1999; Stark 1993; Tate 1999a). In my opinion, all of these examples of ideological representation and elite practices are present at El Marquesillo.

Structure 77

This u-shaped structure is identified in Figure 6.5 as Structures 77a, b, c, and d, to clarify descriptions. The inclusive structure delineates the western end of the basal platform, and its form and enclosed space is highly suggestive of the court in La Venta Complex A (see Drucker et al. 1959:frontispiece; Reilly 1994, 1999, 2002). The enclosing arms of the construction surround a restricted area that includes Structures 78 and 110, which are analogous to La Venta Complex A Mound A-2 and South-Central Platform Feature A-1-c (Drucker et al. 1959:Figure 4).

Reilly (1994) perceives Complex A at La Venta as a constructed sacred landscape based on the concept of a watery underworld, a world of the ancestors and seat of supernatural power. A pool of “primordial water” was the terrestrial entrance to this otherworld, and at La Venta this earthly portal was symbolized by massive mosaic offerings of serpentine stone. At El Marquesillo, however, the sacred portal was not an artificial facsimile but an actual pool of water. Reilly adds that the form and function of the La Venta complex and its associated features was indicative of the cosmic view held by the “heartland” Olmec. It is possible that the natural features along with architectural constructions may indicate a similar representation by the inhabitants at El Marquesillo.

Mound Structures 78, 79, 82, and 110

Structure 78, a 6 m high earthen pyramid, dominates the Olmec Throne Complex. Structure 79 is a lower but broader based, truncated pyramid. These two structures effectively divide the entire complex into three, relatively comparable segments; Plaza I, Plaza II, and the western section containing the standing water feature. Structures 82 and 110 are low 1 m mounds that, from their surface appearance, do not offer any overt indication as to their function or significance. Nevertheless, their specific placement, along with Structures 78 and 79, and the seep spring immediately west of the complex, suggests a significant alignment. As previously noted, the longitudinal medial axis formed by the centers of these four structures also effectively bisects the entire complex and basal platform. This axis line is oriented to approximately 72º east of magnetic north. This estimated alignment is within three degrees of the line-of-site proposed for the throne personage.

Plazas I and II

Plaza I is located in the ea stern portion of the Olmec Throne Complex (see Figure 6.5), and may be an area of privileged, elite activities. The plaza is encircled by a series of variously sized and shaped structures that effectively isolate the courtyard and restrict entry to its interior. The northeast portion of this plaza was the location of the altar's ritual deposition, associated Offerings I and II, and contained the hypothesized ceremonial water retention pond. Structure 79, which forms the western boundary of the plaza, has a unique pedestal-like projection at its northeast corner (see Figure 6.5). Its 2 m elevation provides an excellent overview of the entire northern portion of the plaza and altar location.

As previously mentioned, the artifacts recovered in Offerings I and II suggest a feasting event was associated with the altar's termination ritual. Recovered surface collection material from within Plaza I included diagnostic and domestic ceramics wares and stone grinding implements that suggest that this area was used for the preparation of such events. The results of the Plaza I soil analysis also are suggestive of activities associated with fires, food, and ritualistic events. The artifact distribution pattern, documented during the altar's rescue excavation, shows a dramatic drop-off as the eastern perimeter of the hypothesized water basin is approached.

Plaza II, which comprises the central segment of the Olmec Throne Complex as it exists today, presents an entirely different scenario. Various lines of evidence suggest that this plaza was a place for public assembly, possibly for the viewing of community oriented ceremonies or rituals. A broad ramp-like structure rises 4 to 5 m from Field 7 and narrows as it approached a constricted opening on the north side of the Olmec Altar Complex between Structures 77a and 77b. This position is the only recognizable entrance to the plaza, which suggests access may have been controlled. The plaza floor is dominated by Structure 78 to the west and Structure 79 to the east. The height of either of these buildings would allow observation of any activities occurring on their summits to be clearly visible to occupants of the plaza.

The results of the soil analysis conducted in Plaza II differed significantly from those from Plaza I. The elemental traces here are minor relative to those in Plaza I, and what evidence that is present suggests restricted types of activity. The surface collection illustrates an almost complete absence of artifacts, of any type, across the plaza. The interpretation of this combination of evidence suggests that, whatever activity occurred in the plaza, any remains were cleaned from the surface soon after the completion of the event, before the chemical residues had time to leach into the soil and attach to the matrix particles.

Additional support for plaza cleansing may be found in the results from the surface collection that suggest a concentrated, long term disposal site. A single 50 m x 50 m grid unit, N1-W6, shows a highly circumscribed and concentrated deposit of 637 ceramic sherds, which represents nearly 15 percent of the total surface assemblage. Chronologically diagnostic ceramics from all phases recognized at the site were recovered in this single grid unit. Furthermore, the quantities of each of these diagnostic types were, by far, greater than at any other location at the site. Ceramic sherds were the only type of artifact recovered here, and no other artifact deposition was recorded within 50 m of this unit. Unit N1-W6 is located in the depression at the foot of the basal platform, and is directly adjacent to the northern perimeter of Plaza II. Therefore, it is suggested that this location was the deposit site of the refuse cleaned from the plaza's surface.

In summation, the natural and constructed features in and around the Olmec Throne Complex appear to demonstrate that the community of El Marquesillo actively participated in the Formative period Gulf Coast Olmec ideological paradigm. "Sculpture constitutes one of the earliest examples in ancient Mexico of large-scale ideological communication through the interaction of architecture and sculpture" (González-Lauck 2001:800). The continued use of the plazas and its features over a 2,000 year period add further support to the idea that El Marquesillo represents a well-established, conservative community that practiced rituals and ceremonies. The duration of these proposed practices over more than 1,500 years indicate they were deeply entrenched in the community's social traditions and exemplify the cultural continuity of the people and place.

Residential and Ceramic Production Zones

Examination of the chronologically diagnostic ceramic and lithic artifact deposition indicates that beginning around 1150 BC, a series of residential and ceramic production areas appeared in Fields 1, 2, 3, and 4. Based on the site's geomorphological resources (i.e., numerous colored clays and fine sand tempering agents), along with ethnohistoric and archaeological evidence, it appears that El Marquesillo's inhabitants produced substantial quantities of ceramic vessels throughout much of its occupational history (c. 1150 BC to AD 1000).

Today, the river cut bank creates the eastern terminus of Field 3, and this portion has been identified as a residential zone based on the deposition and type of surface artifacts and examination of the upper stratigraphy of the river cut bank. Extending approximately 70 m west of the cut is a level, slightly elevated area. Early Formative through Late Classic period ceramics were recovered here in the 2003 surface collection. During 2004 field season, the entire east half of the field was mechanically tilled in preparation for planting. A subsequent pedestrian survey of the exposed area revealed an intensity of domestic ceramic and lithic artifacts limited to the same area as the surface collected material. The continuity of chronologically diagnostic ceramics and the limited deposition pattern suggests that this residential zone was occupied from the Early Formative to Late Classic period.

In Field 1, approximately 50 to 70 m northeast of the residential zone, is an area of significant ceramic production. The magnetometer survey of Field 1 detected a series of anomalies in this zone that could be localities of significant concentrated burning activities, as would be expected of ceramic production, either through open fire-pits or kilns (see Hoag 2003). The extended duration of their operation and level of production is indicated by the deposition of large quantities of chronologically diagnostic (Early Formative through Late Classic, c. 1150 BC to AD 900) and domestic ceramic sherds visible along the northern river cut bank in Field 1 and the eastern bank of Fields 1 through 4.

Analysis of the diagnostic ceramics from the surface collection presents a pattern of expansion and contraction in this zone over time. When the non-diagnostic material is included, the spatial pattern remains basically unaltered, and the limits of deposition of archaeological materials are adhered to. The restricted depositional occurrence suggests this was a discrete activity area. In the Early Formative period, the surface area containing diagnostic ceramics covered 10,000 m^2 or approximately 0.01 km^2. Middle Formative distribution increased to 37,500 m^2, and the Late Formative continued to increase to 45,000 m^2. The Protoclassic spatial distribution was reduced to 32,500 m^2 and the decline continued in the Early Classic to 15,000 m^2. The Late Classic period witnessed a substantial re-florescence to 27,500 m^2. This temporal pattern of spatial waxing and waning is demonstrated in other segments of the site as well. It is not possible, at this time, to determine if the production zone also included residential areas.

Also contributing to the ceramic production hypothesis is the fact that quantities of various colored clays and fine sand from alluvial sediments were and still are available at the site. Ethnohistoric accounts from residents of today's El Marquesillo detail personal experiences of household ceramic production as late as the mid-20th century. Residents collected high quality clays from locations along the banks of the San Juan and nearby Jimba Rivers. They also sifted the sandy deposits on the point bars of the San Juan River to use as fine tempering agent. Based on examination of the geomorphology of the terrain and the location of the San Juan River paleochannels, it appears that these same resources would have been readily available to the ancient inhabitants as well. Therefore, if these residents were concerned with the distance and effort required to obtain high quality resources for ceramic production, the area immediately surrounding El Marquesillo would have provided them an exceptional opportunity.

North Group Monumental Architecture and Causeway

Structure 84 is located on the east edge of Field 1 and has partially eroded down the river cut bank. This conical earthen pyramid is constructed atop a slightly elevated platform that extends north and south. At the north end of the platform are the last remnants of Structure 107 and to the south are the slightly greater remains of Structure 85. Analysis of river cut Profile 1B indicates the platform was constructed sometime during or after the Late Formative.

The magnetometer survey detected a major anomaly lying under the northwest portion of Structure 84 (Figure 6.7). Based on interpretation of the magnetic signature,

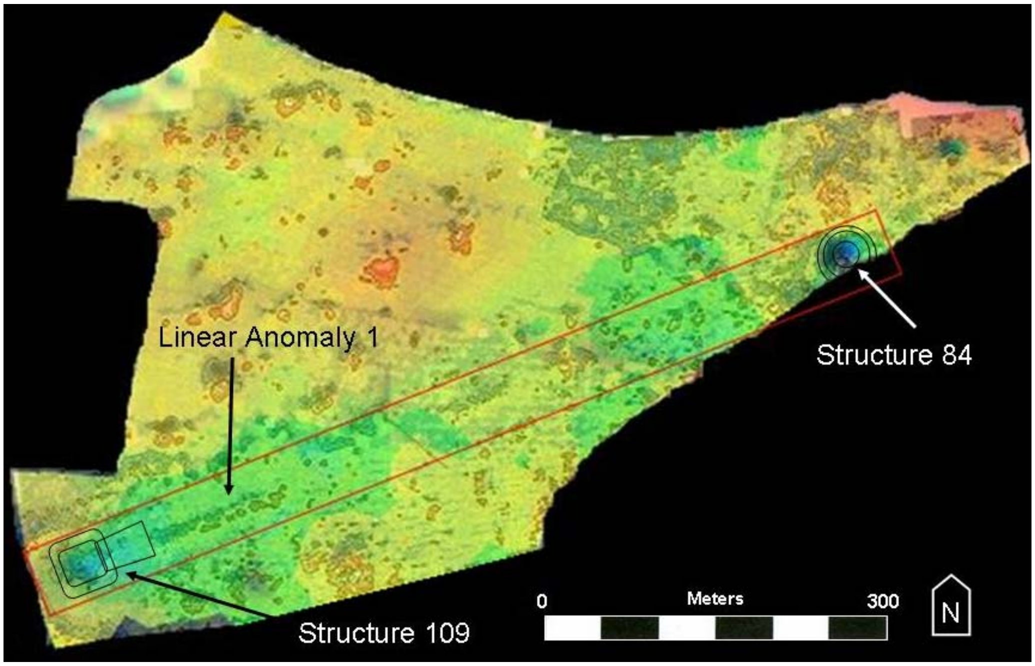

Figure 6.7. Topographical base map with magnetic data overlaid. Red line highlights the path of Linear Anomaly 1 from Structure 109 to 84.

the anomaly may be caused by a substantial body of basalt, possibly up to 15 m wide. A concentration of basalt this size is similar to the "Massive Offerings" at La Venta (see Drucker et al. 1959:127-133). The magnetic coherence of this anomaly would have required extraordinary planning and assembly to align the magnetic direction of each component of the buried material. The awareness of the qualities of magnetism in basalt required to accomplish this type of project appears to have been present in the Southern Gulf Lowlands (Carlson 1975; Guimarães 2004). A Formative period date is attributed to this event based on the river cut profile evidence and the supposition that the movement of monumental size stone within the Southern Gulf Lowland region apparently stopped prior to the Classic period, other than surface movements of some Formative period sculptures to later Villa Alta phase complexes (e.g., Laguna de los Cerros, San Lorenzo, and Las Limas).

Another possible basalt deposition event occurred in conjunction with Structure 109, approximately 650 m to the southeast of 84 (see Figure 6.7). As noted in Chapter 4, Structure 109 is a rectangular, truncated pyramidal platform with rounded corners and a large, level summit area. The most notable feature of the structure is a ramp extending from the top of northeast side of the platform that gradually descends over a distance of nearly 100 m. At the end of this incline is a remarkably straight anomaly that extends approximately 120 m to the northeast. In Figure 6.7 the magnetometer data have been superimposed over a topographic map. This image illustrates that Linear Anomaly 1 conforms to the surface features and that an extension of its directional axis intersects Structure 84 and its massive buried anomaly. Its directional path toward Structure 84 may suggest some type of symbolic connection or relationship between these two structures. Another major feature was identified through an examination of the surface collection and is directly associated with the causeway. Data revealed a highly circumscribed area of ceramic and lithic deposition that literally straddles the axis line and extends between Structure 109 and 84 (Figure 6.8). The Primary Deposition Zone (PDZ) is so named due to the fact that 1,490 of the 4,756 ceramic artifacts recovered during the entire surface collection across Fields 1 through 8, were collected within this bounded sector. Although the PDZ represents only 8.3 percent of the surface area collected, it accounts for 33 percent of the total ceramic assemblage and 28 percent of the lithic assemblage recovered in the surface collection.

When considering the PDZ, it should be noted that the rectangular shape and straight-line boundaries are features created by the grid-based collection process, not of the original deposition process. As well, during the collection process, the ground cover

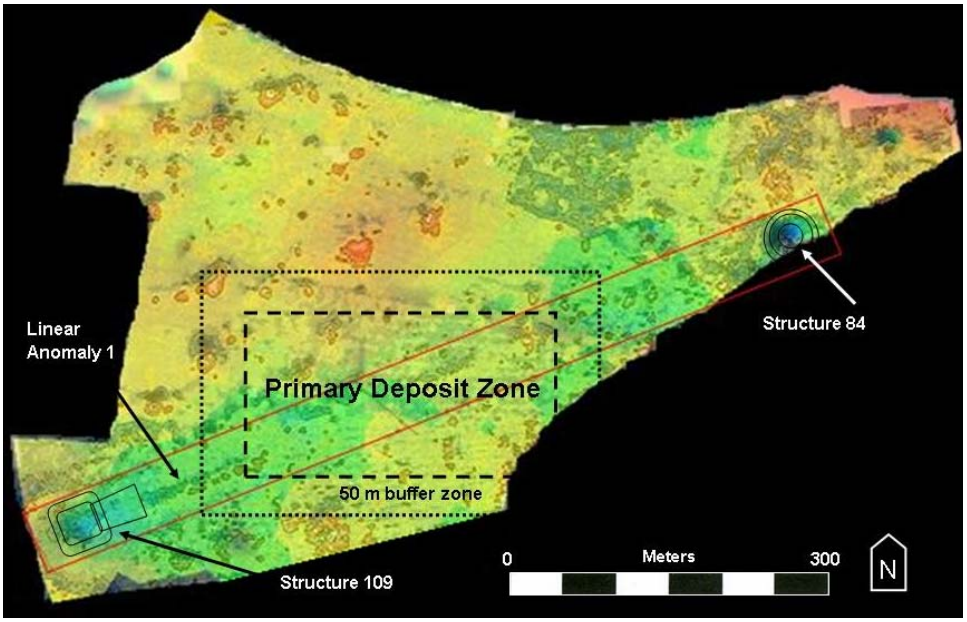

Figure 6.8. The Primary Deposit Zone is identified by the black dashed line. The 50 m buffer is marked by a black dotted line. Linear Anomaly 1 and the causeway feature are present within the red outline.

and surface visibility were essentially the same throughout all of Fields 2, 3, and 4; therefore, the spatial constriction of artifact deposition cannot be attributed to a bias due to variations in visibility. The consistency and uniformity of deposition is a major feature derived from the analysis. The PDZ spans three separate fields, each under differing use patterns and methods of cultivation and cattle grazing, which further suggest the limited concentration of artifacts was a result of ancient activity and deposition as opposed to contemporary impacts to the surface.

There are a number of factors that warrant further consideration of the PDZ. First is the density of material, 124 sherds per 50 m x 50 unit within the PDZ compared to 21 sherds in the remainder of the surveyed area units. Second, within a 50 m-wide perimeter zone (55,000 m²) that encircles the 300 m x 150 m PDZ (45,000 m²) only 28 ceramic pieces were recovered (see Figure 6.8). The rate and suddenness of the depositional drop-off is dramatic to say the least. Third, the evenness of ceramic artifact distribution per grid segment across the surface is striking; the mean is 82.8 sherds, the mode is 81 sherds, and the median is 67 sherds. Fourth, chronologically diagnostic ceramics demonstrate distribution occurred continuously and consistently from the Early Formative to the Late Classic. The deposit ratios by time period within the PDZ are parallel to the temporal proportions represented by the entire ceramic assemblage from all sources.

An additional feature appears related to the PDZ as well. An anomalous accumulation of ceramic sherds was present 50 m south of the PDZ. Survey grid block N7-W3 contained 816 ceramic pieces, all domestic wares. In other words, 17 percent of the entire site surface assemblage was recovered within a single 50 m x 50 m unit. Therefore, the PDZ and grid unit N7-W3 compose only 8.8 percent of the collection surface but account for 49 percent of the entire ceramic assemblage. No other area, independently or collectively, within the site approaches these proportions, quantitatively or spatially.

Although it is possible that the PDZ was a residential area, a number of aspects seem atypical. Why was the area so tightly conscripted and the depositional pattern so consistent over a period of approximately 2100 years? Regardless of any increase or decrease in the quantity of chronologically diagnostic material, the spatial area remains constant. The linear anomaly and the extended causeway that diagonally bisects the zone do not seem to correspond to Mesoamerican residential patterns.

If the zone was a refuse or disposal site, the same basic arguments apply. Why would a trash disposal site be located directly on what appears to be an important or revered causeway, and why the multiple spatial and temporal uniformities? Widmer (2000:3) maintains that trash middens are spatially disassociated from primary activity areas, and designed to remove debris from activity areas. The PDZ appears to be at the center of a significant administrative or ritual corridor and not a place one would expect a Mesoamerican trash heap to be located. Additionally, there is evidence for extensive ceramic trash deposits hundreds of meters away and closer the production areas.

It is also recognized that unknown formation processes, natural or anthropogenic, may have contributed to this spatial delineation of artifacts. The destruction of the artifacts or their conveyance to or from around the PDZ is a possibility. Nevertheless, even this type of apparently precise activity could be considered atypical.

Site Planning and Concepts of Directionality

"Many societies use architecture for symbolic expression, and often buildings and other constructions constitute maps of a culture's worldview (Ashmore 1991:199). Sugiyama (1993:103) adds that material remains at Mesoamerican sites were used to explicitly express ideological aspects that incorporated ritual, cosmology, worldviews, legendary history, and calendrical systems. The alignment of architectural constructions with astronomical events and landmarks on the terrain have been documented and discussed frequently in Mesoamerica (Aveni and Hartung 1986; Aveni et al. 1982; Benson 1981a; Demarest 1984; Freidel and Schele 1988; Sprajc 2000).

The viewshed, or the total visible area from a single or multiple observation points, from El Marquesillo is significant to the layout of the site. The entire southern flank of the Tuxtla Mountain Range is visible along the northern horizon. In the opposite direction, a series of hills approximately 4 km to the south of El Marquesillo effectively block any vistas in that direction. Numerous viewshed observations were made and recorded in the field, and they along with analysis of the results from remote sensing, aerial imagery, GPS and topographic mapping, and GIS analysis have revealed a series of directional alignments at El Marquesillo. The arranged placement of multiple architectural constructions, linear magnetic anomalies, and artifact offerings demonstrate five primary alignments; three are directed to major landscape locations and two appear to be celestially oriented. These directional patterns suggest that portions of the lay out El Marquesillo's settlement pattern were deliberately designed to correspond with the major features across the landscape and possible celestial events. Figure 6.9 illustrates these directional alignments. As a point of reference, the magnetic declination at El Marquesillo, the current difference between true north and magnetic north, is 4º 11'. In other words, a correction of +4º must be applied to all magnetic readings taken at El Marquesillo in order to arrive at true north. This adjustment is not necessary for terrestrial locations, but is essential for interpretation of any celestial alignments (NGDC 2005).

Although I believe the alignments presented are compelling evidence of a planned form and function at El Marquesillo, the attempt here is simply to infer the axes of the mound arrangements. While the terrestrial alignment patterns appear clear, the astronomical or celestial orientations will require additional line of sight observations and measurements in the field for complete verification (Anthony Aveni personal communication, 2006). A further acknowledgment regarding conditions on the ground is that, at El Marquesillo, the architecture is composed of earthen mounds. Erosion along with other natural and human induced destructive processes continually affected these

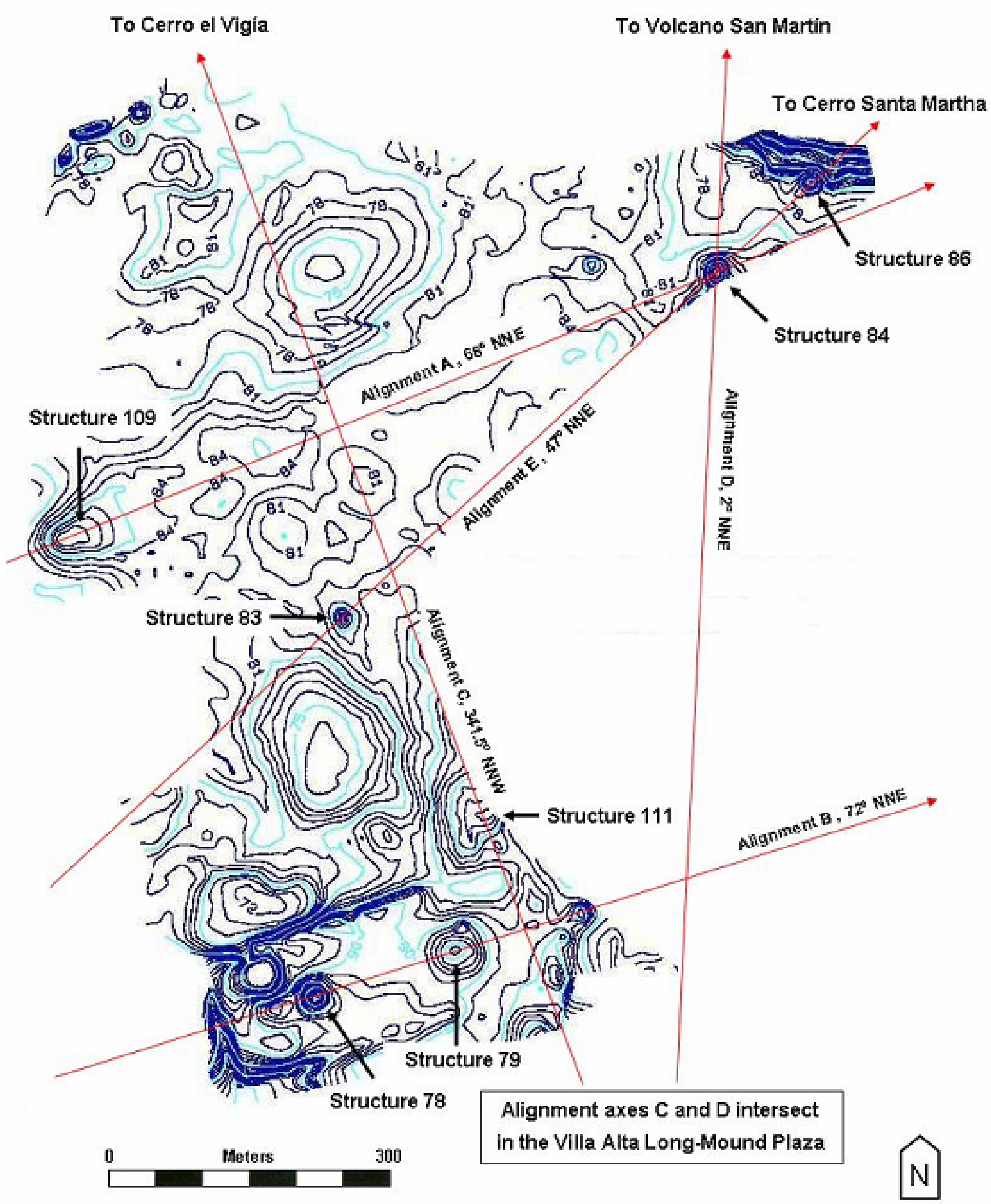

Figure 6.9. Directional alignments recognized at El Marquesillo. All degrees readings are relative to magnetic north.

structures over the past 3,000 years. Therefore, metrological and alignment considerations are based on the best evidence available today.

Finally, the selection and investigation of these alignments was initiated by the placement of multiple structures and features that constituted the axis lines, they are not simply a single point-to-point line. For example, Alignment B intersects the center of four separate structures. Alignment A longitudinally bisects a large 4 m-high, 20 m x 20 m building (Structure 109), its 100 m-long access ramp, a 150 m-long subsurface linear magnetic anomaly, a 5 m-high pyramidal mound (Structure 84), and the massive rectangular magnetic anomaly that lies beneath it. Alignment E bisects the centers of Structures 83, 84, and 86, and three of the alignments converge on Structure 84. Lastly, the distances between the features that established these alignments within the site of El Marquesillo range from 400 to more than 1000 m.

Alignment A

Assistance in the determination of possible celestial events that were in accordance with Alignments A and B was provided by Alan J. Peche, Director of Group & Planetarium Programs at the Museum of Science & Industry in Tampa, Florida. The information was generated using Starry Night Pro Version 5.05 astronomy software and formulated for the year 1000 BC. The declinations determined for 3,000 years ago do not differ significantly from those found today, but the dates for specific solar events such as the equinoxes and solstices have changed significantly.

Linear Anomaly 1, and its allied pathway that extends through Fields 1, 2, 3, and 4, conform precisely to the alignment of the axis created by the centerline of Structure 109 and Structure 84, as well as intersecting the center of the magnetic anomaly (Figure 6.9). The direction of this axis is projected at 72º east of true north (68º east of magnetic north) and is designated Alignment A. This alignment corresponds to the sunrise azimuth on May 22, 1000 BC, the day of the Sun's zenith passage over El Marquesillo. At noon on this date, the Sun would have been at 90 degrees 12 minutes above the southern horizon and 89 degrees 48 minutes above the northern horizon (12 minutes away from vertical) and momentarily would cast no shadow (see Isbell 1982). Because El Marquesillo lies within the Tropic of Cancer, a second zenith passage occurred as the sun's path returns to the south following the Summer Solstice. This second zenith passage occurred about 82 days later around August 13. Alignment A appears to coincide with zenith passage at El Marquesillo. It may be possible that these solar events held a practical and possibly an ideological purpose for inhabitants of the Southern Gulf Lowlands.

The May zenith passage signals the coming of the rainy season and expectations of annual inundations of the alluvial river levees and flood plains. Ethnographic accounts from the Maya region indicate the zenith passage not only signals the beginning of their *Haab,* or 365 day solar calendar, but it was instrumental in the origin of the Mesoamerica calendar (Aveni 1980:144). The second event, in August, could have signaled a second phase of rains along with winds. Ethnographic accounts indicate that throughout Mesoamerica the zenith passage held celestial and cosmological significance for numerous social groups (see Aveni 1980: 40-47). In addition to the ancient and contemporary observance of the zenith passage, Krupp (1983: 181, 275-276) illustrates that, "[t]he zenith is one of the organizing principles of the Andean world, and it establishes the character of sacred space." It could have served a similar purpose for the inhabitants of El Marquesillo as well. "Many Mesoamerican peoples saw in the ball game a metaphor for the movements of the heavenly bodies, particularly the sun... The ball itself may have been understood as the sun journeying in and out of the Underworld" (Miller and Taube 1993: 43). In this respect, the event could have had important social and ideological implications relating to the Underworld, home to the ancestors.

Alignment B

The centers of Structures 78, 79, 82, and 110 all lay on a single axis, referred to here as Alignment B (see Figure 6.9). This same line longitudinally bisects the basal platform of the Olmec Altar Complex and Structure 77, and the seep spring immediately adjacent to the exterior of the basal platform to the west. Linear Anomaly 2 is parallel to this directional axis line as well. The direction of this line is projected to be 76º east of true north (72º east of magnetic north). The consideration of this directional alignment is based on the centerline of a number of constructions and features located directly along its axis. Importantly, if the Olmec Throne was rotated on its depositional axis to an upright position, the personage sitting in the niche would be gazing out at this same direction.

The difference between Alignment A and Alignment B, as measured, is 4º. This difference may be due to the fact that the alignments were designed to identify different celestial events. Alternatively, it may simply represent a ±2º error that occurred when constructing two parallel lines that lie some 500 m apart across uneven terrain. Investigation into these two alignments is ongoing.

Alignment C

The erosion of the face of the river cut back has fortuitously revealed Offerings III, IV, and V. Alignment C is a straight line drawn through these three offerings and is oriented to 18.5º west of magnetic north (see Figure 6.10). If my hypothesis concerning Structure 111 is correct (see pages 252-257), then the medial axis of this building lies along exactly this same line.

Extension of this axis to the south shows that it intersects with the longitudinal centerline of the plaza in the primary Villa Alta phase long mound complex. The medial axis of the Northwest Architectural Complex, a secondary Villa Alta phase long-mound

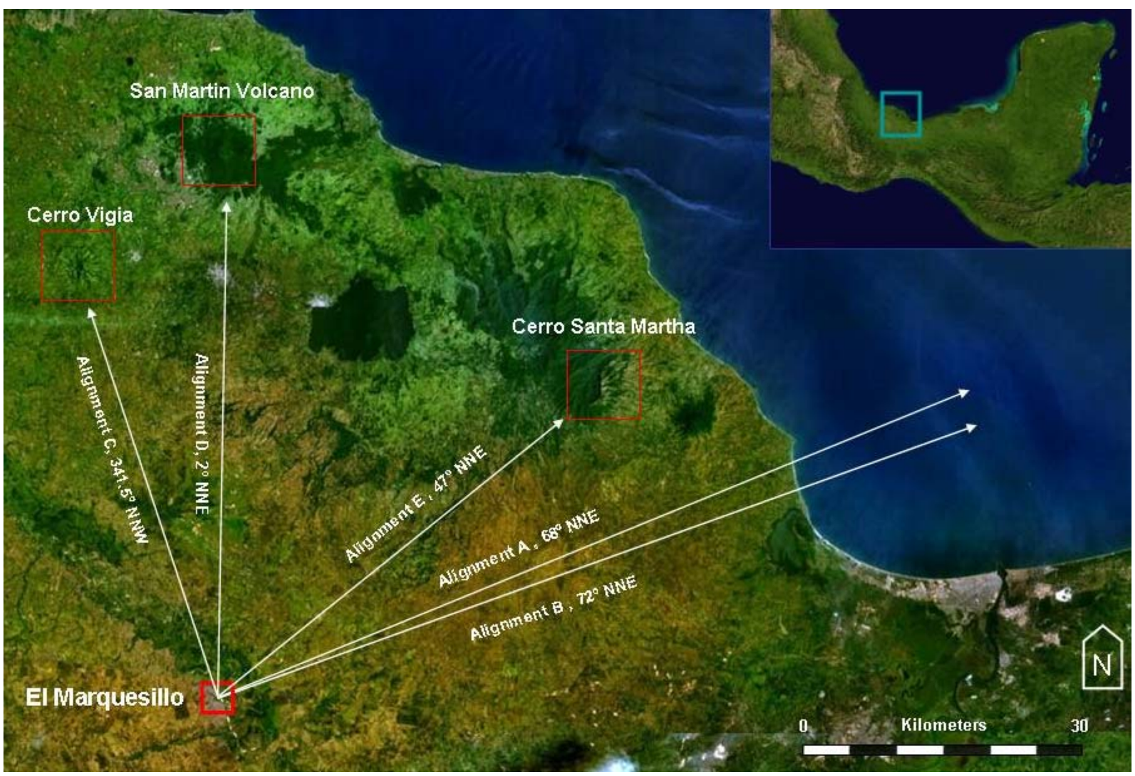

Figure 6.10. Terrain view of El Marquesillo and proposed alignments, directional alignments are from magnetic north (NASA 2006)

plaza complex is also oriented to precisely this same alignment. As well, a line drawn through the center of Structure 83 and the unique platform projection attached to the northeast corner of Structure 79 corresponds exactly to this same directional alignment. Therefore, at least three separate axes at El Marquesillo appear to conform accurately to this orientation, and are attributed to Formative as well as Classic period constructions.

When this directional alignment is extended northward from El Marquesillo, its path intersects the peak of Cerro el Vigía, which is clearly visible from El Marquesillo. This "mountain massif" reaches an elevation of 850 m, covers an area of 4,500 km^2, and at its base is the site of Tres Zapotes (Diehl 2004:181). Porphyritic basalt from Cerro el Vigía was the primary source for monuments and groundstone implements at Tres Zapotes (Pool 2003:1-2).

Alignment D

The medial north-to-south axis of the primary Villa Alta phase long-mound complex intersects with the centerline of Structure 84 and the anomaly that lies below. The direction of this axis is 2º east of magnetic north. A line drawn through the centers of Structures 83 in Field 5 and 78 in Field 8 also corresponds to this same direction. Therefore, again, there are multiple architectural alignments that mirror identical directional patterns and they are assigned to Formative and Classic period constructions.

An extension of this directional alignment intersects the 1,650 m high peak of the San Martín Tuxtla Volcano (see Figure 6.10). Multiple eruptions of this volcano have been documented for the Archaic, Formative, Classic, and present eras (Chase 1981; Moziño 1870; Reinhardt 1991; Santley et al. 2000) and would have been clearly visible from El Marquesillo. The significance of these repeated eruptive events, their visual spectacle, and the possible impact on El Marquesillo due to ashfall or population movements suggest that this landmark could become a deeply embedded feature in the ideology of the inhabitants. The sociopolitical and ideological importance of the San Martín Volcano may be demonstrated in the importation of volcanic ash apparently used in the construction of Structure 111.

Alignment E

A single axis line cleanly bisects Structures 83, 84, and 86. The direction of the axis is 47º east of magnetic north, and its extension aligns with the 1,700 m high peaks of Cerro Santa Martha (see Figure 6.10). Santa Martha is an extinct volcano whose igneous stone was known and evidently revered by inhabitants of the Southern Gulf Lowlands (Coe and Diehl 1980a:390-391). On the southern slopes of this volcano is Cerro Cintepec, considered a primary source of the basalt used by the San Lorenzo and La Venta Olmec for the production of their monumental sculpture (Coe and Diehl 1980a:16, 390-391; Williams and Heizer 1965).

Directional Alignment Summary

All of the projected alignments and axes are the products of the intersection of three or more architectural or artifact features or they are explicitly repeated in multiple discrete alignments. These recurring factors significantly lessen the possibility of chance or coincidental arrangements. The fact that these patterns are found in Formative and Classic period structures (c. 1150 BC to AD 900) suggests the landscape played a role in the traditional communal ideology. Architecture was designed and oriented to conform or correspond with natural and celestial features. A long-term traditional knowledge of place is implied by the ability of Classic period inhabitants to recognize and pinpoint the pattern and layout of Formative period constructions.

Where the course of the meandering San Juan River was actually located in the Formative and Classic periods is not known at this time. Without doubt, however, the existing river cut at El Marquesillo has significantly altered the landscape since the precolumbian era. The loss of an entire five-mound complex documented by Espinoza-Garcia in 1998 (Figure 4.2) supports ethnohistoric and ethnographic accounts by long-time residents that several buildings existed to the east of Fields 1 and 2. Structure 84 is eroding down the embankment, and Structures 107 and 85, which probably comprised the northern limits of a substantial complex, are all but gone. Figure 5.4 illustrates the erosion of Platform 111, and the Campos-Lara and Marín-Inés map (Figure 4.3) demonstrates the increasing loss of portions of the primary Villa Alta phase complex. The portions of the site that do remain provide clues as to the planned structure and arrangement of the site. Other buildings and monuments that have been destroyed may or may not have provided further indications of directionality and the inhabitants' recognition of their place on the landscape.

Cultural and Occupational Continuity at El Marquesillo

The evidence suggests that El Marquesillo was consistently occupied from the Early Formative Pre-Olmec period (c. 1500 BC) into the Classic period. Occupation extends into the present era as well, but by unrelated groups of people. Although chronologically diagnostic ceramics along with detectable technological changes over time can account for most of this span of time, there are continuing questions regarding the transitional period between the Late Formative (c. 300 BC to AD 250) and the Early Classic (c. AD 250- 550) and a segment of the Post Classic period (c. AD 1100 to 1300). The scarcity of evidence demonstrating the Late Formative to Classic period transition in the Southern Gulf Lowlands has been due primarily to the absence of investigation (Diehl 2000b). Nevertheless, this perceived lack of evidence has led some to conclude that the Olmec Heartland was literally depopulated and uninhabited in the Late Formative period (Clark 2001:341). Evans (2003:184) asks how did a region that supported such a “vibrant” culture become and remain uninhabited between 400 BC to AD 200? Notably, Tres Zapotes is cited as the solitary example of the devolution of an Epi-Olmec social system into Early Classic with other areas of the region evidently being devoid of cultural activity (Evans 2003). Killion and Urcid (2001:3-4) discuss “perceptions of cultural failure” and the “conventional notion of Olmec collapse” at the end of the Formative period.

A similar situation is perceived for the Post Classic period as well. Diehl (2000a:182) characterizes the Post Classic period along the Gulf Coast as one of “political fragmentation followed by the initial steps of reintegration, small-scale population movements, and renewed intrusions by central Mexican imperialists.” The primary determinate of chronology for the region remains diagnostic ceramic sequences, and here again, knowledge of the entire Southern Gulf Lowland region during this period continues to suffer from a scarcity of evidence. The region surrounding El Marquesillo appears to have entered another phase of homeostasis or a stable unchanging period where new diagnostic ceramic types are not apparent. This seeming lack of change should not be interpreted as evidence for a landscape void of inhabitants, however.

In the case of the Formative to Classic transition, newly attained evidence is clarifying, if not negating, many of these assumptions by demonstrating long-term cultural development and continuity (Diehl 2004; Killion and Urcid 2001; Stark and Arnold 1997). The continuity has been revealed in ceramic sequences in the Papaloapan Basin (Daneels 1988; Stark and Curet 1994) and at Tres Zapotes (Pool 2000, 2003). In these ceramic collections, the inclusion of a wider variety of slips, divergent designs, and finer pastes were noted during the terminal Formative period. Stark and Arnold (1997:25) argue that these modifications demonstrate not only technical continuity by their producers but a social continuum that permitted the "foundation of Classic period regional cultural developments…in south-central Veracruz."

At El Marquesillo further support for this continuity is demonstrated in its ceramic compilation. During analysis of this substantial quantity of material, Hernández distinguished a long-term persistence in ceramic traditions within the assemblage. Variations in Early and Middle Formative period differentially fired blackware continued into the Late Formative period, a technological convention that spanned more than a millennium. She also noted the appearance of a Late Formative Orange ware (Types 420.1 and 420.2) that does not appear related to later Teotihuacán wares introduced into the Tuxtla Mountains (Santley et al. 1989), but instead are possibly a precursor to the Classic period Fine Orange. These inferences correlate with findings at Bezuapan (Pool 1997:49) described in Chapter 5.

Among the potsherds recovered in Test Unit 7 (Appendix 2), numerous pieces demonstrated the introduction of new types of pastes, clays, slips, and firing techniques but retained many of the forms, shapes, sizes, and designs from the Middle and Late Formative (Types 420.1 and 420.2). Modifications to surface finishing included greater amounts of polishing and burnishing. The improvements in technology include better control of heat and oxidation during firing and in the finer processing of clays that removed elements that would have reacted unfavorably during firing. These advancements allowed thinner but stronger, more resilient wares to be produced, which, over time, allowed a greater range of shapes, forms, and plasticity to be created. In short, the ceramic specialists learned to make a better product and continued to improve it over extended periods of time. Based on these observations, the transition of ceramic production technology, probably through experimentation, eventually led to the Fine Orange of the Late Classic period that is also well-represented in the assemblage.

Regarding the perception of cultural collapse or failure of the Post Classic Southern Gulf Lowlands, not only is it difficult to distinguish and classify these conditions archaeologically but, as Cowgill (1988) demonstrates, there are obstacles in simply trying to define the terms. Killion and Urcid (2001) note these difficulties in the Hueyapan region just north of El Marquesillo and effectively approach the Post Classic period by using a Direct Historical Approach. In the Post Classic Period section of Chapter 3, it is demonstrated that the region of El Marquesillo remained active and participated on a limited and indirect basis in the socioeconomic sphere operating out of the Coatzacoalcos Basin region.

Understanding of the early Postclassic along the Southern Gulf Lowlands remains clouded (Curet et al. 1994). Nonetheless, new evidence points to use of Late Classic ceramic wares and technologies extended well into the Postclassic period, possibly into the European contact period (Arellanos-Melgarejo and Beuregard-García 2001; Esquivias 2002; Santley and Arnold 1996). This cultural and ceramic conservatism replicates the hypothesis for the Formative to Classic transitional period. Furthermore, the movement of Contact and Colonial period Spanish into the area further suggests the inhabitants and subsistence systems in and around the site attracted the European settlers.

Colonial Period

The presence of Mexican and European ceramic wares provides significant information about El Marquesillo during the late 1700s through the early 1900s. The single recovery location and restricted deposition contained within a 250 m^2 area, suggest a concentrated, non-traditional occupational precinct (see Figure 5.21). This assumption is supported by descriptions that El Marquesillo and surrounding small villages were outposts of the large, nearby Haciendas Nopalapa or Solcuauhtla (see Chapter 3, Spanish Contact and Colonial Periods). If the documented trends were followed at El Marquesillo, indigenous populations would have declined radically due to European diseases and abuse (Aguirre-Beltrán 1981; Delgado-Calderón 1995). Labor at the regional cattle and horse ranches was supplied by experienced laborers from the Caribbean and Africa, and the 1793 census archives documents this reality. Today, numerous families living in El Marquesillo share the surnames of these late 18th century occupants.

River traffic was the primary method of transport from the late 16th through early 20th century in southern Veracruz. Products and livestock were moved in and out of collection depots or warehouses constructed along the San Juan River (Delgado-Calderón 1995, 1997a, 2000). Tlacotalpan was a major Spanish and Mexican convergence site located at the confluence of the San Juan and Papaloapan Rivers, down stream from El Marquesillo (Figure 6.11). Tlacotalpan acted as a commercial staging center for the import and export of commercial products to and from the region (Delgado-Calderón 2000), a position it held during the prehispanic era as well (Berdan and Anawalt 1997; Scholes and Warren 1965). Colonial period Mexicans imported merchandise to the Port of Veracruz from Europe, Africa, and Asia that was redistributed to trade nodes such as Tlacotalpan and, from there, transported to more remote parts of the Sotavento (see Chapter 4, Spanish Contact and Colonial Periods). The recovered colonial and European

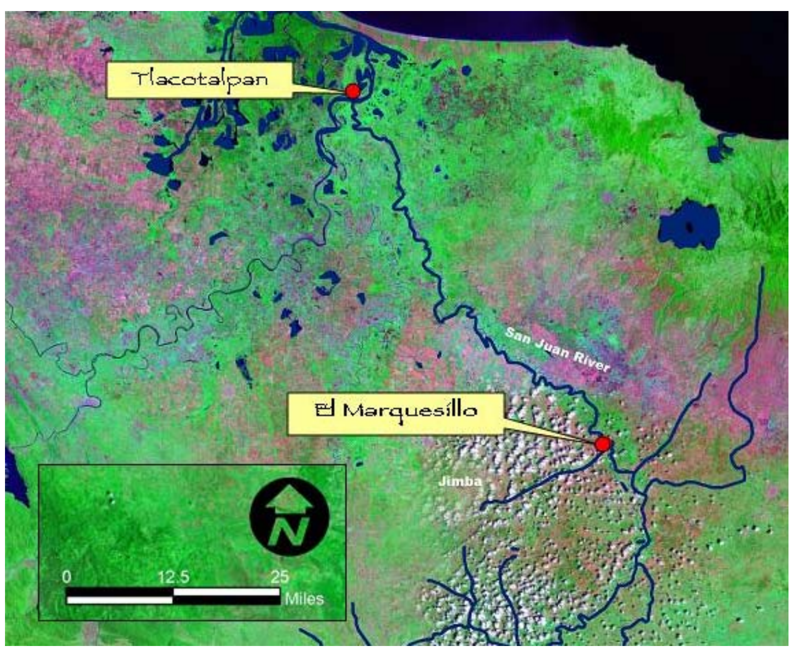

Figure 6.11. Illustration of riverine relationship between El Marquesillo and Tlacotalpan

ceramics probably arrived at the enclave at El Marquesillo in this manner either directly from Tlacotalpan or indirectly by way of the nearby haciendas. Other locations containing exotic items may exist at El Marquesillo, either under the present-day ejido or in other unexplored areas surrounding the site.

Summary of Interpretations

Through the multiple lines of evidence recovered and analyzed during the investigation of El Marquesillo, a picture of a 3,500 year old community begins to emerge. The first signs of occupation appeared in the Early Formative period (c. 1500 BC) followed by the presence of Gulf Coast Olmec ceramic styles. During the initial period, the landscape and resources at El Marquesillo attracted an archaeologically discernible population who, along with an emergent elite class, cooperated to meet the demands of a rudimentary and sedentary community.

Between c. 1150 and 900 BC, El Marquesillo expanded its detectable boundaries and appears to have initiated the production of ceramic vessels. Some members of the community began the construction of floors and platforms from exotic natural materials. The natural landscape was modified to produce a massive platform that contained monumental structures and plazas that may have been used for public or private ceremonies. Natural springs, which may have been an initial enticement to the original inhabitants, may have been incorporated into a constructed sacred landscape.

At the opening of the Middle Formative period (c. 900-300 BC), San Lorenzo collapsed and the region to the north and east was literally abandoned. If the significant increase in the quantities and distribution of chronologically diagnostic ceramics is an accurate indicator, El Marquesillo remained a viable center. The occupants participated in socioeconomic interaction spheres as demonstrated by the various sources of obsidian present and the basalt and other igneous rock used for utilitarian and domestic implements. The presence of these materials could suggest an interregional trade and exchange network. Alternatively, some occupants may have had the fortitude and means by which to acquire these materials directly from their source locations, or possibly both types of acquisition systems may have existed. The procurement of metric tons of basalt used for the throne and possibly in the extensive magnetic anomalies demonstrated the economic and social power of the community and its leadership. A unique depositional formation of ceramic and lithic artifacts may indicate a previously unknown type of feature. If the architectural features at El Marquesillo were used in a manner similar to those implied at other contemporaneous sites during the Formative period, they may support the idea that ritual exhibitions, dances, games, feasts were part of the domestic life of the inhabitants (Blake and Clark 1999; Clark and Blake 1994; Joyce 2004b,c).

El Marquesillo's populace does not appear to have been noticeably impacted by either the rise or fall of La Venta as a major Gulf Coast Olmec center. Although a number of similar sociopolitical and ideological characteristics are noted at both sites, El Marquesillo exhibits a significantly earlier emergence and participation of in the pre-Olmec and Gulf Coast Olmec paradigm. As well, El Marquesillo continued to flourish during and after La Venta declined. The establishment of directional alignments to Tuxtla volcanic landmarks, and other ritual and ideological materializations require further investigation before the direction of influence is presumed to be from La Venta to El Marquesillo.

Throughout the waxing and waning of major sites that had socially, politically, or economically impacted regions near El Marquesillo (e.g., Teotihuacán or El Tajín), the people of El Marquesillo appear to have continued their customs and traditions. Based on the evidence recovered to date, sociopolitical or military intrusions are not reflected in the material record at the site. The recurrent changes in ceramic technologies throughout the Middle Formative to the Late Classic periods do suggest, however, that external contact was somehow selective and limited. By the Late Classic, the people of El Marquesillo appear to have been participants in what is considered to be a resurgence or reassertion of the Gulf Coast populations. Referred to as the Villa Alta phase (Coe and Diehl 1980a:213-222), this period saw the spread of a formal architectural pattern called a long-plaza complex along the Southern Gulf Lowlands and into upland regions as well (Killion and Urcid 2001:11). The origins of this multiplex pattern has been attributed, by some, to the Middle Formative period (Heizer, Drucker et al. 1968; Symonds and Lunagómez 1997), others believe it is a Classic period design (Daneels 1997; Stark 1999). In either case, the expansion of this architectural complex is thought to represent "nodes in a local network of elite estates integrated by hereditary, ceremonial, and political relations" (Killion and Urcid 2001:13). Again, as in the Olmec paradigm, the region appears to be linked by a shared ideology of rulership that is publicly displayed in a reiterative pattern of monumental constructions. If the scale and number of buildings and architectural groupings in the primary center is indicative of centralized authority, then El Marquesillo was a major center in the San Juan River Valley. Moreover, if the number of surrounding smaller subsidiary site complexes implies power and control, as they are thought to at San Lorenzo, La Venta, and Tres Zapotes, then El Marquesillo may also have played a significant role in southern Veracruz as well.

The rise of Tenochtitlán and the expansion of the Aztec Empire in the Late Post Classic period created tribute states along El Marquesillo's distant western edges. It may have been possible for the inhabitants of the Middle San Juan to provide economic assistance to the tribute payers on their perimeter by producing and supplying exotic goods. Nevertheless, El Marquesillo and its environs were not part of the Empire and remained beyond the scope of the Mexíca tax collectors at the time of the Spanish arrival. Doubtlessly, the populations at El Marquesillo suffered the decimation by disease documented for the Coatzacoalcos Basin in the 16th and 17th centuries.

The surviving indigenous people that remained in the area were effectively supplanted by European colonialists and people from Africa and the Caribbean, who along with mestizos and others occupied the land practicing agriculture, cattle and horse breeding. Then, 200 years later, the 20th century descendants of many of those Colonial period inhabitants achieved recognition by the Mexican government as the land's legal occupants. Today, the people of the ejido of El Marquesillo, relative to the world around them, continue to live in a conservative tradition that appears to have served their predecessors well.

The Olmec throne, known to contemporary residents by the respectful title of "El Señor de Marquesillo," was moved to the center of the ejido following its rescue. Today, it resides within a protected but open pavilion that was specially constructed for it by the inhabitants. This monumental block of basalt tangibly binds together the people of El

Marquesillo, past and present. Fittingly, as it did 2,500 years ago, the personage on the throne once again casts its enduring gaze eastward.

Chapter 7. El Marquesillo: Conclusions and Future Study

Results from the investigation of El Marquesillo have not yet necessitated a rewriting of Olmec political history as contemplated by Diehl in the opening quotation of this dissertation. They have, however, demonstrated the need for a broader, more inclusive examination of regional settlement and socioeconomic evidence. More careful consideration of the human inhabitants, their activities, and the cultural and physical landscape in which they lived should be a greater priority. This attention should be focused not only on their cultural similarities but on the deviations and variations in their social and ideological practices. My research and observations at El Marquesillo, as well as new data that are being produced by investigations in the Southern Gulf Lowlands, have made me realize that well-established hypotheses, some that have even reached the level of doctrine, regarding the Formative period and the Gulf Olmec need to be reconsidered from new and different perspectives. These investigations support the observation by Pool (2006:197) that “the political dominance of any particular Olmec center was restricted.” Further, I agree with Clark (1997:230) when he states that “[i]nteractions between the Olmec and their neighbors need to be assessed on a case by case basis to determine the nature of the interaction, the level of complexity of each polity, the contribution to the interaction by both parties, and the significance of the interaction for each.”

Through the integration of a sequence of archaeological and geophysical surveys, ethnographic accounts, ethnohistoric records, and consideration of other regional investigations, the site of El Marquesillo has been examined in an attempt to assess its Formative period social and spatial establishment and development. The evaluation of the results against settlement system models provided explanatory insights into the cultural and physical determinants for El Marquesillo's presence on the landscape. The data derived from El Marquesillo were also evaluated against theoretical concepts of social organization and interaction in an effort to define the role of the occupants in the evolution of the site and in their relationship with or variance from what are considered the sociopolitical and ideological fundamentals of the Olmec paradigm.

In this chapter I provide an overview of the occupational sequence of El Marquesillo and then discuss its establishment and continued development in more detail based on the recovered artifact record and data from the prospection and documentation techniques employed during the project. I also include ethnohistoric accounts and comparative reports from other regional investigations in the discussion. From these datasets I detect and examine patterns of emergent sociopolitical complexity at the site, and evaluate theoretical models of Formative period Southern Gulf Lowlands spatial organization. Following these assessments, I discuss some of the constraints imposed by past analytical approaches to the Formative period Southern Gulf Coast region that have biased our views and knowledge of the region. Finally, following a summation of the deductions and their implications, I present considerations for future investigative work at El Marquesillo.

The Occupational Sequence at El Marquesillo

The pre-Olmec period ceramic evidence (c. 1500-1150 BC), recovered at El Marquesillo, implies that the early occupants of the site had initiated some level of sedentism and possibly experienced an accompanying modification in their social organization. The depositional pattern of the ensuing San Lorenzo phase ceramics (c. 1150-900 BC) suggests an expanding population and continuing social adaptation. The presence and location of Middle Formative ceramics (c. 900-400 BC) infer an ongoing occupation and further sociopolitical alteration. Observations that were made during the ceramic analysis regarding the development and implementation of technologies (see Chapter 5) allude to a continual, long-term occupation and a transition from the Late Formative to the Early Classic periods (c. 400 BC-AD 500). This hypothesis is supported by similar conclusions based on evidence recovered at other contemporaneous Gulf Coast sites (Loughlin 2004; Pool 2006; Pool and Britt 2000). At El Marquesillo, however, this period appears to be one of demographic growth but relative insulation from external sociopolitical influence. Specifically, I am referring to Teotihuacan in the west and the emerging Maya region to the east. Unlike the surrounding Tuxtla, Mixtequilla, and Grijalva regions (Stark and Arnold 1997), the evidence from El Marquesillo, as yet, does not include any reliable material evidence to suggest their presence or direct influence at the site.

Regarding the GIS visualization of demographic change in the region to the north and east of El Marquesillo depicted in Figures 4.20, 4.21, and 4.22, there is no definitive evidence to suggest abandonment of the site. The increased spatial deposition pattern and quantities of recovered chronologically diagnostic ceramics suggest that El Marquesillo experienced an upward trend in population levels throughout the Formative period. This trend has been observed in other areas adjacent to the northwest and west of the severely depopulated area as well. Surveys conducted by Killion and Urcid (2001), Pool (2000, 2003), and Arnold (2000, 2003b) indicate a rise in populated sites at the same time the eastern sites are being abandoned. These data may also suggest that some people in the distressed area were moving to nearby localities.

The decline of San Lorenzo Tenochtitlán has been at the center of hypotheses constructed to explain this event, which has been attributed to internal revolt, external invasion, the rise of competing polities, and the collapse of social adhesion (Borstein 2001; Coe and Koontz 2002; Cyphers 1996b; Symonds 2000). An alternative hypothesis holds that changes in the course of the Coatzacoalcos River moved the river away from the centrally located plateau. Cyphers (2001:649) ascribes the substantial change in river channels to more than an above normal flooding sequence. She suggests there was a geological uplift event in the region, and that this rapid and dramatic rise of the landmass caused the waters to flow to lower ground, away from the Olmec core site. She implies the cause of the uplift was tectonic activity that occurred in the Tuxtla Mountains and may “have had repercussions in the San Lorenzo region” (Cyphers 2001:649). Symonds (2000:69) also posits that tectonic activity may, in conjunction with sea-level rise, have caused the rivers’ emigration away from the site. These reasons could explain the movement of the river channels, but they do not necessarily justify the subsequent abandonment of sites across the entire region over such an extended period of time and along a rather clear line of demarcation. Understanding why the bordering regions to the north, northwest, and west did not experience the same devolutionary processes will apparently require further, concentrated research.

The Late Classic presence is substantiated by a continuing ceramic record and numerous, substantial Villa Alta phase architectural constructions. The Postclassic period occupation appears to follow the same conservative pattern and social insulation attributed to the Early Classic, and these impressions are corroborated by ethnohistoric accounts (Berdan and Anawalt 1997; Scholes and Warren 1965; Shahagún 1970-1982). Spanish Colonial activity (c. 1520-1600) is documented for the adjacent Coatzacoalcos Basin, but non-indigenous presence at El Marquesillo is not recorded until the 1700s (Aguirre-Beltrán 1992; Delgado-Calderón 2000). Census archives from 1793 demonstrate that El Marquesillo was occupied by the end of the 18th century (Aguirre-Beltrán 1981; Delgado-Calderón 1995) and chronologically diagnostic European and Mexican ceramic and glass recovered at El Marquesillo implies occupation during the 19th century. The surnames of numerous present-day families that reside in El Marquesillo match those of individuals listed in the 1793 census, a condition that implies a continuous 200 year descent group residence that continues today.

Whether the 3,500 year occupation at El Marquesillo was an unbroken continuum or the result of periodic recurrences is not known. Changes in the ethnic composition of the population occurred unquestionably in the 16th century, but prior alterations or transformations cannot yet be determined. Concerning the Formative and Classic period residency (c. 1500 BC-AD 900), however, a variety of evidence is provided below that suggests the establishment and continuance of long-held social or community memories that involved the natural and cultural landscape. If this hypothesis is correct, the prehispanic occupation would have been continuous, and if not, any interruptions must have been sufficiently brief as to permit the maintenance and perpetuation of these memories.

Landscapes, Ancestors, and the Memory of Place

In this dissertation, I have provided evidence that suggests an early and enduring human occupation at El Marquesillo. I have also presented interpretations of evidence from the Southern Gulf Lowlands that refer to ancestors, rulership, and landscape. These three factors permeate the iconography and symbolism present at sites across the region during the Formative period (Clark 2005; Cyphers 1993; Gillespie 1999; Grove 1973; Grove and Gillespie 1992; Reilly 1994, 1999, 2002; Taube 1995, 2004). Significant areas of social theory that have been based on, or derived from, the Olmec phenomenon were presented in Chapter 1. One theoretical area concerning the Formative period along the Southern Gulf Lowlands that has not received adequate consideration, however, is the process through which socioeconomic and civic-ceremonial centers may have initially emerged. What social factors may have been necessary to allow the establishment and development of these core areas? The following is a discussion of these factors and their manifestation and significance at El Marquesillo.

Theoretical Background

Anthropological-geographical studies have repeatedly demonstrated that landscapes are not only a natural but a cultural phenomenon as well (Cosgrove 1989; Naveh and Liebrman 1990; Tuan 1974). In fact, Ingold (1993) argues that the physical and social elements of landscapes cannot be separated. He concludes that the perception and significance attributed to unified natural-cultural landscapes by individuals and groups shape their experiences across time and space.

The term ‘collective memory’ was introduced by Halbwachs (1992) who believed that these types of memories include a spatial dimension and are intimately linked to, and encoded in, certain places on the landscape. He emphasized the significant effect that social processes had not only on an individual’s personal lifetime memories, but also on a community's shared memory of the past. As a result, collective memories are crucial for the construction and demonstration of group identity such as families, lineages, religious and ideological factions, or social classes. The cultural consequence of these memories over time is not necessarily derived from a correspondence to actual past actions but, instead, to the specific conditions under which the memory was constructed as well as the personal and social implications of the event (Fentress and Wickham 1992:xi; Lowenthal 1985:193-210; Thelen 1989:1125).

Monuments and other artifacts are examples of the process by which people create a past through active remembrances of the social context in which they live (Assmann 2006). It is through such memories of the past that they define both personal and collective identities. Through archaeology it is possible to recognize objects (i.e., artifacts, features, and ecofacts) as evidence for the past. Archaeological evidence can be interpreted as indicators of concepts and practices of past societies (e.g., commemoration, inheritance, rituals, or symbols). This procedure is, as Thomas (1996:63) maintains, very similar to how people actually connect with the past in their daily lives. Archaeology can confer meanings to the past and its remains in much the same way memory does.

Assmann (2006) argues that prehistoric monuments were constructed as expressions of 'prospective memory' or the will to remember. Thus, ancient monuments were designed to be time markers, cultural reminders of the past. Ancestral activities and the locations at which they occurred were memorialized across the natural and cultural landscapes. In these ways specific locations became sites of memory, both individual and community.

For purposes of this discussion, a community is considered a social group of varying size whose members reside in a specific locality, share government, and often have a common cultural and historical heritage (see Arensberg 1961). The geographic area is determined by members and includes economic, environmental, and social features of that area. In respect to government, certain Gulf Coast Olmec centers are acknowledged to have reached a level of sociopolitical complexity be it tribe, chiefdom, or incipient state (Coe and Diehl 1980a; Grove 1997). The topic I address here, however, is not about the type of political organization that existed nor does it address the timing or causation of the transition from transegalitarian to ranked societies or hereditary inequality. Rather, the concern is about a more fundamental issue of how the process that eventually led to these various levels of complexity originated, and what factors may have been necessary to provide the catalyst for this transition. It is possible that the information collected by the El Marquesillo project may shed some light on these issues.

McAnany's (1995) seminal examination of the Maya practice of ancestor veneration resulted from her earlier investigation of economic organization. She concluded that the archaeological data suggested that ancient people, elite or commoner, and their regard for their ancestors, real or fictive, played a significant role in the origins of land tenure, resource allocation, and the subsequent rise of ranked society among the

Maya. Although the assumptions she reached began with the Late Formative period Maya (c. 400 BC), the same processes may have been at work among the Early Formative period inhabitants of the Southern Gulf Lowlands as well (c. 1500 BC). During my research, it became apparent that much of her evidence and reasoning for the significance of ancestor veneration, kinship relations, and the material demonstration of such was reflected at El Marquesillo.

There are, of course, variations between the Maya and Olmec datasets. The primary points of divergence are attributable to the dearth of Formative period burial evidence along the Southern Gulf Lowlands, differences in subsistence practices, and a lack of an interpretable writing system. Nonetheless, iconographic depictions and ideological symbolism at El Marquesillo and other Early Formative period sites along the Southern Gulf Coast suggest ancestor veneration was a factor in the lifeways of the inhabitants.

Fried (1967), Fortes (1953), and Service (1971) emphasized that emergent ranked societies are a direct consequence of kinship and descent, and that these consanguineal or fictive groups are established and reinforced within specific residential or occupational clusters. Furthermore, these spatially centered kinship networks are thought to define and promote the "intergenerational transmission of property" or resource rights, and that these rights are "more often than not…anchored both symbolically and materially to the use of a particular landscape" (McAnany 1995:15).

Along the Southern Gulf Lowlands by around 1500 BC, changes in the underlying social structure of transegalitarian societies were brought about by shifting demographic conditions (i.e., move to sedentism) (Coe 1968; Cyphers 1996b; Stark

1997:288). These changes in residency patterns, in turn, affected the development of kinship systems. According to Widmer (2003), the shift to sedentism resulted in larger family units that for the first time in human history became sufficiently large to permit the establishment of an extended lineage. The leader of this corporate structure, which included collateral kin, could differentially focus the group's labor to develop an oversupply of required resources. At the same time, the unilineal kin group provided a built-in mechanism that promoted and facilitated the hereditary inheritance of social positions and the proprietary rights to land and resources (Clark and Blake 1994; Widmer 2003). Thus, for this transition in social organization to have occurred, three sequential elements needed to coalesce: changes in the demographic processes (sedentism) that led to new kinship systems (extended family) whose labor resulted in excess food (surplus).

At the center of any migratory or sedentary society is the family. This is the entity whether it be nuclear, extended, fictive, household, or kin group that is explicitly or implicitly referenced by authors regardless of their approaches, terminologies, or models, in their explanation of egalitarian or transegalitarian social inequality (Bender 1990; Blanton 1995; Braun 1990; Brumfiel 1994; Earle 1991a; Feinman 1995; Hayden 1995b; Junker 2001; Pauketat 1994; Pinto 1991; Sahlins 1968; Saitta and Keene 1990). Human biological heritage dictates that initial social relationships were developed in the nuclear family, and it is considered a social and economic unit that provides the teaching of beliefs, habits, and techniques that are required for survival and adaptation to the environment. It is where culture is learned (Ember and Ember 2003:342; Feder and Park 2001:152-154).

One outcome of these family-based cooperatives are ranked societies, which are considered to be kin-based organizations wherein a person's status or political position is determined by their place within the hierarchical kinship system (Bender 1990; Earle 1997; Lee 1990; Widmer 2003). Change from lineal decent groups to collateral kin creates a more inclusive corporate family organization as well as a significantly increased labor force and status differentiation (Lowie 1928). Control of social status was of the utmost importance to emergent social complexity (Earle 1987:4). As the relationships of power within families progressed over time, they could, in the proper social milieu, extend to the larger community (i.e., band, clan, or lineage) (Malinowski 1944). For example, Redman's (1998:3-6) 'chieftain' is not only the head of the household and associated lineage or house (see Gillespie 2000b), but could also preside over other factions and member households comprising the village as a whole. In this position, the chieftain becomes the sole representative of the community in inter-village relations. Through this position, the leader could extend ties, formulate exchanges, and achieve regional prominence if not outright authority over other villages.

The second portion of the tripartite mechanism that, at some point, may lead to hereditary inequality is sedentism. The specific reasons for the appearance of sedentary communities are not at issue here, but the results of its onset are significant. Varying degrees of semi- or fully sedentary lifestyles resulted in an increase in the size of the nuclear family, and consequently the extended family and communities overall (Lee 1990:253-253). This increase in population is attributable to several factors. The demands and restrictions of nomadic life among hunter-gatherer societies gave way to semi-sedentary or settled communities that allowed the formation of corporate kin-group structures that could provide long-term stability and co-operative care for expanding families (Moore 1978). Female fertility rates improved, shorter spacing of birthing intervals, and a decline in infant mortality all contributed to larger family units (Bender 1975:9; Boone 2002; Schultz and Lavenda 1998). A general understanding is that the change to some level of sedentism, for whatever reason, resulted in larger family size (Cohen 1978).

The third recurring entity required to permit the eventual emergence of inequality is that of surplus (Carneiro 1981; Clark and Blake 1994; Cobb 2003; Earle 1997; Feinman 1991; Junker 1998). Surplus constitutes the “fund of power” according to Sahlins (1968:68), but what is the surplus at the center of this incipient social organizational transformation? Humans can endure without status, prestige, and their associated material components, but they cannot survive without food. The shift from nomadic hunting and gathering to sedentism is contributable to the acquisition of sufficient foodstuffs and, likewise, the increase in family size could not occur without more than sufficient food resources. Therefore, in transegalitarian societies, biological necessity mandates that initial surplus refers to food (Brown 2001; Dietler and Hayden 2001; Drennan 1991; Earle 1997; Upman 1990b).

The presence of some degree of sedentism is repeatedly associated with changes in subsistence practices that moved societies away from restricted, fluctuating resources and toward what they believed to have been more reliable resources (Bender 1990; Braun 1990; Brumfiel and Earle 1987:6; Earle 1991b; Ember and Ember 2003; Fish et al. 1992; Pearson 2004; Plog 1990). Hayden (1995a) explains that hunter-gatherers employed a strategy of maintaining their population levels in a dynamic equilibrium with their available resources. Thus, if these types of human groups departed from their three million-year tradition of nomadic food collection, deduction would suggest that the motivation was food-related. For whatever the reason, the exploitation of more dependable resources required a sedentary or semi-sedentary lifestyle. In other words, "it's all about the food" (Ward 2000).

Food is the single overriding factor that unites the three interdependent elements necessary for the emergence of ranked inequality; family, sedentism, and surplus. Population pressures among families were constant, and family size was always pushing against the ability of the family unit to feed themselves (Earle 1991b:5; Gilman 1991). The regions where sedentism and initial hereditary inequality are known to have occurred possess conditions within their environments that would permit the extraction or production of a subsistence surplus (e.g., the Southern Gulf and Soconusco Coasts) (Blake and Clark 1999; Clark and Blake 1994; Coe 1981; Coe and Diehl 1980a; Rosenswig 2006).

The transformation in subsistence practice does not specifically imply agriculture; natural resources could provide sufficient subsistence to allow sedentism as well. For example, Clark and Blake (1994) illustrate that cultigens were imported into an already self-sufficient subsistence system along the Soconusco Coast of Chiapas, Mexico. Maize appears to have been a status food used in ceremonial rituals and feasting events, not a dietary staple (Rosenswig 2006). The same natural subsistence situations occurred in the Amazon and Orinoco Basins (Roosevelt 1987), among the Chinchorro of northern coastal Chile (Arriaza 1995), and the Calusa of the southern Florida Gulf Coast (Marquardt and Payne 1992; Marquardt 1985; Widmer 1988).

Analysis of these three components suggests that when they are present collectively they provide a foundation from which hereditary inequality can emerge through the accumulation of wealth or stature (Drennan 1987; Feinman 1995). This argument does not suggest that fusion of these components will lead to ranked society, but simply that it becomes possible not predestined. What does appear to be a consistent result of these integrated factors, however, is some form of land tenure.

Lineages have been intimately linked to intensified methods of subsistence, control and propriety rights to land and resources (Johnson and Earle 2000:184; Sahlins 1961:330). Among the ancient Maya, the original rights or claims to land and resources were created through what McAnany (1995:96-99) terms “the principle of first occupancy.” This tenet holds that the initial occupier or cultivator of the land became its possessor and their rights could be passed on. “The practice of inheritance emphasizes genealogy, since demonstrating established linkages to ancestors is the means by which resource rights are inherited” (McAnany 1995:99).

Archaeological Expressions at El Marquesillo

The question now becomes, how can this theoretical process be tested archaeologically? McAnany (1995:113) offers that “one can postulate that the emergence of lineages with proprietary resource rights (which is archaeologically invisible) may be diagnosed by references to corollary changes in archaeologically visible domains such as land use, architecture, and burial practices.” At El Marquesillo, no burials have been encountered, but inference of land use and analysis of architecture and associated features provide support for the proposed hypothesis concerning the initial and extended occupation of the site. The types and placements of Classic period offerings into Formative period structures and the presence and apparent termination rituals associated with the Olmec throne further bolster the idea of ancestor veneration and its link to land and resource rights.

In order for the process of social change that is under consideration to occur, sufficient occupational time depth is required along with residential stability and the economic and demographic ascendancy of the lineage. At El Marquesillo, the available evidence indicates the initial, archaeologically visible occupation occurred around 1500 BC. The distribution of pre-Olmec ceramics (c. 1500-1150 BC) is restricted to a single residential area. San Lorenzo Olmec period ceramics (c. 1150-900) show a slightly broader distribution, but only in areas adjoining the original residential locality. This presumed 600 year occupation of the same location at El Marquesillo is suggestive of descent group traditions. The presence of a continuous sequence of chronologically diagnostic ceramics appears to indicate that they practiced successful subsistence strategies and experienced demographic growth to the point where food surpluses allowed specialized craft production or their acquisition.

Geographically and environmentally, ancient El Marquesillo possessed components conducive to extended human habitation. The location of the site on the San Juan River provided various resources for communication and transportation, clays, and river gravel for building constructions. The site also contained natural springs for potable water, a rich biotic diversity that could provide diverse comestibles, and the elevated embankments protected inhabitants from the annual inundations.

Early architectural units, specifically low basal platforms that could provide foundations for perishable structures, are possibly diagnostic of descent group residence (Ashmore 1991; McAnany 1995:102). This type of structure is present at El Marquesillo at the location of the earliest ceramic deposits in Field 6. Other similar platforms are present in Fields 5 (Structure 83) and Field 7 (Structure 111) as well. River cut bank Profiles 6B and 7A illustrate sequential floor constructions suggesting continuous and spatially consistent occupation along the east edge of Fields 6 and 7.

The differential orientation of basal platforms and other structures is also associated with lineage groupings and related activities. Two complexes with differing orientations are present and are delineated by Alignments A and B, both possibly associated with celestial events. Structure 109, Linear Anomaly 1, and Structure 84 compose the complex immediately to the north of the original Early Formative residence, and the Olmec Throne Complex is directly adjacent to the south. The architectural features that create Alignments C, D, and E may also be demonstrations or delineations of land and resource boundaries and their inherited proprietary rights. The effort, coordination, and motivation (i.e., economic, ideological, coercive, or other form of exploitation) required to accomplish these large-scale labor projects suggests some level of organizational authority, possibly a result of real or fictitious ancestral inheritance issues.

Symbolic allusions to ancestor veneration are present at El Marquesillo as well as other Formative period sites in the Southern Gulf Lowlands discussed in Chapter 2. In Chapter 6, El Marquesillo’s standing pools of water and the symbolic representation of a cave entrance on the monumental throne were detailed and interpreted as portals to the underworld, the abode of the ancestors. Among the Zinacantan Maya of Chiapas, caves, waterholes, or springs are considered entrances to the home of the "Earth Lord" (*Yahval Balamil*, literally, "Earth Owner") (Vogt 1981:126), and ceremonies, prayers, and pilgrimages are conducted to these landscape markers. Also, Zinacantecos perform lineage ceremonies to honor, remember, and reinforce association with their ancestors at waterholes and springs, the portals to the world of ancestors. The significance of the symbolism and connotations on the Olmec throne, relating to ancestors and underworld portals, that was examined earlier may be further demonstrated through its termination rituals. The personage depicted may have been an ancestor or ruler or both.

Lineages are dynamic entities that, because of their longevity, display varying cycles of growth dissolution, or coalescence with other ancestral groups (McAnany 1995:16). Whether or not the Formative and Classic period inhabitants of El Marquesillo were affiliated with one or more descent groups is unknown. What does appear relatively certain is that, over millennia, the later residents of the site were aware of their precursors and their activities. This idea is derived from evidence that suggests continual or steady occupation of the site and repeated reuse of established activity areas prior to the arrival of the Spanish. The exception to this operational continuum was that, following the Formative period (c. 300-100 BC), the original residential zone in Field 6 and 7 was not reoccupied. Nevertheless, at least six centuries after its final residential occupation the original structure was revisited, and a series of Late Classic offerings were, seemingly intentionally, placed along the central axis of the Formative period building.

Ceramic deposition patterns derived from the surface collection suggests that the northern sector of the site, primarily Fields 1 and 2, was used for ceramic production activities and that these activities are not present elsewhere in the site, at least at this scale. Various lines of evidence support this conclusion. The analytical results from the seven test excavations that were conducted in these northern fields, the observation and analysis of cultural deposits along the 1.5 km-long stratigraphic river cut that crosscuts the site, and the types and locations of magnetic anomalies possibly associated with firing, cumulatively imply that ceramic production activity was restricted to this specific area. Furthermore, this evidence suggests these activities occurred repeatedly in the same area for more than two millennia.

Evidence from the Olmec Throne Complex, specifically Plazas I and II, demonstrates a parallel pattern of continual, long-term use and reuse as is illustrated in the northern area of the site. Analysis of the soil from these two plazas may imply regular, possibly repeated activities. When surface artifact deposition and excavation data recovered during the throne rescue project are considered, Plaza I appears to have been the site of residential or ceremonial feasting events. The location of the Olmec throne, with physical proximity to a possible water retention facility and associated stone drains, implies significant ideological symbolism. The analysis of ceramic evidence recovered in and around Plaza II suggests the area was used for different activities than was Plaza I. The implications of the size, restricted entry, and circumscription of the plaza's boundaries, along with the multiple monumental buildings and their placement, imply a more public venue. Analysis of Plaza II soils supports the idea of spatially limited activity areas and that these areas were cleared and cleaned upon the conclusion of events. Results from the surface collection correlate with the assumption of cleaning, and is further supported by the repeated deposition of refuse in a specific and restricted location immediately outside the plaza. Again, these activities appear to have occurred continually in the same places and over extended periods of time.

From the Late Formative to the Postclassic period (c. 400 BC-AD 1500), across the Maya territory, a system of inheritance emphasized genealogical linkages based on shared origins or a common belief system (Barlett and McAnany 2000; McAnany 1995:99; Yaeger 2000). At El Marquesillo, the evidence presented above implies a series of highly developed, long-held social patterns that are indicative of regulated site-wide practices. These enduring habitual practices are suggestive of markers of social memory and are relevant for the formation of settled societies (Hodder and Cessford 2004). Social practice has both a spatial and temporal dimension. Sedentism, demographic centralization, and domestication, along with treatment of the dead and the veneration of ancestors, all involve changes in temporality, memory, and relationships with the past (Hodder and Cessford 2004). An important element of social practice is its connection to the past and links to ancestors. It is the extent to which continuing practices repeat earlier ones that form and reinforce social memory and in this way are designed to facilitate the construction and perpetuation of lineages (Kuijt and Goring-Morris 2002; Shanks and Tilley 1988; Whittle 1996).

The Spatial Organization of El Marquesillo

Another issue addressed in this investigation also focused on the analysis of the spatial organization at El Marquesillo. In the previous section, proposals concerning the establishment and development of El Marquesillo as a Formative period occupation center were discussed. Questions remain, however, regarding the form of the site’s political structure. Was it an independent center that functioned as an autonomous unit, or a subsidiary site that operated within a dendritic system? In Chapter 2, proposed models for Southern Gulf Lowland centers were presented and detailed. Here, the data recovered from El Marquesillo are evaluated against each of the proposed models in an attempt to assess the site's structure.

Models of Settlement Patterns

Stark's (1999) capital zone model posits an extensive area containing dispersed formal groups that cumulatively represent an administrative core. Anticipated architecture includes large and small complexes, major isolated structures, and smaller outlying groups. The complexes are expected to be relatively equivalent with no one dominant cluster. Craft production is anticipated to be widely distributed and present across central complexes as well as in residential zones.

At El Marquesillo, the existing data do not appear to correspond to the projected conditions of a capital zone. The occupational sector at El Marquesillo is concentrated, restricted within a contiguous circumscribed area with no outlying formal complexes. The Olmec Throne Complex dominates the site, surpassing all other architectural groups in elevation, volume, and labor investment. Moreover, ceramic production, which appears to be the primary craft at El Marquesillo, is restricted to specific portions of Fields 1 and 2.

The confederacy model infers that several individuals, factions, or elite lineages shared authority over the polity (Pool 2003:92-96), and is similar to the capital zone in that it is also a distributive model of authority. Physically and politically, it presents a different structure, however. This model is primarily concerned with the nucleation or spatial clustering of these separate groups with respect to residential and activity areas. Residential settlement would be arranged in a concentric pattern extending outward from a central formal core. Several distinct secondary plaza groups extend outward around the periphery. These individual architectural complexes represent an individual faction in the ruling confederation. These architectural groups would exhibit similar content and function and are surrounded by intensive occupational zones. This model holds that small-scale domestically-centered craft production had little elite control.

At El Marquesillo, it could be argued that the residential areas extended outward, but only in one direction. This directional template may be a consequence of land loss due to the river action, and ceramic craft production may or may not have had elite control at El Marquesillo. The spatial placement and design of the formal Formative period architecture at El Marquesillo do not appear to equate with multiple secondary complexes nor do they present similarities in their form or perceived function as proposed by the confederacy model.

The feudalistic model represents a minor center within a hierarchically structured settlement system. Its structure is seen as analogous to a feudal estate where vassal sites owed goods and labor to a regional power but, at the same time, collected its own tribute from the inhabitants of the estate's land (Taschek and Ball 2003). Although this model has not been suggested specifically for the Gulf Coast, the circumstances and conditions for its presence appear to make it a beneficial model when evaluating Formative period sites along the Southern Gulf Lowlands (e.g., the San Lorenzo and La Venta subsidiary support areas). A center, under the feudalistic model, is sociopolitically autonomous but subordinate to a nearby primary center to which it owed allegiance or tribute (Taschek and Ball 2003:388). The residents were considered a self-sufficient corporate group that may have consisted of multiple nuclear units of a single extended family, lineage, or house that controlled the center. In such an arrangement, architecture is modest and without the spatial organization of major centers. In other words, large, directionally oriented plazas and flanking civic-ceremonial structures are not present. Elite, exotic, or monumental items are minimal anywhere in the site. Craft production consists solely of utilitarian items and is generally conducted under a centralized administration.

Although data from El Marquesillo could correspond to various components (i.e., residential core, possible presence of lineage or factional leadership, and apparent self-sufficiency), a number of other factors of the feudalistic model are not supported. For example, El Marquesillo contains significant ceremonial and public architecture and monumental objects with ritual associations. Alignments of architectural features appear to have specific directionality. Finally, at this time, the evidence does not suggest subordination to a nearby primary center.

The central place model is formulated around a nexus that serves as a redistribution center of goods and services for the surrounding area (Bove 1978; Hirth 1978). Central places may be primary or secondary centers that perform administrative and managerial functions such as resource acquisition and allocation, production and storage (Symonds et al. 2002). Central places consist of highly nucleated site cores and have larger occupation areas and greater populations than outlying sites. At the core of the center are monuments, major constructed features, and elite residences. Specialized activity and craft area are situated on integrative facilities such as plazas or ballcourts.

Public architecture (e.g., platform mounds, open plazas, temple mounds) is used for administrative duties, and may provide the stage for ritual ceremonies and religious functions as well (Smith 1979). The production of prestige goods occurs in workshops generally monitored by elites, and craft specialization is expected. Early and extended occupation of a central place may indicate it was also a place of original occupation.

When the existing data from El Marquesillo are evaluated against the central place model, there is a significant degree of uniformity. For example, the public architecture and the residential zone that appears to contain a developing elite compound are in accordance with expectations, as are specialized activity and craft production areas. If my interpretation of the original pre-Olmec settlement patterns is correct, El Marquesillo could also be considered a place of occupational origin.

The geographic factors of El Marquesillo's location fit well with Grove's (1968:182) contention that Formative period trade nodes were located on constricted passes that facilitated the control of trade routes. The site's position on a major water route, the preferred mode of transport by a riverine society (Diehl 2004:29), could control passage to and from the Gulf of Mexico and its primary tributaries. As a trade node, El Marquesillo had the capability to serve as a redistribution center of goods and services for the local area. Administrative, acquisition, and storage functions could have occurred in or around the Olmec Throne Complex or around Structure 109 in Field 4. At this time, however, it cannot be determined if craft production was conducted under elite supervision or not. Also, the presence, size, and number of possible surrounding support sites are not known; therefore, the acquisition, administrative, and redistribution functions at El Marquesillo remain conjecture.

Explanation of Spatial Organization at El Marquesillo

Christaller (1966 [1933]) originally development the Central Place Theory in an effort to explain the distribution of retail market centers (i.e., towns and central places). He compared patterns of settlement he found in the real-world and evaluated them against a deductive model in order to determine their degree of fit. The purpose of his efforts was to “seek the causes of towns” because, as he believed, there is an unrecognized “ordering principle” that determined their distribution across the landscape (Christaller 1966:2). Thus, he wanted an explanation for the placement of towns, not only a description of their location.

The current evidence from El Marquesillo suggests a better fit with the central place model, as it has been postulated for the Formative period Southern Gulf Lowlands (Bove 1978; Evans 2003; Hirth 1978), rather than the other viable models discussed above. This model may offer insights regarding the determinants of settlement patterns if adequate attention is paid to the various elements that can affect placement on the landscape. The implementation of idealized patterns such as average daily walking distance or average intersite distances to produce hinterland areas around higher order central places must be tempered by cultural and geographical considerations. Physical aspects of the landscape and environment must be recognized along with possible subsistence strategies and the availability and location of natural resources. As Evans (2003:199) affirms, “landscapes are never featureless.” Cultural aspects that enter into the equation minimally include agents, factions, politics, economics, and ideologies.

If scenarios are based on idealized cultural or physical structure as opposed to real-world factors, the results may lead to possible misconceptions. For example, Laguna de los Cerros is considered a “major” San Lorenzo phase (c. 1150-900 BC) Olmec center (Adams 1997; Coe and Diehl 1980a:293, 394; Drennan 1991:267; Gillespie 2000a:95; Santley et al. 1997:203). The site has also been depicted as a San Lorenzo phase regional administrative center and spatially delineated by patterns of tangential circles and Thiessen polygons that neatly circumscribe the assumed extent of the polity area (i.e., the central place and its hinterland sites) (Borstein 2001; Bove 1978). Only 11 km to the south, however, and well within the projected confines of the political domain is El Marquesillo. The presence of the site, its position, significantly earlier and more protracted occupation, and proposed sociopolitical organization appear to challenge the boundaries of the proposed administrative-economic models. To reduce the risk of misinterpretation of the data, we need to consider not only the artifact record but the physical attributes of our study areas as well as those adjacent, both surveyed and unsurveyed.

The neighboring presence of El Marquesillo and Laguna de los Cerros initiates interesting new questions regarding settlement systems along the Formative period Southern Gulf Lowlands. Were they both subsidiary sites in a larger network, were they aligned or united as co-centers, did they have an antagonistic relationship, or was there some other unknown relationship occurring? El Marquesillo’s unanticipated presence at an unexpected locale requires new perspectives from which to design our investigations and consider our data.

Applications of geographic or spatial models of settlement assisted in generating a robust description of El Marquesillo and the conditions in which it developed. In addition, their use provided insight regarding the reasons and processes for settlement. In conjunction with other forms of archaeological or ethnohistoric evidence, the use of this model can "provide a whole new line of evidence in circumstances where knowledge of cultural processes is limited" (Evans 2003:199). Therefore, El Marquesillo presents a good test case.

As a prelude to her development of the capital zone model, Stark (1978) examined 16th century ethnohistoric data from the lower Papaloapan Basin. These data were used to develop a model of economic diversification and settlement location. The San Juan River empties into the Papaloapan less than 18 km from the Gulf. Therefore, other than the coastal and estuarine zones of the Papaloapan, the ecological and environmental conditions are comparable. Moreover, based on repetitive or continual occupations of numerous sites in the San Juan region as well as those adjacent to the east and west, her predictive locational model would appear to be justifiable for not only the Postclassic but earlier periods as well.

Borstein (2001:229) summarizes a set of archaeologically testable predictions based on Stark's findings that literally describe El Marquesillo. He states that the largest regional centers should be found at the boundary of contrasting environmental zones (i.e., ecotones) where ecological diversification allows a variety of subsistence strategies to be employed. He adds that these centers are expected to be located along waterway communication routes, specifically at "key nodes in the fluvial system…such as confluences or bends in rivers." These locations would: 1) permit strategic control of trade; 2) minimize trade and transport costs; and 3) provide potable water, aquatic resources, and floodplain farming (Stark 1978:223-227). Finally, Borstein (2001:229) maintains that these centers “were organized according to principles related to [Christaller’s 1966] central place theory.”

Pool (2006:191) has recently noted that “concepts of urban form” varied even among coexisting communities. Studies of artifact style and distribution along with economic exchange and settlement pattern surveys illustrate differential levels of interregional interaction along the Gulf Coast. These findings support the possibility that El Marquesillo was insulated from influences external to the Gulf Olmec Lowlands. This seclusion may have allowed the preservation and continuity of social traditions along with economic and production methods. The distinctive character and uniqueness of El Marquesillo’s long-term uniformity and stability of social and spatial traditions is underscored by the knowledge that elsewhere in the Gulf Lowlands these traits were changing and variable (Pool 2006:212).

El Marquesillo appears to differ from other contemporaneous Formative period architectural designs of settlement layout. Perhaps the location of El Marquesillo also had significance beyond the political and economic realm. “Tribal peoples the world over are noted for the extent to which they ‘live into’ their natural environments” (Vogt 1981:119). Vogt (1969, 1981, 1983) describes the intimate knowledge of each micro-niche used in subsistence practices and the naming and classification of geographical features that are a part of their ceremonial life and worldview. He adds that settlement patterns among the Zinacantan Maya form an aggregate that represents the village’s social structure and, in turn is marked by natural features on the landscape. Vogt concludes that observation and examination of the sacred landscapes formed by mountains, caves, waterholes, and other features provide an introduction to

Mesoamerican worldviews (Vogt 1981:137). Various lines of evidence suggest that the inhabitants of Formative period El Marquesillo not only materialized and maintained portions of the worldview of the Southern Gulf Lowlands but may have influenced its development. The placement of architectural constructions on axes that are aligned with visually and possibly ideologically significant landmarks is apparent. It is clear that the Archaic period to 18th century inhabitants of El Marquesillo had an unobstructed line of sight to the numerous eruptions of the San Martín Tuxtla Volcano less than 60 km away. The physical and psychological impact of these repeated explosive events on ancient inhabitants is essentially unknown (see Chase 1981; Reinhardt 1991) but, according to historical accounts, the consequences for 18th century residents were catastrophic (Moziño 1870). Cerro el Vigía (800 m asl) and Cerro Santa Martha (1878 m asl), two extinct volcanic peaks, are clearly visible from El Marquesillo.

Alignments C, D, and E intersect with Cerros Vigía, San Martín Tuxtla, and Santa Martha respectively (see Chapter 6). The significance of some of the alignments was sufficiently important to Classic period inhabitants for them to continue arranging their constructions in the same directions a millennium later. Vogt (1981), in his observations of the Maya of Zinacantan, Chiapas states that "[t]he largest and highest mountains are always singled out for special treatment in the ceremonial life." He adds that there are three mountains, which all happen to be associated with a volcano, are considered the home of high-ranking ancestral gods. Furthermore, to the Zinacantecos these three peaks form the "Three Hearthstones" of creation. At the center of the hearth of creation is the generative fire, which has direct association with creator ancestors (Bassie 2006). At the center of El Marquesillo's three mountain peak alignments is San Martin Tuxtla, an active volcano whose repeated eruptions were witnessed by Formative residents. Two other significant alignments at El Marquesillo (A and B) may be related to astronomical events, possibly indicative of annual calendrical cycles.

The symbolic use of space can involve the built or natural environments or both. Ashmore (1991:199) maintains that a people's worldview is presented at various scales from "ritual deposits, to entire communities and wider landscapes." This interpretation appears to be supported at El Marquesillo. The buildings, constructed features, and sacred offerings at El Marquesillo are devices that illustrate the emic perspective of society's structure and ideological relationships to its environment. From the construction and use of large architectural complexes and features (i.e., major, controlled work projects) it may be possible to deduce that the sociopolitical leadership was at the forefront of the society, and that these constructions demonstrated their power, authority, and right to rule (Benson 1981a; Hodder 1987).

Based on implications of the data from El Marquesillo, the investigation of alignments toward landscape features and the marking of celestial events needs to be pursued or revisited at other contemporaneous sites to determine if correlations or correspondences are present. This type of investigation has been simplified and made significantly more accurate with the availability of applicable geomatic technologies. Moreover, closer investigation and greater consideration needs to be placed on the geomorphology of the region because of the impact that natural hazards, environments, ecologies, and resources can have on demographic shifts, resource procurement, and political economies.

Expanding the Boundaries and a Look to the Future

The recent accidental rediscovery of Formative period El Marquesillo (c. 1500 BC to AD 150) underscores the fact that the investigation of the Olmec Heartland over the past 60 years has been restricted to traditionally acknowledged sectors surrounding San Lorenzo, La Venta, and Tres Zapotes (Diehl 1989, 2000b; Grove 1997). Furthermore, this spatially limited examination has influenced the theoretical image of the Gulf Coast Olmec and other groups along the Southern Gulf Lowlands. Only a small portion of the “Olmec Heartland” has been subject to differential surface surveys or cursory observation, and much less has received thorough levels of investigation. The pronounced majority of what is considered Gulf Coast Olmec territory has not been assessed, evaluated, or even contemplated. Yet determinations about the Southern Gulf Lowlands have been derived from a restricted and incomplete corpus of sites: San Lorenzo, La Venta, Laguna de los Cerros, and Tres Zapotes (see Chapter 2). This constraint has led to a narrowing of the Olmec phenomenon to a point where many consider it an undiversified, homogenous culture. When data from El Marquesillo are considered new issues arise, and established conclusions are called into question. In other words, when deep-seated assumptions are examined, they prove to be less clear-cut than they were prior to the introduction of the El Marquesillo data.

Tacon (1999:34) has succinctly concluded that the “landscape is in the eye of the beholder,” a statement that encourages researchers to look beyond the socially or environmentally defined settlement region. It is important to realize that, although the archaeological record is static, the landscape that produced it was, and remains dynamic (Waters and Kuehn 1996). In the Southern Gulf Lowlands, volcanoes, earthquakes, hurricanes, and El Niño enhanced floods were as much a part of ancient life and impacted it as severely as these environmental hazards have affected the historic and contemporary inhabitants. Observation and consideration of the landscape are especially significant in the discussion of El Marquesillo, because the entire region southwest of the middle San Juan River has not been taken into account in the discussions of sociopolitical development in the Formative period.

Portions of the information derived from the current investigation of El Marquesillo are, by necessity, preliminary in nature, and numerous details of the site's occupants remain out of reach at this point. Nevertheless, the data have revealed insights into the sociopolitical structure and cultural continuity of the Southern Gulf Lowlands. As the research design originally intended, the detection and recognition of both the similarities to, and variability or divergence from, the Southern Gulf Lowland Olmec paradigm were central issues. The collections of artifact, ethnohistoric, and historic evidence from El Marquesillo infer that people occupied the site for 3,500 years.

Investigation into the site's Formative period phases (c. 1500-100 BC) demonstrated that residents participated to some extent in the sociopolitical and ideological aspects of the Olmec paradigm. The throne, including its style, medium, and symbolism, illustrate an accord with pan-Southern Gulf Coast symbolic representation of ancestor or ruler veneration. The water imagery, hydraulic modification, and adjacent architecture also conform to expected patterns. Based on the interpretation of the magnetic anomalies, the proposed drain system as well as linear and massive basalt deposits are further support for involvement by the elite in major work projects designed to illustrate their power and wealth. The spatial and symbolic disposition of these features further demonstrates an adherence to recognized Olmec tenets.

There are also significant correspondences between geographic locations of Early Formative sites that evolved into various types of centers. This correlation may or may not be cultural in nature. Occupation of naturally elevated areas near principal rivers and tributary systems is commonplace, as is direct access to river levees and alluvial floodplains. Furthermore, these environmental conformities would promote and facilitate similarities in food procurement. This type of geographic location may be more a factor of human survival – security, subsistence systems, and the availability of desired resources – than a culturally induced phenomenon, however.

At the same time, residents of El Marquesillo exhibit behaviors that are not in accord with prevailing hypothesized models of the Olmec. In some cases the evidence suggests subtle variations to the expected Olmec norm, while in others, new or unanticipated factors are present. For example, the enduring cultural continuity at the site spans the pre-Olmec, San Lorenzo, and La Venta periods (c. 1500-400 BC) and, at this point in the investigation, does not seem to have suffered to any great extent from the rise, florescence, and decline of either one of these dominant sites. As well, the communal longevity, or persistence through time, facilitated the process for the development of a social or collective memory.

Ancestor veneration, including the remembrance of leaders or founders, and a particular regard for the landscape are all suggested at El Marquesillo and imply a community’s identity and place. This supposition is reinforced by analysis of the structural grammar indicated by the architectural division of space at the site, public versus private for example. As well, there appears to be a difference in the treatment and deposition of monuments at El Marquesillo relative to San Lorenzo, La Venta, and other contemporaneous sites. These assumed differences in action could suggest that at El Marquesillo the monument served as a reminder in the memory of place. Lastly, the deposition of what may have been heirloom items in Offering I, and the intentional caching of symbolically significant Classic period objects into apparently a respected Formative period structure. This action can be interpreted as intentional social reminders that again point to the persistence of this place in memory and the transmission of this knowledge through long periods of time. The suggested multiple alignments of architectural structures toward landscape markers (i.e., the three most prominent peaks of the Tuxtla Volcanic Ridge) are shown to have occurred repeatedly over time, lending further support to the idea of the community's collective memory. Vogt (1981:135-136) has illustrated how the constructed settlement pattern can mirror the "sacred landscape," and directly alluded to the inhabitants' beliefs concerning the "structure of the universe, the nature of the gods, and the functioning of the social system." These apparently overt expressions of the people's connection to their landscape, and possibly to their worldview, are substantially more evident at El Marquesillo than at other Early or Middle Formative sites (cf. Tate 1999b).

The scale of ceramic production relative to population, during any given time period at El Marquesillo, cannot be accurately assessed. In other words, we do not know, at this point, if they were produced in quantities adequate only to meet the needs of the inhabitants, or if they were produced in amounts designed for export. Regardless, the disparity in the degree to which pottery is present over other types of material culture remains is striking. This disproportion may be indicative of craft production that was somehow 'specialized,' an economically oriented initiative. If so, this economic aspect may have provided a stabilizing factor that allowed residents to withstand the types of cultural or environmental upheavals that caused sites like San Lorenzo and La Venta to decline so precipitously.

The geographic location of El Marquesillo, a site that demonstrates significant size, level of complexity, and commanding physical position, brings into question previous hypotheses concerning regions and boundaries. El Marquesillo appears to have been a nexus for communication into regions not previously anticipated (i.e., to the Jimba, La Lana and Trinidad Rivers, and the Oaxaca Mountains) (cf. Coe 1968:102). Therefore, other areas within the “Olmec Heartland” can no longer be considered the 'hinterland' simply because they remain archaeologically unexplored. El Marquesillo’s placement on the landscape also calls into question assumed relationships and the purported significance of other nearby sites. The concepts of heartland versus hinterland, center versus periphery, and subregion or cultural hearth along the Southern Gulf Lowlands require reevaluation.

The suite of survey techniques employed during the 2002 to 2006 examination of El Marquesillo was also anticipated to provide a guide for more specific or focused work in the future. The results were intended to assist in the development of new research designs for further investigation. From the accumulated data, a general organizational pattern of the site has been proposed, including ceramic production areas, residential zones, ceremonial precincts and public architectural complexes.

The precision and accuracy of the mapping procedures and the magnetometer survey can indicate specific areas of interest and identify their location to within a meter. This accuracy permits limited, highly focused excavations that can be designed to address specific questions. The anthropogenic soil survey can be expanded to targeted areas of the site that will generate greater information on human activities. The magnetometer survey area should be enlarged to include the Villa Alta long-mound complexes, and other locations likely to contain any Formative period stone sculptures that may have been found and relocated by Classic period inhabitants. A closer examination of the ceramic assemblage, along with other artifacts, can add substantial insight into the spatial organization and political economy of the site.

Other issues for future work to address include the extension of investigative boundaries. The margins of the study area need to be expanded to include the adjacent Classic Villa Alta complexes, which will provide substantially more information regarding the cultural continuity at the site. As well, regional surveys are needed on both sides of the San Juan River; one to fill in the critical areas not covered by earlier surveys on the northeast side of the river, and another on the southwest side to bring that unexplored region into the archaeological forum. The regional surveys will allow El Marquesillo and its environs to be assessed on a broader scale and possibly reveal interactions with other regional centers.

The critiquing of the Gulf Coast Olmec paradigm is significant to scholarly research. Nevertheless, to more fully understand what or who the Olmec were, we need to know more about their genesis, their origin. It is possible that present and future data from El Marquesillo may be able to contribute to this pursuit. During my research into the earliest detectable occupation of the site, in the Early Formative pre-Olmec period (c. 1500-1150 BC), it became apparent that a number of sites contained the equivalent of Ojochi, Chicharras, and Bajío phase ceramic material. According to regional surveys, these settlements went on to become centers during what is termed the San Lorenzo Olmec phase (Borstein 2001; Killion and Urcid 2001; Symonds 2000). These data suggest a significant link between specific sites and the later development of the Olmec phenomenon. Further documentation of sites that contain pre-Olmec and Olmec ceramics needs to be assembled. Recording their spatial positions is an efficient and effective method that would involve entering these data into a GIS where it could be layered and queried across the Olmec Heartland and beyond as needed. The desirability of this type of platform is the ability to include a complete diachronic placement of sites according to type, size, chronology, ceramics, and any other trait or characteristics deemed significant. Furthermore, this database would be expandable to include any new data recovered and could begin with the earliest occupations along the Southern Gulf Lowlands, to Spanish Contact, and even to contemporary habitation. Finally, the database could be made available to any and all researchers via the internet, thereby expanding the investigation and promoting focused collaborative efforts.

Concluding Remarks

Although a rewriting of Olmec political history may not yet be necessary, the investigation of El Marquesillo has shown that the unexpected appearance of a single site can have archaeological repercussions throughout the Southern Gulf Lowlands. The formation of the theoretical Olmec paradigm commenced at the Hacienda de Hueyapan in

Tres Zapotes, Veracruz, in 1862. It began with a misconception about a monumental stone sculpture, an error that was based on incomplete evidence and a lack of fuller understanding. Precisely 140 years later, the discovery of an Olmec throne at El Marquesillo, Veracruz, and subsequent investigation of this previously unknown site, has illustrated that our spatial and theoretical perspectives need to be broadened to permit a greater understanding of the archaeological record.

I studied and was trained according to the accepted precepts and teachings regarding the Formative period Olmec and their Heartland. My initial response to El Marquesillo was that it probably represented a departure from the Olmec paradigm, a site that was peripheral to the Heartland. Now, after lengthy consideration of the site and its regional surroundings, I am convinced that El Marquesillo is anomalous but not in the manner of my initial interpretation. The ancient inhabitants of El Marquesillo were a dynamic group, emerging from the pre-Olmec phase to exhibit culturally determined characteristics. It is possible that the site represents an element within the Olmec paradigm that is more prototypical than the major centers upon which the majority of information has been derived. El Marquesillo's Classic period successors maintained a millennium-long cultural continuity that was subsequently expressed in a substantial Villa Alta phase occupation that continued independent of the expansion of the Aztec empire. Upon the arrival of the Spanish, New and Old World people merged and continued to live off the land, a tradition that continues to this day.

It is in these respects that El Marquesillo is an anomaly. A single site has caused me to reevaluate my ideas and perceptions of the entire Southern Gulf Lowlands. After contemplation of the vast, unexplored, middle regions of the San Juan, Coatzacoalcos, and Uxpanapa River Basins, I wonder how many more sites like El Marquesillo remain to be found and how they will continue to improve our corpus of knowledge about the Olmec, their predecessors, and successors.

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Appendices

Appendix 1a. Ceramic Analysis: Types and Temporal Assignment A

Ceramic type identification and assigned temporal period applied to surface and river cut collections, Offerings I & II, and Throne area excavations made in 2002 and 2003.

1100. Differentially Fired Bichromes		
1101	Blanco – Negro sencillo (no decoration)	Middle to Late Formative
1101B	Blanco – Negro con engobe (slipped)	Late Formative
1102	Blanco – Negro inciso	Middle Formative
1103	Blanco – Negro con reborde	Late Formative
1105	Negro – Naranja sencillo	Late Formative to Protoclassic
1105A	Negro – Naranja pasta arenosa media	Late Formative to Protoclassic
1106	Negro – Naranja inciso	Late Formative to Protoclassic
1109	Crema – Negro con desgrasante burdo	N/A*
1109A	Negro – Amarillento pasta arenosa media	Early Formative
1110A	Negro – Blanco con desgrasante medio	
1201	Limón Inciso	Early Formative
1202	Calzadas Excavado	Early Formative
2100 NEGRO PULIDO		
2101	Negro pulido erosionado	Late Formative
2102	Negro inciso	Late Formative
2103	Negro burdo con desgrasante medio	Late Formative
2107	Negro burdo con desgrasante burdo	Late Formative
3100 GRIS FINO		
3101	Gris fino erosionado	Middle to Late Formative
3102	Blanco burdo	N/A
3102A	Blanco caolín	Early to Middle Formative
3103	Gris fino con desgrasante medio	Early Formative **
3104	Gris fino inciso	N/A
3105	Gris fino con engobe desgrasante medio	N/A
4100 NARANJA FINO		
4101	Naranja fino sencillo	Late Classic
4102	Naranja fino inciso	Protoclassic to Early Classic
4103	Naranja fino con engobe rojo	Protoclassic to Early Classic
4104	Naranja fino con engobe naranja	Late Classic **
4105	Naranja fino con engobe blanco	Late Classic **
4109	Naranja pulido pasta arenosa media	N/A
4110	Naranja fino con desgrasante medio a grueso	N/A
4111	Naranja pulido	Protoclassic to Early Classic
4201	Café engobe sobre crema-naranja/crema	Protoclassic to Early Classic
5100 CREMA FINO		
5101	Crema fino erosionado	N/A
5102	Crema fino con engobe naranja	Protoclassic to Early Classic
5103	Crema fino con desgrasante medio	Protoclassic to Early Classic
5105	Crema con desgrasante burdo	N/A
5106	Crema burdo con desgrasante medio	N/A
5107	Crema burdo porosa (porosity due to sand)	N/A
5108	Hujuapan crema: compacto con desgrasante grueso, algunos con núcleo oscuro (grisáceo)	N/A

Appendix 1a. Ceramic Analysis: Types and Descriptions (Continued).

6100 NARANJA BURDO DESGRASANTE MEDIO (Domestic, not considered diagnostic)

6101	Naranja burdo desgrasante medio erosionado
6102	Naranja burdo desgrasante medio con engobe rojo
6103	Naranja burdo desgrasante medio con engobe naranja
6104	Naranja burdo desgrasante medio con engobe blanco
6105	Naranja burdo desgrasante medio inciso

7100 NARANJA BURDO DESGRASANTE BURDO

7101	Naranja burdo erosionado	N/A
7101A	Naranja burdo con desgrasante de mica cuarzo y ceniza volcánica	N/A
7102	Naranja burdo rastrillado	N/A
7102A	Naranja burdo rastrillado con engobe	N/A
7102B	Tecomates	Early to Middle Formative
7103	Naranja con engobe naranja	N/A
7104	Naranja con pintura roja	N/A
7105	Naranja con engobe negro	N/A
7201	Naranja con desgrasante mica	N/A
7201A	Naranja amarillento con desgrasante de mica	N/A

8100 ROJO EROSIONADO

8101	Rojo erosionado pasta fina	Protoclassic to Early Classic
8102	Rojo inciso pasta fina	Protoclassic to Early Classic
8103	Rojo con engobe pasta fina	N/A
8104	Rojo erosionado pasta medio	Protoclassic to Early Classic
8105	Rojo pasta media con engobe	Protoclassic to Early Classic

9100 NEGROS BURDOS UTILITARIOS

9101	Negro pulido de pasta media café rojiza	Late Formative to Protoclassic
9102	Negro pulido de pasta media inciso	Late Formative to Protoclassic

11.0 Differentially Fired Bi-Chromes (Bicromo por Coccion Diferencial)

11.1	Black – White, fine paste	Middle Formative
11.2	Black – Light Cream, fine paste	Middle Formative
11.3	Black – Light Cream, fine paste, slipped	Late Formative
11.4	Black – Light Cream, medium paste	Early Formative
11.4A	Black – Light Cream, medium sand paste	Late Formative
11.5	Black – White dark-reddish brown slip	Late Formative
11.6	Black – Light Cream, w/dark-reddish brown slip	Late Formative
Similar types, unconfirmed:		
11.11	Black – White, fine-to-medium sand paste	Protoclassic to Early Classic **
11.12	Black – Light Cream, same paste anterior	Protoclassic to Early Classic **

21. Polished Black (Negro Pulido)

21.1	Polished Black, fine paste	Late Formative
21.2	Polished Black, medium paste	Late Formative
21.3	Polished Black, incised	Late Formative
21.4	Polished Black, coarse paste	Late Formative
21.5	Polished Black, red paste	Late Classic

Appendix 1b. Ceramic Analysis: Types and Temporal Assignment B.

Ceramic type identification and assigned temporal period applied to river cut bank profiles and test excavations in Fields 1 and 2 made in 2002 and 2004.

31. Fine Grey (Gris Fino)

31.1	Fine Grey, weathered/eroded	N/A*
31.2	Grey, medium sand-tempered	Early Formative
Transitional types:		
320.1	Grey, weathered/eroded	Protoclassic to Early Classic **
320.2	Grey, weathered/eroded, red slip	Protoclassic to Early Classic **

41. Fine Orange (Naranja Fina)

41.1	Fine Orange	Late Classic
41.2	Fine Orange, dark core	Late Classic
Transitional types:		
420.1	Orange, weathered/eroded	Protoclassic to Early Classic **
420.2	Orange, weathered/eroded, red slip	Protoclassic to Early Classic **

51. Fine Cream (Crema Fina)

51.1	Cream, fine temper	Late Classic
51.2	Cream, medium temper	N/A

61. Coarse Brown (Café Burdo) Domestic

61.1	Coarse Brown, mica temper	N/A
61.2	Coarse Brown, smoothed, medium temper	N/A
61.3	Coarse Brown, medium-to-coarse paste	N/A

71. Coarse Orange (Naranjo Burdo) Domestic

71.1	Coarse Orange, medium quartz temper, grey core	N/A
71.2	Coarse Orange, medium volcanic ash temper, grey core	N/A
71.3	Coarse Orange, medium volcanic ash temper, orange-red core	N/A
71.4	Coarse Orange, medium quartz temper, cream-to-red paste	N/A
71.5	Coarse Orange, w/coarse quartz temper	N/A
71.6	Raked or Scraped surface (rastriado)	N/A
71.7	Tecomates	Early to Middle Formative
71.8	Coarse Orange, medium quartz temper, Smoothed, light grey-to-orange-cream core	N/A
71.9	Smoothed Orange, medium quartz temper, porous	N/A
71.10	Coarse Orange, irregular quartz temper, dark grey to dark reddish-brown core	N/A

81. Red Paste (Pasta Roja)

81.1	Red Paste, fine	Protoclassic to Early Classic**
81.2	Red Paste, dark core	Protoclassic to Early Classic**
81.3	Red Paste, coarse	N/A
81.4	Red Paste, medium	Protoclassic to Early Classic**
81.5	Red Paste, white slip	Protoclassic to Early Classic**

* N/A types are unknown temporally or are considered domestic and not diagnostic.
** Indicates type’s chronology remains tentative.

Appendix 2. Ceramic Types and Counts

Offering I

TYPE	1101	1102	1103	1104	1105	1106	1107	1109	2101	2102	2103	2104	3101
UNIT N8W2													
LEVEL													
12	18	4			7	3	1		19	5			4
13	20	6			6	3			12	1			10
15	7	2			6				7				4
17	49	8			21				47				7
18	23	2			8	14	1		10	1			1
19	35	5			21	6	1		35	2	2	4	1
20	2	1							1				
21	3				2				1				
22													
UNIT N9W3													
LEVEL													
13	3					1			8				2
14	1								5				1
15									5				1
16	1				2								
17									3				3
18	5	1			2				7				2
19	7	2			1				4	2		1	1
20	10	1			7				2	1			
21	2	1			1				3				
UNIT N9W2													
LEVEL													
10	17	1			9				19	1	1		
11	15	3		1	10	2	1		19	1			2
12	20	3			16	1			34			1	1
13	37	14	2		24	5	1		67	4	1	1	3
14	31	8			3	1			35	11	1		
15	40	6			9	7	1		39	2			10
16	7	8			10	2	1		23				1
17	16	1			3				14			1	4
18	12	4			3	2			21				
19	18	2			6				19	2			1
20	14	7			15	5			23	2			
21	25	2			15	3			21				
22	59	12			52	5		3	49	6	12	6	
UNIT N10W2													
LEVEL													
n/a	3				3				1				
21	1	2			8	1			1	1			
TOTALS	**501**	**106**	**2**	**1**	**270**	**61**	**7**	**3**	**554**	**42**	**17**	**14**	**59**

Appendix 2. Ceramic Types and Counts (Continued).

Offering I

TYPE	3102	3103	3104	4101	4102	4103	4104	4105	5101	5102	5103	6101	6102
UNIT N8W2													
LEVEL													
12	4			3					1			13	
13	3			3								2	
15	1			1					2			8	1
17	7			11	1				8			23	4
18	4											3	
19				1					2			10	1
20													
21	2	2											
22		2									1		
UNIT N9W3													
LEVEL													
13	1											6	
14				2								4	
15													
16												4	
17												1	
18				2								9	
19										1		6	
20												4	
21	1								1				
UNIT N9W2													
LEVEL													
10				14				2				71	1
11	6			1	1	4						55	1
12				13	3		1	1				80	
13		18		6	3	1							
14	5			5	1								
15	5			4	1							7	
16				6	1							16	
17				5								6	
18		2		5		1	6					6	2
19	2			8				1				12	
20		1		1								2	
21		4		3								12	6
22		2	1	7	1		2		2		4	16	
UNIT N10W2													
LEVEL													
n/a											1		
21							1					1	
TOTALS	**41**	**31**	**1**	**101**	**12**	**6**	**10**	**4**	**16**	**1**	**6**	**377**	**16**

Appendix 2. Ceramic Types and Counts (Continued).

Offering I

TYPE	6103	6104	6105	6106	7101	7102	7103	7104	8101	Burned Clay
UNIT N8W2										
LEVEL										
12					33	7				
13					47	4				
15					24	2				
17		2			116	11				
18					31	1	5	2		
19		1			40	4	3	6		
20					11	2		4		
21					6					
22					2					
UNIT N9W3										
LEVEL										
13		1			6	4				
14					4					
15					2	2	1			
16										
17						5				
18	2				13	11	1			
19					16	2	4			
20					7	5	1			
21					3					
UNIT N9W2										
LEVEL										
10						4				4
11		1				3				
12						8				1
13		1			106	10				19
14		1			29	2				
15		1			42	5				
16	1				20	3	9			1
17		3		1	16	9	2			2
18					41	9	10	7		
19					36	1	9			
20					75	2	4	4		
21				2	32	25	15	18		2
22			3		37		3	4	1	
UNIT N10W2										
LEVEL										
n/a					5					
21					14			1		
TOTALS		**11**	**3**	**3**	**814**	**141**	**67**	**46**	**1**	**29**

Appendix 2. Ceramic Types and Counts (Continued).

OFFERING II

TYPE	1101	1102	1105	1106	2101	2102	2103	2104	3101	3102	3103
Cuadro N9W1											
LEVEL											
13	24	4	16	6	32			2	2	2	3
14	18	2	9	2	25	1	1		2		7
15	9	2	11	1	14		3	2	4	3	
16	7	2	4		6		3	2		1	2
17	2		3		4		1				2
18	4		1		6		6		3		3
19	3		3		6			1			3
20			1		4					3	3
21	6		3		1		5				
22	6		5	1	5	1	10				6
23	5						8				1
24	2		1		2		11				6
25	3										4
26	5				1						3
27					1						
Cuadro N10W1											
LEVEL											
14	3										
15	1		1		3					1	2
16					2		1			3	
17			1		2						1
18			3		1						
19	1				2						2
22							1				
TOTALS	**99**	**10**	**62**	**10**	**117**	**2**	**50**	**7**	**11**	**13**	**48**

Appendix 2. Ceramic Types and Counts (Continued).

OFFERING II

TYPE	4101	4102	5101	5103	6101	6102	6104	6105	6106	7101	7102	7104
Cuadro N9W1												
LEVEL												
13	2				1	1	3			80		
14	2		4		7		1		1	65	10	12
15					5					59	5	
16	1	1			3			2		35	6	
17										27		
18										20	5	2
19	1									15		
20	1				1					24	4	
21					1					24	5	
22	1		1		1					37	8	1
23					2					20	4	
24	2		2		11					14	4	
25			1		2					14	2	
26				1	2					25	4	
27										3		
Cuadro N10W1												
LEVEL												
14					4					1	1	
15				1	3					2		
16				1								
17										4		
18										4		
19					1							
22					4						2	
TOTALS	**10**	**1**	**8**	**3**	**48**	**1**	**4**	**2**	**1**	**473**	**60**	**15**

Appendix 2. Ceramic Types and Counts (Continued).

THRONE RECOVERY EXCAVATION UNITS

UNIT N7W2	**TYPE**	1101	1102	1103	1105	1106	1107	1108	2101	2102	2103	2104
LEVEL	Depth (cm)											
I	40-50	3			3				8			
	50-60	7				1			4			
	60-70	10			2				4		2	
	70-80	17			3				15			
	80-90	13	1		6	1	1		17		5	
II	90-100	14			1	2			6		8	
	100-110	1	2						8		2	
III	110-120	4							4		5	
	120-130											
	140-150	1										
UNIT N9W3												
Ia	50-60	3	1						1			
	60-70		2									
	70-80	1							7			
	80-90	22			2				14			
Ia/II	Collapse	8							1			
II	90-100	5	1		6				8	1		
	100-110	3			2				7			
III	110-120				3				3			
III	200-210											
UNIT N8W3												
I	40-50	5							1	1	1	
	50-60	10							8			
	60-70	7	1						7			
	70-80	29	4		4				25	1		
	80-90	7	2		1				16			
II	90-100	25	8		6				21	1		
	100-110	15	2		6	1			15			
	110-120	1	1									5
III	120-130	2	1			1			2			
	130140								2			
	140-150	1									3	
	140-150	1			1				1			
III/IV	150-160	1			1	1			2		4	
	160-170		2		1	1			1		5	
	170-180				1				1			
V	180-190											
IV	190-200											
	200-210	2							1			
	210-220											
UNIT N9W1												
I	60-70	26			7				12			
II	60-70		3		4					3		
	70-80	17			2	2			2			
Ia	80-90	27			4				17			
Ia/II	90-100	34	6		9	1			29	2		2
II	100-110	34	2		6				33			
	110-120	47	8		24	7			92	1		4
UNIT N8W2												
I	50-60	2	1		1				3			
	60-70	6	1							6		
	70-80	9							4			
Ia	80-90	17	2		5		1		17			
Ia/II	90-100	43	7		7				25	3		
II	100-110	30	11			1			22	1		1
UNIT N9W2												
II	60-70	7				1				5		
Ia	70-80	3			1				2			
II	80-90	10			5				6	1		

Appendix 2. Ceramic Types and Counts (Continued).

THRONE RECOVERY EXCAVATION UNITS

UNIT N7W2	TYPE	3101	3102	3103	3104	4101	4102	4103	4104	4105	5101	5102
LEVEL	Depth (cm)											
I	40-50		1			5						1
	50-60		3									
	60-70		1	2		7					1	
	70-80		3			14					4	
	80-90	4	8	7		11					5	
II	90-100	3		3		7					3	
	100-110		1	5							1	
III	110-120	4	3	11								
	120-130											
	140-150											
UNIT N9W3												
Ia	50-60					1						
	60-70					4						
	70-80	4				4				1	8	
	80-90		2			8				2	6	
Ia/II	Derrumbe	1										
II	90-100	2	2			2					3	
	100-110	7	2			1						
III	110-120		2								2	
III	200-210	2										
UNIT N8W3												
I	40-50					1					1	
	50-60					4	1				7	
	60-70		1			1					3	
	70-80	2	10	12		10					7	
	80-90	7	5			7						
II	90-100	11	1			3					3	
	100-110	3	2			3					5	
	110-120	1	3	10		1						
III	120-130	2		18								
	130140	2		11						1		
	140-150			15								
	140-150	2		4								
III/IV	150-160	1		14								
	160-170			13								
	170-180											
V	180-190			5								
IV	190-200			4								
	200-210			1								
	210-220			1								
UNIT N9W1												
I	60-70	3										
II	60-70					2						
	70-80		1			7						
Ia	80-90	1	16			19						
Ia/II	90-100	5	2			12					12	
II	100-110	7	3			7					2	
	110-120		4	5		7			2			
UNIT N8W2												
I	50-60		2			2						
	60-70					8						
	70-80		6			3					3	
Ia	80-90	2	6			19					6	
Ia/II	90-100	5	11			10		3			10	2
II	100-110	3	4			2		2			2	
UNIT N9W2												
II	60-70		1			2	2	1				
Ia	70-80					2				1		
II	80-90	2				18						

Appendix 2. Ceramic Types and Counts (Continued).

THRONE RECOVERY EXCAVATION UNITS

UNIT N7W2	TYPE	5103	6101	6102	6103	6104	6105	6106	7101	7102	7103	7104
LEVEL	Depth (cm)											
I	40-50		2						18	1		
	50-60		1						25			
	60-70		1						27	2		
	70-80		6			2			56	1		
	80-90	8	18						66	10		
II	90-100	6	4						31	19		
	100-110		4						10	2		
III	110-120		3			1			15	11		
	120-130		3						1			
	140-150								1			
UNIT N9W3												
Ia	50-60		5						4			
	60-70		4						1			
	70-80		11			1			10			
	80-90		41	3					25	10	1	
Ia/II	Derrumbe		3						4			
II	90-100		7	1					10	2		
	100-110		5						4	2		
III	110-120		3	1	1				3	1		
III	200-210		1							1		
UNIT N8W3												
I	40-50								4			
	50-60		2						22	2		
	60-70		3						19	1		
	70-80		21			2			87	7		1
	80-90					1			21	3		
II	90-100		2						47	13		
	100-110	5	10						50	11		
	110-120		1					1	14	7		
III	120-130								6	4		
	130140		20					1	24	15		
	140-150		2						7	1		
	140-150		6							4		
III/IV	150-160								6	5		1
	160-170	1							4	2		
	170-180									1		
V	180-190		2						1			
IV	190-200									1		
	200-210		1					1	8			1
	210-220	1	2									
UNIT N9W1												
I	60-70		3						25	1		
II	60-70			8					2			
	70-80		8						30			
Ia	80-90		3						96	2		
Ia/II	90-100		12						89	9		
II	100-110		4						77	2		
	110-120		16						99	6		
UNIT N8W2												
I	50-60		1						5			
	60-70								15	2		
	70-80								11			
Ia	80-90		9	1					67			
Ia/II	90-100		17			2			100	14	2	
II	100-110	1	16	3					61	8		3
UNIT N9W2												
II	60-70		28									
Ia	70-80		5						3			
II	80-90		70							1		

Appendix 2. Ceramic Types and Counts (Continued).

RIVER CUT COLLECTION

TYPE SEGMENT	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	2101	2102	2103	2104	3101
2													3		1
3	3														
4											2		2		
5	2												1		3
6	3	1												1	
7	1														1
8	4	1			11							1	15		
9	12				12						5		27		
10	12	1									2	1	10		
11	21	1									13		15	3	
12	52	4		4	19	7			3		3	3	53		9
13	19	3			24	1			11		10	17	9	2	6
14	97	14			49	11	3		14		124	12	14		11
15	16	6			3	3					17	5	2		6
16	23	6	1		8						18	3			
17	21				7						26	6			
18	1				2						4				
19	9				5						17				
21															
22	24	3			7						18		7	2	
23	39	8	4		17	4			15	1	52	3	11	3	
24	13	10	2		3	2	1					3	31	4	
25	13	8	1		10	4	1	1			3	4	8		3
26	12	1									6		5		6
27	10	1			7				10		10		28		9
28	12				3						1		10		6
29													8		3
30	28	3			5		1		5		2	7	12	1	4
31	34	2			4	2	1		1		6	2	31	3	11
32					3								3		
33	8	4			15	1			4		6		1	1	26
34	22	2			7	1			2		1	3	31		7
35	3				1				1		1	2	6		1
37		2											3		1
38											2		10		17
39	1								7				7		1
40	9				4	1					2		6		2
41	7				1				3		4	3	3	1	
43					3										1
51							2						1		
55															8
TOTALS	**531**	**81**	**8**	**4**	**230**	**37**	**9**	**1**	**76**	**1**	**355**	**75**	**373**	**21**	**143**

Appendix 2. Ceramic Types and Counts (Continued).

RIVER CUT COLLECTION

TYPE SEGMENT	3102	3103	3104	4101	4102	4103	4104	4105	4107	5101	5102	5103	5104	6101	6103
2	1												1		
3										1		5		6	
4	1	2		13			1	2						4	
5		1					1		1					2	
6	1			1											
7	2	6		12						1				7	2
8		14		1	1					3		7		36	7
9	2	32						5		6				94	
10		25		1						2		9		98	3
11	7	12		5						13				20	
12	4	17		13						1		1		44	
13		4	1	17			2			5		1		14	5
14		11		10	3	1				1		15		136	18
15		5		16		3	3	1		3	5	4		42	
16		5		29						8				29	
17	3	1		10						2				12	
18				1										2	
19				21						3				17	
21				1											
22	3	8		20						4				31	
23	8	19		32	4			1		3		10		53	4
24		31		9						5		1		16	
25		1		3				1		3	1			18	1
26	6	6		13								2		55	
27	2	22		15								17		75	7
28		4		3						1		3	1	23	
29		5		7						12		4	1	19	
30		5		22	1					5		6	1	25	1
31	3	21	1	5	1					14		3	4	53	1
32		5		4						9	1			12	
33		4		18	2					26	8	15	7	26	
34		46		23	1					40	2	59	13	153	2
35		19		20	1			1		4		6		60	
37		5		9										13	
38	3	32		17				1		2		11		54	
39		16		11			1					1		18	1
40	10			14		1	3	1		11	1	3		28	
41								1				1		8	2
43	4	5		17				2		15	1	1		32	
51		1		17						15				15	
55				32								4		70	
TOTALS	**60**	**390**	**2**	**462**	**14**	**5**	**11**	**16**	**1**	**218**	**19**	**189**	**28**	**1420**	**54**

Appendix 2. Ceramic Types and Counts (Continued).

RIVER CUT COLLECTION

TYPE SEGMENT	6102	6104	6105	6106	7101	7102	7103	7104	7107	8101	8102	9101	9102
2						2							
3			1		22	5							
4					12								
5					20	11							
6					3			1					
7					14	1							
8	1	7	1		57	18							
9	3	2		2	59	20	3	2					
10	3	1		3	48	21							
11					49	24	4						
12			3		88	23		5		1			
13	4		1	2	20	8		5					
14	10	5	1	2	129	37	6	1					
15	3	3	3		96	31				1	2	3	1
16					54	15				6		2	
17		1			31	7				1			
18					1								
19					30								
21					1								
22	2				43	10						3	
23	5	4	6	3	110	13		10				4	
24			1		45	10	4	2		4		2	
25	1		3		9	7				1			
26	1		3		60	13	1			5			
27	2		4	18	72	22			1	2	1		
28				2	42	3				3			
29		2			31	7				2		1	
30	1		1		37	10				1			
31					77	12		1		2		1	
32	3			2	9	4	1	1				1	
33				2	26	5		2					
34	1	5	1	2	65	49							
35	13				6	13							
37					9	11		1					
38													
39		1			65	11							
40	1				52	2							
41					20			1					
43					18	1							
51					10	3							
55													
TOTALS	**54**	**31**	**29**	**38**	**1540**	**429**	**19**	**32**	**1**	**29**	**3**	**17**	**1**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 1	TYPE	11.1	11.2	11.3	11.4	11,4a	11.5	11.6	11.11	11.12	21.1
LEVEL	Depth (cm)										
I	0-10										2
I	10-20	2				1					2
I	20-30	19			5	7					7
I	30-40	25	18		6	6					30
I	40-50	61	21		10	25					69
I	50-60	24	18		2	14					15
II	60-70	33	43		17				1		49
III	70-80	25	8		4						33
III	80-90	14	11		7	1					16
III	90-100	1									
	TOTALS	**204**	**119**	**0**	**51**	**54**	**0**	**0**	**1**	**0**	**223**

UNIT 2	TYPE	11.1	11.2	11.3	11.4	11,4a	11.5	11.6	11.11	11.12	21.1
LEVEL	Depth (cm)										
	40-50	35			8						28
	50-60	36			8						21
	60-70	38	22		11				2		57
	70-80	59	9		22						48
	80-90	14	1		8						13
	90-100	51	18		15						27
	100-110	18	6		15						21
	110-120	10	7		1						9
	TOTALS	**261**	**63**	**0**	**88**	**0**	**0**	**0**	**2**	**0**	**224**

UNIT 3	TYPE	11.1	11.2	11.3	11.4	11,4a	11.5	11.6	11.11	11.12	21.1
LEVEL	Depth (cm)										
II	70-80	3									5
	80-90	10	24		19						14
	90-100	12	22		5						8
III	100-110	23	21		25						23
	110-120	36	15	8	23						27
IV	120-130	43	53	9	38						52
	130-140	18	28		15						35
	140-150	12	49		28		3				30
	150-160	20	21		20						22
	160-170	58	35		6						27
IV/V	160-170	10	10		9						14
	170-180	51	20		6						21
	180-190	16	4								7
V	190-200	20	13		3						12
	200-210	5	7		1						4
	210-220	6	2								
	220-230	2	2								2
	TOTALS	**345**	**326**	**17**	**198**	**0**	**3**	**0**	**0**	**0**	**303**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 1	**TYPE**	**21.2**	**21.3**	**21.4**	**21.5**	**31.1**	**31.2**	**31.3**	**320.1**	**320.2**	**320.3**	**41.1**	**41.2**
LEVEL	Depth (cm)												
I	0-10											3	
I	10-20											2	
I	20-30		1				1					13	4
I	30-40	11	4		4		1					59	
I	40-50	32	16	4	24		2					51	3
I	50-60	11	3	7	23		1					7	3
II	60-70	49	16	2	9	1	6					7	
III	70-80	10	8		2							3	2
III	80-90	6	4		1							1	
III	90-100	1											
	TOTALS	**120**	**52**	**13**	**63**	**1**	**11**	**0**	**0**	**0**	**0**	**146**	**12**

UNIT 2	**TYPE**	**21.2**	**21.3**	**21.4**	**21.5**	**31.1**	**31.2**	**31.3**	**320.1**	**320.2**	**320.3**	**41.1**	**41.2**
LEVEL	Depth (cm)												
	40-50	8		1	4							15	
	50-60	7	2		5							3	
	60-70	6	16		10		10					3	1
	70-80	31	7	16	25	1	17					12	1
	80-90	8	3		3		1		5			1	3
	90-100	12	22		33	4	2					3	
	100-110				2							12	
	110-120	16		1			1		3				
	TOTALS	**88**	**50**	**18**	**82**	**5**	**31**	**0**	**8**	**0**	**0**	**49**	**5**

UNIT 3	**TYPE**	**21.2**	**21.3**	**21.4**	**21.5**	**31.1**	**31.2**	**31.3**	**320.1**	**320.2**	**320.3**	**41.1**	**41.2**
LEVEL	Depth (cm)												
II	70-80						1					24	
	80-90	17				1	1					63	
	90-100	5	1			3	1					41	
III	100-110	19	2				8					43	
	110-120	18				1	5					65	
IV	120-130	51	7			5	9					158	2
	130-140	23	4			4	2					62	
	140-150	21	5	1			7					108	
	150-160	29	4				5					78	
	160-170	16										40	2
IV/V	160-170	9										31	
	170-180	3										16	
	180-190	8										11	
V	190-200											11	
	200-210											5	
	210-220											1	
	220-230											1	
	TOTALS	**219**	**23**	**1**	**0**	**14**	**39**	**0**	**0**	**0**	**0**	**758**	**4**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 1	TYPE	41.3	420.1	420.2	51.1	51.2	51.3	61.1	61.2	61.3	61.4	71.1	71.2	71.3
LEVEL	Depth (cm)													
I	0-10												1	
I	10-20							1					1	
I	20-30		6			1		3	2			8	7	
I	30-40		2					9	5	2		39	11	8
I	40-50		7		4			10	8	5		48	9	7
I	50-60							6	2			21	3	3
II	60-70				1							29	3	5
III	70-80		2		2				5	10		23	2	1
III	80-90								4	2		20	4	3
III	90-100													
	TOTALS	**0**	**17**	**0**	**7**	**1**	**0**	**29**	**26**	**19**	**0**	**188**	**41**	**27**

UNIT 2	TYPE	41.3	420.1	420.2	51.1	51.2	51.3	61.1	61.2	61.3	61.4	71.1	71.2	71.3
LEVEL	Depth (cm)													
	40-50									5		22	4	10
	50-60									5		19	3	17
	60-70				3	1		2	6	2		81	9	10
	70-80		1						1	1		18	9	34
	80-90		1							2		5		5
	90-100									2		4	1	2
	100-110								1	3		20	1	
	110-120								5			1	4	3
	TOTALS	**0**	**2**	**0**	**3**	**1**	**0**	**2**	**13**	**20**	**0**	**170**	**31**	**81**

UNIT 3	TYPE	41.3	420.1	420.2	51.1	51.2	51.3	61.1	61.2	61.3	61.4	71.1	71.2	71.3
LEVEL	Depth (cm)													
II	70-80							1					1	2
	80-90				3	2		11	3	13		8	11	3
	90-100							13	9	13		26	9	
III	100-110				4	6		51	9	21		20	20	15
	110-120				2	6		14	17	25		25	10	5
IV	120-130				3	7		25	44	63		77	23	13
	130-140				6	3		16	11	24		33	14	3
	140-150				4	1		57	13	22		48	18	7
	150-160				1	1		35	8	24		32	13	3
	160-170				4	2		3	16	15		53	2	9
IV/V	160-170				3			6	2	11		20	3	4
	170-180				1			2	3	9		44	10	
	180-190				1							10		1
V	190-200				2			1	2	6		15	3	
	200-210				2				1			2		1
	210-220									1		5		
	220-230								1	1		4		
	TOTALS	**0**	**0**	**0**	**36**	**28**	**0**	**235**	**139**	**248**	**0**	**422**	**137**	**66**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 1	**TYPE**	**71.4**	**71.5**	**71.6**	**71.7**	**71.8**	**71.9**	**71.10**	**81.1**	**81.2**	**81.3**	**81.4**	**81.5**
LEVEL	Depth (cm)												
I	0-10	1					3						
I	10-20	2											
I	20-30	13	11	1		11	6	2					
I	30-40	36	21	25		3	4	13	5	2	2	13	1
I	40-50	41	92	77		6	13	9	10	14	3	27	8
I	50-60	11	35	53		1	16		5		1	8	9
II	60-70	11	70	22		2	15	11	2	1	1	4	5
III	70-80	10	12	5		6	3	5	3			8	2
III	80-90	8	6	5					1	2		7	
III	90-100	1	3										
	TOTALS	**134**	**250**	**188**	**0**	**29**	**60**	**40**	**26**	**19**	**7**	**67**	**25**

UNIT 2	**TYPE**	**71.4**	**71.5**	**71.6**	**71.7**	**71.8**	**71.9**	**71.10**	**81.1**	**81.2**	**81.3**	**81.4**	**81.5**
LEVEL	Depth (cm)												
	40-50	36	1	14		4	5	3	8		2	5	
	50-60	29	6	3	1	3	9	17	6	1	4	4	
	60-70	57	5	5		7	6	4	17	7	4	12	
	70-80	105	21	12	2	16	23	45	2	6	7	18	1
	80-90	27	3		3		1	4				1	
	90-100	26		6	1	6	21	1	18			2	
	100-110	70	2	1			1	2		1			
	110-120	82	2		1			1		1	2	2	
	TOTALS	**432**	**40**	**41**	**8**	**36**	**66**	**77**	**51**	**16**	**19**	**44**	**1**

UNIT 3	**TYPE**	**71.4**	**71.5**	**71.6**	**71.7**	**71.8**	**71.9**	**71.10**	**81.1**	**81.2**	**81.3**	**81.4**	**81.5**
LEVEL	Depth (cm)												
II	70-80	5	5	7		6			1				
	80-90	36	14	10	1	3			1			1	
	90-100	28	21	6	1	2				1	3	1	
III	100-110	24	62	18	1	5			3	2	5	6	2
	110-120	7	69	44		2			13				
IV	120-130	30	86	76	3	4			12	9	5		
	130-140	12	54	29		2			6	4			1
	140-150	13	74	17		2			1	3	1	7	1
	150-160	17	56	26	1	6			3	1	2	2	
	160-170	13	38	10					11			13	
IV/V	160-170	10	55	12					2	2	4	4	2
	170-180		12	5					8	2	2	5	
	180-190	1	7			2			1				
V	190-200		2	2									
	200-210		4	3									
	210-220		1										
	220-230		2										
	TOTALS	**196**	**562**	**265**	**7**	**34**	**0**	**0**	**62**	**24**	**22**	**39**	**6**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 4	**TYPE**	**11.1**	**11.2**	**11.3**	**11.4**	**11,4a**	**11.5**	**11.6**	**11.11**	**11.12**	**21.1**
LEVEL	Depth (cm)										
I	0-10	2			1						
I	10-20	1									
I	20-30	7			3	7					5
I	30-40	3			3	3					
I	40-50	12	4		2	5					
I	50-60	1	3		3						
II	60-70	1			1	3					
II	70-80		1		1	2					
II	80-90	1			3	3					1
II	90-100				7	2					
II	100-110					2					1
III	100-110				1	3					
	TOTALS	**28**	**8**	**0**	**25**	**30**	**0**	**0**	**0**	**0**	**7**

UNIT 5	**TYPE**	**11.1**	**11.2**	**11.3**	**11.4**	**11,4a**	**11.5**	**11.6**	**11.11**	**11.12**	**21.1**
LEVEL	Depth (cm)										
	30-40										
	50-60	1									1
	70-80	2			1						2
	80-90	5								1	4
	90-100	2			1						2
	100-110	7	1								
	110-120	23	3		5				1	9	22
	120-130	19	5		5				3	3	15
	130-140	19			15				2	1	
	140-150	22	1		11				8	1	13
	150-160	10	11		8					1	7
	160-170	3			6						6
	170-180	6	1	1	4						
	180-190	3	3		1						
	TOTALS	**122**	**25**	**1**	**57**	**0**	**0**	**0**	**14**	**16**	**72**

UNIT 6	**TYPE**	**11.1**	**11.2**	**11.3**	**11.4**	**11,4a**	**11.5**	**11.6**	**11.11**	**11.12**	**21.1**
LEVEL	Depth (cm)										
I	0-10										
I	10-20										
I	20-30		1			2					1
I	30-40		2			1					1
I	40-50		1		2						
I	50-60				2	2					
	TOTALS	**0**	**4**	**0**	**4**	**5**	**0**	**0**	**0**	**0**	**2**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 4	TYPE	21.2	21.3	21.4	21.5	31.1	31.2	31.3	320.1	320.2	320.3	41.1	41.2
LEVEL	Depth (cm)												
I	0-10	1					1						
I	10-20								1				
I	20-30				1		2					3	1
I	30-40	2											
I	40-50	2			1								
I	50-60								1				
II	60-70	3											
II	70-80												
II	80-90	2			1		1						
II	90-100	2							2				
II	100-110								1				
III	100-110												
	TOTALS	**12**	**0**	**0**	**3**	**0**	**4**	**0**	**5**	**0**	**0**	**3**	**1**

UNIT 5	TYPE	21.2	21.3	21.4	21.5	31.1	31.2	31.3	320.1	320.2	320.3	41.1	41.2
LEVEL	Depth (cm)												
	30-40												
	50-60						1					4	
	70-80											1	
	80-90			1								2	
	90-100											10	
	100-110										3	6	
	110-120						5				16	27	2
	120-130						4					7	12
	130-140	12	5									10	3
	140-150	10	3				1					12	
	150-160	4		2								2	
	160-170										9		
	170-180	3										4	
	180-190										1		
	TOTALS	**29**	**8**	**3**	**0**	**0**	**11**	**0**	**0**	**0**	**29**	**85**	**17**

UNIT 6	TYPE	21.2	21.3	21.4	21.5	31.1	31.2	31.3	320.1	320.2	320.3	41.1	41.2
LEVEL	Depth (cm)												
I	0-10												
I	10-20												
I	20-30											2	
I	30-40	2										2	
I	40-50											3	
I	50-60				1								
	TOTALS	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 4	**TYPE**	**41.3**	**420.1**	**420.2**	**51.1**	**51.2**	**51.3**	**61.1**	**61.2**	**61.3**	**61.4**	**71.1**	**71.2**	**71.3**
LEVEL	Depth (cm)													
I	0-10								2			1	2	
I	10-20											1		
I	20-30		1						1				3	2
I	30-40		2						1	2		3		
I	40-50		2		1	2			2	3		7	3	2
I	50-60		1									1		
II	60-70											6		
II	70-80											3		
II	80-90								1					
II	90-100											6	1	1
II	100-110											6		3
III	100-110									1		5		1
	TOTALS	**0**	**6**	**0**	**1**	**2**	**0**	**0**	**7**	**6**	**0**	**39**	**9**	**9**

UNIT 5	**TYPE**	**41.3**	**420.1**	**420.2**	**51.1**	**51.2**	**51.3**	**61.1**	**61.2**	**61.3**	**61.4**	**71.1**	**71.2**	**71.3**
LEVEL	Depth (cm)													
	30-40													
	50-60								2					1
	70-80		1			3			5			1		1
	80-90		2		1				7			1	1	6
	90-100		1		2				6					3
	100-110				1				10					2
	110-120				3				50			13	7	10
	120-130		1		1	2			23	3		21	8	20
	130-140								5	24		15	6	15
	140-150								2	17		17	11	7
	150-160				3				8	2		19	1	7
	160-170								10	2		12		9
	170-180		1						7	1		6		1
	180-190								2	1		2		1
	TOTALS	**0**	**6**	**0**	**11**	**5**	**0**	**0**	**137**	**50**	**0**	**107**	**34**	**83**

UNIT 6	**TYPE**	**41.3**	**420.1**	**420.2**	**51.1**	**51.2**	**51.3**	**61.1**	**61.2**	**61.3**	**61.4**	**71.1**	**71.2**	**71.3**
LEVEL	Depth (cm)													
I	0-10													
I	10-20													
I	20-30											2		
I	30-40											4	3	
I	40-50		1						1			5		
I	50-60													
	TOTALS	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**11**	**3**	**0**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 4	**TYPE**	**71.4**	**71.5**	**71.6**	**71.7**	**71.8**	**71.9**	**71.10**	**81.1**	**81.2**	**81.3**	**81.4**	**81.5**
LEVEL	Depth (cm)												
I	0-10	1	2										
I	10-20		1										
I	20-30	3	10			1							
I	30-40	4	4	3			4	8					
I	40-50	6	6	6				9	1				
I	50-60		2	1			3	2					
II	60-70		1			3	6						
II	70-80	1		1	1		1	3					
II	80-90		2	5			4					2	
II	90-100		10	2	2		7					1	
II	100-110	1		1			1	2					
III	100-110						1	2					2
	TOTALS	**16**	**38**	**19**	**3**	**4**	**27**	**26**	**1**	**0**	**0**	**3**	**2**

UNIT 5	**TYPE**	**71.4**	**71.5**	**71.6**	**71.7**	**71.8**	**71.9**	**71.10**	**81.1**	**81.2**	**81.3**	**81.4**	**81.5**
LEVEL	Depth (cm)												
	30-40	2					1						
	50-60	1	1		1	1	1	1				2	
	70-80	4		1		2	1					1	
	80-90	7	8			3	2	6		1		3	
	90-100	7	2	3		5	2	5					
	100-110	5	3	2		4	1	6	4				
	110-120	39	25	17	1	21	10	23			2	9	
	120-130	48	39	8		2	6	19				13	
	130-140	49	14	20	3		8	13	11			6	
	140-150	35	32	7			1	1	13			15	
	150-160	24	9		1	2	5		3			5	
	160-170	11	4	8			1		3	2			1
	170-180	12	1	4			3		3			7	
	180-190	5					5						
	TOTALS	**249**	**138**	**70**	**6**	**40**	**47**	**74**	**37**	**3**	**2**	**61**	**1**

UNIT 6	**TYPE**	**71.4**	**71.5**	**71.6**	**71.7**	**71.8**	**71.9**	**71.10**	**81.1**	**81.2**	**81.3**	**81.4**	**81.5**
LEVEL	Depth (cm)												
I	0-10												
I	10-20												
I	20-30		2				1						
I	30-40	7	4	1			1	2					
I	40-50		1	1		2							
I	50-60			1									
	TOTALS	**7**	**7**	**3**	**0**	**2**	**2**	**2**	**0**	**0**	**0**	**0**	**0**

Appendix 2 Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 7	**TYPE**	**11.1**	**11.2**	**11.3**	**11.4**	**11,4a**	**11.5**	**11.6**	**11.11**	**11.12**	**21.1**
LEVEL	Depth (cm)										
	10-20										
	20-30	1									
	30-40	1	2								
	40-50	1	2								
	50-60	1	4								4
	60-70	1									
	70-80	8							4		2
	80-90	6	5						2		
	90-100	6	6								6
	100-110	15	8						13		11
	110-120	11	15		4				6		6
	120-130	35	43		2			5	14	14	32
	130-140	15	52		2			7	6		4
	140-150	14	23		3		3	4			15
	150-160	3	10		2			6			4
	160-170	5	6				2	4			1
	170-180		12				1	2			5
	200-210			3							
	TOTALS	**123**	**188**	**3**	**13**	**0**	**6**	**28**	**45**	**14**	**90**

Test Excavation Units, Counts and Types

UNIT 7	**TYPE**	**21.2**	**21.3**	**21.4**	**21.5**	**31.1**	**31.2**	**31.3**	**320.1**	**320.2**	**320.3**	**41.1**	**41.2**
LEVEL	Depth (cm)												
	10-20												
	20-30								1			2	
	30-40								8				2
	40-50								19		1	1	
	50-60								23	1			
	60-70										2		
	70-80								26				
	80-90								25			4	
	90-100								53			4	5
	100-110								118			7	
	110-120								120			1	
	120-130	5							274	32		2	
	130-140	1							126	3			
	140-150	1							93	18			
	150-160								33			12	1
	160-170	3							24	2		16	
	170-180								41	2		24	3
	200-210												
	TOTALS	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**984**	**58**	**3**	**73**	**11**

Appendix 2. Ceramic Types and Counts (Continued).

Test Excavation Units, Counts and Types

UNIT 7	TYPE	41.3	420.1	420.2	51.1	51.2	51.3	61.1	61.2	61.3	61.4	71.1	71.2	71.3
LEVEL	Depth (cm)													
	10-20		1											
	20-30													
	30-40		5									2		
	40-50		8		1									
	50-60		19										3	
	60-70				1									
	70-80		22						1			2	1	
	80-90		14									2		
	90-100		57	16				1				3	2	
	100-110		144					3	2			12	7	
	110-120		84	6				2	1			2	4	3
	120-130		185	78				3	3	11		53	9	1
	130-140		82	28					3	9		8	2	1
	140-150		73	14						9		21	4	3
	150-160		6						1			1	3	
	160-170											5		
	170-180		2					2	5			4	1	
	200-210											1		
	TOTALS	**0**	**702**	**142**	**2**	**0**	**0**	**11**	**16**	**29**	**0**	**116**	**36**	**8**

Test Excavation Units, Counts and Types

UNIT 7	TYPE	71.4	71.5	71.6	71.7	71.8	71.9	71.10	81.1	81.2	81.3	81.4	81.5
LEVEL	Depth (cm)												
	10-20												
	20-30						1						
	30-40												
	40-50	12	3										
	50-60	3	3				2						
	60-70		1				1						
	70-80	14	1		1		2						
	80-90	11	1										
	90-100	13					5						
	100-110	36	4	2									
	110-120	50	2	5				6					
	120-130	44	3			2	7	5					
	130-140	68	9	2									
	140-150	27	13	3	1				4				
	150-160	11	2			1							
	160-170	6					4						
	170-180	11	1										
	200-210	1							2				
	TOTALS	**307**	**43**	**12**	**2**	**3**	**22**	**11**	**6**	**0**	**0**	**0**	**0**

Appendix 2. Ceramic Types and Counts (Continued).

Ceramics from Stratigraphic Profiles

Profile 1A

Type	11.1	11.2	11.4	11.4a	21.1	21.2	21.3	21.5	31.2	320.1	41.1	420.1	51.1	61.2
LEVEL														
II	2													
III	2		1	1	2							1		1
IV						1			1					

Profile 1B

Type	11.1	11.2	11.4	11.4a	21.1	21.2	21.3	21.5	31.2	320.1	41.1	420.1	51.1	61.2
LEVEL														
I	3								1					
II											1	1		
III										1		1		

Profile 2A

Type	11.1	11.2	11.4	11.4a	21.1	21.2	21.3	21.5	31.2	320.1	41.1	420.1	51.1	61.2
LEVEL														
I														
II		1												
II	6		1	1			25	2						
IIA					2									
IIB	2				3				1			1		
IIC	6				1									

Profile 6B

Type	11.1	11.2	11.4	11.4a	21.1	21.2	21.3	21.5	31.2	320.1	41.1	420.1	51.1	61.2
LEVEL														
I														
II												2	1	
III						1		1	1			2		
IIIB														

Profile 7A

Type	11.1	11.2	11.4	11.4a	21.1	21.2	21.3	21.5	31.2	320.1	41.1	420.1	51.1	61.2
LEVEL														
II												1		
II														
III				1					1					
IV									1					
IV				1										
VI			1										1	
VI			1											
VI			2											
VI			2											
VI														
VI														
VI														
VI			1											

Appendix 2. Ceramic Types and Counts (Continued).

Ceramics from Stratigraphic Profiles

Profile 1A

Type / LEVEL	61.3	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.9	71.10	81.1	81.2	81.4	81.5
II		1			2	1	1								
III			1	1	1	2			1	1					
IV	1		1											1	

Profile 1B

Type / LEVEL	61.3	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.9	71.10	81.1	81.2	81.4	81.5
I			1	1						2	1		1	1	
II			1												
III			1		1	2	1					1			

Profile 2A

Type / LEVEL	61.3	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.9	71.10	81.1	81.2	81.4	81.5
I		2					1			2					
II															
II	25		2		10		7			1	1	1			
IIA		1				1	1								
IIB			1		1	1									
IIC						1				2					

Profile 6B

Type / LEVEL	61.3	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.9	71.10	81.1	81.2	81.4	81.5
I										2					
II							1				2			1	
III					1		4	1			1				
IIIB							1				1				

Profile 7A

Type / LEVEL	61.3	71.1	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.9	71.10	81.1	81.2	81.4	81.5
II															
II											1			1	
III											1				
IV		1							1						
IV							1	1							
VI															
VI															
VI															
VI											1			1	
VI										1					
VI											1				
VI											1				
VI															

Surface Collection

Type	1101	1101B	1102	1103	1105	1105A	1106	1109	1109A	1110A	1201	1202	2101	2102	2103
UNIT															
S1E1															
S1E2															
S2E1	3														
S3E1					1					7					
S3E2	7								4	7					
S4E1	5														
S5E1															
S1W2									2						
S1W3									8				1		
S1W6									1						
S1W7															
S2W1	1				1					2					
S2W2						3							1		
S2W3					1				2						
S2W4															
S2W5															
S2W6					1								1		
S2W9															
S3W1										1				1	
S3W2						1							1		3
S3W3															
S3W5															
S4W1	1									2					1
S4W2	1				1			5	6						4
S4W3										2					1
S4W4	7									7			2		3
S4W5					6	3			2						
S4W9										1					
N1W1															
N1W3															
N1W4															
N1W5															
N1W6	25				11	7		5	25	29			6	1	12
N1W8															
N2W2															
N3W2															
N3W3										17					
N3W5	1							1							
N3W7	4							3		3					
N3W9															
N4W2	1														
N4W3															
N4W4	2								1						
N4W5															
N4W6	1					1									
N4W7															
N5W3					1			1	1	3		1			
N5W4	2								1						
N5W5															
N5W6															
N5W7															
N5W8	1									1					
N6W3										1					
N6W4															
N6W5										1					
N6W6	16														
N6W7	3									1					2
N6W8															
N6W9	1														
N7W3									1			1			
N7W9															

Appendix 2. Ceramic Types and Counts (Continued).

Surface Collection

Type	2107	3101	3102	3102A	3103	3104	3105	4101	4102	4103	4104	4105	4109	4110	4111
UNIT															
S1E1								1							
S1E2															
S2E1								3							
S3E1								2							
S3E2								1							
S4E1					2										
S5E1															
S1W2								1							
S1W3								3							
S1W6								1							
S1W7															
S2W1								5				1			
S2W2															
S2W3								3							
S2W4															
S2W5								1							
S2W6								2							
S2W9															
S3W1					3										
S3W2													1		
S3W3															
S3W5															
S4W1					2			6							
S4W2								7				3		2	
S4W3		1						4							
S4W4								14			3				
S4W5	2												2		
S4W9															
N1W1															
N1W3															
N1W4								1							
N1W5															
N1W6	2	1			7			55			3	4	3	2	
N1W8															
N2W2										1					1
N3W2		1			1			6						2	
N3W3															
N3W5					1										
N3W7								5						4	
N3W9								2							
N4W2					1										
N4W3															
N4W4															
N4W5		1													
N4W6															
N4W7															
N5W3					2										
N5W4					1										
N5W5															
N5W6															
N5W7															
N5W8															
N6W3															
N6W4															
N6W5					1										
N6W6								1							
N6W7								1							
N6W8															
N6W9															
N7W3															
N7W9															

Appendix 2. Ceramic Types and Counts (Continued).

Type	4201	5101	5102	5103	5105	5106	5107	5108	6101	6102	6103	6104	6105	6110	7101
UNIT															
S1E1									2						2
S1E2		1													5
S2E1															10
S3E1				1					12						12
S3E2		3		1					9						21
S4E1				2					6						6
S5E1									1						1
S1W2									1						1
S1W3	7	2					3	1	10						10
S1W6							1								
S1W7									2						
S2W1		5		1					6						5
S2W2									1						
S2W3		4					1	1							3
S2W4									1						
S2W5		1							1						5
S2W6															2
S2W9									6						
S3W1		2							8						28
S3W2									1						6
S3W3									1						
S3W5								1	1						
S4W1		5							1						28
S4W2		5		5					4						30
S4W3				2			2		6						5
S4W4		16		4		22			30						12
S4W5	3						3								13
S4W9															
N1W1									1						1
N1W3															1
N1W4									1						
N1W5															1
N1W6	10	44		16		22	10	3	112						208
N1W8				1					2						
N2W2															1
N3W2		2	1	3					4						12
N3W3												1			
N3W5		1							1						2
N3W7		2			2	1			7						20
N3W9															1
N4W2		1							2						5
N4W3															2
N4W4									3						
N4W5		1													5
N4W6															
N4W7		1													2
N5W3		2		2					2			2			12
N5W4		1							3						6
N5W5									3						
N5W6															1
N5W7		1													9
N5W8		2		3											6
N6W3															
N6W4															
N6W5				1					4						1
N6W6									1						4
N6W7															4
N6W8									1						2
N6W9															1
N7W3		3													811
N7W9		1													

Appendix 2. Ceramic Types and Counts (Continued).

Surface Collection

Type	7101A	7102	7102A	7102B	7103	7104	7105	7201	7201A	8101	8104	8105	9101
UNIT													
S1E1													
S1E2													
S2E1													
S3E1													
S3E2		2		2						1	1		
S4E1													
S5E1													
S1W2				1									
S1W3			1	1									
S1W6													
S1W7													
S2W1													
S2W2													
S2W3		1		1									
S2W4													
S2W5													
S2W6													
S2W9													
S3W1				1									
S3W2													
S3W3													
S3W5													
S4W1													
S4W2													
S4W3													
S4W4										2			
S4W5													
S4W9													
N1W1													
N1W3													
N1W4													
N1W5													
N1W6		3	1	6						3	1		
N1W8													
N2W2													
N3W2													
N3W3													
N3W5											2		
N3W7				3									
N3W9													
N4W2													
N4W3													
N4W4													
N4W5													
N4W6													
N4W7													
N5W3		4											
N5W4													
N5W5													
N5W6													
N5W7													
N5W8													
N6W3													
N6W4													
N6W5		1											
N6W6													
N6W7													
N6W8		1											
N6W9													
N7W3													
N7W9													

Appendix 2. Ceramic Types and Counts (Continued).

Surface Collection

Type / UNIT	1101	1101B	1102	1103	1105	1105A	1106	1109	1109A	1110A	1201	1202	2101	2102	2103
N9W1	10			1						3					
N9W2	1														
N9W3	2								5	9					
N9W4	9					5		1	2	19					
N9W5	10									14			1		1
N9W6	1					8		4		7				4	6
N9W7										2					
N9W8	1		1							1					
N9W9	1							1		1					
N10W1	22	1	1		3		1			17					
N10W2	2									1					
N10W3	5							3	4	3	1				
N10W4	1				6	1			8	31					7
N10W5	5									2					
N10W6	1								2						
N11W1	1								1	5					
N11W2	6		1						4	9					
N11W3	4								8						
N11W4	3								3	7					2
N11W5									1	2		1			1
N11W6	9									3					3
N12W5															
N12W6						3			2	5					
N12W7															
N13W4															
N13W5					1					1					
N13W6															
N13W8															
N14W4															
N14W5										1					
N14W6															
N14W7	2								1						
N15W6								1							
N10E1	17		1		1				1	9					
N10E2	1				2								1		
N11E1					1										
N11E3															
N12E1													1		
N12E2	10				6	1							15		1
N12E3	16				2								11		
N12E4					3	1			6				6		4
N12E5	3				1				2						4
N12E6	1				2					4			4		
N13E3	2												3		
N13E4	1								1				2		
N13E5	2				1										
N13E6	6				2					1			4		
N13E7	2				1	1							1		
N14E1	2				1										2
N14E2													7		
N14E3	7				2				6				2		2
N14E4	2												1		
N14E6	16				19	3							12		5
N14E7	13				3	1							19		7
N14E9	11				5	4			3				9		4

Appendix 2. Ceramic Types and Counts (Continued).

Surface Collection

Type	2107	3101	3102	3102A	3103	3104	3105	4101	4102	4103	4104	4105	4109	4110	4111
UNIT															
N9W1					9		1	6							
N9W2					1			4							
N9W3			6					9							
N9W4				1				17							
N9W5					1		1	6						2	
N9W6		1						6							
N9W7															
N9W8															
N9W9															
N10W1					6			4						5	
N10W2														1	
N10W3					5			20							
N10W4			2		1			29							
N10W5					2										
N10W6															
N11W1								3					1		
N11W2					2									2	
N11W3					1			4							
N11W4								4							
N11W5								3							
N11W6								2							
N12W5															
N12W6															
N12W7															
N13W4															
N13W5															
N13W6								1							
N13W8															
N14W4															
N14W5															
N14W6	3							1							
N14W7															
N15W6															
N10E1					1			11	1					1	1
N10E2								3							
N11E1															
N11E3															
N12E1		1													
N12E2		1													
N12E3								3							
N12E4								10							
N12E5								2							
N12E6															
N13E3								1						1	
N13E4															
N13E5															
N13E6								5							
N13E7								3							
N14E1								3							
N14E2															
N14E3								3							
N14E4								2							
N14E6								3							
N14E7								4					3		
N14E9					3			2						1	

Appendix 2. Ceramic Types and Counts (Continued).

Surface Collection

Type UNIT	4201	5101	5102	5103	5105	5106	5107	5108	6101	6102	6103	6104	6105	6110	7101
N9W1				7					7						47
N9W2		6							7						16
N9W3		2		9					14						60
N9W4		1		1	1	4			9						38
N9W5		6		4	4	1			4		1				43
N9W6				4			3		31						30
N9W7		1													5
N9W8				2											16
N9W9		1							1						3
N10W1		4		2					19						83
N10W2														1	12
N10W3		4		11					24						41
N10W4		10		7					35						64
N10W5									1						12
N10W6									2						17
N11W1				1					4						22
N11W2				1					4						45
N11W3									4						22
N11W4		1							2						17
N11W5				1					3						29
N11W6		2		2					8						23
N12W5															3
N12W6									3						2
N12W7		1													
N13W4									3						
N13W5															3
N13W6															
N13W8									1						3
N14W4															
N14W5															1
N14W6															1
N14W7								1	9						35
N15W6									3						
N10E1		11		3	4		6		8	5					39
N10E2							1		1						1
N11E1															
N11E3															2
N12E1		2													2
N12E2									2						8
N12E3									6						18
N12E4									3						32
N12E5	1								2						15
N12E6				1					1						23
N13E3															2
N13E4															1
N13E5															3
N13E6							1		3						23
N13E7									4						1
N14E1		2							2						
N14E2															2
N14E3									3						9
N14E4															
N14E6				1				2	7						20
N14E7	1														
N14E9						4			6						32

Appendix 2. Ceramic Types and Counts (Continued).

Surface Collection

Type UNIT	7101A	7102	7102A	7102B	7103	7104	7105	7201	7201A	8101	8104	8105	9101
N9W1				1	1			2			1		
N9W2											1		
N9W3													
N9W4				2				1		1			
N9W5		1		5				3			2		
N9W6				5									
N9W7													
N9W8				1	2	1							
N9W9													
N10W1		4			2	1					6		
N10W2				1							1		
N10W3	7	7											
N10W4	5	2		8									
N10W5													
N10W6		3											
N11W1							1				4		
N11W2		2	2								3	1	
N11W3													
N11W4		3											
N11W5				5							3		
N11W6													
N12W5													
N12W6				1									
N12W7													
N13W4													
N13W5													
N13W6													
N13W8													
N14W4													
N14W5													
N14W6													
N14W7		1											
N15W6													
N10E1	4	2									2		
N10E2		1		2									
N11E1													
N11E3													
N12E1													
N12E2		3											
N12E3													
N12E4													
N12E5													
N12E6										3			
N13E3													
N13E4		1											
N13E5													
N13E6										1			
N13E7		2											
N14E1													
N14E2													
N14E3		3								1			
N14E4													
N14E6		3								1			
N14E7													
N14E9		5								1			

Appendix 3a. Obsidian from Test Unit Excavations

UNIT	ID #	LEVEL	CAPA	SOURCE	BLADES			FLAKE	BIPOLAR	QUANTITY
					PROXIMAL	MEDIAL	DISTAL			
1	43	60-70	II	UNK				2		2
1	43	60-70	II	GV*				1		1
1	790	70-80	III	GV				2		2
1	B 4	20-30	N/A	ZAR		1	1			2
1	B 20	30-40	N/A	GV					1	1
1	B 20	30-40	N/A	ZAR		1				1
2	52	59-69	II	GV				1		1
2	81	79-89	N/A	GV*					1	1
2	81	79-89	N/A	GV				2		2
2	85	39-49	N/A	GV				1		1
2	67	69-79	II	GV				2		2
2	67	69-79	II	ZAR				2		2
2	236	40-50	N/A	GV				1		1
3	127	120-130	IV	ZAR	1					1
3	127	120-130	IV	ZAR		5				5
3	127	120-130	IV	ZAR			1			1
3	127	120-130	IV	ZAR				1		1
3	127	120-130	IV	GV				4		4
3	102	2	I	ZAR		1				1
3	117	100-110	III	GV				2		2
3	126	110-120	III-IV	ZAR				2		2
3	126	110-120	III-IV	ZAR	1					1
3	147	160-180	IV	GV				1		1
3	147	160-180	IV	ZAR	1					1
3	114	90-100	II	GV				1		1
3	114	90-100	II	ZAR	1					1
3	114	90-100	II	ZAR			1			1
3	135	130-140	IV	ZAR				5	1	6
3	135	130-140	IV	ZAR		1				1
3	135	130-140	IV	GV				1		1
3	158	160-170	IV	GV				2		2
3	140	140-150	IV	ZAR		1				1
4	235	50-60	N/A	GV					1	1
4	237	100-110	N/A	ZAR				1		1
7	295	60-70	II	ZAR		1				1
				Totals	**4**	**11**	**3**	**34**	**4**	**56**

Appendix 3b. Obsidian from Throne Excavations.

UNIT		CAT #	LEVEL	CAPA	SOURCE	BLADES			FLAKE	BIPOLAR	QUANTITY
N	W					PROXIMAL	MEDIAL	DISTAL			
2	2	472	5	II	GV				1		1
3	1	407	8	IV	GV				1		1
3	2	128	4	II	GV*					1	1
3	3	461	5	II	ZAR				3		3
3	3	459	4	I	ZAR				1		1
	1	225	9	III	GV					1	1
4	1	237	13	V	GV				1		1
4	1	222	8	III	GV				1		1
4	2	249	7	IV	GV				2		2
4	2	242	5	I	GV						1
4	2	250	7	IV	UCA*				1		1
4	2	240	4	I	GV					1	1
4	3	202	21-30	I	GV				2		2
4	3	206	40-50	II	ZAR		1				1
4	3	204	30-40	I	GV				1		1
5	1	184	8	III	GV				2		2
5	1	178	7	II	ZAR	1					1
5	1	174	6	I	GV				1		1
5	1	168	4	I	ZAR	1					1
5	1	168	4	I	GV		2				2
5	2	156	60-70	II	GV				1		1
6	3	105	6	I	GV				1		1
6	3	105	5	I	ZAR		1				1
7	1	75	60-70	I	GV				1		1
7	2	54	50-60	I	GV				1		1
7	3	88	110-120	III	GV				1		1
8	1	20	90-100	II	PAC		1				1
8	1	20	90-100	II	GV		1				1
8	2	339	100-110	II	GV				2		2
8	2	309	80-90	I-A	GV					1	1
8	2	650	190-200	N/A	GV				1		1
8	2	306	60-70	I	GV				2		2
8	2	629	170-180	N/A	GV		1				1
8	2	376	150-160	V	GV				1		1
8	3	9	70-80	I	GV				1		1
8	3	28	100-110	II	GV					1	1

Appendix 3b. Obsidian from Throne Excavations (Continued).

UNIT		CAT #	LEVEL	CAPA	SOURCE	BLADES			FLAKE	BIPOLAR	QUANTITIY
N	W					PROXIMAL	MEDIAL	DISTAL			
9	1	651	210-220	INTRU	GV	1					1
9	1	303	70-80	I	ZAR				1		1
9	1	318	90-100	I-A	ZAR		2				2
9	1	318	90-100	I-A	GV				1		1
9	2	606	150-160	V	GV*				1		1
9	2	271	90-100	II	GV?				1		1
10	3	539	110-120	N/A	GV		1				
10	3	539	110-120	N/A	UNK				N/A		1
N	**E**										
9	1	324	150-160	II-BS	ZAR		1				1
9	1	307	150-160	BAJO II	GV				1		1
9	1	195	110-120	BAJO II	GV				1		1
					Totals	**3**	**11**	**0**	**36**	**5**	**55**

Appendix 3c. Obsidian from Offerings I and II

OFFERING I	CAT #	LEVEL	CAPA	SOURCE	BLADES			FLAKE	BIPOLAR	QUANTITY
					PROXIMAL	MEDIAL	DISTAL			
	339	100-110	II	GV				2		2
	309	80-90	I-A	GV					1	1
	28	100-110	II	GV					1	1
	650	190-200	N/A	GV				1		1
	306	60-70	I	GV				2		2
	629	170-180	N/A	GV		1				1
	606	150-160	V	GV				1		1
	271	90-100	II	GV				1		1
	376	150-160	V	GV				1		1
				Totals	**0**	**1**	**0**	**8**	**2**	**11**
Offering II										
	651	210-220	INTRU	GV	1					1
	324	150-160	II-BS	ZAR		1				1
	307	150-160	BAJO II	GV				1		1
	195	110-120	BAJO II	GV				1		1
				Totals	**1**	**1**	**0**	**2**	**0**	**4**

Appendix 4a. Lithics from Surface Collection.

UNIT	LENGTH	WIDTH	HEIGHT	DESCRIPTION
N1 W4	9.25	8.5	7	Large base/foot of metate?
N1 W6	11	7	3.75	Mano end fragment
N4 W3	9.5	8.25	6	Mano fragment
N4 W4	7.5	5.5	4.5	Metate fragment
N4 W4	5.5	5.5	4	Metate fragment with base/foot
N4 W4	8.5	10	6	Metate fragment
N4 W4	13.5	10	11.75	Metate fragment , multiple ground planes
N6 W9	12	11	8	Basalt chunk, rounded on edge
N7 W3	8.5	8	5.5	Metate edge fragment
N7 W5	10.5	6.5	7	Basalt chunk, rounded on edge
N9 W1	5	3.5	3.25	Fine stone, ground on both sides
N9 W3	6.75	2.75	1.5	Mano fragment
N9 W3	4.5	4	3.25	Basalt fragment
N9 W3	5	2.5	2	Basalt fragment
N9 W3	4	2	1.5	Basalt fragment
N9 W3	3	2.75	3.5	Basalt fragment, one side ground
N9 W4	5	4	3	Possible metate fragment
N9 W4	5	4	2.25	Basalt fragment
N9 W4	6	3.5	2.5	Possible mano fragment
N9 W5	55	5	2	Mano fragment
N9 W5	6	5	5.5	Mano fragment
N9 W6	4	3	3.75	Basalt chunk, one side ground
N10 W 2	6.5	4	5	Basalt fragment
N10 W 2	4	3	3	River cobble, polished flst on two sides
N10 W1	13.25	8.25	6.25	Metate edge fragment
N10 W3	6.75	6.5	4.5	Metate fragment, 3 overlapping holes in work surface
N10 W3	2.25	2	2	Basalt fragment
N10 W3	3.5	3	3	Basalt fragment
N10 W4	6	4.5	4	Metate fragment
N10 W4	6	5	3	Metate fragment
N10 W4	3.75	5.25	2.25	Basalt fragment
N10 W4	6	3.5	2.25	Basalt fragment
N10 W4	4.5	3	2	Basalt fragment
N10 W4	6	4.75	4	Metate fragment?
N10 W5	7.5	6.5	4	Mano fragment
N10 W5	6.75	6	3	Metate fragment?
N10 W5	4.75	4	4	Metate fragment?
N10 W5	6.75	6	3.25	Metate fragment?
N10 W5				Burned clay
N10 W9	4.25	3.25	2.5	Polishing stone, basalt
N10 W9	5.5	3.5	4	Basalt chunk
N11 W1	12	11	9.5	Basalt chunk
N11 W2	7.5	5	2.75	Metate fragment?
N11 W2				Burned clay
N11 W4	11.5	5	5.5	Basalt fragment, curved edge
N11 W4	8.5	6.5	5.5	Fine-grained metate fragment
N11 W6	3.75	3.5	3	Basalt fragment
N12 W1	17.5	15	9	Basalt chunk, multiple grooves ground at angles

Appendix 4a. Lithics from Surface Collection (Continued).

N12 W5	8	6.5	7.75	Basalt fragment
N13 W1	9	9	9	Metate fragment with base/foot
N13 W3	10	7.5	5.25	Metate edge fragment
N14 W6	11	12	7	Basalt chunk
N14 W7	8.25	5.75	5	Metate fragment
N14 W7	15	8	5.5	Metate fragment, groove ground into non-work surface
S1 W1	6.5	5	4	Metate fragment
S1 W1				Burned clay pieces
S1 W1	5.25	3.25	3.5	Basalt fragment
S1 W2	12	10	6.5	Metate fragment?
S1 W3	10	9.25	3	Wedge-shaped piece, worn to point
S1 W3	9.5	8	4.25	Wedge-shaped piece, worn to point
S2 E1	9	10	5.75	Metate fragment
S2 E2	11.5	5.5	4.5	Metate fragment
S2 E2	7.5	7.5	4.25	Rectangular metate edge fragment
S2 W0	11.5	9	5	Metate fragment
S2 W0	13.5	11	7	Mano end fragment
S2 W0	8	5	4.25	Mano fragment
S2 W1	10	65	5.25	Metate fragment? Both lateral sides ground
S2 W1	8	8	9	Metate fragment with base/foot
S2 W1	7	4.75	3.75	Mortar, polishing stone, worn on multiple edges
S2 W1	6.5	4.5	6	indeterminate fragment
S2 W1	10	6.75	6.75	Possible metate fragment
S2 W1	18.5	17.75	4	Metate edge fragment
S2 W11	8	8	7	Possible mano fragment, wedge-shaped, convex wear
S2 W2	22	20.5	4.5	2 pieces of same metate, edge pieces
S3 E2	9.5	7.5	3	Metate fragment, edge
S3 E2	7.5	3.5	3.5	Rounded fragment of fine-grained stone
S3 E2				Burnt clay
S3 W1	8	8	4	indeterminate form
S3 W1	8.75	7	3.25	Metate fragment?
S3 W1	6.5	7.25	5.25	Circular stone, one side flattened from grinding motion
S3 W2	7	5.5	4	Mano fragment
S3 W4	16.5	14.75	5	Metate edge fragment
S4 E1	18	6.5	6	Sandstone chunk, possibly worked
S4 W0	6	5	3	Basalt fragment
S4 W0	7.25	5	5.75	Metate fragment?
S4 W0	7.5	5	5.75	Metate fragment
S4 W0	9.75	10	5.75	Metate fragment
S4 W0	9.75	7	4.75	Donut shaped fragment (see Coe & Diehl 1980)
S4 W1	6.5	5	4.75	Possible metate fragment
S4 W1	4	4	4.25	Rectangular polishing stone, worn on 5 surfaces
S4 W1	7	4	6	Wedge-shaped piece, worn to point (see photos)
S4 W2	6	5	4	Metate fragment?
S4 W2	6.5	4	3.5	Metate fragment?
S4 W2	14	11	4	Metate edge fragment
S4 W2				Chunk of burnt clay
S4 W4	5.5	5	1.75	Celt fragment, bit end

Appendix 4b. Lithics from River Cut Collection.

UNIT	LENGTH	WIDTH	HEIGHT	DESCRIPTION
30	12.5	10	3.5	Metate edge fragment
	13	7	6	Metate edge fragment, fine grained stone
	18	9.5	3.5	Metate edge fragment
	7.5	5.75	5	Metate edge fragment
	7	5	2.75	Metate edge fragment
29	7.5	3	1.75	Polishing stone
	7	6	4	Grinding stone, pestle or mano?
	7	5	4.25	Metate fragment
35	7	5.5	3.5	Metate fragment
	6	4	3	Metate fragment
38	12.5	10	4.5	Metate edge fragment
	12	11.5	4	Metate edge fragment
	8.5	7.5	4.5	Mano fragment
	16	12.5	11	Metate fragment, with large foot/base
	6.75	5	3.75	Mano fragment, dogboned
	8	6	4	Metate Fragment
14	14	9	5	Mano end fragment
	9.25	7.5	0.75	Possible stone bowl
				Burned clay, stick impression on back
39	12.5	9	5.25	Metate edge fragment with broken base/foot
	10	7	2.25	Possible stone bowl
33	15	11	12	Metate fragment, with large foot/base
31	11.5	8	10	Metate fragment, with large foot/base
	7.25	5	5.5	Mano end fragment
55				Burned clay, stick impression on back
	11	6.5	4.5	Mano end fragment
37	8	7	6.5	Metate fragment
	5	4.5	3	Metate fragment
	12	10.25	2.75	Metate fragment
28	7	7	3.75	Metate fragment
				Burned clay, stick impression on back
46	8	6.5	5.5	Metate fragment with base/foot
36	9.5	9	4	Metate edge fragment
	20	14	3.5	Metate edge fragment

Appendix 4c. Unprovenienced Lithics.

		LENGTH	WIDTH	HEIGHT	DESCRIPTION
Field 1	NE Complex				
		11	6	7	Metate, ground/polished on opposing lateral sides
Field 9	Throne Area				
		23.5	7	5.5	Semi-circular piece, ground on one lateral side
Field 7	Corte				
		6	5.5	4.25	Polishing stone, ground &highly polished on multiple facets
		4.75	2	2.75	Polishing stone, ground/polished flat on one side
		4	3.5	2.75	Polishing stone
		15	9	3.5	Worked & ground on one side

Appendix 5a. Soil Survey I Element Data Table

These data represent milligrams of each element per kilogram of soil for each sample assay.

Sample	Al	Ba	Ca	Co	Fe	Hg	K
SSI 1A	46.27899	6.95842	80.31690		22.38050		8.19557
SSI 1B	41.98015	7.48179	79.19162		20.66994		12.14355
SSI 1C	50.50095	12.39059	190.63801		33.67690		4.15246
SSI 1D	38.88954	7.46449	89.64925		26.80758		2.37706
SSI 1E	36.25626	5.37691	38.26033		16.52622		18.16273
SSI 1F	36.30344	3.67620	40.93276		15.78894		6.26875
SSI 1G	23.57090	3.54834	61.03130		11.98712		4.09745
SSI 1H	23.84102	3.39814	63.05538		13.85461		2.53591
SSI 1J	25.87208	1.92622	28.39960		10.44974		7.84405
SSI 2B	37.96359	3.81524	47.31406		20.32670		2.77057
SSI 2D	45.57285	13.61250	162.66245		31.90691		30.92444
SSI 2F	29.37825	5.32823	68.35914		17.34797		4.42239
SSI 2H	22.38881	3.03744	39.97624		11.82101		11.72565
SSI 3A	30.60537	4.50840	65.20623		13.58852		20.43844
SSI 3B	36.55244	6.05550	69.06253		21.13737		28.60981
SSI 3C	42.99596	10.38535	148.85179		30.29521		4.21676
SSI 3D	45.47861	11.74074	142.76188		26.49229		22.99213
SSI 3E	41.45586	8.94676	117.00710		29.00281		5.96915
SSI 3F	25.54357	5.51269	76.79116		11.92946		4.14700
SSI 3G	24.55265	2.26187	86.81113		19.57455		45.93559
SSI 3H	23.82427	4.67430	56.41112		13.40603		10.26780
SSI 3J	18.64879	2.28767	22.88594		10.95669		5.47490
SSI 4B	27.28843	4.57540	59.09893		15.05428		13.67333
SSI 4D	39.05136	9.31994	161.86211		25.60099		3.26552
SSI 4F	38.02093	6.79810	71.28911		26.31700		10.48852
SSI 4H	26.31549	4.85090	65.86992		18.27854		3.45979
SSI 5A	29.40744	3.86730	69.74373		14.55514		9.83500
SSI 5B	23.00083	2.00162	31.44575		11.15362		1.55362
SSI 5C	48.01753	7.50455	147.84943		33.46577		21.44720
SSI 5D	35.64687	6.56198	116.86411		22.49932		2.25013
SSI 5E	34.94691	5.99784	95.94223		19.19654		2.75093
SSI 5F	31.26345	7.23284	102.98017		16.12889		2.19920
SSI 5G	21.00091	5.76925	83.20275		12.95991		23.36500
SSI 5H	23.74582	4.89426	58.11349		12.84984		15.26955
SSI 5J	26.46756	3.02666	43.55273		13.61441		3.19322
SSI 6B	32.41210	5.12423	74.19866		19.06522		9.93412
SSI 6D	38.08037	7.51686	107.35314		27.52899		25.15929
SSI 6F	26.43410	4.94633	85.64640		19.13030		18.50885
SSI 6H	26.57819	4.55360	44.42122		15.45776		1.92026
SSI 7A	38.71656	4.45477	63.82657		25.79616		3.62476
SSI 7B	34.50775	5.00667	69.76892		18.47548		3.38539
SSI 7C	43.12024	6.13253	82.91977		26.68925		3.09841
SSI 7D	37.79820	6.08475	73.84114		18.56893		3.44318
SSI 7E	38.39280	5.19201	61.76023		21.52307		3.17966

Appendix 5a. Soil Survey I Element Data Table (Continued)

Sample	Al	Ba	Ca	Co	Fe	Hg	K
SSI 7F	19.28451	3.47367	65.62409		9.67938		19.62676
SSI 7G	24.35553	3.88660	67.77998		14.70312		3.60264
SSI 7H	29.38108	2.13991	22.47523		14.61452		2.25540
SSI 7J	23.93548	2.92943	37.18708		10.00183		2.96737
SSI 8B	40.84524	7.32562	124.69099		25.02605		4.32205
SSI 8D	36.29955	4.29508	44.79480		19.79197		4.56364
SSI 8F	23.98740	4.70926	78.36334		14.43819		10.75810
SSI 8H	22.73541	2.42860	40.55260		11.07280		1.75262
SSI 9A	48.28687	7.79871	109.87587		30.31307		2.96638
SSI 9B	33.21681	7.81350	131.28316		24.93407		2.69492
SSI 9C	46.88053	7.44587	107.47917		33.34297		4.66775
SSI 9D	36.71354	6.86329	114.88820		25.44579		2.51741
SSI 9E	37.00562	4.86397	79.91177		21.01711		3.32089
SSI 9F	35.48067	5.48527	86.96600		22.79831		2.58809
SSI 9G	40.13195	4.51003	59.79580		22.29244		3.51998
SSI 9H	35.22436	2.89283	51.81914		20.35580		3.76397
SSI 9I	33.19483	4.41314	53.76274		17.12185		1.74132
SSI 10B	39.76005	5.75203	75.19808		15.91002		2.64938
SSI 10D	31.30684	5.90148	72.21900		17.70848		26.73321
SSI 10F	41.01361	5.41208	75.12513		20.22488		2.32573
SSI 10H	44.01563	2.94819	36.53868		18.84199		1.87419
SSI 11A	41.91016	5.74460	63.56736		23.02402		40.51894
SSI 11B	41.03852	4.99151	61.02886		19.32572		2.49349
SSI 11C	27.10358	5.47144	66.40843		13.91861		8.81287
SSI 11D	42.31594	7.18824	103.23333		22.95194		3.00512
SSI 11E	49.72697	7.19515	100.77452		29.87320		4.22010
SSI 11F	52.79392	6.20168	75.98833		32.81772		3.21695
SSI 11G	46.92884	4.97077	58.98785		18.48163		5.39693
SSI 11H	53.77295	6.04945	66.10473		26.63517		2.92788
SSI 11J	38.95252	7.36914	113.86382		30.33881		3.25554
SSI 12B	28.78177	4.20423	46.84328		12.18055		13.48206
SSI 12D	40.41696	7.59787	105.50368		22.26292		3.01001
SSI 12F	37.46622	3.92277	51.88425		19.47060		3.98989
SSI 12H	29.36070	5.57691	100.53435		15.15105		4.39078
SSI 13A	32.11181	3.55728	42.70594		15.47904		1.75730
SSI 13B	41.12798	4.95859	61.35549		21.59492		2.88532
SSI 13C	51.05868	6.70466	96.40014		26.29946		9.45526
SSI 13D	41.63357	7.00470	70.89775		25.53645		14.20075
SSI 13E	32.67789	4.21100	46.77374		17.69021		5.59540
SSI 13F	34.85477	3.54756	45.34793		16.73970		3.64007
SSI 13G	31.54506	5.47436	71.49616		17.52384		7.61948
SSI 13H	46.24418	6.54249	86.00217		23.74616		2.57200
SSI 13J	40.63182	3.66657	51.54723		19.36370		4.46675

Appendix 5a. Soil Survey I Element Data Table (Continued)

Sample	Mg	Mn	Na	Ni	P	Sr	Ti	Zn
SSI 1A	12.50138	3.13190	4.55013	0.17105	0.89937			
SSI 1B	7.92235	1.46966	4.53045	0.22994	0.28147			
SSI 1C	16.17259	7.06808	7.52738	0.65225	0.29047		0.11871	
SSI 1D	9.94876	3.49371	4.83734	0.34273	0.57626			
SSI 1E	4.64726	3.98862	4.59406	0.16861		0.47843		
SSI 1F	5.55904	4.72129	4.43341	0.07512	1.73273	0.43115		
SSI 1G	8.45147	0.44520	4.63607	0.04892				
SSI 1H	10.91090	1.71610	8.72399	0.05855	1.68265			
SSI 1J	6.04280	1.27278	4.55160	0.01386	1.50879	0.20928		
SSI 2B	12.02584	1.33307	4.78843	0.10733	2.83300	0.48028		
SSI 2D	19.13455	3.46910	5.39400	0.57410	0.95863		0.12430	
SSI 2F	18.95995	2.22050	5.01432	0.13553	1.56901			
SSI 2H	2.93107	3.27790	4.41950	0.05870	1.11019	0.40296		
SSI 3A	12.04422	0.21705	4.67051	0.06893	0.46215			
SSI 3B	7.93250	2.44644	4.69057	0.13353	1.63070			
SSI 3C	20.93322	1.92096	5.20553	0.38392	4.04519		0.07307	
SSI 3D	14.19106	2.63197	4.87003	0.39292	1.11939		0.02863	
SSI 3E	14.40913	3.90609	6.54347	0.34894	1.59783		0.13734	
SSI 3F	12.22339	2.06659	4.73096	0.12290				
SSI 3G	7.31907	3.96919	9.45307	0.13308	0.71177		0.01756	
SSI 3H	10.67512	2.66696	3.90639	0.13923	2.28233			
SSI 3J	4.43087	7.89149	3.64859	0.09847	1.15354	0.26960		
SSI 4B	7.86124	0.25334	4.61151	0.11341	0.94358			
SSI 4D	16.71645		5.36919	0.32153	0.72498		0.02629	
SSI 4F	9.52576	4.44187	4.74547	0.18166	1.94217		0.04087	
SSI 4H	7.32142	4.00114	4.62722	0.14426	1.26646			
SSI 5A	7.98315	4.92452	4.71848	0.19701	0.67011			
SSI 5B	2.06359	0.81846	4.71653	0.04415	0.96791	0.29938		
SSI 5C	19.07835	4.36892	4.62622	0.36197	4.91511		0.25167	
SSI 5D	9.84883	1.11543	4.83171	0.20502	1.14731		0.00199	
SSI 5E	12.38191	1.98908	4.96656	0.22143	1.88595			
SSI 5F	9.01564	2.57824	5.24130	0.24744	2.18279			
SSI 5G	6.22475	5.62873	4.78824	0.15568				
SSI 5H	7.32216	2.65171	4.51235	0.11345	0.63299			
SSI 5J	5.58770	4.25781	4.86562	0.06816	0.95496	0.40045		
SSI 6B	14.17830	3.25241	4.94382	0.23018	1.63160			
SSI 6D	9.47349	1.77062	4.48562	0.17138	1.60697		0.07669	
SSI 6F	11.10244	4.96171	4.84446	0.20546	1.48186			
SSI 6H	6.33454	4.46230	4.54331	0.11739	0.58325	0.44256		
SSI 7A	8.11176	5.23658	4.43353	0.11233	3.32095	0.52683	0.04094	
SSI 7B	7.29830	0.43654	5.05301	0.19131	2.53190	0.63022		
SSI 7C	7.68638	3.15336	5.42393	0.21734	1.94649	0.76268	0.00190	

Appendix 5a. Soil Survey I Element Data Table (Continued)

Sample	Mg	Mn	Na	Ni	P	Sr	Ti	Zn
SSI 7D	7.25681	1.91960	4.84821	0.13850	2.24812	0.73666		
SSI 7E	6.00596	5.50466	4.06161	0.12124	1.19061	0.66041		
SSI 7F	9.77971		4.60457	0.03933	0.85342	0.55584		
SSI 7G	8.89097	1.28283	4.28082	0.04528	1.20066	0.57456		
SSI 7H	3.38741	0.25734	4.17245		1.84473	0.25807		
SSI 7J	5.20094	0.18149	4.42564	0.01542	0.86010	0.38414		
SSI 8B	14.66183	1.76190	6.67129	0.24290	1.51484	1.05630		
SSI 8D	6.38305	2.05892	4.29675	0.07271	1.32953	0.53264		
SSI 8F	16.01282		4.11078	0.06682	4.09200	0.78395		
SSI 8H	6.66603	3.06273	4.96995		0.82366	0.43068		
SSI 9A	19.53867	2.77641	4.44286	0.26459	1.68681	1.15949	0.07931	
SSI 9B	17.26322	0.45858	4.91940	0.17355	1.48568	1.43542	0.02015	
SSI 9C	14.48849	2.23457	4.29938	0.23180	2.16798	1.26345	0.07975	
SSI 9D	15.16290	2.33328	5.50618	0.20226	1.11460	1.33164	0.01238	
SSI 9E	12.47587	0.21876	4.47805	0.08807	1.32978	1.06074		
SSI 9F	7.16142	1.39494	4.62318	0.09820	2.48020	1.21228		
SSI 9G	5.80396	5.30894	6.44953	0.07198	2.16827	0.89014		
SSI 9H	10.12885	2.08684	5.10528	0.00521	8.38305	0.71955		
SSI 9I	6.81432	0.29292	4.54103	0.07818	2.62470	0.84056		
SSI 10B	9.41873		4.59815	0.18933		1.19314		
SSI 10D	9.29524	0.53952	4.38060	0.14503	0.66031	1.17023		
SSI 10F	7.67065	2.50966	5.00664	0.10795	0.90841	1.27182		
SSI 10H	6.66441		4.30015	0.03217	4.00374	0.68846		
SSI 11A	13.07734	2.35807	4.95543	0.08738	3.99749	1.07209	0.13538	
SSI 11B	9.59452	1.94502	5.08239	0.10578	1.22848	1.07900		
SSI 11C	13.15654		5.57975	0.08724	0.77318	1.15881		
SSI 11D	13.44010	1.43958	4.43313	0.20156	1.44526	1.86566		
SSI 11E	13.63375	0.88503	5.85839	0.20593		1.80335	0.17888	
SSI 11F	11.48940	8.33162	4.60212	0.15120	3.42105	1.50401	0.02987	
SSI 11G	10.55139		4.72779	0.08295	5.84076	1.16785		
SSI 11H	7.84782	0.86796	4.55874	0.17502	2.22114	1.47863		
SSI 11J	14.55973	0.76175	4.83702	0.22831	0.97614	2.10256		
SSI 12B	8.36874	1.03738	4.39238	0.06797	0.59124	0.99496		
SSI 12D	8.85408	2.66463	4.68031	0.22745	0.37729	2.10175		
SSI 12F	6.62488	2.01478	6.05434	0.07443	1.86649	1.07264		
SSI 12H	16.47854		4.93746	0.10883	0.80671	2.05096		
SSI 13A	9.95398		4.13118	0.00767		0.94412		
SSI 13B	10.22171	0.44458	4.33061	0.11727	0.67825	1.32647		
SSI 13C	15.96660	0.35451	6.10800	0.17119	0.67676	1.95897	0.03536	
SSI 13D	9.32694	1.19856	4.80171	0.15206	1.08702	1.68669		
SSI 13E	6.43693	0.60768	4.61915	0.08671	1.31607	1.06683		
SSI 13F	6.22304	0.24829	5.90602	0.03214	0.32407	1.01095		
SSI 13G	5.80652	0.10139	4.19245	0.06402	0.69795	1.52187		
SSI 13H	12.37071	1.36251	4.53572	0.16398	0.59881	2.10708		
SSI 13J	6.40537	0.30435	5.54684	0.03577	1.06526	1.07851		

Appendix 5b. Soil Survey II Element Data

These data represent milligrams of each element per kilogram of soil for each sample assay.

Sample	Al	Ba	Ca	Co	Fe	Hg	K
SSII 1A	23.24016	4.69418	46.57284		15.42904	0.20536	19.73990
SSII 1C	12.10235	4.80681	77.78754		6.67439		1.90208
SSII 1E	25.72419	6.65073	87.67686		13.72481		2.60113
SSII 1G	18.91567	5.19524	77.18959		13.25205		2.43700
SSII 1J	12.89465	4.92794	73.25304		6.89125		1.27266
SSII 1L	11.13800	5.86913	89.85112		6.62198		7.61039
SSII 1N	11.69565	7.00292	110.50317		7.08051		2.07441
SSII 1Q	23.93019	10.13845	138.06851		22.78972		2.36286
SSII 1S	19.58770	10.66367	160.19095		14.33361		1.94556
SSII 3A	30.19855	4.96350	71.78878		14.91695		1.86697
SSII 3C	27.88376	5.10053	52.91916		12.43874		1.78582
SSII 3E	34.83821	3.94207	50.66491		16.40576		3.28401
SSII 3G	16.45423	3.52205	46.43253		8.85350		10.91104
SSII 3J	22.14046	3.78873	47.67450		12.89303		3.55624
SSII 3L	19.69308	5.06657	55.39376		10.56411		7.40841
SSII 3N	22.27757	6.83593	78.32361		10.61998		8.58587
SSII 3Q	31.12890	4.33410	41.22461		15.14150		3.55661
SSII 3S	33.05553	3.25266	21.55465		11.00712		14.74821
SSII 5A	28.02662	6.50486	135.35786		39.68184		20.84294
SSII 5C	17.60198	1.89965	49.34631		12.25393		4.70270
SSII 5E	22.92988	3.46680	40.88606		8.69443		18.59387
SSII 5G	22.08484	2.80688	39.88893		9.68399		8.99501
SSII 5J	16.13557	3.08691	53.84195		16.40705		8.87021
SSII 5L	18.84701	1.08855	44.08623		11.55277		40.01736
SSII 5N	26.96175	5.37836	56.37149		14.31613		11.42719
SSII 5Q	18.31729	3.30614	51.12114		8.89519		8.47659
SSII 5S	20.76771	5.30591	68.70477		18.98377		2.60037
SSII 7A	21.98177	6.47180	61.40696		10.87207		8.20665
SSII 7C	17.82974	3.50299	73.48505		9.32876		7.94643
SSII 7E	25.31375	4.56393	54.06594		14.44008		4.92487
SSII 7G	23.47814	3.75596	72.25705		10.32189		17.62495
SSII 7J	20.89692	3.33561	32.70418		7.29979		10.29784
SSII 7L	22.37287	5.34604	62.42732		10.05124		4.22397
SSII 7N	15.60065	3.12228	51.65699		7.38557		2.87022
SSII 7Q	23.81409	3.41911	43.80798		9.56719		2.16199
SSII 7S	23.14527	5.25630	75.82109		10.06222		11.34785
SSII 9A	21.55130	6.31054	48.67796		10.10354		11.02474
SSII 9C	31.15584	9.28311	114.09953		18.34232		3.85482
SSII 9E	15.78747	6.41897	83.16667		7.79612		9.83190
SSII 9G	26.27144	2.99145	68.89856		14.96520		4.08019
SSII 9J	27.50837	5.54924	56.32886		15.00229		2.05516
SSII 9L	36.15181	5.99477	55.06231		15.75887		1.63383
SSII 9N	24.02433	3.68983	35.59269		11.98102		2.12922
SSII 9Q	27.75007	4.74053	36.84969		9.49641		4.36556

Appendix 5b. Soil Survey II Element Data (Continued)

Sample	Al	Ba	Ca	Co	Fe	Hg	K
SSII 9S	32.86744	4.37475	41.57749		12.27106		2.04849
SSII 11A	22.90720	4.20756	54.56692	0.03392	14.01985		12.47777
SSII 11C	28.72449	10.30546	137.85107		16.14092		6.60066
SSII 11E	34.78994	9.50231	115.87231		20.60241		13.66579
SSII 11G	13.48654	2.84290	28.06479		6.45938		11.34457
SSII 11J	20.85667	12.71776	140.41682		11.87801		2.82510
SSII 11L	31.19496	7.15427	74.70099		19.71203		2.14082
SSII 11N	26.12739	4.72681	44.33518		9.41515		2.22795
SSII 11Q	13.46141	2.39844	25.75540		5.34202		4.34193
SSII 11S	17.74270	4.91299	57.48125		7.36729		5.56169
SSII 13A	31.92474	6.63063	64.87735		16.73566		2.66189
SSII 13C	17.72795	7.44269	77.20409		9.16428		11.21532
SSII 13E	27.18593	5.38354	60.59862		13.60601		6.62931
SSII 13G	13.24013	5.37661	79.40113		6.93379		2.69237
SSII 13J	19.79719	3.67232	44.66215		8.99054		5.09214
SSII 13L	30.81972	3.95582	44.27233		13.00703		2.87281
SSII 13N	26.54280	4.03018	33.07650		9.89249		20.04780
SSII 13Q	23.84785	5.31383	42.91315		9.60195		6.72396
SSII 13S	20.63005	4.19320	51.95877		9.13501		2.51174
SSII 15A	25.81060	7.08000	77.60839		12.92519		2.43454
SSII 15C	28.26027	6.40384	58.59120		13.79500		14.95959
SSII 15E	27.09750	6.16151	56.49126		13.07052		14.83003
SSII 15G	9.25924	2.79603	31.35615		3.67241		5.57755
SSII 15J	14.64790	1.50125	27.88342		4.99850		2.28572
SSII 15L	22.05333	1.22655	24.42004		9.11202		7.59321
SSII 15N	21.49266	2.36272	25.45861		6.72647		8.58160
SSII 15Q	21.36130	6.81629	52.37181		10.40031		14.59296
SSII 15S	22.72582	4.17442	47.03533		8.39248		2.32398
SSII 17A	29.54402	14.42696	142.48247		17.84157		16.88853
SSII 17C	46.17587	5.87956	55.56576		31.39293		7.32081
SSII 17E	13.07716	4.66005	45.65391		5.94435		5.80888
SSII 17G	14.74860	3.99644	63.06510		6.97155		14.71065
SSII 17J	16.38054	4.83358	52.94218		8.47893		3.45302
SSII 17L	29.79918	3.81636	29.97370		10.79394		3.09492
SSII 17N	26.25028	7.14613	62.25385		12.77489		4.40188
SSII 17Q	20.35909	7.77831	112.09620		13.55419		22.78151
SSII 17S	33.72990	12.23550	100.33209		20.27872		9.93641
SSII 19A	34.10389	8.34763	88.34686		19.39886		4.15590
SSII 19C	19.10221	7.39241	84.70408		10.19343		4.17967
SSII 19E	22.77808	8.34722	76.65032		12.04574		7.17308
SSII 19G	17.68661	6.74313	80.70968		12.07345		4.55014
SSII 19J	26.66192	8.10175	80.14446		13.71385		4.07402
SSII 19L	26.51206	6.65392	64.64434		14.10253		5.84372
SSII 19N	18.52905	7.65692	93.63385		9.68959		13.68621
SSII 19Q	16.35837	3.49284	39.91776		6.76714		4.17416
SSII 19S	28.64422	7.53141	81.39434		12.79878		2.17470

Appendix 5b. Soil Survey II Element Data (Continued)

Sample	Mg	Mn	Na	Ni	P	Sr	Ti	Zn
SSII 1A	5.94080		7.12466	0.05708	0.81814	0.49289		
SSII 1C	7.83858		3.93886	0.05745	0.00000	0.89761		
SSII 1E	12.50532	0.11614	4.12530	0.13965	0.00000	1.02176		
SSII 1G	14.37855	2.64631	4.30147	0.13416	0.05571	0.84404		
SSII 1J	3.60122		4.33675	0.12930	0.00000	0.87472		
SSII 1L	10.11860	0.26878	4.25141	0.15790	0.00000	0.98735		
SSII 1N	7.27566		4.37688	0.15128	0.00000	1.24165		
SSII 1Q	10.16111	1.48397	8.22638	0.32747	0.06688	1.51203		
SSII 1S	11.32135	0.96948	6.15083	0.31405	0.00000	1.81293		
SSII 3A	5.85415	6.54575	4.50193	0.14145	1.18641	0.88366		
SSII 3C	5.54831		3.80837	0.07491	0.00000	0.77125		
SSII 3E	20.75790	8.88189	6.00793	0.08923	18.48525	0.45081		
SSII 3G	11.42668		3.65663		0.00000	0.56807		
SSII 3J	4.48653	0.44936	7.13883	0.08209	0.87632	0.56682		
SSII 3L	8.94015	0.12290	7.12347	0.13307	0.20169	0.73992		
SSII 3N	14.80525	0.71150	4.26835	0.19134	0.00000	0.95305		
SSII 3Q	6.35397	2.59930	7.20153	0.16884	1.08168	0.54093		
SSII 3S	2.87313	4.34690	4.43038	0.12534	0.00000	0.33433		
SSII 5A	24.83634	1.05780	5.91421	0.39618	1.89441	1.56839	0.07689	
SSII 5C	13.54365	2.71882	4.99304		1.01662	0.49465		
SSII 5E	7.43889	0.88211	3.80156		0.02904	0.52113		
SSII 5G	18.84471	0.58424	3.81333	0.00795	0.00000	0.49190		
SSII 5J	7.65282	2.56775	4.82903	0.10724	0.08223	0.60448		
SSII 5L	21.63151	7.39435	11.31476	0.04300	1.17429	0.45162		
SSII 5N	9.51752	4.23400	4.32849	0.35706	0.00000	0.68846		
SSII 5Q	12.01952		5.88661	0.02863	0.00000	0.59352		
SSII 5S	11.30321		6.79090	0.07638	0.10254	0.85426		
SSII 7A	9.80273		3.93228	0.18534	0.00000	0.81039		
SSII 7C	26.27332	1.03062	4.52322	0.06201	0.73273	0.76209		
SSII 7E	17.11914	2.26560	4.18447	0.01027	1.92069	0.61267		
SSII 7G	16.53517	1.24379	3.91230	0.16008	0.00000	0.78083		
SSII 7J	11.81799		4.15219		0.00000	0.43586		
SSII 7L	14.58264		5.16614	0.14211	0.00000	0.74705		
SSII 7N	8.56783	2.26767	5.02240	0.09760	0.10245	0.59736		
SSII 7Q	7.33899	0.20411	5.88129	0.00693	0.00000	0.53255		
SSII 7S	27.84267	0.23448	3.93309	0.08623	0.44557	0.86152		
SSII 9A	6.19043	1.76047	3.81359	0.12811	0.00000	0.70165		
SSII 9C	16.28833	1.44573	4.66547	0.39510	0.00000	1.41874		
SSII 9E	11.26760		4.78912	0.06329	0.00000	1.04772		
SSII 9G	11.32880	1.97718	5.44563	0.26223	0.00000	0.72980		
SSII 9J	6.09511	2.53223	6.11065	0.16798	0.07209	0.84107		
SSII 9L	11.56398	7.91357	4.80605	0.24143	0.00000	0.79969		
SSII 9N	7.12860	1.09893	6.20812	0.12012	0.12626	0.53754		
SSII 9Q	8.29755	0.78056	4.11688	0.15907	0.00000	0.57851		
SSII 9S	6.86174	1.79787	4.26197	0.08994	0.00000	0.64366		
SSII 11A	8.36612	13.16303	6.47992	0.16203	2.65704	0.74223		

Appendix 5b. Soil Survey II Element Data (Continued)

Sample	Mg	Mn	Na	Ni	P	Sr	Ti	Zn
SSII 11C	13.79863	4.63227	4.26515	0.38303	0.00000	1.69912		
SSII 11E	12.69391	5.65337	3.90372	0.37439	0.00000	1.50349		
SSII 11G	4.34938		3.72176		0.00000	0.30732		
SSII 11J	14.95943	1.50736	4.73646	0.42529	0.00000	1.83705		
SSII 11L	15.02039	1.13149	4.63763	0.23751	0.00000	1.01478		
SSII 11N	13.23252	0.99571	4.04917	0.11395	0.00000	0.63504		
SSII 11Q	7.17851	0.29450	3.85803		0.00000	0.34917		
SSII 11S	8.96782	0.03859	3.97276	0.08330	0.00000	0.76413		
SSII 13A	11.04701	2.21044	4.24691	0.28818	0.00000	0.92232		
SSII 13C	9.26871		3.83450	0.10780	0.00000	0.96800		
SSII 13E	12.83939	2.68991	4.35296	0.20260	0.00000	0.82343		
SSII 13G	21.10619		4.55275	0.07956	0.00000	0.97407		
SSII 13J	9.18633	0.55840	3.73487	0.03315	0.00000	0.55605		
SSII 13L	10.11533	4.62005	4.49067	0.13149	0.35860	0.58979		
SSII 13N	7.67484	1.42440	3.87400	0.11860	0.00000	0.47074		
SSII 13Q	10.36484	0.67683	3.57248	0.18119	0.00000	0.60345		
SSII 13S	11.45346	0.06577	3.91647	0.11188	0.00000	0.69674		
SSII 15A	11.24402	2.74650	4.18645	0.26092	0.00000	0.99806		
SSII 15C	9.40031	2.97765	4.52698	0.20325	0.00000	0.83182		
SSII 15E	8.80524	2.85880	4.48471	0.19611	0.00000	0.78642		
SSII 15G	6.24754		3.99210		0.00000	0.35103		
SSII 15J	4.60446	0.06358	5.32525		0.14800	0.30136		
SSII 15L	9.90051	2.45407	3.61603		0.46547	0.29479		
SSII 15N	7.96415	1.39699	3.57295		0.14458	0.35622		
SSII 15Q	24.75066		5.15491	0.34101	0.00000	0.63964		
SSII 15S	12.82401	0.36028	4.36948	0.10052	0.00000	0.56220		
SSII 17A	19.21686	0.57979	4.31843	0.47539	0.00000	1.68518		
SSII 17C	7.52594	21.57744	5.81221	0.46813	8.67621	0.82290		
SSII 17E	8.79096	0.52883	3.96565		0.24065	0.55962		
SSII 17G	17.39991		3.67782	0.06436	0.11273	0.71765		
SSII 17J	6.39078	1.37548	4.39329	0.23218	0.00000	0.69505		
SSII 17L	9.69360	1.66575	3.90283	0.08845	0.00000	0.44529		
SSII 17N	13.89598	0.67130	3.87484	0.14402	0.00000	0.84542		
SSII 17Q	17.20497	1.72548	4.21926	0.28732	0.46280	1.30534		
SSII 17S	15.32871	2.44974	4.39997	0.59107	0.00000	1.30297		
SSII 19A	16.49630	5.11894	4.54971	0.43059	0.00000	1.07418		
SSII 19C	14.30032	1.47923	5.13309	0.26100	0.00000	0.98803		
SSII 19E	15.88226		4.14005	0.16693	0.00000	1.01473		
SSII 19G	17.83011	0.29588	4.29072	0.29592	0.77218	1.00007		
SSII 19J	11.17041	1.41285	4.03597	0.28926	0.00000	0.99260		
SSII 19L	14.21543	1.61654	3.79056	0.23184	0.00000	0.84965		
SSII 19N	16.32174		5.29675	0.17236	0.00000	1.08497		
SSII 19Q	7.78280	0.62555	3.69165	0.03740	0.27340	0.49358		
SSII 19S	14.69612	1.39623	4.40908	0.16584	0.00000	1.02097		

About the Author

Travis F. Doering graduated from Bryant University in Rhode Island with a Bachelor of Science Degree in Business Administration and went on to experience successful careers in the corporate world. He has traveled extensively throughout North, Central, and South America to study ancient and contemporary cultures. Pursuing his life-long interest in archaeology and three decades of involvement in Mesoamerican studies, Doering returned to the Florida State University in Tallahassee, Florida, where he earned a Master of Science Degree in Anthropology in 2002. In 2003, he entered the University of South Florida in Tampa to pursue a Ph.D. in Applied Anthropology, Archaeology Track.