

Contents

<i>List of Figures</i>	vii
<i>List of Tables</i>	xi
<i>Foreword</i>	
<i>Anthony P. Andrews</i>	xiii
<i>Acknowledgments</i>	xvii
CHAPTER 1. INTRODUCTION: THE LONG ROAD TO MAYA MARKETS	
<i>Scott R. Hutson and Bruce H. Dablin</i>	3
CHAPTER 2. THE MAP OF CHUNCHUCMIL	
<i>Scott R. Hutson and Aline Magnoni</i>	27
CHAPTER 3. ARCHITECTURAL GROUP TYPOLOGY AND EXCAVATION SAMPLING WITHIN CHUNCHUCMIL	
<i>Scott R. Hutson, Aline Magnoni, and Bruce H. Dablin</i>	51
CHAPTER 4. CHUNCHUCMIL CHRONOLOGY AND SITE DYNAMICS	
<i>Socorro Jiménez, Aline Magnoni, Eugenia Mansell, and Tara Bond-Freeman</i>	73
CHAPTER 5. CHUNCHUCMIL'S URBAN POPULATION	
<i>Scott R. Hutson, Aline Magnoni, Traci Ardren, Chelsea Blackmore, and Travis W. Stanton</i>	107

CHAPTER 6. ENVIRONMENTAL HETEROGENEITY IN THE CHUNCHUCMIL ECONOMIC REGION <i>David R. Hixson, Timothy Beach, Sheryl Luzzadder-Beach, and Bruce H. Dahlin</i>	139
CHAPTER 7. HYDROLOGY ON THE EDGE OF THE CHICXULUB CRATER: CHUNCHUCMIL AND UCÍ-CANSAHCAB GROUNDWATER RESOURCES <i>Sheryl Luzzadder-Beach and Timothy Beach</i>	157
CHAPTER 8. HINTERLAND SETTLEMENT PATTERNS WITHIN THE CHUNCHUCMIL ECONOMIC REGION <i>David R. Hixson and Daniel E. Mazeau</i>	169
CHAPTER 9. SOILS AND AGRICULTURAL CARRYING CAPACITY <i>Timothy Beach, Sheryl Luzzadder-Beach, Ryan V. Sweetwood, Patrice Farrell, Daniel E. Mazeau, and Richard E. Terry</i>	197
CHAPTER 10. PERISHABLE RESOURCES PRODUCED FOR EXCHANGE IN THE CHUNCHUCMIL ECONOMIC REGION <i>Bruce H. Dahlin, Traci Ardren, David R. Hixson, and Anthony P. Andrews</i>	221
CHAPTER 11. MARKETING WITHIN CHUNCHUCMIL <i>Scott R. Hutson, Richard E. Terry, and Bruce H. Dahlin</i>	241
CHAPTER 12. CONNECTIONS BEYOND CHUNCHUCMIL <i>Traci Ardren, Scott R. Hutson, David R. Hixson, and Justin Lowry</i>	273
CHAPTER 13. CONCLUSIONS <i>Scott R. Hutson</i>	299
<i>References</i>	315
<i>List of Contributors</i>	363
<i>Index</i>	367

Introduction

The Long Road to Maya Markets

SCOTT R. HUTSON AND BRUCE H. DAHLIN

The occupation to which [the Maya] had the greatest inclination was trade.
(Landa in Tozzer 1941:94; see also Roys 1943:51–53)

All but a small minority of the Maya, before or after the conquest, were simply
outside a market economy with little to sell and little need to buy.
(Farriss 1984:156; see also Restall 1997:185).

This book argues that market exchange was a significant aspect of the Classic Maya world. The essays that follow draw on broad-ranging, interdisciplinary datasets from the ancient Maya city of Chunchucmil to illuminate some of the thorny questions about ancient economies signaled by the tensions between the two quotations above (see also Hirth 2010; Hirth and Pillsbury 2013a; Masson and Freidel 2012; Shaw 2012). Were Classic Maya households mostly self-sufficient in the sense that each acquired the raw materials and produced the finished goods necessary for daily life? Or was exchange a critical factor in provisioning Maya society? If exchange *was* essential, what was the relative importance of the various forms that exchange can take, such as reciprocity, redistribution, and marketing? If markets were important, how often did they take place? What was their geographic reach? Who controlled and/or benefited from them? The significance of these questions cannot be underestimated. The ancient Maya spent many of their waking hours provisioning themselves, and human beings have devised a spectacular array of strategies for doing this, from farming to multicrafting to alienating their labor in capitalist economies. If

we do not know how the Maya approached production, we will not know, in a very basic sense, what most people were doing with so much of their time. Furthermore, if we do not know how goods moved from producer to consumer, we miss out on basic links between different segments of society as well as a knowledge of what segments remain unlinked (Hirth and Pillsbury 2013a:4; Shaw 2012:118). If we do not look closely at exchange, we miss out on a chance to learn about the power and decisions of a broad variety of actors.

One reason why we know so little about production and exchange among the ancient Maya is that they worked with many biodegradable materials. Preservation conditions have erased wood, textiles, hides, fuel, fruits, seeds, nuts, vegetables, spices, dyes, gourds, cordage, bags, bundles, baskets, and, often, bone—materials that formed the core of Maya lives and livelihoods (Dahlin et al. 2007; Foias 2002; King 2015:53). The two quotations at the beginning of this chapter highlight deep differences in scholarly opinion about the degree of commercialization in ancient Maya society. Usually when such different views coexist within a discipline, it is because gaps in knowledge are so fundamental that they prevent falsification of any stance whatsoever. In this case, the biggest gap comes from the archaeological invisibility of most traces of what the Maya spent so much of their time doing. The preservation issue points at the deeper epistemological question that lurks under the surface of scholarly disagreements: if poor preservation has erased the best data on ancient Maya lives, how can we study ancient economies? More specifically, how can we determine the degree of commercialization at a particular Maya site? In this book we approach the challenge of missing data by turning to a variety of other lines of evidence that, with the right questions and bridging arguments, can be made to speak to the issues.

Not long ago, general accounts of the Maya (e.g., Henderson 1981:152) saw commerce as an important component of Maya economies in the centuries immediately prior to contact with the Spanish—the Postclassic period—but not in the Classic period, from 250 to 900 C.E. Several well-known historical sources from the contact period underscore the prominence of long-distance exchange. For example, members of Christopher Columbus's fourth voyage to the New World met up with a Maya canoe full of trade goods off the coast of Honduras (Colón 1959:231). Also around the time of contact, a member of one of Yucatán's ruling families, the Cocom, escaped certain death because he was away on a coastal trading mission when the rest of his kin were ambushed and assassinated by members of the rival Xiu family (Roys 1962:48). Furthermore, Ralph Roys (1943:51) cited Spanish historical documents that speak of the existence of large markets near the coast in northeastern Yucatán and others in the interior. Ethnohistorical material for the Maya highlands suggests that a majority of households depended on marketplaces for everyday

needs (King 2015:38). The importance of trade indicated in these historical sources receives support from the archaeology of the Postclassic period, which has documented a rise in obsidian exchange, the appearance of bustling centers on coastal trade routes, and changes in ceramic production geared toward exports (Masson 2001; Masson and Chaya 2000; Masson and Peraza Lope 2014:26; McKillop 1996; Rathje 1975; Sabloff and Rathje 1975; West 2002).

In contrast, scholars have characterized the economy of the preceding Classic period as relatively uncommercialized. About 25 years ago, many archaeologists wrote about the exchange of prestige goods among nobles in the upper crust of Maya society, but few (Fry 1979, 1980) explored the exchange of non-prestige goods across the rest of Maya society (Shaw 2012). In her synthesis of Late Classic-period Maya economies, Rice (1987:77) detailed some of the problems in reconstructing non-elite exchange, including a lack of evidence for architecture that could be clearly identified as storehouses or marketplaces, a lacuna in the hieroglyphic record with regard to economic affairs, and little evidence that producers located their activities near areas where consumers might congregate. Some earlier work did in fact highlight the importance of long-distance exchange of non-prestige goods: William Rathje (1971) assigned it the chief role in the development of complex Maya societies. In his view, people in the southern lowlands developed temples, hieroglyphic writing, and astronomical knowledge in exchange for salt, obsidian, and grinding stones. Though some lines of data did not align with Rathje's argument (serviceable grinding stones, for example, were very often made with locally available stone), his early arguments still provide valuable insights (Freidel 2002; Freidel et al. 2002; Hutson et al. 2010:81; Masson 2002a:14). In any event, redistribution, as opposed to marketing, was thought to dominate exchange across the Maya area in the Classic period.

Nevertheless, markets have not been invisible in earlier writing about Classic-period Maya economies. For example, expanding on a very brief passage written by J. Eric S. Thompson (1966:22), David Freidel (1981) argued that when massive ceremonies and rituals drew rural settlers to religious centers, marketplaces most likely accompanied these events. To support this position, Freidel referred to the conjunction of markets and religious events in medieval Europe and historic and contemporary Guatemala. Though Freidel's argument did not refer to any particular archaeological site, other authors writing at about the same time as Freidel proposed that specific plazas at specific sites, such as Tikal (Jones 1991), Sayil (Wurtzburg 1991; cf. Terry et al. 2015), Cobá (Folan et al. 1983), and Seibal (Tourtellot 1988) served as marketplaces (figure 1.1).

For reasons discussed later in this chapter, those who argued that marketplaces played an important role in Maya economies faced an uphill battle. Everyone



FIGURE 1.1. Maps showing many locations mentioned in the text. Figures 1.2, 8.1, and 12.1 present other locations mentioned in the text.

agreed that some degree of economic exchange took place at various levels of society—interregional trade among nobles for exotic goods (Hammond 1972a), intraregional trade among the *hoi polloi* for utilitarian pottery (Rands and Bishop 1980), and redistribution between these two social strata—but few argued that commerce was central to subsistence. Yet neither of the positions from a quarter century ago—little commerce versus lots of commerce—could make headway because of a shortage of research specifically designed to tackle this question. As Patricia McAnany wrote in 1993, “we have only very rudimentary notions about the economic organization of the [Classic] Maya household and polity. This state of the art, in part, is due to the fact that we simply haven’t been aggressively asking questions or structuring focused programs of inquiry regarding the Classic Maya economic system.”

In the same year that McAnany published her call for research designs closely focused on economic systems, Bruce Dahlin (1941–2011) began working at the ruins of Chunchucmil. Dahlin’s project came to be known as the Pakbeh Regional Economy Program (PREP).¹ Located 70 km southwest of the modern city of Mérida, the ruins got their name from a twentieth-century henequen plantation (now a village of 1,200 people) located 2 km to the west of the ancient site center. Chunchucmil interested Dahlin and colleagues because of preliminary research undertaken by Ed Kurjack and Dave Vlcek in the 1970s (see the foreword, this volume). After mapping 10 ha of the site, surveying other portions, and scrutinizing aerial photos, Vlcek and colleagues (1978) produced a population estimate of 12,000. This relatively high estimate came as a surprise, given that Chunchucmil occupied one of the least agriculturally productive areas of the entire Maya world. According to Kurjack (1974:x), this paradox also applied to Dzibilchaltún, whose estimated population was too large to be fed entirely by swidden agriculture on the rocky soils nearby. Vlcek and Kurjack’s findings spurred Dahlin to take a closer look at Chunchucmil and initiate the PREP, which now estimates Chunchucmil’s population at more than 30,000 (see chapter 5, this volume). Given such estimates, Chunchucmil challenges orthodox views of Maya subsistence and settlement patterns. Amidst poor soils and scarce precipitation, traditional forms of agriculture such as slash and burn could not feed such a large population (see chapter 9) and no clear evidence of the kinds of intensive agriculture that were beginning to be documented in the southern lowlands (drained fields, terraces) could be found.

How, then, did the people of Chunchucmil support themselves? Vlcek et al. suggested that they traded salt (see below and chapter 10). Mesoamerica’s second-largest salt works are located only 30 km to the northwest of Chunchucmil and scholars have long been aware of extensive contact-era trade in salt (A. P. Andrews 1983; Roys 1943:52–53). Taking the position, recently and succinctly expressed by Ken Hirth (2010:227), that “market exchange and marketplaces are fundamental

social and economic institutions that have been largely overlooked in the study of emerging cultural complexity,” Dahlin sought to explore the possibility that trade anchored Chunchucmil’s economy and, joined by codirector Traci Ardren in 1998, began work on several difficult tasks: creating a comprehensive, exchange-based economic model for Chunchucmil’s growth, securing grant money to test the model over 12 field seasons, and putting 12 field crews on the ground to collect the data, all in a milieu where most Mayanists were not receptive to the premise that commerce played such a central role in the economy of a large Maya city.

Over the last 15 years, many Mayanists have embraced Dahlin’s idea of the importance of marketplaces in Classic-period economies, in part because of the research at Chunchucmil (King and Shaw 2015; Masson and Freidel 2012; Shaw 2012). Postclassic-period commercialism did indeed have roots in the Classic period and potentially earlier (Masson 2002a:9–10; Masson and Freidel 2012:463; Tokovinine and Beliaev 2013:172). This book presents the research at Chunchucmil that helped bring about this change in our view of Classic Maya economies, and it does so in a comprehensive, multidisciplinary fashion. We draw from these findings the central conclusion that market-based commerce was critically important in the rise and maintenance of the Chunchucmil urban center. We define *market-based* and other terms below; right now we explain what we mean by *critically important*. Commerce did not just move exotic luxury goods into and out of the site; it moved staple goods needed by everyone and it moved these goods dozens of kilometers. At the same time, we do not claim that marketing was the sole mechanism of exchange: “it is sophomoric to argue whether [archaic states] had marketplace exchange or governmental redistribution; they most assuredly had both” (Isaac 1996:331). Without question, Mesoamerican households received goods through many different forms of exchange (Hirth 1998; McAnany 1992).

We also do not claim that market-based exchange was as important at other Maya cities as it was at Chunchucmil. We do, however, believe that our findings at Chunchucmil join the results of other studies in forcing a revision not just of our understanding of ancient Maya economies, but of ancient Maya life as a whole. As work at sites such as Tikal (Jones 1996, 2015), Motul de San José (Halperin et al. 2009), Caracol (Chase and Chase 2004:118–119, 2014), El Perú/Waka’ (Eppich and Freidel 2015), Trinidad de Nosotros (Dahlin et al. 2010), Calakmul (Carrasco Vargas, Vásquez López, and Martin 2009), Buenavista (Cap 2015), Mayapán (Masson and Freidel 2012; Masson and Peraza Lope 2014; Terry et al. 2015), Cobá (Coronel et al. 2015), Maax Na (Shaw and King 2015), Chichén Itzá (Braswell and Glascock 2002; Cobos and Winemiller 2001:289), Palenque (Barnhart 2007:115), Xunantunich (Keller 2010), Lubaantun (Hammond 1972b, but see West 2002:160–161), Ceibal (Bair 2010), Quiriguá (Jones and Sharer 1986), and elsewhere reveals

the importance of market-based exchange, our models of political economy and social organization must change in order to accommodate these revelations. To the extent that Maya economies were embedded in the rest of Maya life—and recent work shows that economies were embedded to a great extent (McAnany 2010; Wells 2006)—new findings in the economic domain demand new thinking about other domains, including politics, ritual, and identity. Thinking just about identity, for example, there is good reason to believe that Maya women played many important roles in commerce (Clendinnen 1991; McCafferty and McCafferty 1988; Wurtzburg 2015). Our argument that commerce was critical to Chunchucmil's economy therefore highlights another potential avenue by which women gained power in antiquity.

The central conclusion of this book—that market-based commerce was critically important to Chunchucmil—builds from several supporting points. Chunchucmil and its hinterland had a high peak population (chapters 5 and 8) that, given the quality of local land (chapter 6) and water (chapter 7), would have had trouble deriving all of its food from its immediate surroundings (chapter 9; Dahlin et al. 2005). Yet the Chunchucmil region provided a number of resources that could have been traded for staple foods (chapter 10). Furthermore, a large, permanent, physical marketplace existed at the center of Chunchucmil and most of Chunchucmil's households relied on this marketplace (chapter 11; Dahlin et al. 2007; Hutson et al. 2010). Finally, Chunchucmil was a port of trade that integrated long-distance, middle-distance, and short-distance exchange (chapter 12; Dahlin and Ardren 2002). The current book's systematic presentation of the results of the various branches of the PREP allows us to tie together these different points and put these conclusions and consequences into the kind of broad context that makes them relevant for other studies. Independent of conclusions regarding Maya economies, this book contributes to archaeology and other fields by providing (1) a thorough demographic and chronological study of an ancient Maya city (chapters 2 through 5); (2) a regional cultural ecology (chapters 6 through 9); and (3) a detailed dataset in economic anthropology (chapters 10 through 12).

Finally, we hope this book contributes to the epistemological question of how we can study ancient economies when the bulk of what was produced and consumed has not been preserved. Over the years, PREP has deployed several methods to mitigate the preservation problem. These involve geochemistry, hydrology, remote sensing, close attention to artifact distribution, and more. The chapters that follow discuss each of these methods in greater detail; we devote the remainder of the current chapter to broader themes. We first define key terms, such as *market*, and we explain why the notion of ancient markets faced an uphill battle in anthropology as a whole and in the Maya area in particular. We then review data that support

the existence of a market economy during the Classic period in other parts of the Maya area and data gathered by other projects in the Maya area. Finally, we provide thumbnail sketches of the chapters in the book and the lines of evidence they contribute to the central conclusion.

DEFINITIONS AND DELAYS IN ECONOMIC ANTHROPOLOGY

The definition of *market* is no small matter because past definitions, notably that used by Karl Polanyi, have ruled out the possibility of markets in the ancient world and therefore delayed serious analysis of ancient exchange (Feinman and Garraty 2010:169; Garraty 2010:15). Though few scholars today rule out the possibility of precapitalist markets, it is important to sift through Polanyi's legacy and the responses it engendered because they teach lessons about markets and human action that must be kept in mind when considering premodern, non-Western people like the ancient Maya.

Garraty's 2010 essay (see also Feinman and Garraty 2010), which introduces a well-received volume on markets in the ancient Americas (Garraty and Stark 2010), serves as a useful starting point for defining key terms. For the phrase *market exchange*, Garraty relies on a definition provided by Frederic Pryor in 1977: transactions in which the forces of supply and demand affect prices (Pryor 1977). According to this definition, barter in contexts with established systems of equivalency but shortages of currency (Graeber 2011:40) counts as market exchange. Other kinds of barter are not market-like at all and it should be noted that barter is rarely a major part of any economy (Graeber 2011:29–33; Humphrey 1985; cf. Stanish and Coben 2013). Garraty then defines a market as an institution predicated on the principles of market exchange. The term *institution* refers to the fact that market exchange takes place within a social context that affects pricing. In other words, supply and demand do not exclusively determine price: a number of other factors might intervene, such as social relations (good or bad) between buyer and seller and the influence of guilds or governments. Polanyi is best remembered for his insistence that exchange is always embedded in institutions. Since it is difficult to imagine market exchange taking place in the absence of a social context, variables beyond supply and demand always affect prices. In other words, market exchange cannot be separated from markets. We therefore use the terms *market* and *market exchange* interchangeably. A marketplace is a physical space where multiple buyers and sellers congregate to exchange a variety of goods. The presence of a marketplace presupposes market exchange but people can participate in market exchange in the absence of a marketplace (Dahlin 2003:134; Hirth 2010:229). There are several perspectives on the origins of marketplaces and their degree of independence from government

(Blanton and Fargher 2010; Graeber 2011; C. A. Smith 1976). Yet there is likely no single answer to the question of whether marketplaces arose in bottom-up fashion, as when the number of buyers and sellers grows to a point where convenience demands a marketplace, or top-down fashion, as when governments create markets to convert tax and tribute (Graeber 2011:50). Chapter 13 returns to the topic of top-down vs. bottom-up origins of markets.

In the middle of the twentieth century, Karl Polanyi made the notion of premodern markets unpalatable. He had a large impact on how anthropologists think about markets because he pioneered the first systematic theory of premodern exchange (see Polanyi 1944, 1957; deeper accounts of Polanyi's legacy can be found in Halperin [1994] and Garraty [2010]). Polanyi's theory appealed to anthropologists because it treated non-Western people as essentially moral and kind-hearted human beings. Polanyi developed his theories as a rebuttal to the kind of mentality found in the classic works of Adam Smith. For Smith, maximization of benefit and minimization of cost drive human behavior. In contrast to this position, which became known as formalist, Polanyi developed the substantivist position: economic behavior was embedded in culturally specific values and institutions and therefore did not always follow an abstract logic of maximization. (It should be noted that Smith's writing shows an appreciation of the influence of social values on economic behavior [Evensky 2005]).

More specifically, Polanyi thought that in small societies with strong webs of kinship and social solidarity, the market mentality would threaten community well-being. In other words, rational maximizing led to ruthless haggling and the search for individual gain at others' expense, which in turn led to the kind of hostility and antagonism that, far from advancing the interests of the community as a whole, would tear it apart. In this vein, Polanyi thought that powerful authorities were required to regulate prices in premodern societies. With such heavy-handed regulation of prices, the role of supply and demand in determining price would have been minimized. Thus, if markets only exist when supply and demand play a heavy role, then Polanyi's followers (Carrasco 1978) could argue that premodern marketplaces such as that of the Aztec capital were in fact not part of market economies. Furthermore, less-complex premodern societies that lacked strong authorities to regulate marketplaces would not be expected to have marketplaces at all.

Polanyi famously concluded that the dominant mode of exchange in village societies was reciprocity and the dominant mode of exchange in chiefdoms was redistribution. Markets only dominated in modern states. Polanyi carefully chose the phrase "dominant mode of exchange" as opposed to "only mode of exchange" in order to leave room for clearly documented cases of markets in premodern societies. The Aztec case is a clearly documented one that may in fact challenge the model

as a whole. Research on the Basin of Mexico during the Postclassic shows that several marketplaces existed in the Early Aztec period before the rise of the powerful Aztec state and continued in the Late Aztec period with minimal state intervention (Blanton 1996). In Polanyi's model, marketplaces should not occur independently of powerful Aztec state control. As Garraty (2010) points out, Polanyi's allowance for some degree of marketing in premodern societies does not sit well with his insistence that market exchange cultivates self-serving behavior inimical to those societies. This potential contradiction can be dismissed, however, because the actual definition of markets that Polanyi gave appears to rule out the existence of premodern markets: the key feature of markets for Polanyi (1957:247) was that "all goods and services, including the use of land, labor and capital, are available for purchase." Such a definition essentially restricts the existence of markets to the nineteenth century and afterward since very few premodern markets featured the exchange of land and labor. This is like saying that swap meets are not marketplaces if they don't take credit cards or PayPal. Polanyi's definition is therefore too narrow and slowed the development of nuanced discussions of how markets develop in the ancient world and the diverse ways in which markets are conditioned by political, social, or religious institutions (Feinman and Garraty 2010:169).

Moving beyond the problem of definition, Polanyi's core idea about the embeddedness of economies appeals to anthropologists because we are committed to the recognition of cultural diversity and the assertion that universal claims about human nature, such as Adam Smith's market mentality, are in fact culturally specific. In a society in which economists have tremendous influence, what member of the anthropological tribe would not relish the chance to side with Polanyi and tout an enduring virtue of our discipline: a more subtle understanding of economies and societies? Yet the entirely tenable idea of the embeddedness of premodern economies entailed the nontenable position that premodern people were very different from modern people. This created an unproductive situation in which agreement with Polanyi's core anthropological principal of embeddedness predisposed one to believe that markets only exist in modern times. Such logic not only encourages the assumption that the ancient Maya had no markets, it also discourages an empirical test of this assumption. Furthermore, it establishes a false polarity between superrational, self-gain-obsessed moderns and reactionary, custom-bound, self-sacrificial premoderns.

Polanyi's polarized views of ancient and modern economies founder on the realization that modern markets are not independent of social relationships and ancient forms of exchange are not enslaved to tradition. Regarding the modern context, Granovetter (1985) has shown that modern market exchange, just like exchange in other epochs, is everywhere embedded in institutions (see also Fischer 2001).

Regardless of what form these institutions take (government regulations, social relations between parties to an exchange, or something else), they play a role, alongside the calculus of supply/demand, in determining prices. “The idealized conception that an economic (market) system is just the cumulative effect of atomistic market transactions between individual buyers and sellers who act based solely on personal self-interest and independent of social relationships . . . rarely, if ever, conforms to actual practice” (Feinman and Garraty 2010:172). Several economists have moved beyond *Homo economicus*, the notion of humans as self-interested maximizers, and considered the importance of cooperation in economic action (Marshall 2010; Brandenburger and Nalebuff 1996). Such work is no longer on the fringes of social science: Elinor Ostrom (1992) and Oscar Williamson’s (1985) research on cooperation and collective action earned them the 2009 Nobel Prize in economics.

Regarding the premodern context, the other side of Polanyi’s modern/premodern polarity, Blanton and Fargher (2010) detect in Polanyi’s writings an idealization of premodern communities reminiscent of the “herd mentality” of villagers described in Marx’s Asiatic mode of production. The occupants of these communities were said to be mired in customs and values that provided easy opportunities for exploitive despots. Such villagers lacked a sense of private enterprise and therefore refused to produce more than what was necessary for subsistence, communal ritual, or elite extraction and shunned all trade not directly related to household provisioning. In short, Blanton and Fargher charge that ancient people in Polanyi’s model were not agents: they could recognize neither exploitation nor opportunity and therefore could not act strategically in response to either (see Sahlin 1972 for a broad reappraisal of precapitalist economies).

The point is not that ancient and contemporary economies and actors are the same, but rather that their differences have been overstated. These considerations should have encouraged Mayanists to move beyond the simple question of whether or not there were Classic-period markets and into more nuanced questions regarding origins, scale, degree of centralized oversight, and so on (Shaw 2012; King and Shaw 2015; see chapter 11, this volume). Archaeologists in Central Mexico have been engaging such questions for quite some time (Berdan 1983; Blanton 1983, 1985; Feinman et al. 1984; Hodge and Minc 1990)—benefiting from a large body of eyewitness accounts dating from the arrival of the Spaniards 500 years ago—about the existence of what Europeans referred to as marketplaces. In the Maya area, the ethnohistorical evidence is not as strong. When the Spaniards established a colony in northern Yucatán in the 1540s, European diseases had already infected local populations. Furthermore, local political and economic organization had already been deeply disrupted by the fragmentation of the Mayapán confederacy in the fifteenth century and a variety of droughts and famines (Masson and Freidel 2013). Thus,

conquest-era Maya marketplaces and marketing were not as developed as those in Central Mexico. This may account for Farriss's comment, quoted in the epigraph, that so little marketing took place in the Maya lowlands.

The fact that research on markets in the Maya area has not picked up as strongly as it has in Central Mexico results from more than just holes in the archives. In addition to working amidst the general antimarket climate established by Polanyi, Mayanists interested in ancient forms of exchange have had to get out from under a set of misleading, Maya-specific assumptions to which we now turn.

RESISTANCE TO MAYA MARKETS

Archaeologists have often thought that markets appear in contexts with high ecological diversity and high population density. Initially the Maya were thought to lack both of these, thus making markets seem improbable. Furthermore, too much focus on leaders and not enough focus on people of lower status have also slowed consideration of markets. We unpack each of these three causes—misunderstanding of ecology, underestimation of population density, and lack of focus on common people—for the delay in thinking about ancient Maya markets, beginning with ecology (see also King and Shaw 2015).

In an area with high environmental diversity, communities located relatively close to each other may each control a unique environmental resource. Assuming that each community desires access to the resources controlled exclusively by other communities, a marketplace that makes each of these resources available serves the interests of all communities. At the same time, one could argue that high environmental diversity lends itself not to a market, but to the evolution of powerful centralized authorities that serve to control the distribution of the resources from each patch in the mosaic (e.g., Sanders 1977). Regardless of the mechanism of exchange (markets versus redistribution) responsible for circulating goods in such a context, Sanders and Price (1968) argued that highland Mesoamerica exhibited significant environmental diversity and that the Maya lowlands did not.

The Maya lowlands were thought to be characterized by resource redundancy. However, several studies have shown that resources in the Maya lowlands are not as evenly dispersed as once thought (Dunning et al. 1998; Fedick 1996; Gomez Pompa et al. 2003; McAnany 1993). Lowland resources such as salt (A. P. Andrews 1983; McKillop 2002), chert (Potter and King 1995; Shafer and Hester 1983), and cacao (McAnany et al. 2002) are famously patchy. But even in areas without such assets, other features such as escarpments (Dunning et al. 2003), swamp edges (Kunen 2004), karst depressions (Kepecs and Boucher 1996; Munro Stasiuk and Manahan 2010), rivers (Siemens 1996), terrace-able hills (Chase and Chase 1998), and

fracture zones (Fedick et al. 2000) each permit local resource specializations. Such resource diversity and community specialization have fueled market-based models of ancient Maya economies: “By combining the variety and abundance of specialized production at a marketplace . . . a greater region of communities obtained the necessary balance of resources for a sustainable harvesting of an otherwise fragile environment” (Scarborough and Valdez 2009:211; see also King and Shaw 2015).

High population density encourages markets for two reasons. First, in urban contexts with high population density, farmland is distant and presumably not all residents are farmers: some are administrators, craft specialists, or nobles and retainers. Though some of these actors may get food via tribute, a marketplace would help provision the others (Appleby 1976) and could convert tribute goods into food (Brumfiel 1980). Second, it becomes more cost-effective for someone to sell goods when many consumers live nearby (Blanton and Fargher 2010; Hirth 2010; Skinner 1964). If consumers do not live near the seller, the cost of transporting goods to consumers reduces the seller’s profitability. In such a situation, marketing would only work with the kinds of goods that make a large profit with each transaction (Sanders and Webster 1988:542). On the other side of the coin, if the seller is not itinerant, the cost to the consumer of traveling to multiple different sellers for household needs is prohibitive, thus discouraging production for trade and encouraging greater self-sufficiency and reciprocity. Of course, markets (and marketplaces) can still develop in areas of low population density. If people from all over congregate in central places from time to time for ceremonial or other occasions, marketing can take place on the side (Freidel 1981). Yet markets develop more robustly when lots of people are always close together—that is, when there are cities. And, as all Mayanists know, the strongly held point of view that major Maya sites were vacant ceremonial centers as opposed to cities (Willey and Bullard 1965) forestalled the recognition that Maya ritual centers were also demographic centers. Thanks to easier survey conditions and the abundance of ethnohistorical documents, archaeologists have always been aware of the existence of demographic centers in Central Mexico. But only in the 1960s did the maps of Tikal (Carr and Hazard 1961), Mayapán (Pollock et al. 1962), and Dzibilchaltún (Stuart et al. 1979) show that the Maya also had urban centers.

By the 1980s there was “a growing consensus that the great lowland Maya centers were considerably more like true cities than some of the opponents of this idea had originally supposed” (Ashmore and Willey 1981:16). Yet the possibility of markets did not catch on because of restrictive notions of Maya cities and the assumption that larger populations must have been fed not by commerce but by more intensive forms of agriculture. On the basis of Old World data, Fox (1977) defined three types of cities (regal-ritual, administrative, or mercantile) that influential

Mesoamericanists found attractive (Sanders and Webster 1988; see also Marcus 1983). Fox defined *mercantile city* in a way that allowed Sanders and Webster to suggest that no Maya cities were mercantile. Sanders and Webster labeled all Maya cities *regal-ritual*, which is to say that they were little more than the locus of royal ceremonies and the extended family of the king and his servants. This move aroused much disagreement (Chase et al. 1990) and may have discouraged the search for marketplaces in Maya cities. Fox's city types were not supposed to dictate the kinds of activities found within them. In other words, even if a city fits Fox's "regal-ritual" category, this does not mean it could have no mercantile activity whatsoever.

Once it was clear that the ancient Maya had many large cities with tens of thousands of inhabitants, attention shifted to the question of how people in large cities acquired food. Archaeologists proposed that food came locally from agricultural techniques that were more intensive than the slash-and-burn techniques practiced in modern and historic times. Debates followed over the nature of the intensive techniques and how widespread they were (Harrison 1996; Pope and Dahlin 1989; Pope, Pohl, and Jacob 1996; Turner 1974). Yet, as Dahlin et al. (2010:193; see also King and Shaw 2015) note, "Hardly a thought was given to the possibility that critical segments of these urban populations were supplied through food supplements circulated through modes of exchange other than redistribution." Ancient city dwellers in other parts of the world often acquired food imported to marketplaces (Alston 1998; Brumfiel 1980), yet few Mayanists considered this option (cf. Freidel and Shaw 2000).

Finally, the historical tendency for Mayanists to focus on kings, nobles, palaces, and temples as opposed to the lives and residues of the rest of Maya society has also delayed research that explicitly tests market models. Merchants rarely appear in noble culture (hieroglyphic inscriptions, palace scenes). This scarcity signifies not the absence of merchants but rather their lower status (Masson and Freidel 2013:209; McAnany 2010:256; Tokovinine and Beliaev 2013:172). The often adversarial nature of interactions between the Classic-period god of merchants, God L, and the divine patrons of royalty, such as the sun god, the maize god, and the hero twins, reflects "ambivalence in the Classic Maya attitude toward trade and traders" (Tokovinine and Beliaev 2013:194). Speal (2014:107) speculates that since markets often took place in plazas that doubled as ceremonial precincts, "Classic Maya elites may well have felt burdened at times with keeping throngs of common vendors out of the patio areas they wished to keep sacred."

Although the archaeology of non-noble households has become common in the last 30 years, a corresponding shift in the modeling of Maya political economies has not always followed. In other words, until very recently, most models placed redistribution at the center of the political economy and therefore envisioned elites as the key economic agents and decision-makers. If archaeologists instead envision

non-noble households as active participants in decisions regarding production and consumption (see Lohse and Valdez 2004; Hirth 2010; Masson 2002b; Robin 2012; Scarborough and Valdez 2009; Shaw 2012:139; Sheets 2000), then market-based models of exchange gain more popularity. This point of view resembles a bottom-up perspective that foregrounds the needs of common households and recognizes that households may strive to be self-sufficient but rarely achieve this. From this perspective, households are likely to engage in all kinds of exchange, including marketing (regardless of whether there are formal marketplaces) in order to provision themselves. As more archaeologists bring to their household-based case studies the kind of theoretical perspectives appropriate to such case studies—for example, relational notions of power that view common people as agents and structurationist stances that valorize the everyday practices and needs of such agents—we expect markets will play a larger role in the reconstruction of ancient economies.

APPROACHES TO MARKET EXCHANGE AMONG THE CLASSIC-PERIOD MAYA

Thus far we have explored why Polanyi's legacy delayed research explicitly focused on non-Western markets in various parts of the world and we have explored why certain assumptions about and approaches to the ancient Maya discouraged research on markets among the ancient Maya. Despite these disincentives, several research projects beyond PREP have strengthened the idea that markets played an important role among the Classic-period Maya. We explore these lines of argument as a way of setting the stage for a more detailed discussion of PREP.

Linguistic evidence suggests that the Classic-period Maya immersed themselves in market exchange (Wurtzburg 1991:94–97). Tokovinine and Beliaev (2013) note that native cognate words for buying (*man*), selling (*chon*), bartering (*k'ex*), trading/profitting (*p'ol*), and market (*k'iwik*, which can also mean “plaza”) are found in Maya languages known to have split from each other by the end of the first millennium BCE. This means that “market exchange played a significant role in Classic Maya society, with all the essential terms for trade-related activities already in place by the first millennium CE” (Tokovinine and Beliaev 2013:172). In a parallel yet independent study, Speal (2014:105, 107) concludes “that there was a complex of cognate words relating selling activity to patios, platforms, or plazas . . . around the middle of the Late Formative period” and that “the florescence of commercial terminology, if not the initial appearance of ‘commerce’ itself, in Mayan languages,” dates to between 1100 and 800 BCE.

Ken Hirth (1998) wrote the pioneering article regarding the archaeological identification of ancient markets. Hirth presented four approaches. The *configurational*

approach refers to the use of data from specific locales suspected to be marketplaces. The *contextual* approach focuses on the identification of features (large cities, craft specialists) that benefit from the efficiency of marketplace exchange. The *distributional* and *spatial* approaches examine the distribution of goods at the level of the site and the region, respectively. Another approach, which Stark and Garraty (2010) label the *production-distribution* approach, also takes a regional perspective and infers markets by assessing the logistics necessary to move products from producers to consumers. Among Classic-period sites, archaeologists have drawn heavily on the configurational, distributional, and contextual approaches. Each of these entails a set of expectations that can be tested using the archaeological record. For example, in the configurational approach, one would expect to find physical spaces that qualify as marketplaces based on their size, layout, accessibility, and presence or absence of specific artifacts, features, and chemical residues (King 2015; Shaw 2012). Chapter 11 in this volume provides detailed expectations for the configurational, contextual, and distributional approaches while chapter 12 discusses the spatial approach.

Using the configurational approach, archaeologists suggested that particular plazas at several Classic-period Maya sites served as marketplaces. The urban center of Calakmul, located in the southern interior of the Mexican state of Campeche, furnishes very strong configurational evidence for the identification of a marketplace. Along with Tikal and Caracol, Calakmul stood as one of the three largest Classic-period Maya centers in the southern lowlands (Folan, Fletcher et al. 2001). Not merely a demographic heavyweight, Calakmul emerged alongside of and in competition with Tikal as one of two “superstates” in the southern lowlands, holding sway over several lesser kingdoms (Martin and Grube 1995). At the core of Calakmul, on the north side of the plaza that contains the site’s largest building (Str. II) and its palace (Str. III) lies what Carrasco Vargas, Vásquez López, and Martin (2009) refer to as the Chiik Nahb complex, a 2.5-ha space containing 68 buildings, most of which sit low to the ground, organized in rows running north/south. Folan, Fletcher, and colleagues (2001:234) suggest that this complex may be a marketplace: the rows of low structures could be market stalls. In 2004, Carrasco’s excavations of the tallest structure in the complex (Str. 1, named Str. 29M-97 in Folan’s map) recovered spectacularly preserved murals depicting scenes of men and women giving, receiving, and consuming a variety of goods. Hieroglyphs close to each person read as labels—“tamale person,” “maize gruel person,” “clay vessel person,” “salt person,” “tobacco person” (Carrasco Vargas and Cordeiro Baqueiro 2012; Carrasco Vargas, Vásquez López, and Martin 2009; Martin 2012)—not unlike the way the Aztecs referred to sellers of goods at their markets. Such scenes have been interpreted as depicting feasts, but the location of the murals among architecture that resembles market stalls strengthens the argument that the scenes depict a

marketplace. Other examples of possible market stalls come from the East Plaza in the Tikal site core (Jones 1996), and the east plaza of Buenavista del Cayo (Cap 2015), not to mention Area D of Chunchucmil (chapter 11, this volume; Dahlin et al. 2007). We note that a lack of stalls does not imply the absence of a marketplace (Coronel et al. 2015:105). Since the word for market (*k'iwik*) is the same as the word for plaza (Speal 2014; Tokovinine and Beliaev 2013), it is likely that some plazas used as marketplaces on certain days would be used for other events on other days. This means that marketing often took place without permanent stalls and may also have occurred only occasionally, as suggested by Freidel (1981).

The distributional approach assumes that if a particular good is exchanged at a marketplace, if most households have the means to purchase that good, and if most households desire it, archaeologists should find that good distributed more or less evenly across the different areas of a site and across the social-status spectrum. Using the distributional approach at Motul de San José, Guatemala, Halperin et al. (2009) believe that figurines were exchanged at centralized marketplaces that took place as part of fairs that drew people from a radius of up to 32 km. Moderate accumulations of chemical residues associated with markets in Motul's main plazas (Bair and Terry 2012) and the lack of a space with dedicated market features (e.g., stalls) support the pilgrimage-fair model (Freidel 1981). In this model, markets are held periodically in plazas that also have other uses. The multifunctional nature of such plazas precludes the construction of permanent stall-like architecture seen at sites such as Calakmul, Tikal, and Chunchucmil. Additional Classic-period Maya case studies that use the distributional approach come from Cerén (Sheets 2000), Tikal (Masson and Freidel 2012; West 2002), El Perú/Waka' (Eppich and Freidel 2015), Palenque (West 2002), and Chichén Itzá (Braswell and Glascock 2002; Braswell 2010), not to mention Chunchucmil (chapter 11, this volume; Hutson et al. 2010).

The contextual approach “infers the existence of marketplaces from the presence of cultural features believed to require the provisioning and distribution functions of the market to exist, for example, large cities and full-time craft specialists” (Hirth 1998:453). As an example of the contextual approach in the Classic Maya area, we highlight Tikal, for which configurational and distributional evidence are also present. Tikal was a large city with over 60,000 people in an area with limited arable land (Culbert et al. 1990) and it likely contained residents who earned their living through craft specialization. Becker's (2003) research on residential group 4h-1 and its neighbors provides a plausible case of full-time specialization in the production of fine pottery. Group 4h-1 and its neighbors form a dense cluster of houselots on a peninsula bounded by seasonally inundated swamps (*bajos*). Becker argues that these households chose to settle on the peninsula in order to get access to clay and fuel (from palm trees) for kilns, both of which come from the *bajos*.

The farming resources in this peninsula are minimal, suggesting a full-time commitment to potting. However, such full-time specialization does not necessarily imply markets. If these potters were specialists attached to and controlled by palace elites, redistribution, as opposed to markets, could support such specialization. However, unlike attached specialists elsewhere in the Maya area (Inomata and Triadan 2000), Group 4h-1 and its neighbors lived in modest buildings located far from a palace, thus suggesting they were not attached specialists.

Chase and Chase's work at the massive center of Caracol, Belize, combines contextual, distributional, and configurational data. As for contextual data, excavations in a sample of over 100 domestic contexts revealed that most households focused on one of many possible economic specializations, including lithics, shell, cloth, bone, and woodworking (Chase and Chase 2001:278, 2004:141). As for distributional data, the distribution of goods indicates that each household had access to most of the goods produced in other households located near the same marketplace. As for configurational data, Caracol has causeways that extend approximately 3 km out from the site center in all directions and end in public plazas around which residences cluster. Noting that such plazas are conveniently located for exchange and that they lack ritual or domestic debris, Chase and Chase (2001, 2004; 2014; Chase et al. 2015) have proposed that they are the marketplaces at which interhousehold exchange took place. Chase and Chase believe that market exchange at Caracol followed Carol Smith's solar model (C. A. Smith 1976) in which Caracol's authorities controlled exchange, seldom opening it to merchants from beyond the polity.

What Stark and Garraty (2010) call the production-distribution approach combines aspects of both the contextual and distributional approaches. Market exchange is inferred in the context of large, complex settlements, where goods produced in or obtained from a variety of locations, near and far, are shown to be widely distributed across the site in question. The logic behind this inference is that authorities could not manage such a wide and complex circulation of goods coming from so many different places. In other words, redistributive systems could not pull off such a task (see also Dahlin et al. 2010; McAnany 2010:263). Only markets can account for such intricate patterns of exchange. Masson and Freidel demonstrate this approach using Classic-period data from Tikal. They show that the degree of "occupational specialization, surplus production, household and community interdependency, and ease of access to valuable goods" at Tikal is similar to that of Mayapán, a Postclassic site said to have well-developed markets (Masson and Freidel 2012:455). It is important to note that even if an elite-centered redistribution system could not have produced such complex patterns of exchange, elites could still have been involved in exchange by sponsoring markets (Freidel 1981; Masson 2002a:4; cf. Pyburn 2008).

THE CONTEXT FOR MARKETS AT CHUNCHUCMIL

Thus, marketplace exchange has been inferred from a number of perspectives at a number of Classic-period Maya sites. As we now discuss, several lines of evidence independent of the research conducted by PREP suggest that Chunchucmil was well-positioned to fill the role of a major marketplace. The Gulf Coast, located 27 km to the west of Chunchucmil, was a vigorous maritime trade route. Situated at the interface of perennially dry land and seasonal wetlands, Chunchucmil could not have been located any closer to the Gulf Coast without a substantial part of the city flooding in the rainy season (figure 1.2). Yet more significant than mere propinquity to the coastal trade is Chunchucmil's positioning with regard to two natural features on the coastline to the west: the Celestún salt flats and the last protected harbor for another 100 km to the north (chapter 12, this volume; Dahlin and Ardren 2002). Before PREP began, one could propose three things on the basis of location alone: (1) that Chunchucmil harvested salt; (2) that Chunchucmil traded the salt along the Gulf Coast and inland; and (3) that the harbor near Chunchucmil was a natural place for coastal merchants traveling northward to go ashore and trade their goods.

These propositions assume the existence of voluminous seaborne Gulf Coast trade and a high demand for salt elsewhere in the Maya area. We revisit these assumptions in greater detail in chapters 10 and 12 but summarize them presently. Regarding the assumption of voluminous seaborne trade, researchers often state that such trade became more common in the Postclassic (McKillop 1996; Sabloff and Rathje 1975). Turner and Sabloff (2012) go so far as to say that the shift from land-borne to seaborne trade at the end of the Classic period played the most important role in the Terminal Classic collapse of southern lowland polities. Nobody doubts, however, the existence of seaborne trade prior to the Terminal Classic. In fact, evidence for the importance of Classic-period trade along the Gulf Coast has increased since Hammond's synthesis (1972a) of evidence in support of such a trade route (e.g., A. P. Andrews and Gallareta Negrón 1986; A. P. Andrews and Mock 2002). For example, research at the site of Emal (Kepecs 1998), on the north coast of the Yucatán Peninsula, shows an abundance of Late Classic ceramics (Celestún Red, Chablekal Fine Gray) that predate the Terminal Classic rise of Chichén Itzá and originate on the southern Gulf Coast in the Mexican states of Campeche and Tabasco. Even stronger evidence for a large volume of Classic-period coastal trade comes from the site of Xcambo, also on the north coast, located approximately halfway between Emal and Chunchucmil's harbor. During the Early Classic period, Xcambo received dozens of polychrome ceramic vessels resembling pottery from the Petén district in northern Guatemala. Furthermore, Xcambo's site center contained buildings that exhibit several similarities with buildings in the Petén (Sierra Sosa 1999).

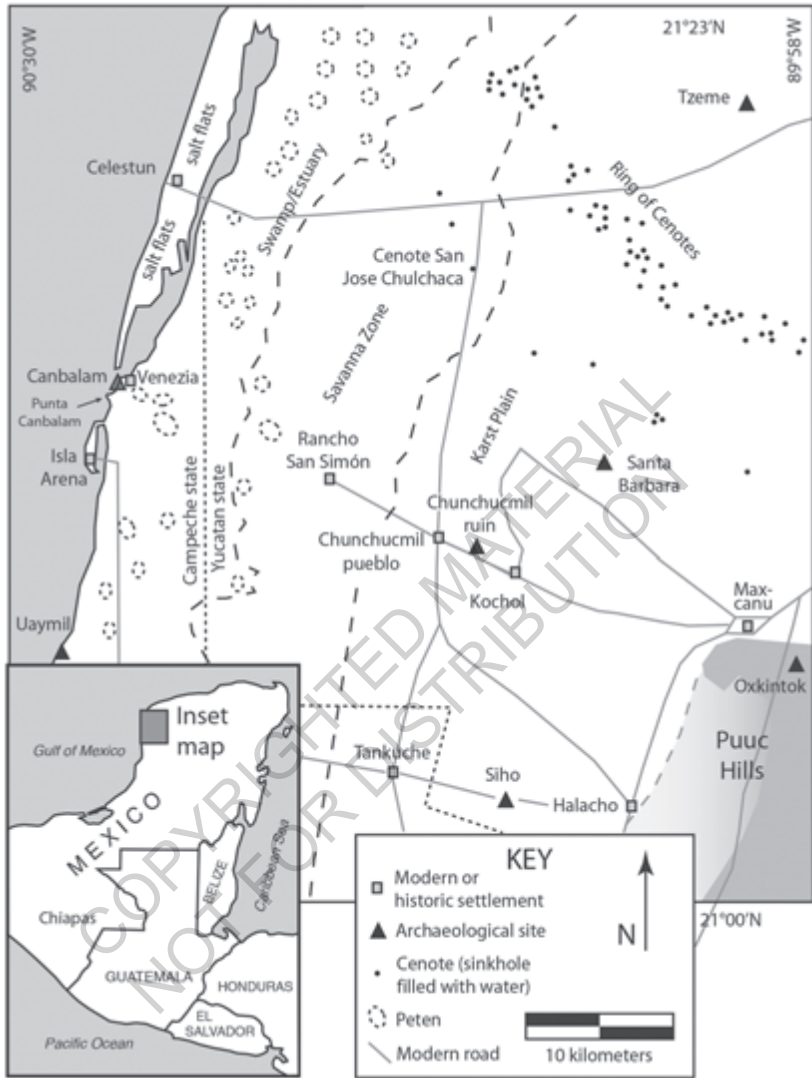


FIGURE 1.2. Map of the region immediately around Chunchucmil, showing modern roadways, key towns, archaeological sites, and environmental features.

The assumption of a high demand for salt elsewhere in the Maya area continues to withstand critical scrutiny. Salt has long been recognized as a critical import in the densely populated southern lowlands (Rathje 1971), where salt from scarce game animals or from burning palm leaves (Marcus 1983:477) is not enough to replenish

the sodium of the hardworking, perspiring farmers of the Petén (A. Andrews 1983, 1984). The massive salt flats of the northern lowlands—shallow pools from which salt crusts can be collected easily when seawater evaporates in the dry season—have been suggested as the main supplier. The discovery at Belizean coastal sites of facilities for the production of salt by cooking brine does not change this picture, as such facilities produced comparatively little salt and at much greater cost (A. P. Andrews and Mock 2002). Salinas de los Nueve Cerros, on the western edge of the Petén, could have met much of the demand though relatively little pottery at the site dates to the Early Classic (Woodfill et al. 2015).

In summary, research beyond PREP has defended two baseline assumptions regarding the viability of Chunchucmil as a major trade center: (1) vigorous coastal trade with Maya cities far to the south passed close to Chunchucmil; and, (2) Chunchucmil had a resource in high demand at these southern cities: salt. The chapters of this book report on archaeological research that tests Chunchucmil's role in trade more directly.

CONTENTS OF THIS BOOK

PREP explored Chunchucmil's economy using a multidisciplinary research design. A very detailed map of the site served as a baseline for much of the rest of the work. Over PREP's 12 seasons of fieldwork between 1993 and 2006, the creation of the Chunchucmil site map received more effort than any other operation. The map grew with each season until, by the end of 2006, we had covered 11.67 km². We discuss the map, mapping methods, and settlement nomenclature in chapter 2. The map itself appears in the University Press of Colorado online supplement (<http://upcolorado.com/university-press-of-colorado/item/3076-ancient-maya-commerce>). Of course, a static map of past settlement doesn't say much if we do not know when the different parts of the site were occupied. Therefore, a second pillar of the research design was a test-pitting program that would provide chronological data from a representative sample of occupational contexts. Chapter 3 discusses this sampling strategy and then chapter 4 presents the chronology of the site.

After establishing in chapter 4 that the vast majority of the architecture on the map in chapter 2 was occupied contemporaneously at the end of the Early Classic, we present in chapter 5 a variety of patterns in the map and begin to interpret them. We divide the site into a series of zones. Three of these zones—the site center, the residential core, and the residential periphery—comprise urban Chunchucmil. The pattern of monumental architecture in the site center suggests a form of political organization that differs sharply from the regal-ritual model seen at many other Classic Maya centers and lends itself to intriguing suggestions regarding the political economy. Broad excavations in the residential zones show

that most of the densely packed structures in these areas were indeed residences. The chapter then uses these data to estimate that at least 30,000 people lived in urban Chunchucmil's 15 km².

Chapter 6 surveys nearby environmental zones, including the semiarid karst plane on which Chunchucmil sits but also the beach barrier zone, perennial wetlands, and seasonal wetlands to the west. Chapter 7 adds to the environmental picture by discussing water resources and water quality in the region. Presentation of the results of regional settlement survey (chapter 8) follows the discussion of Chunchucmil's natural resource zones (chapters 6 and 7) because these surveys show the extent to which people actually settled in the different econiches beyond Chunchucmil. The presence of villages in the seasonal wetlands, for example, suggests that wetland resources played a critical role in Chunchucmil's regional economy. The survey of land to the west of Chunchucmil also identified features that address the question of long-distance trade insofar as any seaborne goods sent from or bound for Chunchucmil would need to cross through this land. The survey to the east of Chunchucmil identified several settlements in the perennially dry hinterland, thus cutting into the farmland available to the city.

Chapter 9 looks closely at local soils and considerations from chapters 6 and 7 in order to determine how the large populations within the site (chapter 5) and across the region (chapter 8) could provision themselves. Though several uncertainties plague the task of calculating agricultural carrying capacity and deciding whether or not local farming could supply the city and its regional settlement, many lines of data indicate that people needed to import food. Since they would have had to trade material to get food, these considerations amount to contextual support (*sensu* Hirth 1998) for a market.

Chapter 10 discusses specific resources and craft goods that the people of Chunchucmil could have traded in exchange for food. Given the demographic data from chapters 5 and 8, exchanging these goods exclusively through a centralized system of redistribution would have been very complex. Given Chunchucmil's political organization, also discussed in chapter 5, the site appears to lack the kind of centralized authority that could have handled such a complex task. Thus, the production/distribution approach would suggest that markets accounted for a substantial portion of exchange at Chunchucmil. Chapter 11 provides configurational, contextual, and distributional evidence (Hirth 1998) for a market system at Chunchucmil. Stated differently, the chapter presents data on craft activities at the site, evidence for the positive identification of a marketplace in the Chunchucmil site center, and evidence from the test-pitting program of a distribution of obsidian and ceramics across the site that suggests that people acquired these goods through the market.

If Chunchucmil was deeply involved in long-distance trade, we would expect evidence of contact with people beyond the Maya lowlands. Furthermore, this evidence should exceed the mere presence of goods, such as obsidian, that came from afar and manifest itself in a number of additional ways, such as the use of international styles of artifacts and architecture. Chapter 12 presents these data. Chapter 13 concludes the book by summarizing the mechanics of trade in salt, obsidian, and foodstuffs, exploring how Chunchucmil's commercial economy developed and declined, and commenting on the significance of the Chunchucmil case study for broader subjects such as ancient Maya politics and gender relations.

NOTE

1. The word *Pakbeh* refers to the walls and streets (singular *pak'* and *beh* in Yucatec Maya) that are common at the site. Since most the ruins lie on land pertaining to villages other than the modern village of Chunchucmil, we did not use the name *Chunchucmil* in the title of the project.