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POLITY AND ECOLOGY IN  
FORMATIVE PERIOD COASTAL OAXACA

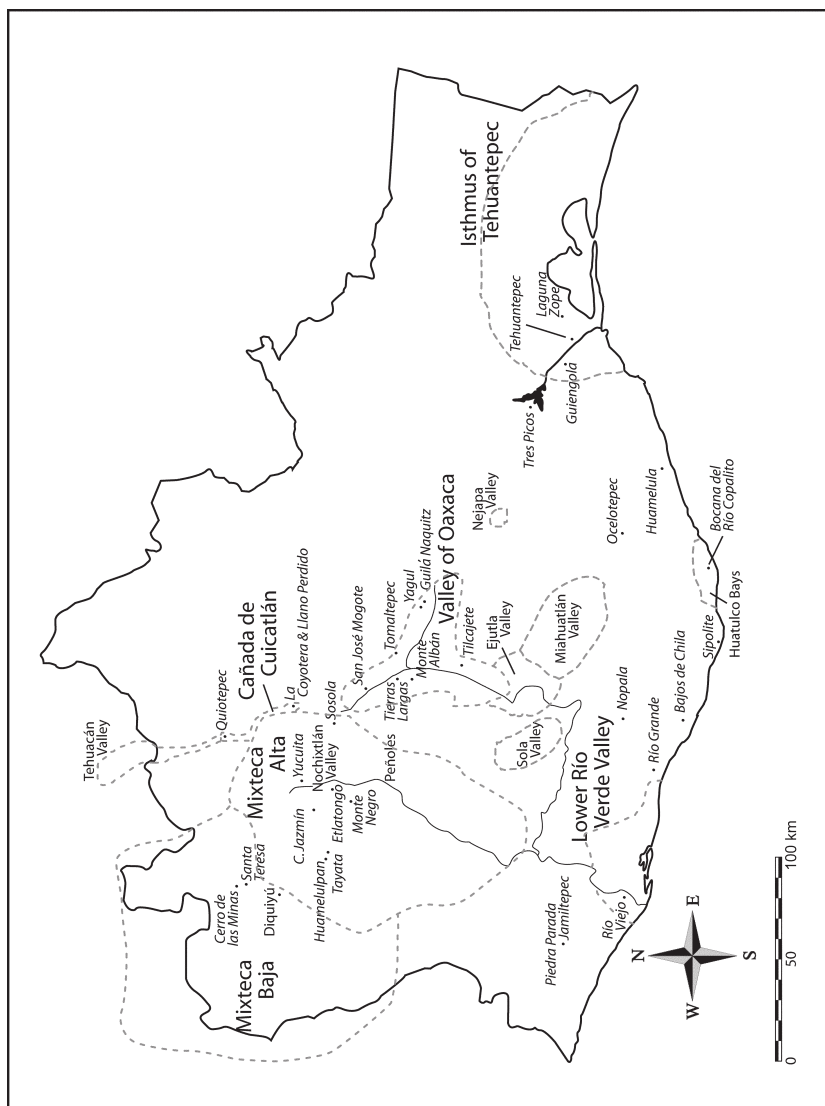
*An Introduction*

ARTHUR A. JOYCE



The archaeology of the southern Mexican state of Oaxaca (Figure 1.1) is best known for research on the prehispanic culture of the Valley of Oaxaca, especially the ancient city of Monte Albán (Blanton 1978; Caso et al. 1967; Joyce 2010; Joyce and Winter 1996; Kowalewski et al. 1989; Marcus and Flannery 1996; Martínez et al. 2000; Winter 1989, 1994a, 1995). While the Oaxacan highlands have been a focus of archaeological research for more than 100 years, investigations of coastal Oaxaca began only in the 1950s with the pioneering work of Donald Brockington (Brockington 1966; Brockington et al. 1974; De Cicco and Brockington 1956). Since the 1980s research on the Oaxaca coast has accelerated, especially in the lower Río Verde Valley (Barber 2005; Barber and Joyce 2007; Joyce 1991a, 1991b, 2006, 2008, 2010; Joyce and Barber 2011; Joyce et al. 1998, 2001, 2004; King 2003; Levine 2002, 2007; Urcid and Joyce 2001; Workinger 2002; Workinger and Joyce 2009). Archaeological research in the lower Río Verde has focused on the Formative period, particularly questions of interregional interaction, environmental change, and political centralization.

This book provides a synthesis of research on the Formative period in the lower Río Verde Valley (Figure 1.2), which demonstrates



**FIGURE 1.1.** Map of the state of Oaxaca showing geographical regions and archaeological sites mentioned in the book.

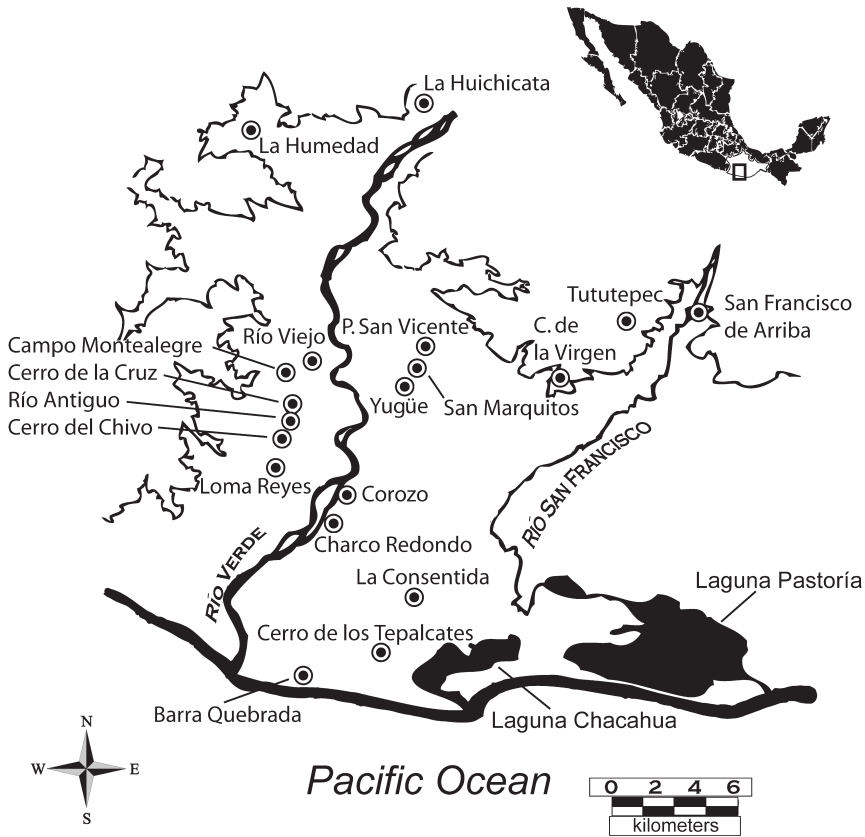


FIGURE 1.2. Map of the lower Río Verde Valley showing archaeological sites mentioned in the book.

that the region was a center of prehispanic population and social complexity, especially in the later Formative period. The chapters provide empirically oriented studies that trace Formative period developments from the earliest known evidence of a human presence in the region during the Archaic period to the collapse of Río Viejo, the region's first centralized polity, at ca. AD 250. This period saw the earliest agricultural settlements in the region as well as the origins of sedentism and early village life. The Early/Middle Formative witnessed major changes in the lower Verde's floodplain and in environments along the coast that expanded the productivity of subsistence resources. Social complexity emerged by the Late Formative, although we suspect future research will show that hereditary inequality began by the Middle Formative. By the Terminal Formative period an urban center had developed at the site of Río Viejo, which became the dominant community in the valley. Centralized

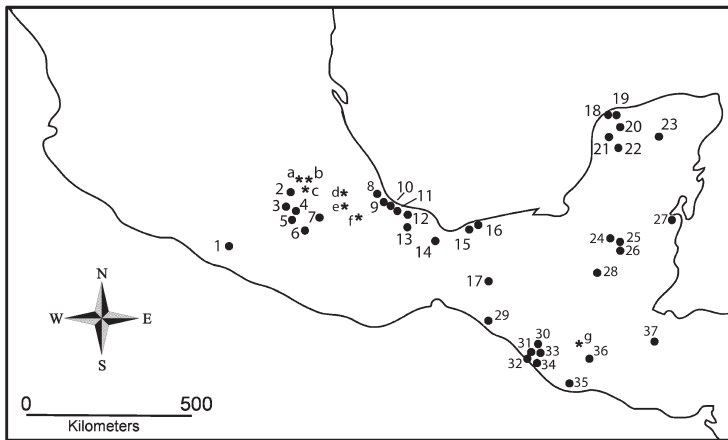
political authority was short-lived as Río Viejo collapsed at ca. AD 250 and the region fragmented into several small polities.

This chapter provides an introduction to the volume by discussing the history of archaeological research in the lower Río Verde Valley and by presenting an overview of the Formative period so as to contextualize the studies that follow. Although the volume emphasizes the archaeological and paleoecological evidence, I also briefly summarize the theoretical approach that informs much of the research in the region in order to frame the arguments in many of the chapters.

## HISTORY OF ARCHAEOLOGICAL RESEARCH IN THE LOWER RÍO VERDE VALLEY

The importance of the lower Río Verde Valley in terms of prehispanic settlement was undoubtedly related in part to its ecology. The Río Verde is one of the largest rivers on the Pacific coast of Mesoamerica in terms of both drainage area and discharge (Tamayo 1964). The upper catchment of the Verde drains the highland valleys of Oaxaca and Nochixtlán, which were also major centers of prehispanic population. The river emerges from a narrow valley in the Sierra Madre del Sur onto a broad coastal floodplain about 20 km north of the Pacific Ocean. The ecology of the approximately 1000 km<sup>2</sup> lower Río Verde region is complex and diverse, including riverine, floodplain, lacustrine, estuarine, marine, piedmont, and mountain habitats that provide a variety of resources for human populations (Joyce et al. 1998, 3–9). Today the Verde's floodplain is one of the most productive agricultural areas in Oaxaca (Rodrigo 1998, 346–347). While agriculture is the predominant subsistence activity, people also exploit fish and shellfish from the river, ponds, estuaries, and ocean as well as wild plants and animals from terrestrial habitats (Rodríguez et al. 1989). Paleoenvironmental research in the lower Río Verde Valley indicates that present ecological conditions emerged approximately 2,000 to 3,000 years ago (Goman et al. 2005, 2010; Joyce and Mueller 1997, Chapter 3).

The Late Postclassic and early colonial *cacicazgo* of Tututepec first drew attention to the archaeological significance of the Oaxaca coast. Tututepec dominated a small coastal empire at the time of the Spanish Conquest and was one of the first places conquered by the Spanish following the fall of the Aztec capital of Tenochtitlán (Joyce et al. 2004; Levine 2007; Spores 1993; Figure 1.3). The community figures prominently in early colonial documents and in several of the prehispanic Mixtec codices. The *Codex Colombino* is believed to have originated at Tututepec and was used by the residents of the community in a 1717 court case. Despite the importance of the lower Río Verde Valley at the time of the Spanish Conquest, until the 1950s most published references concerning the archaeology of the region were to carved stone monuments



## ARCHAEOLOGICAL SITES

- |                 |                             |                     |                |                                 |
|-----------------|-----------------------------|---------------------|----------------|---------------------------------|
| 1. El Mexiquito | 8. La Joya                  | 15. La Venta        | 22. Chac II    | 30. Izapa                       |
| 2. Teotihuacan  | 9. Cerro de las Mesas       | 16. San Andrés      | 23. Yaxuna     | 31. San Carlos/Cantón Corralito |
| 3. Tlatilco     | 10. La Mojarra & Alvarado   | 17. Chiapa de Corzo | 24. El Mirador | 32. Paso de la Amada            |
| 4. Tenochtitlán | 11. Tres Zapotes & El Mesón | 18. Komchén         | 25. Uaxactún   | 33. La Blanca                   |
| 5. Cuicuilco    | 12. Matapan                 | 19. Dzibilchaltun   | 26. Tikal      | 34. La Victoria                 |
| 6. Chalcatzingo | 13. Laguna de los Cerros    | 20. Acanceh         | 27. Cerros     | 35. Montana                     |
| 7. Cholula      | 14. San Lorenzo             | 21. Oxkintok        | 28. Dos Pilas  | 36. Kaminaljuyú                 |
|                 |                             |                     | 29. Los Hornos | 37. Copán                       |

## OBSIDIAN SOURCES

- a. Pachuca   b. Tulancingo   c. Paredón   d. Zaragoza   e. Guadalupe Victoria   f. Orizaba   g. S. M. Jilotepecque

**FIGURE 1.3.** Map of Mesoamerica showing archaeological sites outside of Oaxaca mentioned in the book (after Joyce 2010: Figure 1.1).

located in the modern town of Villa de Tututepec de Melchor Ocampo (e.g., Berlin 1947; Maler 1883; Martínez Gracida 1910; Piña Chan 1960). As early as the 1830s, E. A. E. Muehlenpfordt (1984: Lámina 15) illustrated the famous sculpture from Tututepec, now designated Monument 6. The Oaxacan historian Manuel Martínez Gracida described several carved stones in the lower Verde during his research in the region in the 1870s. Teoberto Maler photographed Monument 6 as well as a sculpture from Río Viejo during a journey from Acapulco to Tehuantepec in 1874. Later descriptions of carved monuments from the Oaxaca coast were published by Antonio Peñafiel (1890), Bernard Bevan (1934), Heinrich Berlin (1947), Roman Piña Chan (1960), and Lorenzo Gamio (1967).

Systematic archaeological research on the Oaxaca coast did not begin until the 1950s with the work of Donald Brockington. In January and February of 1956, Brockington and ethnographer Gabriel De Cicco carried out a reconnaissance of the 175 km between Pinotepa Nacional and Pochutla, describing ten archaeological sites, including San Francisco de Arriba in the lower Verde (De Cicco and Brockington 1956). Later that year, Brockington (1957) returned to one of these sites, Piedra Parada Jamiltepec, and excavated four test pits for his



**FIGURE 1.4.** Donald Brockington excavating at Piedra Parada Jamiltepec (courtesy of Donald Brockington).

MA thesis, which represent the first archaeological excavations on the Oaxaca coast (Figure 1.4).

Following the survey by De Cicco and Brockington (1956), research shifted to the eastern coast with survey and excavation projects in the southern Isthmus of Tehuantepec (Delgado 1965; Wallrath 1967) and Brockington's (1966) dissertation research at Sipolite near Puerto Angel. Brockington then directed the 1969–1970 Oaxaca Coast Project, which involved a more extensive survey from the Oaxaca-Guerrero border to Salina Cruz. Brockington and his colleagues (1974; Brockington and Long 1974) recorded 128 sites and completed test excavations at 13 of these. The lower Río Verde Valley had the greatest density of sites in the region, with 38 recorded during Brockington's project.

The goals of these initial archaeological investigations on the Oaxaca coast were necessarily aimed at basic issues of chronology, culture history, and the recording of sites. Specialized studies included descriptions of ceramics, especially from the central and eastern coast, by J. Robert Long (1974) and Margaret Houston (1974). María Jorrín (1974) described carved stones, which included monuments in the lower Río Verde Valley from the sites of Río Viejo, Charco Redondo, Tututepec, La Huichicata, and La Humedad, as well as petroglyphs from Cerro de los Tepalcates. By the late 1960s, Brockington was also beginning to address questions involving interregional interaction, especially with



the Oaxacan highlands and the Maya. Brockington (1983, 29) found that ceramic evidence for interaction with the Valley of Oaxaca was strongest during the Terminal Formative and Early Classic periods, especially in the central coast around the site of Bajos de Chila, although he concluded that "Monte Albán never dominated the Coast at any time." Houston (1974) argued that Terminal Formative Gralisa pottery from the central coast was imported at Monte Albán.

During the 1970s and early 1980s, research on the Oaxaca littoral focused on the eastern coast, especially the southern Isthmus of Tehuantepec. Peterson and Macdougall (1974) carried out a study of the Postclassic fortress of Guiengola in the southern isthmus. In the early 1970s, Robert and Judith Zeitlin carried out a survey and excavation project along the lower reaches of the Río los Perros in the southern isthmian region. The Zeitlins constructed a detailed ceramic sequence for the region (J. Zeitlin 1978; R. Zeitlin 1979) and carried out studies of changes in interregional interaction, settlement, and subsistence (J. Zeitlin 1978; R. Zeitlin 1978, 1990, 1993).

Following the Zeitlins' project in the southern isthmus, there was little archaeological research in the Oaxaca coast region for the next thirteen years. Roberto Zárate (1986) described three carved stones from the coast, while Méndez (1975) conducted preliminary archaeological investigations in the coastal Huave zone of the southern isthmus. More recent research along the eastern coast of Oaxaca includes Robert Zeitlin's excavations at the large Formative period site of Laguna Zope (R. Zeitlin 1993) and Judith Zeitlin's excavation of a Late Postclassic/early colonial barrio at Tehuantepec (J. Zeitlin 1994, 2005). In the Huatulco Bays area archaeologists from the Mexican Instituto Nacional de Antropología e Historia (INAH) have carried out archaeological survey and test excavations (Fernández and Gómez 1988) along with excavations at the site of Bocana del Río Copalito (Matadamas 2009). Other projects include rescue excavations at the site of Río Grande (Zárate 1995), research on carved stones at Nopala (Arnaud 2003), and survey and test excavations at the site of Huamelula in the Chontal region (Kroefges 2004).

In 1986 research resumed in the lower Verde region with a collaborative project involving archaeologists from the United States and INAH. This was the Río Verde Archaeological Project (RVAP), a pilot study directed by David Grove, Marcus Winter, Susan Gillespie, and Raul Arana. The directors of the 1986 project also provided my introduction to the lower Verde region since I was a graduate student on the project. The RVAP was designed to examine the Archaic to Formative transition with regard to settlement, resource utilization, exchange, and the development of social complexity (Gillespie 1987; Grove 1988; Joyce and Winter 1989). The lower Verde was chosen for investigation because of its ecological similarity to the environments of early villages known elsewhere in Mesoamerica. Like the lower Río Verde Valley, regions such as the Gulf coast and the Soconusco have a diverse ecology including rivers, fer-

tile floodplains, and large estuaries (Pool, Chapter 10). The RVAP carried out a regional site reconnaissance that recorded seventy-one sites and conducted test excavations at six sites. Surprisingly, the project recovered little evidence of settlement prior to the Middle Formative. The data suggested, however, that the region experienced rapid population growth and increasing social complexity during the Late/Terminal Formative. Comparison of ceramic styles and monumental art suggested that the region had been inhabited by Chatino speakers until the arrival of Mixtecs in the Postclassic (Joyce and Winter 1989; also see Urcid 1993; Joyce 2010; Joyce et al. 2001).

In 1988 I returned to the Oaxaca coast for my dissertation project, the Río Verde Formative Project, which examined the effects of ecology and interregional interaction on Late/Terminal Formative social change. The project included large-scale horizontal excavations at Cerro de la Cruz, excavation of five deep trenches at Río Viejo, test excavations at two other sites, and a program of geomorphological research in the floodplain (Joyce 1991a, 1991b, 1994; Joyce and Mueller 1992; Joyce et al. 1995, 1998). The geomorphological research, directed by Raymond Mueller, indicated that a major change in the hydrology of the lower Río Verde occurred during the Formative period, which probably increased agricultural productivity and may have made the region more attractive for human settlement (Joyce and Mueller 1992; Mueller et al., Chapter 3). Studies of interregional interaction focused on relations with the Valley of Oaxaca, since Joyce Marcus (1983) had suggested, based on epigraphic data, that the lower Verde might have been conquered by Monte Albán during the Terminal Formative. The 1988 project also resulted in the construction of a ceramic chronology for the region (Figure 1.5), which has been continuously refined (see Barber 2005; Forde 2006; Hedgpeth 2009; Joyce 1991a; Joyce et al. 1998, 2001; Levine 2007; Workinger 2002).

Oaxacan archaeologists have traditionally used uncalibrated dates when reporting the age range of ceramic phases. The calibrated dates were converted using OxCal 4.1 (Bronk Ramsey 2009). Throughout the book uncalibrated dates are used, although both uncalibrated and calibrated dates are provided when specific radiocarbon determinations are reported in the text and in tables. In this volume we use the median of the calibrated radiocarbon ages. The median age is preferred over traditional intercept-based methods as these are overly sensitive to minor changes in the mean of the radiocarbon date (Telford et al. 2004). Ceramic phases have not yet been defined for the Early Formative and the early Middle Formative in the lower Río Verde Valley.

Investigation of the effects of environmental change and interregional interaction on social developments in the lower Verde continued in the 1990s and 2000s. These projects included further large-scale excavations at the urban center of Río Viejo (Figure 1.6) as well as test excavations at another seven sites. In addition, Andrew Workinger (2002, Chapter 7) conducted block excavations

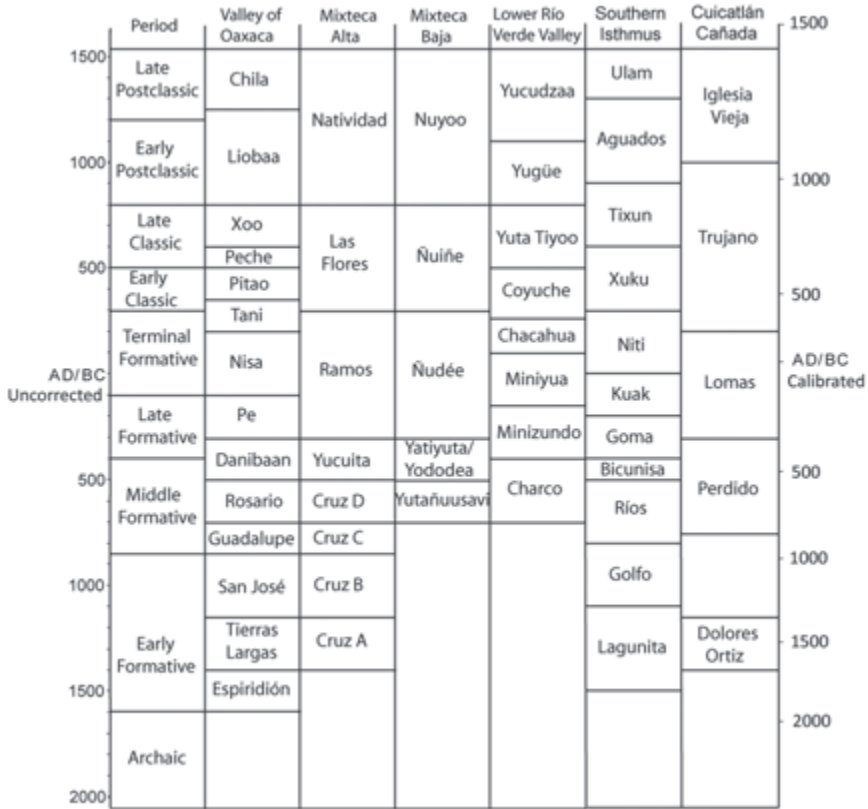


FIGURE 1.5. Ceramic chronologies in Oaxaca (after Joyce 2010: Figure 1.6).

at San Francisco de Arriba in 1997 and 1999 to investigate questions of interregional interaction. Marc Levine's (2002, Chapter 8) study of Late and Terminal Formative ceramics showed that lower Verde pottery is stylistically distinct from highland ceramics and that an increase in serving wares in the Terminal Formative suggests a rise in feasting practices. Regional full-coverage surveys now span 152 km<sup>2</sup> of the lower Verde region, providing an excellent picture of changes in settlement and sociopolitical organization (Joyce 2005; Joyce et al. 2001, 2004; Workinger 2002). The research on interregional interaction has not supported the hypothesis of Marcus and Flannery (1996) that parts of the lower Verde region were incorporated into a Terminal Formative Monte Albán empire (Joyce 1993, 2003; Levine, Chapter 8; Workinger 2002, Chapter 7; Workinger and Joyce 2009; Zeitlin and Joyce 1999). The research has focused attention on Teotihuacan, the southern Isthmus of Tehuantepec, and the Mixteca Alta along with the Valley of Oaxaca as important interaction partners during the lower Verde's prehispanic history.



**FIGURE 1.6.** Excavations on the acropolis at Río Viejo in 2000.

Since the 1990s, the lower Verde research has been moving beyond questions of interregional interaction and environmental change. Excavations on the acropolis at Río Viejo by Joyce and Barber (Joyce 2006, 2008; Joyce and Barber 2011; Joyce et al. 2010, Chapter 5) as well as horizontal excavations at

the sites of Yugüe and Cerro de la Virgen by Barber (2005, Chapter 6) have examined political authority at the end of the Formative period. Our research indicates that regional political authority during the Terminal Formative was tenuous (Barber 2005; Barber and Joyce 2007; Joyce 2008, 2010, 186–196). The abandonment and burning of the civic-ceremonial center of the Río Viejo polity, located on its massive acropolis, along with the demographic decline of the city at ca. AD 250 show that Terminal Formative political centralization was short-lived.

Geomorphological research has continued in the lower Río Verde Valley (Joyce and Mueller 1997, Mueller et al., Chapter 3) as well as in the highland valleys of Oaxaca, Nochixtlán, and Ejutla, which make up most of the Verde's upper drainage basin (Mueller and Pou 2008; Mueller et al. 2012). The research suggests that human land use in the highlands triggered geomorphic changes that may have affected the entire drainage. The data indicate that population growth and agricultural expansion in the highlands during the Early Formative period accelerated anthropogenic erosion into the drainage basin. Sediment carried down the drainage system to the coast triggered major shifts in the geomorphology of the lower valley, including changes in river morphology and the expansion of the Río Verde's agriculturally productive floodplain (Joyce and Mueller 1997; Mueller et al., Chapter 3). Paleoecological studies by Michelle Goman and colleagues (Goman et al. 2005, 2010, Chapter 2) show that coastal environments were also affected by the increased sediment load carried down from the highlands. Sediment cores extracted from Laguna Pastoría, a coastal estuary, show that sediment carried down the Río Verde contributed to the formation of bay barriers and therefore the creation of the coastal estuaries by 450 BC. The estuaries are highly productive ecosystems rich in populations of fish, shellfish, and waterfowl (Rodríguez et al. 1989). Archaeofaunal studies suggest that people took advantage of the estuaries since brackish-water fish and shellfish increased in frequency in midden deposits at the end of the Formative (Fernández 2004). Alec Christensen's (1998) odontometric research suggests that coastal ecology provided people with diets that had a significant selective effect, reducing the size of the dentition relative to highland populations. Melmed's (2006) bioarchaeological research shows that inhabitants of the region enjoyed varied diets and general good health (also see Mayes and Barber 2008), although congenital syphilis was present in the region by the first few hundred years AD (Mayes et al. 2009).

Although this volume focuses on Formative period research in the lower Río Verde Valley, there has also been important work on the Classic and Postclassic periods. Survey and excavation data demonstrate that after a period of political fragmentation in the Early Classic, the city of Río Viejo reemerged and once again became the dominant political center in the region during the Late Classic (Joyce 2008, 229–234, 2010, 239–247). Río Viejo collapsed at

ca. AD 800, and excavations on the site's acropolis show that during the Early Postclassic it was occupied by commoners (Joyce et al. 2001). Excavations of Early Postclassic residences have examined political change, domestic economy, and exchange (Arnaud et al. 2009; Hedgepeth 2009; Joyce et al. 2001; King 2003, 2008). Research on the Late Postclassic imperial center of Tututepec has synthesized archaeological and ethnohistorical evidence, including indigenous histories recorded in the Mixtec codices (Forde 2006; Joyce et al. 2004; Levine 2007, 2011). Javier Urcid has studied the iconography and epigraphy of carved stone monuments (1993; Urcid and Joyce 1999, 2001), and Heather Orr (2001) has examined pictographs from Piedra San Vicente.

The interdisciplinary research in the lower Río Verde Valley has therefore yielded evidence for more than 3,500 years of cultural developments and achievements. The research has focused on the Formative period, which is examined in detail in this volume. In the next two sections of this chapter, I provide a brief summary of Formative period cultural and environmental change to contextualize the studies that follow. My discussion introduces the chapters in the volume as part of a general overview of the Formative period in the region. The final chapter by Christopher Pool provides a broader Mesoamerican context for the lower Río Verde research.

## EARLY SETTLEMENT AND SOCIAL COMPLEXITY

Survey and excavation data indicate that the lower Río Verde Valley was only sparsely inhabited before the late Middle Formative period Charco phase (700–400 BC). As discussed by Goman and colleagues in Chapter 2, the earliest evidence for a human presence in the region comes from a sediment core extracted from Laguna Pastoría along the coast, which indicates a short period of land clearance for shifting horticulture in the vicinity of the estuary from ca. 2110 to 1560 BC, which included the planting of domesticated maize (Goman et al., Chapter 2). Human impact is not evident again in the coastal cores until the Middle Formative when land clearance is more extensive, probably representing the establishment of maize-based agricultural systems. The paleoecological data are consistent with archaeological evidence that the lower Río Verde region may have been only sporadically occupied until the Middle Formative. The earliest archaeological sites discovered thus far in the region date to the Early Formative period (1600–700 BC), although only three sites from this period covering a total of 5 ha have been discovered. Two of the sites are located near the salt flats north of the coastal estuaries, suggesting a different settlement pattern than later in the Formative when communities were oriented toward the Río Verde's floodplain and piedmont.

The only site to have yielded primary deposits from the Early Formative is La Consentida, located about 1 km north of the salt flats and estuaries. The



site covers 2.6 ha and is dominated by several mounds reaching elevations of 5 m above the surrounding floodplain. Excavations in 1988 by Joyce (1991a, 116–117) and in 2009 by Hepp (Hepp 2011a, 2011b; Hepp and Joyce, Chapter 9) exposed occupational surfaces, hearths, and burials as well as numerous samples of obsidian flakes, pottery, and figurines. Uncalibrated radiocarbon dates from three charcoal samples range from 1408 BC to 1532 BC, dating the site to the beginning of the Early Formative period. The data suggest that a small number of sedentary communities were present in the region during the Early Formative.

The low population levels indicated for the Early Formative and the beginning of the Middle Formative are somewhat surprising given that the southern Pacific coast of Mexico and Guatemala includes some of the earliest evidence for sedentary villages and the origins of social complexity in Mesoamerica. In the southern Isthmus of Tehuantepec and the Soconusco coast of Chiapas archaeological research has shown that large sedentary communities, some with populations of perhaps 2,000 people, had developed by the Early Formative (Love 1999; R. Zeitlin 1979). One of these communities, Paso de la Amada, in the Mazatán region of the Soconusco, grew to 140 ha (Clark 2004; Lesure 1997). Excavations at Paso de la Amada exposed monumental architecture, including the earliest ball court yet discovered in Mesoamerica as well as a huge public plaza and elite residence. Another of these precocious villages is Laguna Zope, located only 220 km east of the lower Río Verde Valley (R. Zeitlin 1979).

In the lower Río Verde Valley evidence for communities on the scale of Paso de la Amada and Laguna Zope do not occur until the late Middle Formative period Charco phase (700–400 BC). By the Charco phase, population had increased with the occupational area in the full-coverage survey reaching 64 ha. A regional center developed at Charco Redondo, which grew to 62 ha, making it one of the largest Middle Formative sites in Oaxaca. Deep test excavations have recovered Chaco phase deposits at the sites of Charco Redondo, Río Viejo, Cerro de la Cruz, Corozo, and San Francisco de Arriba. Paleozoological analysis of a midden excavated at Corozo suggests a focus on freshwater and brackish fish from the river (Fernández 2004). Further excavation of Charco phase sites is needed to say more about the period, but the size of the regional center suggests the emergence of social complexity. By the late Middle Formative period hereditary status distinctions are evident in other regions of Oaxaca, including at San José Mogote in the Valley of Oaxaca and probably at sites like Tayata, La Providencia, Etlatongo, and Yucuita in the Mixteca Alta (Blanton et al. 1999, 36–42; Blomster 2004; Joyce 2010, 110–128, 160–161).

One factor that probably contributed to Formative period social developments in the lower Río Verde Valley is environmental change, particularly during the Early and Middle Formative periods (Goman et al. 2005, Chapter 2; Joyce

et al. 1998; Joyce and Mueller 1992, 1997; Mueller 1991; Mueller et al., Chapter 3). Paleoenvironmental research in the valleys of the upper drainage basin of the Río Verde indicates that highland erosion increased the sediment load and discharge of the river, which had a major impact on lowland environments. New data, discussed in Chapter 3 by Mueller and colleagues, provide a more precise chronology for lowland environmental change. They show that major changes in floodplain and coastal environments in the lower valley occurred during the Early/Middle Formative and were likely triggered by erosion in the Río Verde's upper drainage basin, resulting at least in part from agricultural and demographic expansion in the highlands. As discussed by Mueller and colleagues, paleoenvironmental research in the lower valley indicates a major shift in the form and position of the river during the Early Formative. Data from cores in the floodplain show an increase in flooding and sediment load that triggered a shift from meandering to more braided river conditions. More important for human populations was an expansion of the Río Verde's agriculturally productive floodplain. Evidence from sediment cores in the coastal lagoons suggests that the increase in sediment carried by the river also accelerated the formation of bay barrier features along the coast (Goman et al. 2005, Chapter 2).

Although it is tempting to argue that the ecological changes contributed to population growth in the region after 700 BC, we have not yet established a strong causal link between environmental change and demographic expansion. A causal connection is suggested, however, by studies of human diet in the region, although more data are needed to confirm the patterns. Specifically, archaeofaunal studies suggest a shift toward estuarine resources during the end of the Formative period and into the Classic (Fernández 2004, 128), while isotope and trace element studies on human bone suggest an increase in the consumption of maize and/or estuarine resources (Taylor et al. 2009).

The Late and Terminal Formative periods in Oaxaca and in many areas of Mesoamerica were a time of population growth, rising social complexity, and the development of urban centers that were the political seats of regional polities (Balkansky 1998a; Balkansky et al. 2004; Joyce 2010; Kowalewski et al. 2009; Pérez et al. 2011; Winter 2007a, 2007b; R. Zeitlin 1993). In Oaxaca the earliest urban center emerged at the very end of the Middle Formative at the hilltop site of Monte Albán, which came to dominate the Valley of Oaxaca and perhaps some nearby regions (see below). Urban and proto-urban centers also arose within a few hundred years after the founding of Monte Albán at Yucuita, Monte Negro, Huamelulpan, Cerro Jazmín, and Etlatongo in the Mixteca Alta; Cerro de las Minas and Diquiyú in the Mixteca Baja; and Laguna Zope and Tres Picos in the southern Isthmus of Tehuantepec. These urban centers have evidence of monumental buildings and powerful leaders, although significant interregional variation in political organization is evident (Balkansky et al. 2004; Joyce 2010, 161–195; Winter 2004). Long-distance exchange increases

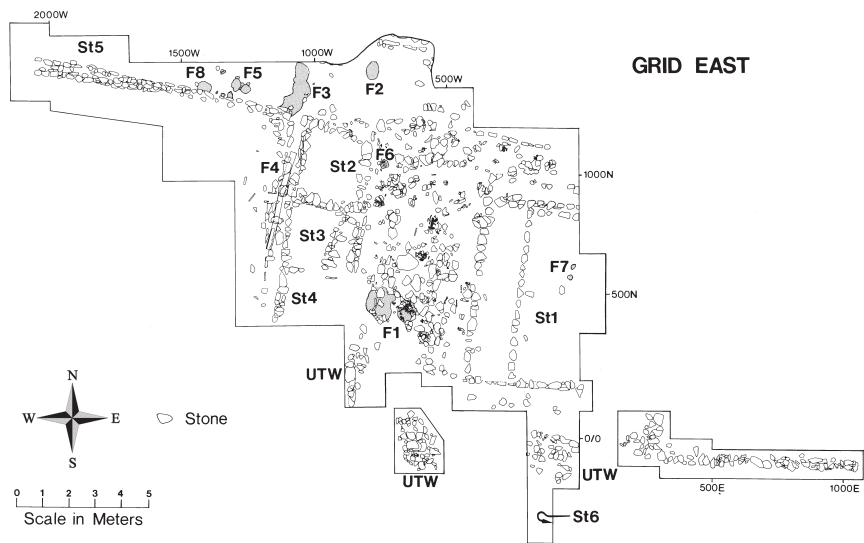


at this time, and there is an expansion of interpolity warfare, at least in the Oaxacan highlands (Joyce 2010; Levine, Chapter 8; Marcus and Flannery 1996; Winter 1984).

In the lower Río Verde Valley considerably more is known about the Late Formative than earlier time periods, and as in other regions trends toward urbanization and rising social complexity are evident. The regional survey indicates a significant expansion in population during the Late Formative Minizundo phase (400–150 BC), with the occupational area in the full-coverage survey increasing from 64 ha to 299 ha. Settlement was distributed between the piedmont (43.2%), floodplain (36.4%), and secondary valleys (20.4%). Charco Redondo continued as a demographic and presumably a political center, growing to 70 ha. Population at San Francisco de Arriba exploded from 1 ha in the Middle Formative to 95 ha in the Late Formative, making it one of the largest communities in Oaxaca at the time. Block excavations by Workinger (2002, 171–222) at San Francisco de Arriba show that much of the site's massive public acropolis was constructed at this time, indicating the mobilization of a large labor force, presumably by emerging social elites. The size and monumentality of San Francisco de Arriba suggest that it was approaching urban scale.

Excavations at the site of Cerro de la Cruz in 1988 provide data on social practices and the architectural layout of a Minizundo phase community as well as evidence for emerging status differences (Joyce 1991a, 1991b, 1994). Cerro de la Cruz lies approximately 4 km west of the Río Verde and occupies about 1.5 ha of a low flat spur extending from a large rocky hill in the floodplain. Most of the work at the site involved a 300 m<sup>2</sup> exposure of Minizundo phase residential terraces. Settlement on the terraces was dense, with buildings usually placed within 5 m of one another. Construction of the terraces at Cerro de la Cruz and other Minizundo phase sites represent communal building projects. Four probable low-status residences (Structures 6, 9, 10, and 11) were characterized by stone foundations, earthen floors, simple burials beneath floors, and small cooking features. Burials from the site yielded remains from 115 individuals, most of which were dated stratigraphically to the Minizundo phase.

The work at Cerro de la Cruz focused on the upper terrace, where excavations revealed a granite flagstone patio surrounded by stone foundations of five structures (Structures 1–5; Figure 1.7). The granite flagstone patio included a large hearth (Fl) intruded into its surface that far exceeded the volume of typical cooking features associated with residences. Three of the structures surrounding the patio (Structures 2, 3, and 4) were small (approximately 3 m × 3 m each) storage rooms with their floors deliberately sunken beneath the level of the patio. A thin organic deposit in Structure 2 contained over 1,000 fragments of charred maize (Woodard 1991, 869). Structure 5 was only partially excavated, but it appears to have been a residence, based on the presence of probable cooking features. The large hearth and storerooms suggest that ritual feasting



**FIGURE 1.7.** Plan of the upper terrace complex at Cerro de la Cruz (after Joyce 1991b: Figure 4). © Society for American Archaeology. Reprinted by permission from *Latin American Antiquity* Volume 2, Number 2.

carried out on the patio brought together multiple households and perhaps the entire community. Similar large cooking features with charred remains of edible plants, animal bones, and shellfish have been recovered in Minizundo phase deposits at Río Viejo and Yugué (Barber 2005, 292, 2009; Joyce 1991a, 364; Fernández 2004, 126–130). Evidence for feasting at Río Viejo also includes an organic deposit containing charred maize as well as 286 seeds, possibly of zapote or avocado, discovered at the base of a well-made stone retaining wall, probably part of a low platform that may have been a public building (Joyce 1991a, 365). Given the relatively modest status distinctions and indications that authority was more communal than exclusionary (see below), I suspect that Minizundo phase feasting resembled Dietler's (2001) empowering feasts rather than patron-role or diacritical feasts that require social settings with well-established political hierarchies.

Evidence from Structure 1 in the patio complex at Cerro de la Cruz suggests other forms of communal ceremony. As discussed by Barber and colleagues in Chapter 4, mortuary data from Structure 1 indicate that it was a public cemetery (also see Joyce 1991a, 1994). There were forty-nine individuals, including forty-two adults, interred beneath the floors and along the walls of Structure 1.<sup>1</sup> An additional nine individuals were interred along the interior of a terrace wall associated with the patio complex. None of the burials recovered from the upper terrace were accompanied by offerings. The lack of offerings

suggests that these individuals were non-elites, although the high proportion of adults suggests that some type of achieved status was required for interment in the cemetery. The burials associated with the patio complex occurred over the course of several generations, as shown by the frequent instances of later burials having disturbed earlier ones. Claims that the cemetery associated with Cerro de la Cruz Structure 1 was actually the result of a massacre (Balkansky 1998b, 470; Redmond and Spencer 2006, 375–377; Spencer 2007) have been strongly refuted (see Barber et al., Chapter 4; Joyce 2003; Joyce et al. 2000; Workinger and Joyce 2009). As discussed by Barber and colleagues (Barber 2005; Barber et al., Chapter 4), the discovery of Terminal Formative cemeteries at Yugüe and Charco Redondo shows that communal cemeteries were a long-term tradition in Formative period coastal society.

Emerging status differences were suggested by mortuary data from Structure 8 at Cerro de la Cruz, exposed on the lower terrace. A total of fifteen individuals were recovered from beneath four floors constructed sequentially in Structure 8, a probable residence. These burials included all four of the Minizundo phase interments with definite grave offerings, suggesting that these people had higher status than those from other parts of the site. The most elaborate burial offering was a sash of forty-five carved marine shells found with an adult male (Figure 1.8).

Another indication of status differences was the discovery of hundreds of sherds from vessels imported into the lower Río Verde Valley from the Oaxaca Valley, the Mixteca Alta, and an as yet unidentified region (as determined by INAA, ICP, and petrographic analyses; see Banker and Joyce 1991; Joyce 1991c; Joyce et al. 2006; Workinger 2002, 345–369). These sherds were recovered at Cerro de la Cruz, Río Viejo, and San Francisco de Arriba in contexts with other evidence of public ritual activity or high status, indicating that they were imported as social valuables (Joyce 1991a, 517–519; Joyce et al. 2006; Workinger 2002, 389–390; Chapter 7). The establishment of long-distance exchange relations and the acquisition of exotic goods through these networks were means through which people set themselves apart from others (see below).

Overall, the data for the Late Formative show the presence of two large, nucleated sites at San Francisco de Arriba and Charco Redondo. The construction of monumental architecture at these sites (Butler 2011; Workinger 2002) implies the mobilization of labor by elites. Evidence for social inequality based on mortuary and residential data, however, is rather limited (Joyce 1991a, 1991b, 1994, 2010, 180–186). Much stronger evidence indicates practices that foregrounded communal identity rather than strong status distinctions. Evidence for ritual feasting, communal cemeteries, and collective labor used to build public structures indicates the construction of socially meaningful places tied to the identity of corporate groups consisting of multiple households and perhaps entire communities (Barber 2005, 95–101; Chapter 6; Barber and Joyce



**FIGURE 1.8.** Burial with carved shell sash in Structure 8 at Cerro de la Cruz (after Joyce et al. 1998: Figure 3.11).

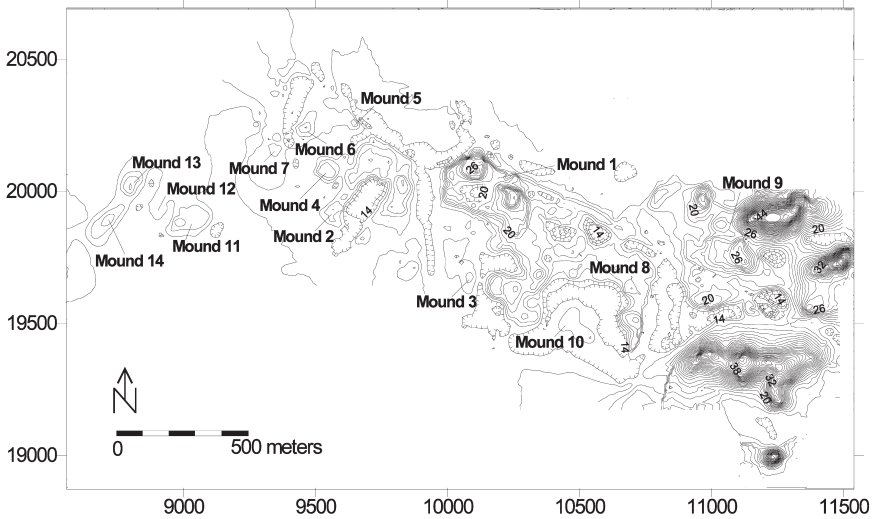


FIGURE 1.9. Plan of Río Viejo showing mounded architecture, including the Mound 1 acropolis (after Joyce et al. 2001: Figure 3; with kind permission of Springer Science+Business Media).

2007; Barber et al., Chapter 4; Joyce 2008, 2010, 180–186; Pool, Chapter 10). In the case of the complex around Structure 1 at Cerro de la Cruz, shared pasts were a component of communal identity with burials and sequential rebuildings referencing history and the ancestors. Throughout the region, communal practices such as feasting and the creation of public buildings and spaces appear to have been locally focused.

### POLITICAL CENTRALIZATION AND COLLAPSE

Formative period political centralization culminated during the Terminal Formative with the emergence of an urban center at Río Viejo (Joyce 2005, 2006, 2008, 2010). Río Viejo increased in size from 25 ha in the Late Formative to 225 ha by the early Terminal Formative (Figure 1.9). Regional population grew through this period based on the area occupied in the survey zone, which increased from 299 ha in the Late Formative Minizundo phase (400–150 BC) to 446 ha in the early Terminal Formative Miniya Phase (150 BC–AD 100) and to 699 ha by the late Terminal Formative Chacahua phase (AD 100–250). Other large communities that may have been tied to Río Viejo through political, religious, and economic relations include San Francisco de Arriba, Charco Redondo, Cerro de la Virgen, and Tututepec. These sites ranged in size from about 60 ha to 72 ha, and all had monumental public spaces and probably powerful individuals and families.

Researchers in the Oaxacan highlands assert that the lower Río Verde Valley was conquered and incorporated into an empire dominated by the rulers of the Oaxaca Valley polity of Monte Albán (Balkansky 1997, 222; 1998b, 470–471; Marcus and Flannery 1996, 201–202; Redmond and Spencer 2006; Sherman et al. 2010; Spencer 2007). The Monte Albán imperialism argument was first proposed by Marcus (1976, 1983) based on her interpretation that the imagery on carved slabs set into the walls of Building J at Monte Albán represented conquered places. Marcus's interpretation of the Building J slabs as well as preliminary evidence from several regions led Marcus and Flannery (1996, 206) to argue that the areas conquered and administered by Monte Albán reached 20,000 km<sup>2</sup>. These arguments led to research in several regions that were believed to have been part of the Monte Albán empire, including the lower Río Verde (Joyce 1991a, 1991b). With the exception of the Tilcajete site complex in the Valley of Oaxaca (Spencer and Redmond 2006), however, the evidence thus far does not support imperial conquest of other regions, and this is especially true for the lower Río Verde Valley, despite years of research investigating the problem (Joyce 1991a, 1991b, 2003, 2011; Workinger 2002; Workinger and Joyce 2009; Zeitlin and Joyce 1999). Scholars have also raised issues with Marcus's interpretation of carved stone monuments at Monte Albán (e.g., Urcid 1994, 2008; Whittaker 1980; Workinger and Joyce 2009).

As discussed by Levine (Chapter 8) and Workinger (Chapter 7), research in the lower Verde region has contradicted the hypothesis that the region was incorporated into an empire centered at Monte Albán (Joyce 1991a, 2003; Joyce et al. 2000; Levine 2002, Chapter 8; Pool, Chapter 10; Workinger 2002, Chapter 7; Workinger and Joyce 2009; Zeitlin and Joyce 1999). We cannot eliminate the possibility of occasional raiding by highland groups, although we have yet to discover data supporting this scenario. The data show that there are no indications of warfare, settlement shifts to defensible piedmont locations, or the presence of Zapotec administrators. Río Viejo covered 225 ha by the Terminal Formative, and since Monte Albán was only 416 ha, the lower Verde would have been a formidable opponent to Zapotec expansion. In addition, the lower Verde lies 150 km southwest and about a week's hard travel through the mountains by foot from Monte Albán, which would have created logistical difficulties for imperial armies or administrators (Barber et al. 2011). Ceramics were imported from the Valley of Oaxaca into the lower Río Verde Valley during the Minizundo phase, indicating exchange relations, although imports from elsewhere were more common (see above). Except for the diffusion of some highland grayware pottery styles, there is little evidence for interaction between the Oaxaca Valley and the lower Río Verde Valley during the Miniyua phase (Levine, Chapter 8).

Although the evidence indicates that the lower Río Verde region was not conquered by Monte Albán, warfare in the highlands may have disrupted



exchange routes to the coast (Joyce 1993, 73). Elaborate ceramics imported from the highlands decreased during the Terminal Formative, and there also seems to be a decline in the importation of obsidian (Joyce 1991a; Joyce et al. 1995; Levine, Chapter 8; Workinger 2002). In response, people in the lower Río Verde may have established stronger ties to the southern Isthmus of Tehuantepec, as indicated by an increase in ceramics imported from that region (Barber 2005; Workinger 2002, 357–358; Chapter 7).

Rather than domination of the region by Monte Albán, the evidence shows continuity in cultural practices. During the Terminal Formative feasting, caching, mortuary rituals, and the construction of public buildings and spaces continued to reproduce community identity as they had done in the Late Formative (Barber and Joyce 2007). For example, an early Terminal Formative Miniyua phase cemetery was discovered at Charco Redondo by Michelle Butler during a pilot study in summer 2009 (Barber et al., Chapter 4; Butler 2011). This cemetery appears similar to the earlier one at Cerro de la Cruz in that only adults have been recovered thus far. In contrast to the Cerro de la Cruz cemetery, however, the one at Charco Redondo includes interments with modest offerings and two slab-lined graves.

Evidence from several sites indicates an expansion in the scale of communal practices (Barber 2005; Barber and Joyce 2007; Joyce 2010, 186–195; Joyce and Barber 2011). For example, as discussed by Marc Levine in Chapter 8 (also see Levine 2002), analysis of early Terminal Formative Miniyua phase ceramics shows a significant increase in the proportion of fancy serving vessels in non-elite ceramic inventories, perhaps indicative of an increase in ritual feasting. Likewise, studies of Formative figurines in the lower Río Verde Valley suggest their use in public ceremonies both in households and in more accessible, suprahousehold settings (Hepp 2009; Hepp and Joyce, Chapter 9). Imagery on Terminal Formative figurines suggests that ritual feasting and other ceremonies at times involved shamanistic transformations into divine beings, probably by socially prominent people. The burial of a possible Chacahua phase ritual specialist interred with an elaborate bone flute was excavated at Yugüe (see below and Barber 2005; Barber and Olvera 2012; Barber et al. 2009, Chapter 4).

The association of feasting and communal mortuary ceremonies identified for the Late Formative at Cerro de la Cruz continued in the Terminal Formative as shown by the results of Sarah Barber's (2005) horizontal excavations at Yugüe, a floodplain site on the east side of the river that she discusses in Chapter 6. The site is dominated by a huge mixed-use platform supporting both residences and public buildings that measures approximately 300 m × 150 m and reached 10 m at its highest point. Yugüe was first occupied during the Late Formative and grew to 10 ha by the Terminal Formative. During the Miniyua phase, people constructed a public building on the site's ceremonial center (Substructure 1; Barber 2005, 150–206). Feasting is indicated by a cooking feature just outside of

the public building that included three large jars, burned on their exterior surfaces; one still contained whole shells of estuarine mussels. Middens containing sherds, ash, bone, and estuarine shells resulted from a number of distinct feasting events. Three Miniyua phase burials were recovered in the fill of the building on Substructure 1.

During the late Terminal Formative Chacahua phase, Substructure 1 was the location of a communal cemetery (Barber et al., Chapter 4). Although she exposed slightly less than a 7 m<sup>2</sup> area of the cemetery, Barber (Barber 2005; Barber et al., Chapter 4) recovered the remains of at least forty-one individuals, both male and female. Like the Cerro de la Cruz cemetery, the one from Yugüe included earlier burials disturbed by later ones. Unlike the earlier cemetery, the one at Yugüe included people of varying status levels and a broader range of ages.

Additional evidence for the repetitive use of community ceremonial spaces is in the form of ritual caches used to dedicate the construction of public buildings. During the Miniyua phase, Chatinos placed a cache of twenty ceramic vessels in the fill of the public building on Substructure 1 at Yugüe (Barber 2005, 164–165, Chapter 6). By the Chacahua phase, at least fifty cylindrical vessels were cached sequentially in Substructure 1, perhaps as a way to “feed” the sacred structure, much like burials in Mesoamerican cosmology were viewed as a way of feeding the gods (Monaghan 1990, 1995). At San Francisco de Arriba, people left ritual caches similar to those at Yugüe in the fill of different building phases of the site’s acropolis (Workinger 2002, 185–214). One cache, however, was much grander than the others, consisting of 356 greenstone beads, 27 rock crystal beads, 109 beads of an unidentified stone, 2 greenstone bird head pendants, 2 rock crystal pendants, fragments of iron ore, 9 locally produced miniature grayware jars, and disarticulated animal bone.

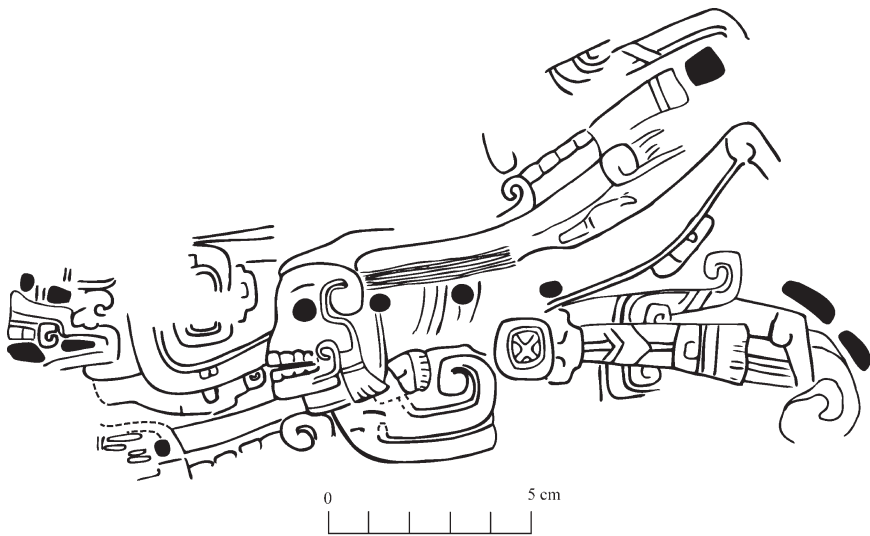
Major communal works projects during the Terminal Formative included the construction of monumental buildings at Río Viejo and at least nine other sites, including Charco Redondo, San Francisco de Arriba, Cerro de la Virgen, and Yugüe (Barber 2005, 117–118; Joyce 1991a, 393; 2005, 20–23; Workinger 2002, 147–230). The scale of monumental construction was considerable, even at some smaller sites such as Yugüe (Barber, Chapter 6), with most consisting of large mixed-use platforms that supported both residences and public buildings. People probably built these huge platforms in part to raise living surfaces off the floodplain and protect residences from seasonal flooding that was increasing in intensity due to highland erosion and perhaps increased El Niño frequencies (Goman et al. 2005, 257; Joyce and Mueller 1997, 90; Mueller et al., Chapter 3). At Cerro de la Virgen monumental constructions included a probable ceremonial precinct that contained a public plaza measuring approximately 2,800 m<sup>2</sup> surrounded by a ball court and several possible high-status residences (Barber 2005, 138–140).



The largest monumental building in the region was the Mound 1 acropolis at Río Viejo, which was the civic-ceremonial center of the site. The construction and early history of this massive architectural complex is examined more fully by Joyce and colleagues in Chapter 5. With an estimated volume of 560,050 m<sup>3</sup>, Mound 1 was one of the largest structures ever built in prehispanic Oaxaca. The platform supports two large substructures each at least 17 m high, along with five smaller buildings, a plaza, and a sunken patio. Evidence discussed in Chapter 5 suggests that the acropolis was built almost entirely during the late Terminal Formative. Excavations show that one of the substructures (Structure 2) supported a large stepped platform rising at least 16 m above the floodplain. On the summit of the platform, excavations revealed remnants of an elaborate, though poorly preserved adobe building, probably a temple. As explained by Joyce and colleagues, energetics estimates and analyses of building techniques suggest that the acropolis required large labor forces that were probably drawn from Río Viejo and other communities in the region.

Participation of commoners in the construction of the acropolis as well as the rituals carried out there would have acted as practices of affiliation that constituted new social formations and contributed to the creation of a corporate identity centered on the symbols, institutions, and rulers at Río Viejo. As discussed by Levine (2002), reliance on the tortilla as inferred by the earliest comals in the region may have allowed people to more easily transport food while working on communal labor projects outside of their home community. Joyce and colleagues (Chapter 5) argue that construction of the acropolis was sponsored by rulers struggling to expand their influence beyond the community of Río Viejo to a broader region through the scaling-up of communal practices, including the construction of monumental buildings and large-scale public ceremonies (also see Barber 2005, 309–314; Barber and Joyce 2007; Joyce 2006, 85–88; 2008, 24–29; 2010, 186–195; Pool, Chapter 10). It is not clear, however, if people from the entire region were engaged physically and symbolically in practices of affiliation centered on Río Viejo and its politico-religious institutions and authorities.

A variety of data indicate that more powerful rulers emerged and social inequality increased during the Terminal Formative (Barber 2005, 284–321; Chapter 6; Barber and Joyce 2007; Barber et al., Chapter 4; Joyce 2005, 19–23; 2006, 86–88; 2008, 223–228). For example, most people interred in the Yugüe cemetery did not have offerings or were accompanied by a few ceramic vessels or beads made of greenstone or shell. One interment, however, was discovered with two remarkable objects indicating high status and perhaps a special ritual role. As discussed by Barber and colleagues in Chapter 4, this burial (Yugüe Burial B14-I16) was a male aged fifteen to seventeen, interred wearing a plaster-backed iron-ore mirror and holding an intricately incised bone flute made from a deer femur (Figure 1.10; also see Barber 2005, 186–191; Barber and Olvera



**FIGURE 1.10.** Imagery on the Terminal Formative bone flute from Burial B14-I16 in the Yugué cemetery (after Barber et al. 2009: Figure 4).

2012; Barber et al. 2009: Figure 5; Mayes and Barber 2008). Luxury goods like iron ore and greenstone, recovered in caches and as burial offerings, were obtained through networks of interregional exchange among Mesoamerican nobles. The scale of Terminal Formative monumental buildings, especially Río Viejo's acropolis, also suggests that rulers had considerable power to mobilize labor, although perhaps not without exacerbating social divisions (Joyce et al., Chapter 5).

Evidence for social inequality also comes from the excavation of a high-status residence at Cerro de la Virgen (Barber 2005, 234–270; Chapter 6). Cerro de la Virgen is located on a hill that rises 200 m above the coastal plain approximately 14 km north of the Pacific Ocean. The site was one of the largest communities in the region during the Chacahua phase, with settlement covering 60 ha and dozens of residential terraces. The high-status residence excavated by Barber (2005, Chapter 6) was built on a large terrace near the summit of the hill and was spatially associated with the monumental public plaza mentioned above. The residence consisted of several rooms with stone benches surrounding a patio. The overall area of the house was 476 m<sup>2</sup> including the patio, which measured 13 m × 13 m, making this residence far larger and more elaborate than typical Late/Terminal Formative residences in Oaxaca (Elson 2006, 56; Robles 1988; Winter 1974).

Despite increasing inequality and the development of regional political affiliations and identities, distinctions between nobles and commoners were

not emphasized in public settings (Barber, Chapter 6; Barber and Joyce 2007, 235–236; Joyce 2008, 227–228). We argue that the consumption of socially valued goods in burials and caches along with the construction of monumental buildings contributed to status inequality and regional authority, but were practices that transformed hierarchy into expressions of traditional communal principles. Social valuables obtained through long-distance exchange linked lower Verde nobles to elites in other parts of Mesoamerica and contributed to the creation of a noble identity. The use of such materials in community rituals, particularly caches in public buildings, however, transformed these objects from prestige items that embodied high status into inalienable objects that materialized corporate identities (Barber et al. n.d.). By obtaining the exotic items through which collective pasts were celebrated, nobles would have become pivotal and powerful community members. Likewise, monumental buildings, constructed with voluntary labor, emphasized corporate action and identity. Evidence for the celebration of rulers and rulership has not been found, such as monuments depicting rulers, elaborate tombs that differentiated the burials of elites from commoners, or the presence of palaces that combined public space with the residence of the ruler. Public social practices therefore appear to have continued to materialize social relations as corporate, while restraining expressions of exclusionary authority. Practices that tied social identity to regional political authority were scaled-up versions of earlier communal practices that revolved around public spaces and ceremonies such as feasting and mortuary rituals associated with the patio complex at Cerro de la Cruz. Corporate forms of rulership are evident in the Mixteca Alta at sites like Yucuita, Huamelulpan, Monte Negro, and Cerro Jazmín; communal authority may also have existed alongside more hierarchical leadership at Monte Albán (Balkansky et al. 2004; Joyce 2010, 141–146, 177–179; Pérez et al. 2011).

The evidence suggests that despite an emerging regional power at Río Viejo, local community affiliations remained strong. Ceremonial centers at other sites in the region exhibit considerable variability in construction techniques and materials as well as architectural form and use, arguing against the presence of architectural, political, and ritual principles imposed by the rulers of Río Viejo. As discussed by Barber in Chapter 6, local elites, such as the young man interred at Yugüe, appear to have been more closely tied to their local communities than to regional authorities at Río Viejo. Likewise, evidence from the region's Formative period cemeteries suggests that communal affiliations were becoming more inclusive with children as well as adults and persons of high-status and/or special social roles as well as commoners buried in cemeteries by the Chacahua phase (Barber et al., Chapter 4).

The emergence of regional political authority at Río Viejo with simultaneous continuities in strong local community affiliations suggest that attempts by Río Viejo's nobility to expand their influence created points of tension in

Terminal Formative social and political relations (Barber, Chapter 6; Barber and Joyce 2007; Joyce 2008, 2010, 194–196; Joyce et al., Chapter 5; Pool, Chapter 10). I see at least two intersecting fracture points within Terminal Formative society: along status lines and between local communities and the incipient regional authorities at Río Viejo. For example, social contradictions and tensions are suggested by the scale of supracommunity practices of affiliation, especially the construction and use of Río Viejo's acropolis, and paradoxically the simultaneous evidence for the continuation and increasing inclusivity of traditional communal practices and identities. The construction of Río Viejo's acropolis as well as rituals carried out there drew both nobles and commoners alike away from traditional sites of social interaction tied to their local communities. Levine (Chapter 8) argues that elaborate grayware pottery symbolized broader supracommunity affiliations and were used in practices involving the sharing of food and drink, such as ritual feasting, where these new social and political relations were negotiated.

There is also evidence for points of tension surrounding increasing inequality and the emergence of regional political authorities at Río Viejo. Even though local leaders were still tied to their communities, as shown by the excavations at Yugüe, Cerro de la Virgen, and Charco Redondo (Barber 2005, Chapter 6; Barber and Joyce 2007; Barber et al., Chapter 4; Joyce 2010, 186–195), they were also increasingly distinguishing themselves from others through mortuary practices, prestige goods, and elaborate residences. Nobles were involved in wider interregional networks of exchange and interaction, creating distance from commoners. There is reason to believe that the ritual transformation of inequality into an ideology of communalism was not completely closed, providing openings for discursive penetration. Tensions surrounding social inequality and newer forms of political authority may have been negotiated in the context of mortuary and caching ceremonies as seen in the cemeteries at Yugüe and Charco Redondo (Barber et al., Chapter 4) and the impressive caches at Yugüe and San Francisco de Arriba (Barber 2005, Chapter 6; Barber and Joyce 2007; Workinger 2002).

Despite the emergence of Río Viejo as a powerful political center at the end of the Formative, the evidence suggests that authority in the region was not singular. It is likely that newer, more regional, hierarchical forms of authority existed alongside traditional, community-based, less hierarchical leadership. Rather than unified under a singular regional polity, we argue that political relations among communities were dynamic and negotiated (Barber 2005, Chapter 6; Barber and Joyce 2007; Barber et al., Chapter 4; Joyce 2008; Joyce et al., Chapter 5; Pool, Chapter 10). I suspect that while Río Viejo was the most powerful political center, people of other communities had considerable independence and were able to strategically strengthen ties with or create distance from rulers and ruling institutions at Río Viejo. The collapse of regional

authority at ca. AD 250, followed by a period of political fragmentation in the Early Classic period (AD 250–500), shows that the newer, more hierarchical forms of authority were indeed tenuous and short-lived.

### AFTERMATH: THE COLLAPSE OF TERMINAL FORMATIVE POLITICAL AUTHORITY

The evidence from the lower Río Verde Valley demonstrates that the early urban polity centered at Río Viejo was not stable or long lasting, although causes of its collapse are not clear (Joyce 2005, 2008, 234–240; 2010, 195–196). At about AD 250 Río Viejo's acropolis was abandoned. Burned adobes and floor areas suggest that the elaborate public building on Structure 2 was destroyed by fire, and evidence from other areas of the acropolis shows that this destruction event was widespread (Joyce and Barber 2011). The settlement data also indicate a dramatic disruption in regional sociopolitical organization. Río Viejo decreased in size from 200 ha in the late Terminal Formative to 75 ha in the Early Classic Coyuche phase (AD 250–500). Several other large Terminal Formative floodplain sites with mounded architecture, including Yugüe, declined significantly in size or were abandoned. Elsewhere in Oaxaca many of the early urban centers also collapsed at the end of the Formative period, including Yucuita, Huamelulpan, Monte Negro, Cerro Jazmín, and Cerro de las Minas (Balkansky 1998a; Balkansky et al. 2004; Kowalewski et al. 2009; Pérez et al. 2011; Winter 1994b, 2007a). At Monte Albán there is evidence for internal political conflict at the end of the Formative period (Joyce 2010, 155–159; Urcid 1994; Urcid and Joyce 2011). Unlike many of the urban centers in the Mixteca and the lower Río Verde Valley, however, the rulers of Monte Albán successfully consolidated power and the city continued as a powerful political center until the end of the Classic period.

A regional survey in the lower Río Verde region shows a shift to defensible piedmont locations. During the Early Classic, the region contained perhaps as many as eight first-order centers of roughly equivalent size. There is little evidence for monumental building activities, suggesting that leaders were unable to mobilize large labor forces as they did in the Terminal Formative. The data indicate that the lower Río Verde Valley was occupied by multiple, perhaps competing polities. The scale of political influence was far reduced from the Terminal Formative, when Río Viejo was the single dominant center in the region, and from the Late Formative, when two first-order centers were present.

The data suggest that some form of conflict led to Early Classic political fragmentation in the lower Río Verde Valley (Joyce 2003, 64–68; 2008, 229–230; 2010, 239–241). It is not clear whether this conflict involved local political factions or whether an outside power conquered the region. Excavation

data from the Early Classic Coyuche phase indicate interaction with the powerful central Mexican polity of Teotihuacan (Joyce 2003, 64–68; Workinger, Chapter 7). In particular, obsidian studies, including neutron activation analyses, have shown that 80 percent of the 356 pieces of obsidian excavated from Early Classic contexts was from Pachuca (Joyce et al. 1995, 10–11; Workinger 2002, 325–329). This is the highest proportion known for a region outside of the central Mexican highlands. While the data for Teotihuacan contacts are intriguing, at present plausible models of Early Classic interaction range from conquest to increased reciprocal exchange (Joyce 2003, 64–70; Workinger 2002, 394–402; Chapter 7).

Another factor in the collapse could have been social tension over divergent forms of authority and practices that increasingly drew people away from their traditional communities, leading to the rejection of regional rulers and ruling institutions by local elites and commoners (Barber 2005; Barber and Joyce 2007; Joyce 2005, 22–24; 2008, 228–230; 2010, 194–196). Conflict with neighboring polities and/or with distant powers could have exacerbated these tensions.

After the destruction and abandonment of the acropolis this important political and religious building was left to slowly disintegrate for 250 years. It is interesting to speculate why the acropolis was not rebuilt or reoccupied during the Early Classic since flat elevated surfaces are ideal locations on which to live in the hot, lowland climate of the Oaxaca coast. If the Terminal Formative polity collapsed due to factional competition, it could have symbolized a failed political system. Another possibility is that foreign conquerors could have seen the acropolis as a symbol of a defeated enemy, and its reoccupation, a potential expression of resistance. By the Late Classic Yuta Tiyo phase (AD 500–800), a powerful centralized polity had reemerged at Río Viejo, although political authority at this time was much more exclusionary, with rulers celebrated in carved monuments and little evidence for large-scale communal projects (Joyce 2008).

The past twenty-five years of archaeological research in the lower Río Verde Valley demonstrate that the region experienced a series of important social and cultural transformations during the Formative period. As discussed by Christopher Pool in the final chapter of this volume, the lower Río Verde shares general similarities in Formative period historical developments with other regions of Mesoamerica. Pool compares the Formative period in the lower Río Verde Valley to two other regions: the Valley of Oaxaca and the lower Papaloapan Basin on the Gulf coast. As in all complex societies, the people of these regions were faced with the problems of addressing the inherent tensions between hierarchical and collective interests. As insightfully discussed by Pool, regional political authority in each of these regions at the end of the Formative had to balance emerging hierarchy with a public emphasis on communal symbols and practices. Pool's comparative study shows that the his-

tory of the Terminal Formative Río Viejo polity differed from the contemporaneous Monte Albán and Tres Zapotes polities. At Monte Albán communal and hierarchical interests were effectively balanced in the face of ongoing conflict with competing polities in the valley and perhaps beyond. At Tres Zapotes in the lower Papaloapan Basin, rulers had to deal with a legacy of exclusionary rulership that continued to create factional tensions among elites throughout the region. Negotiations of regional political authority in all three regions were complex and tenuous as shown by their subsequent histories. Río Viejo collapsed suddenly and perhaps violently at ca. AD 250, while Tres Zapotes began a protracted decline in political prominence. At Monte Albán tensions between communal and elite interests also reached a climax at the very end of the Formative, as earlier architecture and monumental art was dismantled or destroyed (Joyce 2010, 159). As discussed by Pool, however, the result was a further consolidation of political authority by Monte Albán's rulers.

### A BRIEF NOTE ON THEORY

Most of the archaeological research in the lower Río Verde Valley has been informed by theories of practice, power, and identity that are drawn from poststructural and feminist perspectives (for broader summaries of these approaches in archaeology see Hutson 2010; Joyce 2010, 17–34; Joyce and Lopiparo 2005; Pauketat 2001). These theories assert that the dynamics of social life result from the recursive relationship between the practices of people and the broader social relations, cultural schema, and material conditions that together constitute society and culture. Practice is socially embedded because human activity cannot be considered apart from cultural ideas, rules, and material relations. In Giddens's (1979) well-known formulation, structure is thus both the medium and the outcome of the reproduction of practices. From this perspective, people's subjectivities – their beliefs, knowledge, dispositions, and identities – are constructed and transformed through social practice and the people, places, and objects that are encountered and experienced daily (Hutson 2010). Places and things in turn come to take on or objectify ideas, including aspects of identity.

As discussed in several chapters of this book, identity in the Formative period lower Río Verde Valley was objectified in the material world of monumental buildings, clay figurines, ceramic vessels, exotic imported goods, and the ways in which people were interred at death. For example, Hepp and Joyce (Chapter 9) discuss how figurines objectified social distinctions based on age and gender. Levine (Chapter 8) argues that grayware ceramic styles found in the lower Río Verde region and throughout much of Oaxaca reflect the expansion of interregional affiliations and shared practices. Barber (Chapter 6) and Joyce and colleagues (Chapter 5) show how community identity and status



distinctions were objectified in the divergent styles and uses of public buildings like the acropolis at Río Viejo.

Several chapters also show the ways in which social practice reproduced or changed the social relations, cultural schema, and material conditions that constituted Formative period society and culture in the lower Río Verde Valley. As discussed by Joyce and colleagues in Chapter 5, probably the most far-reaching attempt to alter social relations in the region involved the sponsorship by Río Viejo's rulers of the construction of the site's massive acropolis at the end of the Formative period. Attempts such as this to strategically transform society, however, often have unanticipated consequences, as exemplified by the political collapse at the end of the Formative period. Social and political relations in the lower Verde were affirmed and at times altered in the performance of ceremonies ranging from the burial of the dead (Chapter 4) to ritual feasts (Chapter 6), through communal projects like the construction of monumental buildings (Chapter 5), and by the acquisition of exotic trade items used to enhance status distinctions (Chapter 7). While often mischaracterized as an idealist position, the material world is fundamental to poststructural and feminist approaches making relevant ecological as well as social and cultural perspectives; hence ecology has also been a focus of research in the region, as represented by the chapters in the volume by Goman and colleagues (Chapter 2) and Mueller and colleagues (Chapter 3).

The chapters in this volume demonstrate that lower Río Verde Valley society consisted of people of varied interests, identities, and world views distinguished along dimensions such as gender, status, occupation, and community affiliation. Social distinctions such as these mean that lower Verde society, like all societies, was not an integrated and coherent system, but rather was fragmented and contested to varying degrees. As discussed by Joyce and colleagues (Chapter 5) and Barber (Chapter 6), political relations at the end of the Formative period involved complex negotiations among varied social actors. Attempts by rulers at Río Viejo to extend their influence and authority over the region as a whole may have created points of social tension with commoners and elites in outlying communities, possibly leading to the collapse of the Río Viejo polity at ca. AD 250. As discussed by Pool (Chapter 10), similar tensions may have played a role in Formative period social change in other regions of Mesoamerica.

The chapters show that research in the lower Río Verde Valley has progressed beyond problems of chronology and culture history that of necessity framed the initial work in the region (Brockington 1966; Grove 1988; Joyce and Winter 1989). As this book demonstrates, researchers have begun to address theoretically significant questions of broad relevance, such as the origins and spread of agriculture, the social negotiation of complex political formations, the effects of long-distance trade and interaction, the macroregional effects of landscape change, and prehispanic ideology and political power. These and



many more questions remain; yet as summarized here, the past twenty-five years of research in the lower Río Verde Valley have provided a comprehensive understanding of the Formative period archaeology of this important and long-neglected region of Oaxaca.

## ACKNOWLEDGMENTS

I would like to thank John Clark and Jeff Blomster, who were reviewers for the entire volume, and Sarah Barber, who provided comments on this chapter. I would also like to thank the people of the lower Río Verde Valley for their friendship and assistance through the years as well as the Instituto Nacional de Antropología e Historia, especially the presidents of the Consejo de Arqueología: Lorena Mirambell, Mari Carmen Serra Puche, Norberto González Crespo, Joaquín García-Bárcena, Roberto García Moll, and Nelly Robles García. I would like to thank the directors of the Centro INAH Oaxaca, María de la Luz Topete, Ernesto González Licón, Eduardo López Calzada, Enrique Fernández Dávila, and Nelly Robles García, who have supported my research in the lower Río Verde Valley. Funding for my archaeological and paleoenvironmental field research in Oaxaca has been provided by grants from the following organizations: National Science Foundation (grants BCS-0923909, BCS-0096012, BCS-0508078, BNS-8716332, and BCS-1123388), NASA (NNX08AO31G), Foundation for the Advancement of Mesoamerican Studies (#99012), National Geographic Society (grant 3767-88), Wenner-Gren Foundation (GR. 4988), Vanderbilt University Research Council and Mellon Fund, Fulbright Foundation, H. John Heinz III Charitable Trust, Explorers Club, Sigma Xi, University of Colorado (CARTSS, CRCW, Dean's Small Grant, Norton Fund, and Innovative Grant Program), and Rutgers University. I would like to thank Guy Hepp for indexing and proofreading the volume.

## NOTE

1. This total includes one burial that was in a disturbed area of the site, but probably associated with the Structure 1 cemetery. In previous analyses of the cemetery this interment was omitted, but since it is likely to have been part of the cemetery, we include it in the analysis presented in Chapter 4.

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