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I. Sociedades precolombinas y pueblos indígenas en la época colonial

Elsa M. Redmond
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The Prehistoric City and State of Monte Albán: a View from its Frontier

In line with the theme and the setting of this conference, our paper deals with the ancient Zapotec state, whose capital was the hilltop center of Monte Albán, here in the Oaxaca Valley. The seventeenth-century friar Francisco de Burgoa, whose accounts of the Dominican mission in Oaxaca include firsthand information about the Valley Zapotec and their history, described the Zapotec state as:

> tan señora y tan apoderada de las demás de su horizonte, que ambiciosos sus reyes, rompieron los términos de su mando, y se entraron feroces, y valientes por chontales, mijes, y tierras marítimas de ambos mares del Sur, y del Norte, hiriendo, matando y venciendo, hasta señorear los fértiles llanos de Teguantepeque.[1]

In this paper we hope to demonstrate that Fray Francisco de Burgoa's characterization of the protohistoric Zapotec nation is relevant to the ancient Zapotec state, which arose in the Oaxaca Valley around the time of Christ. We will evaluate the applicability of using ethnohistorical information about sixteenth-century Zapotec militarism to understand the prehistoric Zapotec, whose militaristic activities can be gleaned only by means of archaeological research. We will examine the development of the Zapotec state centered at Monte Albán from the point of view of one of its frontiers, the Cañada de Cuicatlán, north of the Oaxaca Valley (Figure 1). It was here that we conducted archaeological investigations in 1977 and 1978 in order to evaluate the possibility that the Monte Albán state emerged in a context of Zapotec military expansion.

Monte Albán as a militaristic state

Where the three branches of the Oaxaca Valley come together is a series of hills on top of which extends the site of Monte Albán. Our understanding of the founding and development of Monte Albán derives from the work of many Mexican and American archaeologists, beginning with Alfonso Caso, who initiated the first large-scale explorations at the site in 1931. Monte Albán was first settled towards the end of the Middle Formative period, around 500 B.C. (Figure 2). In this founding Period Early I (500-300 B.C.), Monte Albán had a population of about 5,000 people distributed on residential terraces around the Main Plaza, according to Richard Blanton, who directed the surface survey and mapping project of the ancient city.[2] Excavations by Caso, Ignacio Bernal, and Jorge Acosta in the plaza area have revealed that there were just two public buildings here in Period Early I.[3]

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[1]Fray Francisco de Burgoa, *Geográfica Descripción*, Tomo I (1674); reprinted in *Publicaciones del Archivo General de la Nación*, 25 (Mexico City, 1934), p. 412.

[2]Richard E. Blanton, et. al., *Ancient Mesoamerica* (Cambridge, 1981), p. 70.

[3]Jorge R. Acosta, "Preclassic and Classic Architecture of Oaxaca" in G.R. Willey, ed., *Handbook of Middle American Indians*, Volume 3 (Austin, 1965), pp. 814-817; Blanton, et. al., *Ancient Mesoamerica*, p. 69; Kent V. Flannery and Joyce Marcus, "The Earliest Public Buildings, Tombs and Monuments at Monte Albán, with Notes on the Internal Chronology of Period I", in K.V. Flannery and J. Marcus, eds., *The Cloud People* (New York, 1983), pp. 87-91.

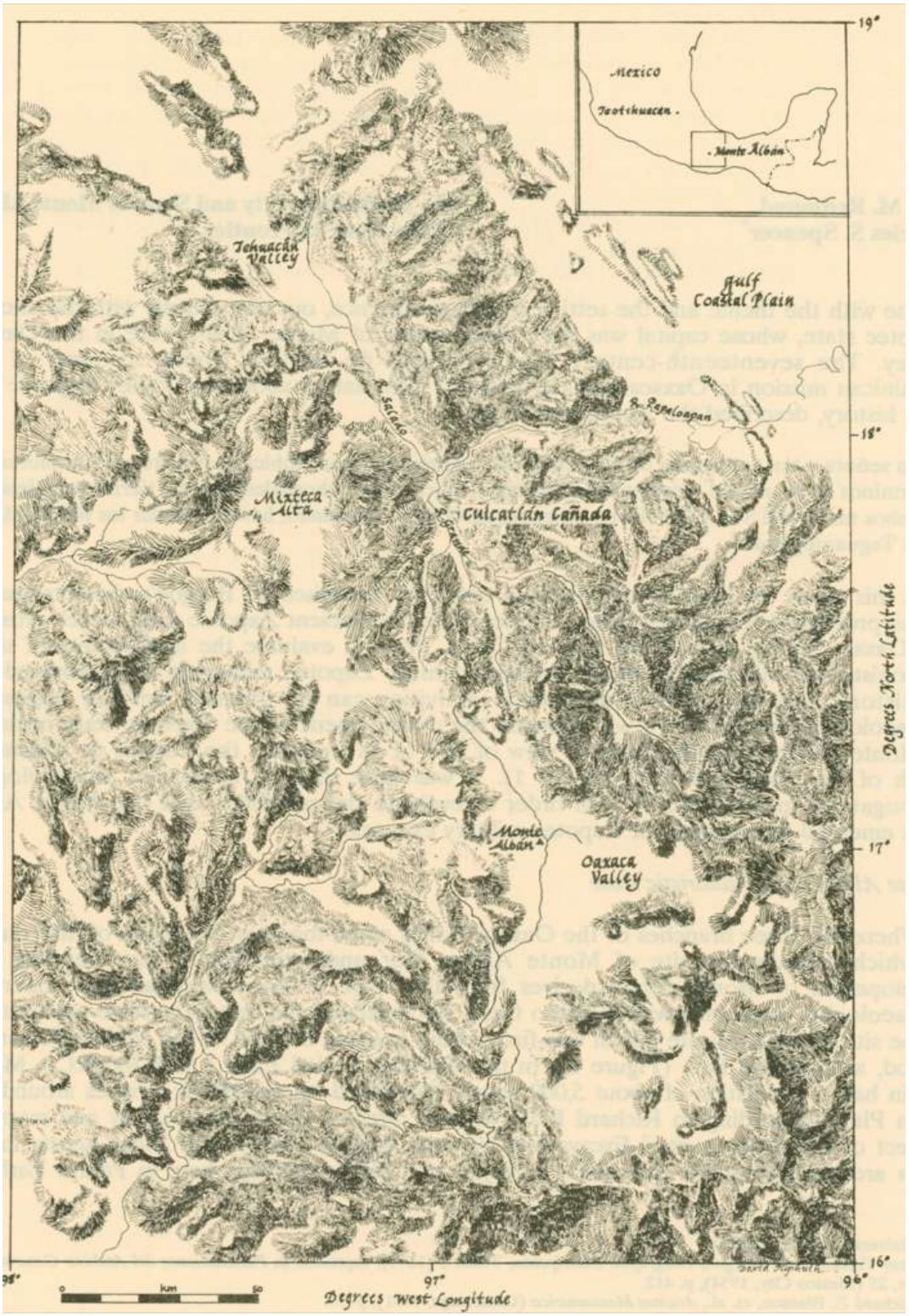

Fig. 1. Interregional map showing the relationship of the Valley of Oaxaca, the Cuicatlán Cañada, and the Valley of Tehuacán, México.

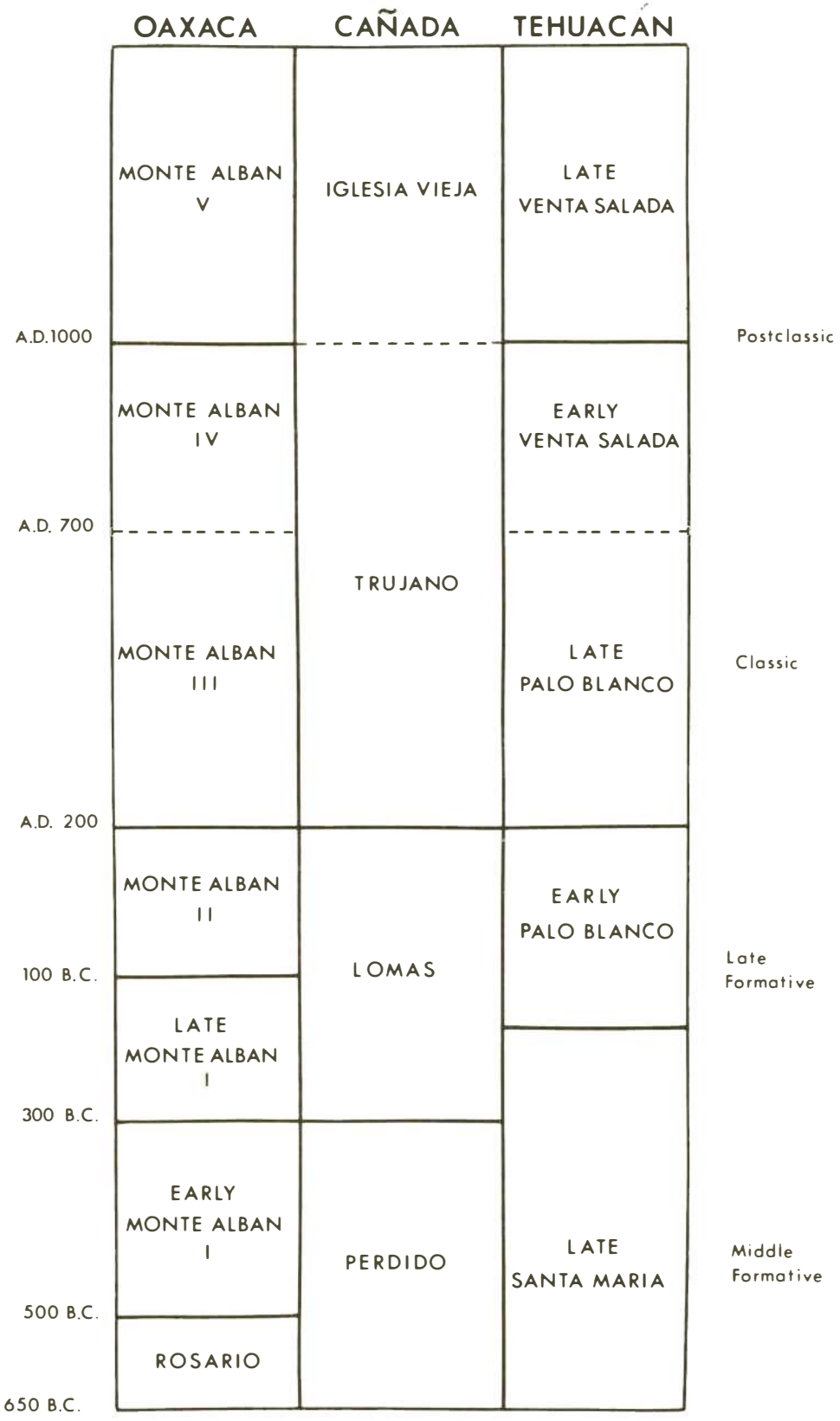

Fig. 2. Correspondence of ceramic phases in the Valley of Oaxaca, the Cuicatlán Cañada, and the Valley of Tehuacán.

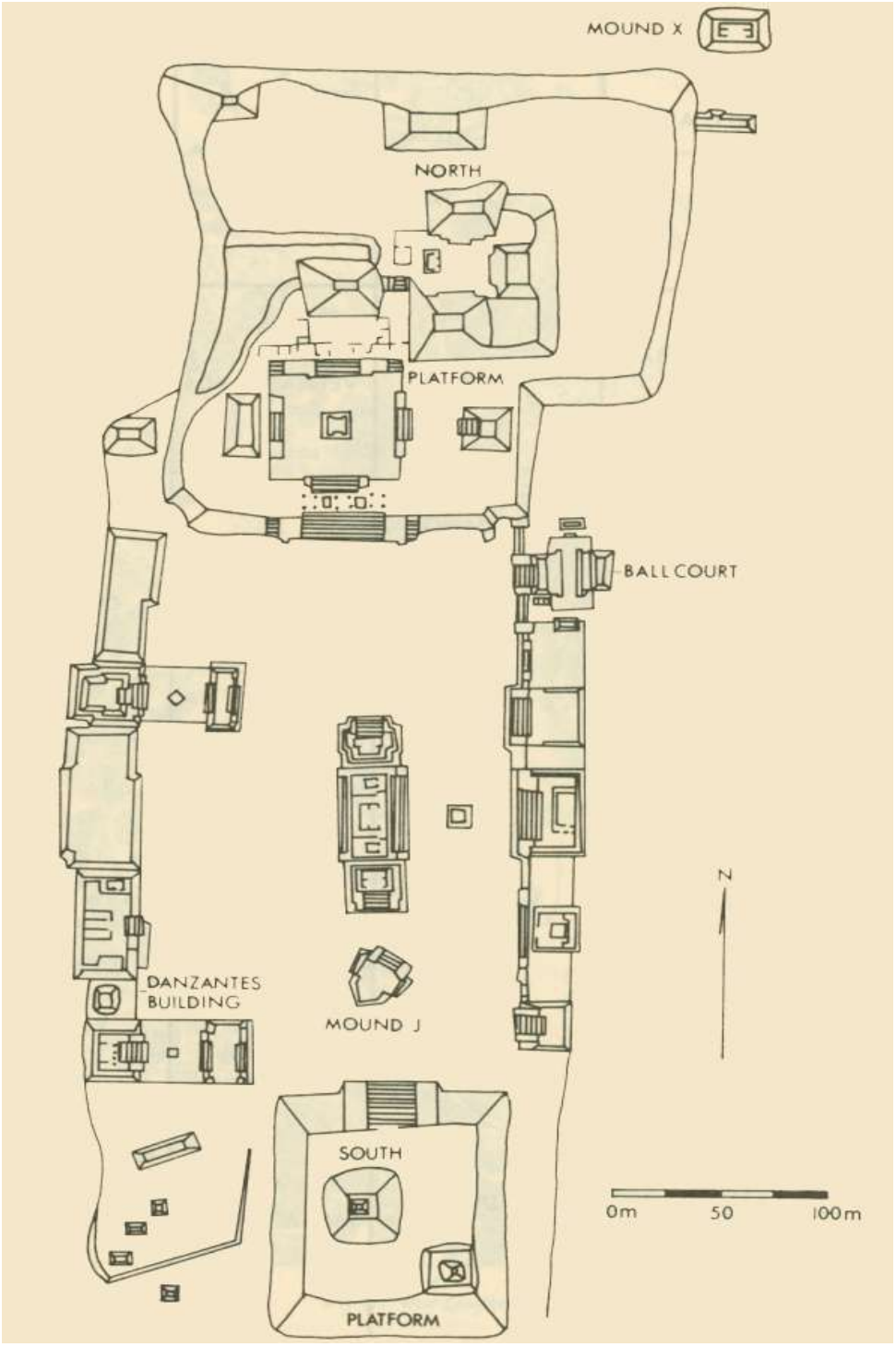

Fig. 3. Plan of the Main Plaza at Monte Albán (adapted from Marcus, 1980: 54)

One of these was the *Danzantes* building, as it has come to be named for the rows of bas-relief representations of naked male figures or *danzantes* along its eastern face. Of all the interpretations that these danzantes have elicited, none is more convincing than Michael Coe's suggestion that they depict the naked bodies of slain captives.[4] Joyce Marcus, who has been studying the inscribed stone monuments at Monte Albán, thinks it is significant that the 310 or more Period Early I danzantes constitute 80% of all the inscribed stone monuments at the site. She suggests that Monte Albán's rulers mounted this symbolic display of slain captives during the founding period to intimidate their enemies and reassure their supporters, before they had amassed effective political power over the region and had achieved true statehood.[5]

During the Late Formative period, by the beginning of Period II (100 B.C. - A.D. 200), Monte Albán's population had grown to over 15,000 persons and major building projects had been initiated at the hilltop center. The Main Plaza was formally laid out and impressive building platforms were raised on its four sides (Figure 3). These public buildings were both large in scale and architecturally diverse. Among them were a rectangular two-room temple structure, an I-shaped sunken ballcourt, a large *adoratorio,* and an arrowhead-shaped structure known as Building J , which we will return to describe in more detail. At the same time that these new and varied public buildings were constructed on the Main Plaza, a massive defensive wall was erected along much of the base of Monte Albán.[6]

If we assume that public buildings like temples and defensive walls reflect "different sociopolitical institutions and different sets of personnel"[7] regardless of the sacred or secular nature of the activities with which they are associated, the marked increase in the scale and variety of public architecture at the site in Period II signals a qualitative transformation of Monte Albán's administrative role during the Late Formative period: in short, the rise of a Zapotec state centered there. For while pre-state polities lack internally-specialized administrative organizations, states are bureaucratic societies with large, centralized, and internally-specialized administrative organizations.[8] Specialized components perform part of the state's administrative duties, among them erecting public buildings and roads, manufacturing and marketing items, exacting tribute, waging war, performing a variety of bureaucratic services, and tending religious sanctuaries.

In keeping with the possible emergence of an internally-specialized administrative organization at Monte Albán by Period II is the occurrence of virtually identical structures at certain Late Formative centers down on the valley floor, such as a two-room temple at San José Mogote and an arrowhead-shaped building at Caballito Blanco.[9] The appearance of these functionally specific public buildings at secondary centers on the valley floor probably reflects the capacity of the Monte Albán state administration by Period II to delegate authority to specialized administrators at locations other than the capital.

If the Zapotec state indeed arose during the Late Formative period with its capital at Monte Albán, a particular body of inscribed stone monuments there provides us with an intriguing insight into the character of the newly-formed state. There are over 40 inscribed

[4]Michael D. Coe, *Mexico* (New York, 1962), p. 95.

[5]Joyce Marcus, "The Iconography of Power among the Classic Maya", *World Archaeology*, 6 (1974), p. 90.

[6]Richard E. Blanton, "The Founding of Monte Albán" in K.V. Flannery and J. Marcus, eds., *The Cloud People* (New York, 1983), pp. 83-87; Alfonso Caso, Ignacio Bernal, and Jorge R. Acosta, *La Cerámica de Monte Albán*, Memorias del Instituto Nacional de Antropología e Historia, Vol. 3 (Mexico City, 1967), pp. 90-106, Plano I, 137-141; Kent V. Flannery, "The Development of Monte Albán's Main Plaza in Period II", in Flannery and Marcus, eds., *The Cloud People*, pp. 102-104; Richard E. Blanton, *Monte Albán* (New York, 1978), p. 52.

[7]Kent V. Flannery and Joyce Marcus, "Evolution of the Public Building in Formative Oaxaca", in C. Cleland, ed., *Cultural Change and Continuity* (New York, 1976), p. 206.

[8]Henry T. Wright, "Recent Research on the Origin of the State", *Annual Review of Anthropology*, 6 (1977), p. 383.

[9]Kent V. Flannery and Joyce Marcus, "San José Mogote in Monte Albán II: A Secondary Administrative Center", in Flannery and Marcus, eds., *The Cloud People*, p. 112; John Paddock, "Monte Albán II in the Yagul-Caballito Blanco Area", in Flannery and Marcus, eds., *The Cloud People*, pp. 116-117.

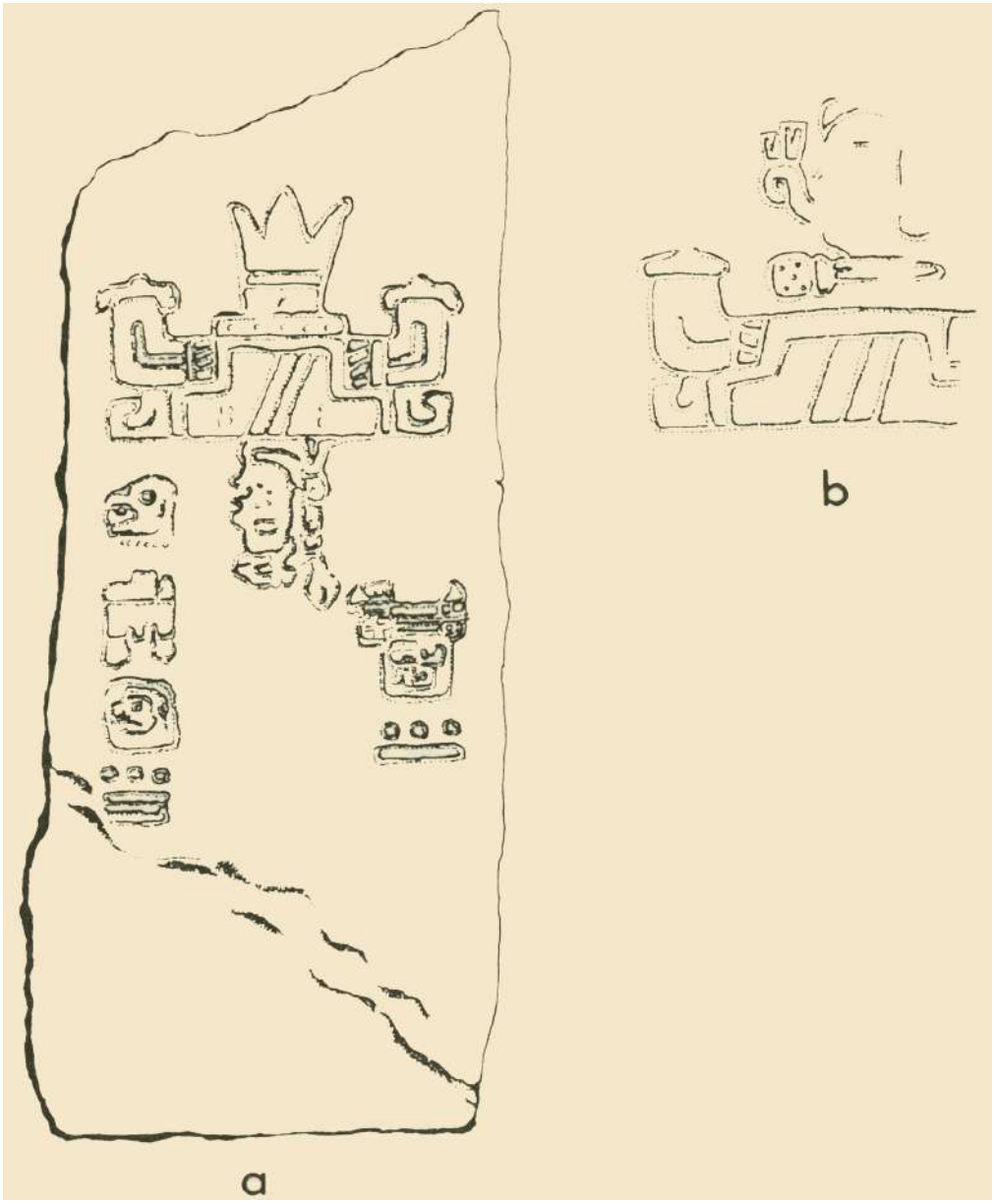

Fig. 4. a) Building J. conquest slab (from A. Caso, 1947)
b) Cuicatlán place glyph (from J. Marcus, 1980)

stone slabs on the walls of the arrowhead-shaped Building J, which was erected in the Main Plaza during Period II. First deciphered by Caso, the Building J inscriptions typically include the following elements: 1) an upside-down human head with closed eyes that is a standard convention for indicating conquest in Mesoamerican writing systems; 2) a "hill" glyph that is a general sign for "place"; 3) a combination of glyphs above the "hill" glyph that refers to the specific name of the place (Figure 4a). Caso concluded that each of the inscribed stone slabs on Building J recorded one of Monte Albán's military conquests in the Late Formative period.[10] More recently, Marcus has been trying to identify the names of the places conquered by Monte Albán with the aid of the Codex Mendoza, which includes a sixteenth-century Aztec tribute roll. All of the conquered places that she has identified to date lie outside the Valley of Oaxaca. The Building J conquest slabs underscore the militaristic character of the emergent Monte Albán state. This important iconographic evidence further suggests that Monte Albán's ascension to statehood might have been concurrent with a campaign of military conquests outside the Oaxaca Valley.

One of the place signs on Building J consists of a human head in profile from which emanates an ornate speech scroll (Figure 4b). On the basis of its close resemblance to a known place sign listed in the Codex Mendoza, Marcus has proposed that this conquered "Place of Song" corresponds to the Cañada de Cuicatlán,[11] precisely the region where we conducted our investigations of early Zapotec imperialism.

A model of the Cañada's subjugation by Monte Albán

The Cañada de Cuicatlán, home of the Cuicatec Indians in the early sixteenth century, is a narrow canyon about 32 kilometers long linking the Oaxaca Valley with the Tehuacán Valley to the north (Figure 1). The Río Grande, whose headwaters lie in the mountains immediately north of the Oaxaca Valley, flows north along the canyon floor to the present town of Santiago Quiotepec, where it joins the Río Salado, flowing south from the Tehuacán Valley. This natural corridor through the southern Mexican highlands formed a segment of the *Camino Real* in the colonial period, and we know that it served a similar function in pre-Conquest times, most notably for Motecuhzoma II's troops on their way to attack the Valley Zapotec.[12]

In contrast to the 1500-1700 meter elevations of the Oaxaca and Tehuacán Valleys, the Cañada varies between 500 and 700 meters above sea level. The Sierra Madre Oriental to the east creates an effective rainshadow in the canyon, where an average of less than 300 millimeters of rain falls each year. Human habitation in this *tierra caliente* region is limited to places where the major tributaries join the Río Grande to produce relatively broad alluvial fans. Although there is too little rainfall in the Cañada for successful dry farming, these alluvial fans are farmed intensively using various irrigation techniques. Flood-water farming is practiced on some stretches of low alluvium flanking the river, and the remaining low alluvium can be irrigated by constructing simple *tomas de agua* (diversionary dams) of stone and brush to divert and channel water from the river onto adjacent fields. In order to cultivate the higher alluvium on remnant river terraces, water is drawn from tributary streams by means of an extensive network of canals.

With irrigation, the Cañada's alluvial soils can yield up to 3-4 metric tons of shelled maize per hectare yearly, a figure that compares favorably with the yields of maize planted

[10]Alfonso Caso, "Calendario y escritura de las antiguas culturas de Monte Albán", in *Obras Completas de Miguel Othón de Mendizábal* (Mexico City, 1947), Vol. I, pp. 21-28.

[11]Joyce Marcus, "The Iconography of Militarism at Monte Albán and Neighboring Sites in the Valley of Oaxaca", in H.B. Nicholson, ed., *The Origins of Religious Art and Iconography in Preclassic Mesoamerica* (Los Angeles, 1976), pp. 130-131; Joyce Marcus, "The Conquest Slabs of Building J, Monte Albán", in Flannery and Marcus, eds., *The Cloud People*, p. 108; Joyce Marcus, "Zapotec Writing", *Scientific American*, 242 (1980), p. 56.

[12]Joseph W. Hopkins, III, *Irrigation and the Cuicatec Ecosystem: A Study of Agriculture and Civilization in North Central Oaxaca*, Museum of Anthropology, University of Michigan, Memoir, No. 17 (Ann Arbor, 1984), pp. 20-21.

on the most productive land in the valleys of Oaxaca and Tehuacán.[13] Aside from its potential for maize agriculture, today this tierra caliente region is famed for its tropical fruits, including the native *chicozapote,* black *zapote,* and *ciruela*, none of which can be grown in the surrounding mountain valleys. The Cañada's productive specialization in the cultivation of tropical fruits has a long history, inasmuch as the sixteenth-century *Relación de Cuicatlán* noted that the tropical fruits from the Cañada were the best in New Spain:

> como es tierra caliente ay en el muchas frutas de la tierra y muy buenas, que se tiene por cierto son las mejores de la Nueva España.[14]

Cotton was also grown in the Cañada at the time of the Spanish Conquest and was woven into cloth for mantles.[15] Today, however, much of the Cañada's alluvium is devoted to the cultivation of post-Hispanic cash crops, the most important of which are sugar cane and the more recently introduced mango. Large, privately-owned fruit plantations exist in the Cañada today, reflecting a pattern of land ownership similar to the handful of colonial period *haciendas* that still dot the canyon floor.

We carried out archaeological investigations in the Cañada de Cuicatlán to evaluate the hypothesis of a Zapotec conquest of this strategically-located, fertile canyon in the Late Formative period, as suggested by Marcus's reading of one of the conquest slabs on Building J at Monte Albán. Accordingly, we formulated a model of Zapotec conquest of the Cañada in the Late Formative period. If the Building J inscriptions referred to outright territorial conquest and subjugation of regions like the Cañada de Cuicatlán, we sought to determine what the effects of a Zapotec conquest strategy would have been upon the conquered regions. Moreover, in view of the aforementioned evidence from the Oaxaca Valley suggesting that such a campaign of interregional conquests by Monte Albán might have been concurrent with its transformation into the capital of a state, we needed to understand the implications of a Zapotec conquest strategy for the development of the Monte Albán state.

The ethnohistorical evidence

The conquest model drew heavily upon ethnohistory for detailed information about Zapotec military organization and Zapotec expansionism during the Late Postclassic period. The sources consist principally of the writings of Fray Juan de Córdova and Fray Francisco de Buroga, two Dominican friars who lived among the Valley Zapotec in the early colonial period. Spanish-born Fray Juan de Córdova was assigned to a Dominican convent in the Oaxaca Valley in 1570. In a very short period he had mastered the Zapotec language and completed his dictionary and grammar of it.[16] Fray Francisco de Burgoa was born in Oaxaca in 1605, and his apostolic writings contain primary information about Valley Zapotec life and history.[17]

[13]Elsa M. Redmond, *A Fuego y Sangre: Early Zapotec Imperialism in the Cuicatlán Cañada, Oaxaca*, Museum of Anthropology, University of Michigan, Memoir, No. 16 (Ann Arbor, 1983), pp. 20-21, 39-40; Anne V. T. Kirkby, *The Use of Land and Water Resources in the Past and Present Valley of Oaxaca, Mexico,* Museum of Antropology, University of Michigan, Memoir, No. 5 (Ann Arbor, 1973), pp. 61-62; Charles S. Spencer, "Irrigation, Administration, and Society in Formative Tehuacán", in R.D. Drennan, ed., *Prehistoric Social, Political, and Economic Development in the Area of the Tehuacán Valley: Some Results of the Palo Blanco Project*, Museum of Anthropology, University of Michigan, Technical Report, No. 11 (Ann Arbor, 1979), p. 65.

[14]Juan Gallego, "Relación de Cuicatlán" (1580), in Francisco del Paso y Troncoso, ed., *Papeles de Nueva España: Segunda Serie, Geografía y Estadística*, 7 vols. (Madrid, 1905), vol. 4, p. 187.

[15]Eva Hunt, "Irrigation and the Socio-Political Organization of Cuicatec Cacicazgos", in R.S. MacNeish, general ed., *The Prehistory of the Tehuacán Valley*, 5 vols., F. Johnson, ed., *Chronology and Irrigation* (Austin, 1972), vol. 4, p. 195.

[16]Fray Juan de Córdova, *Vocabulario en Lengua Zapoteca* (Mexico City, 1578), reprinted in *Biblioteca Lingüística Mexicana*, I (Mexico City, 1942); Fray Juan de Córdova, *Arte en Lengua Zapoteca* (1578; reprinted, Mexico City, 1886).

[17]Fray Francisco de Burgoa, *Palestra Historial de Virtudes y Ejemplares Apostólicas* (1670), reprinted in *Publicaciones del Archivo General de la Nación*, 24 (Mexico City, 1934); Fray Francisco de Burgoa, *Geográfica Descripción* (1674), 2 vols., reprinted in *Publicaciones del Archivo General de la Nación*, vols. 25-26 (Mexico City, 1934).

Córdova's and Burgoa's accounts are invaluable to archaeologists who study the prehistoric Zapotec, even though hundreds of years separate the sixteenth-century Zapotec described by Córdova and Burgoa from their early forerunners who founded the Monte Albán state. In the case of the Zapotec, many continuities have been found to link the language and culture of the modern Valley Zapotec with their predecessors of the historic and prehistoric past, possibly as far back as 3000 B.C.[18] Consequently, the ethnohistorical descriptions of Córdova and Burgoa constitute our bridge to the prehistoric Zapotec. Their word-lists and descriptions pertaining to Zapotec military practices and imperial strategies in the Late Postclassic period helped us to construct a general model of Monte Albán's proposed subjugation of regions like the Cañada de Cuicatlán in the prehistoric Late Formative period, a model which could then be subjected to independent archaeological verification. In view of the long-term continuities in Zapotec culture, we should not be surprised if some elements of Zapotec militarism and frontier adminstration that are known to have been practiced by the Postclassic Zapotec were legacies from earlier times.

Burgoa, who characterized the Late Postclassic Zapotec state as powerful and expansionistic, mentioned two underlying motivations for attacking and subjugating nearby regions. The Valley Zapotec sought captives taken in warfare for ritual sacrifices or for sale in Zapotec markets. They also conducted military campaigns in order to subjugate towns and entire foreign regions and extract tribute from them. Their armies, composed of ranked military orders and led by captains, employed a variety of weapons and military techniques to this end. One tactic involved marching into enemy territory in overwhelming numbers, carrying shields and meeting the opposing forces with clubs, broadswords studded with obsidian blades, spears, dart-throwers, and arrows. Another tactic was to set fire to communities and to massacre any inhabitants who mounted a resistance.[19] The compaign that the Zapotec conducted against the Mexican armies in the Isthmus of Tehuantepec around 1495 exemplified yet another military stratagem, in which fortifications were erected on mountaintops at strategic points overlooking major communication routes, from where suprise attacks were launched against the enemy forces.

Following a region's defeat and surrender to the Zapotec forces, the Zapotec state seized control over the previously autonomous area. Those towns that had formerly paid tribute to their own rulers now became tributary to the Zapotec state. In order to ensure the allegiance of the newly-tributary populations, the Zapotec established fortified garrisons in the conquered lands, and Zapotec military captains and garrison troops manned these frontier installations under the supervision of a designated frontier administrator. In two cases recorded by Burgoa this frontier administrator was a member of the Zapotec ruler's lineage.

The Zapotec administration of conquered regions included both military and civil functions. Zapotec military might was concentrated in fortified garrisons on hilltops, for the purpose of defending the expanded borders of Zapotec territory and keeping watch over the subject population. These frontier installations required abundant manpower for their construction and maintenance as well as personnel to guard them, to produce food and other necessary supplies, to draw water, and to act as spies, among other duties. According to Burgoa, the subject population supplied much of the necessary manpower and provisions to maintain the Zapotec military installations in partial payment of their tribute to the Zapotec state. The remaining tribute due was sent to the Zapotec rulers in the Valley of Oaxaca. One of the principal duties of the Zapotec administrators in a conquered region was to oversee the collection and shipment of tribute to the state

[18]Joyce Marcus, "The Genetic Model and the Linguistic Divergence of the Otomangueans", in Flannery and Marcus, eds., *The Cloud People*, pp. 6-7; Joseph W. Whitecotton, *The Zapotecs: Princes, Priests and Peasants* (Norman, 1977); Joyce Marcus, "Archaeology and Religion: A Comparison of the Zapotec and Maya", *World Archaeology*, 10 (1978), pp. 172-179; Joyce Marcus and Kent V. Flannery, "Ethnoscience of the Sixteenth-Century Valley Zapotec", in R.I. Ford, ed., *The Nature and Status of Ethnobotany*, Museum of Anthropology, University of Michigan, Anthropological Paper, No. 67 (Ann Arbor, 1978), pp. 51-79.

[19]Redmond, *A Fuego y Sangre*, pp. 26-29.

capital. We are fortunate to have Burgoa's description of the tribute collected by the Late Postclassic Zapotec in Nejapa, a tierra caliente region traversed by the Camino Real en route from Oaxaca to Tehuantepec; tribute here was paid in prickly-pear fruit, vanilla, cochineal, and cotton mantles.

The Zapotec administration of conquered regions constituted a reign of terror for the subject populations. Burgoa wrote that in one frontier region, for example:

> se hacían temer con crueldades y carnicerías que hacían de los que no les eran muy sujetos, y con ferocidades de bestias castigaban el menor recelo que tenían de su fidelidad, y siendo exploradores eran los más ciegos, y inhumanos, teniendo tan oprimidos a los vasallos, que como mastines rabiosos primero los despedazaban que se oyese el ladrido de su braveza, bestial política que aún entre gentiles fue atentamente prevenida en las fronteras.[20]

Sometimes the skulls and bones of the butchered victims were used to construct skull racks as a symbol of conquest.

The archaeological expectations

In view of the ethnohistorical information we collected concerning Late Postclassic Zapotec militarism and frontier policies, we expected the effects of the hypothesized Zapotec conquest strategy in the Late Formative period to be archaeologically detectable in the Cañada de Cuicatlán. As the Zapotec armies swept through the Cañada they would probably have left signs of warfare and devastation, including the possible destruction of entire communities. We therefore expected to find abrupt discontinuities in the regional settlement pattern in response to the Zapotec incursion, including the sudden establishment of hilltop fortifications. Moreover, we expected to find archaeological evidence of the region's transformation into a tributary province of the Monte Albán state. Native political institutions in the region would probably have been eliminated and replaced by a Zapotec frontier administration whose duties included the military defense and control of the conquered territory and the exaction of tribute from its inhabitants. This political reorganization of the Cañada at the hand of the Monte Albán state might be manifested archaeologically by a new regional settlement-size hierarchy as well as by evidence of a clear Zapotec military presence in the area.

Individual communities within the conquered region would have been forced to meet Zapotec tribute demands. If the local economy of the Cañada prior to the Zapotec take-over was not capable of meeting those tribute demands, we would expect to find archaeological evidence reflecting a reorganization of the region's productive activities. For example, the Zapotec might have stepped up the production of the desired tribute items by expanding and altering the Cañada's agricultural regime. Needless to say, any exchange relationships that the Cañada might have maintained previously with other regions, including the Valley of Oaxaca, would have been disrupted following its incorporation into Zapotec territory. We therefore expected to find changes in the regional distribution of exotic goods imported to the Cañada after the hypothesized Zapotec take-over.

Finally, if the Valley Zapotec did pursue an interregional conquest strategy during the Late Formative period, the effects of such a strategy should also have been felt back at Monte Albán, the capital of the expanding polity. To begin with, in order for the Valley Zapotec to have embarked upon a campaign of conquest they would have needed to establish a permanent military organization, especially if no such institution existed prior to the Late Formative period. Given what we know about Late Postclassic Zapotec military organization, we would expect to find archaeological evidence signalling the

[20]Burgoa, *Geográfica Descripción*, vol. 2, pp. 11-12.

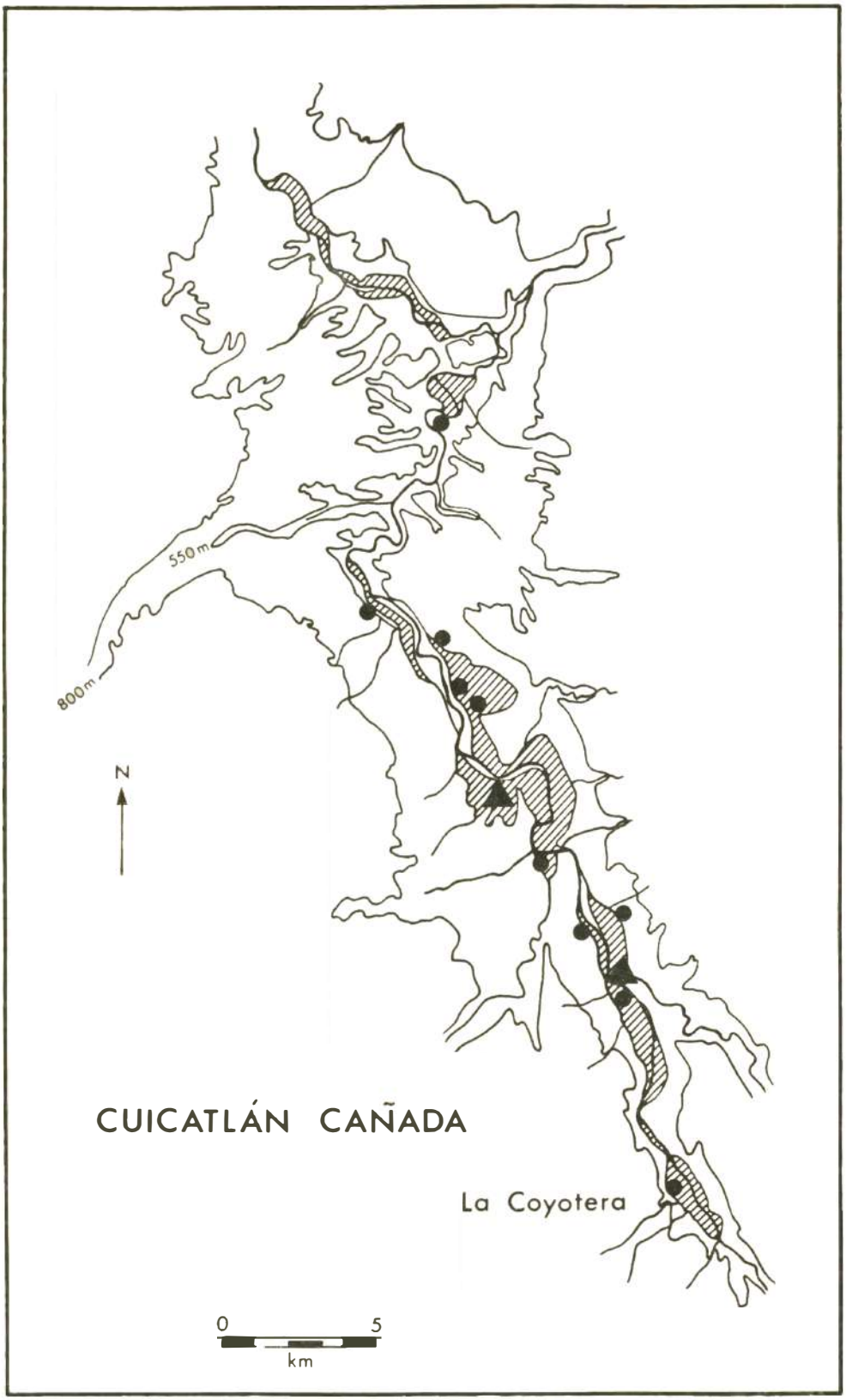

Fig. 5. Perdido phase regional settlement pattern map. Sites smaller than 5 ha, ●; sites larger than 5 ha, ▲

development of a body of military specialists and warriors in the Late Formative period, as well as archaeological manifestations of militaristic activities, including the construction of fortifications and other facilities both within and outside the Oaxaca Valley. Aside from a burgeoning military organization needed to subjugate other areas, the long-term success of the Zapotec conquest strategy also would have depended upon Monte Albán's ability to administer the subjugated regions and to oversee a vast tributary network –possibly encompassing the more than 40 conquered places recorded on Building J. We propose that the management of such a vast imperial network would have necessitated an elaboration of Monte Albán's administrative organization, and would thus expect to see signs of a significant increase in the complexity of Monte Albán's administration in the Late Formative period.

The archaeological evaluation of our conquest model for the Cañada de Cuicatlán required a comprehensive research design, one that could monitor aspects of both regional and community organization in the Cañada, beginning in the Middle Formative period before the proposed Zapotec take-over, and continuing through to the Late Formative and Classic periods (Figure 2). To collect information on the nature of regional organization, we conducted a regional settlement-pattern survey that included locating, mapping, and surface-collecting all the Formative and Classic period sites in the Cañada. Subsequently, we carried out excavations at the site of La Coyotera, which included Middle Formative, late Formative, and Classic period occupations. The program of excavation at La Coyotera was designed to investigate the nature of the community's economy and sociopolitical organization before and after the hypothesized Zapotec conquest of the Cañada.

The Cañada de Cuicatlán in the middle formative period

The Cañada de Cuicatlán witnessed the development of small farming communities on all four of its alluvial fans during the Middle Formative Perdido phase (ca. 650-300 B.C.) (Figure 2). All eleven Perdido phase sites in the Cañada were located on high alluvial terraces or low piedmont spurs directly overlooking stretches of low alluvium (Figure 5). While the majority of these Middle Formative settlements ranged in size between one and five hectares, two were substantially larger; one covered almost eight hectares and the other was at least nine hectares in size. There is archaeological evidence, therefore, of a two-level hierarchy of settlement sizes in the Cañada at this time.

The two sites in the upper level of the settlement-size hierarchy were also the only ones with pyramidal mounds up to four meters tall arranged around central plazas. Our excavations at La Coyotera, one of the Middle Formative sites on the lower level of the settlement-size hierarchy, exposed low platforms less than a meter in height contained within residential compounds and associated with certain ritual artifacts.[21] These differences in sacle between the public architecture found at sites on the upper and lower levels of the regional settlement-size hierarchy may reflect the existence of a two-tiered administrative hierarchy (made up of two chiefly centers and their subsidiary villages) in the Cañada during the Middle Formative period.

Our survey did not turn up any irrigation facilities in association with these Middle Formative period communities on the high alluvium, so we suggest that their inhabitants were farming the low alluvium using simple techniques of diversionary dam irrigation that are still practiced along the Río Grande today. The two larger centers were located on the Cañada's broadest alluvial fans, which have the greatest amounts of low alluvium. We estimate, however, that settlements on all of the regions's alluvial fans could easily have

[21]Charles S. Spencer, *The Cuicatlán Cañada and Monte Albán* (New York, 1982), pp. 136-145.

Table 1

Tropical Fruit Remains and Craft-Related Artifacts in Perdido and Lomas Phase Midden Deposits at La Coyotera

	Perdido Phase Midden Debris[a]	Lomas Phase Midden Debris[a]
Tropical Fruit Remains		
Total weight of *coyol* palm endocarps (g)	5.0	80.9
Total weight of *Palmae* seed fragments	0	20.6
Total number of black *zapote* seed fragments	32	46
Total number of *ciruela* seed fragments	0	36
Craft-Related Artifacts		
Notched stones (poss. loom weigths)	3	0
Perforated sherd disks (poss. spindle whorls)	1	0
Other sherd disks	5	0

[a]The total volume of excavated midden debris (Perdido phase: 11.94m^3; Lomas phase: 6.45m^3) and the total number of diagnostic ceramics (Perdido phase: 1875; Lomas phase: 812) provide a relative measure of the "amount" of midden deposit represented in each column of the table

Table 2
Distibution of Imported Prestige Goods
at Perdido Phase Sities

Site	Number of Collection[a]	Total Ceramic Diagnostics	Total Oaxaca Pottery	Total Oaxaca Pottery Total Diagnostic (x 100)	Total Obsidian	Total Obsidian Total Diagnostics (x 100)	Total Shell
Cs27	0*						
Cs4	6	343	6	1.749	30	8.746	0
Cs5	0*						
Cs6	1	**	0	**	3	**	0
Cs9	2	155	1	0.645	9	5.806	0
Cs10[b]	6	389	11	2.828	42	10.797	1
Cs15	13	252	2	0.794	17	6.746	0
Cs17	5	229	1	0.437	20	8.734	0
Cs19[b]	2	298	7	2.349	27	9.060	1
Cs21	4	116	1	0.862	6	5.172	0
Cs25	5	427	4	0.937	41	9.602	0

[a]Included in the analysis are all pure Perdido phase collections.
*Single asterisk indicates the absence of pure Perdido phase collections.
**Double asterisk indicates a sample too small for meaningful analysis.
[b]The two proposed chiefly centers are Cs10 an Cs19.

been supported just by farming the associated low alluvium.[22] Their economic self-sufficiency was evidenced at La Coyotera by a wide range of productive activities, including the cultivation of the black *zapote* and the *coyol* palm (Table 1). The Middle Formative inhabitants of La Coyotera also pursued a variety of craft activities such as spinning, weaving, obsidian working, and shell working.

These Middle Formative settlements in the Cañada de Cuicatlán also had access to a variety of items imported from neighboring regions, including elaborate ceramics from the Oaxaca Valley, obsidian from Central Mexico, and marine shell from both the Pacific and Atlantic coastal regions (Table 2). Their distribution among Perdido phase sites agrees with the proposed two-level regional administrative hierarchy: the surface collections from the two larger settlements tended to have relatively more of these imported items than the surface collections from the smaller settlements. We suggest, therefore, that the two large chiefly centers in the Cañada probably functioned as nodal points in the interregional exchange networks that linked the Cañada de Cuicatlán with neighboring regions during the Middle Formative period. For their part, we suspect that these two Cañada centers were probably exporting some of the tropical products that we know were cultivated in the region and that have been recovered at Middle Formative settlements in the temperate Oaxaca and Tehuacán valleys.[23] In sum, the evidence we have presented suggests that chiefly societies flourished in the Cañada de Cuicatlán during the Middle Formative period, whose relationship with the Valley Zapotec was largely one of reciprocal exchange.

The Cañada de Cuicatlán in the late formative period

Let us now turn to developments in the Cañada de Cuicatlán during the succeeding Late Formative Lomas phase (ca. 300 B.C. - A.D. 200) (Figure 2) when, according to the inscriptions on Building J at Monte Albán, the Valley Zapotec embarked upon the conquest of neighboring regions, including the Cañada de Cuicatlán. First of all, the previous Middle Formative communities on the region's high alluvium were suddenly abandoned, and new settlements were founded on top of nearby piedmont ridges, most of which remained under five hectares in size (Figure 6).

Even more striking were the developments taking place on the Quiotepec alluvial fan at Cañada's northern boundary, marked by a mountain ridge extending west from the junction of the Río Grande and Río Salado. A narrow pass through this ridge at Quiotepec offers the only natural entryway to the Cañada from the Tehuacán Valley, and not surprisingly it was selected as the route for the Mexican railroad in the nineteenth century.[24] An unprecedented expansion of settlement occurred there during the Late Formative period; where previously a single 1.5 -hectare community lay, seven settlements were established, among them the largest settlements in the entire Cañada at this time. One of these spanned both sides of the mountain pass and contained a large plaza with a ballcourt, mound platforms, and over 200 residences behind defensive fortifications. On a ridgetop above the pass stood an isolated plaza dominated by a ten-meter tall mound that would have offered a commanding lookout point. An elaborate fortress ocupied the highest point of the Quiotepec mountain ridge. First surveyed by Martín Bazán in 1927, the stone fortifications atop Cerro de Quiotepec enclosed two monumental mound groups, a ballcourt, and approximately 30 residences.

[22]Redmond, *A Fuego y Sangre*, pp. 65-66.

[23]Richard I. Ford, "Carbonized Plant Remains", Appendix XIII in R.D. Drennan, *Fábrica San José and Middle Formative Society in the Valley of Oaxaca*, Museum of Anthropology, University of Michigan, Memoir, No. 8 (Ann Arbor, 1976), p. 266; Judith E. Smith, "Carbonized Botanical Remains from Quachilco, Cuayucatepec, and La Coyotera: A Preliminary Report", in R.D. Drennan, ed., *Prehistoric Social, Political, and Economic Development in the Area of the Tehuacán Valley: Some Results of the Palo Blanco Project*, Museum of Anthropology, University of Michigan, Technical Report, No. 11 (Ann Arbor, 1979), pp. 224-226.

[24]Hopkins, *Irrigation and the Cuicatec Ecosystem*, pp. 69-71.

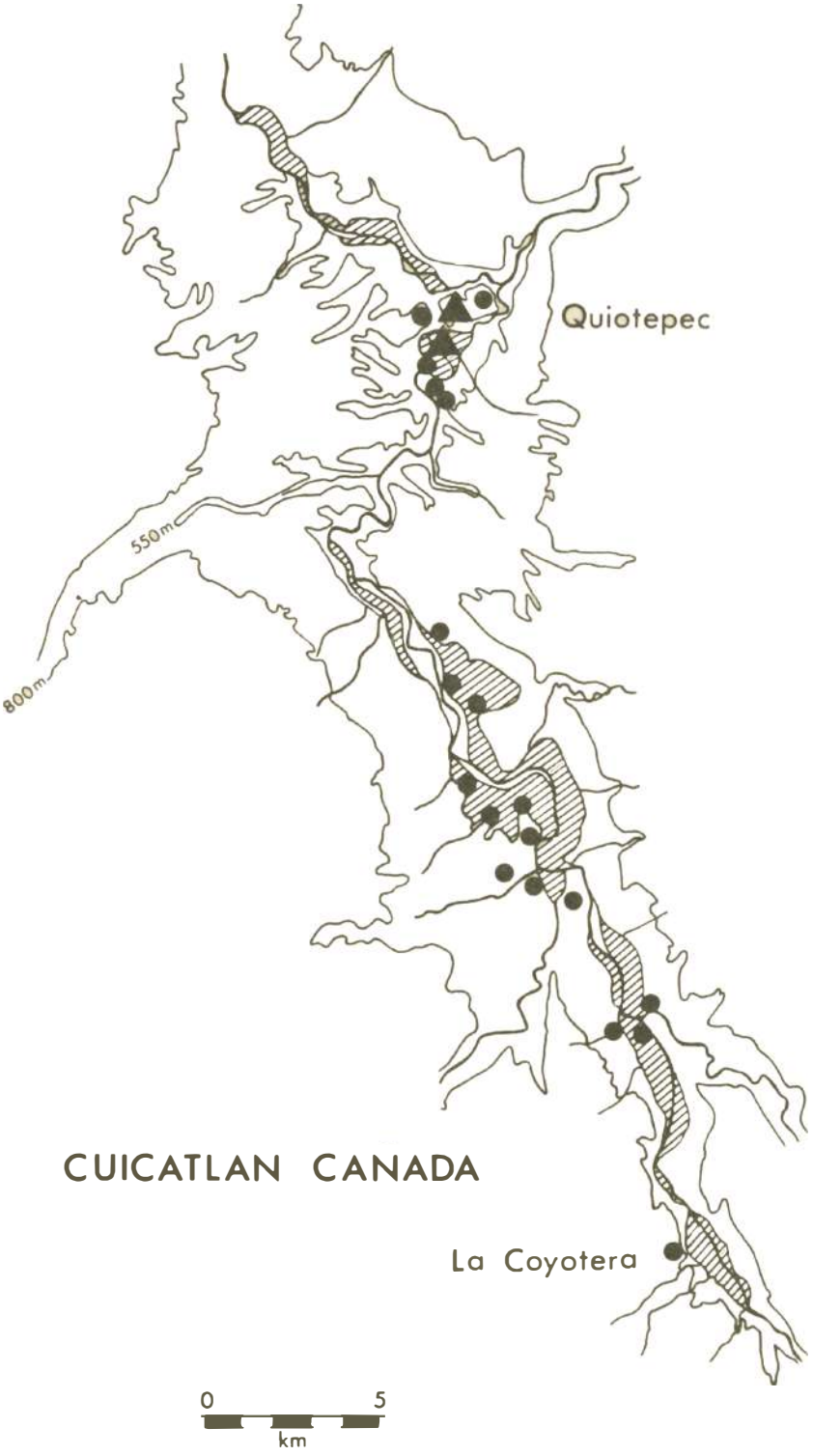

Fig. 6. Lomas phase regional settlement pattern map. Sites smaller than 5 ha, ● ; sites larger than 5 ha, ▲

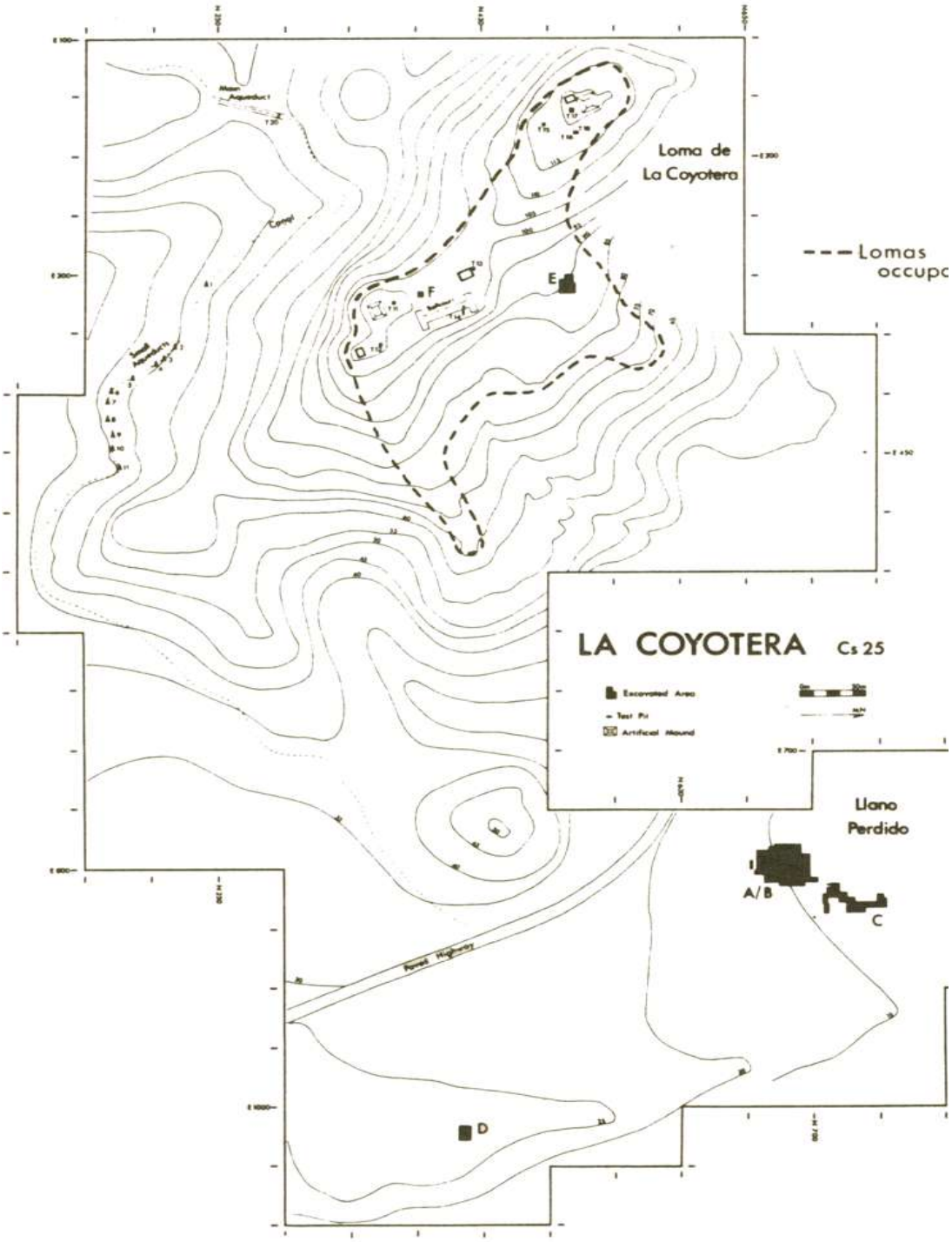

Fig. 7. Map of La Coyotera. The Middle Formative period settlement was situated on the Llano Perdido alluvium while settlement in the succeeding Late Formative period shifted onto Loma de La Coyotera

On the Quiotepec alluvium directly south of the mountain pass and across a major ford on the Río Grande lay a 200 by 210-meter plaza marked by long platform mounds six meters high, through which any traveler fording the river would have had to pass. Three additional settlements extended along piedmont ridges farther upstream and south of the mountain pass. These settlements at Quiotepec constituted by far the largest concentration of settlement on any of the Cañada's alluvial fans during the Late Formative period. This expanded settlement on The Quiotepec alluvial fan could not have been supported locally, since we estimate that there were more than four times as many people residing here during the Late Formative period than could have been supported by farming the available alluvium.[25]

On all the settlements at Quiotepec we collected ceramics that show strong similarities to certain distinctive Monte Albán II ceramics of the Oaxaca Valley.[26] Just seven kilometers north of Quiotepec, however, we surveyed a contemporaneous Late Formative settlement covered with the Palo Blanco phase pottery of Tehuacán (Figure 2). In the Late Formative period, the Quiotepec area appears to have marked the northern limit to the distribution of Cañada and Monte Albán–style ceramics. A clear boundary separated the settlements in the Cañada from those to the north in the Tehuacán Valley, probably reflecting a sharp reduction in the frequency of interaction between the inhabitants of the Cañada and their neighbors in the southern Tehuacán Valley.

As happened elsewhere in the Cañada south of Quiotepec, the Middle Formative settlement on the high alluvium at La Coyotera was abandoned. In fact, there is substantial evidence that this community met a sudden and violent end. Our excavations there yielded enormous quantities of burned daub and adobe fragments, implying that the community was burned to the ground. Moreover, we discovered the body of a woman lying on the floor of a residence, who probably perished when the community was destroyed. The succeeding Late Formative period settlement here shifted to a new location on top of a piedmont ridge overlooking the high alluvium (Figure 7). The new hilltop settlement was not significantly larger than the previous Middle Formative community on the high alluvium, yet it differed from its predecessor in a numbrer of ways. The organization of residence changed from the multi-family residential compounds of earlier times to a pattern characterized by individual residences on narrow terraces sculpted into the hillside. Like other Late Formative period settlements in the heart of the Cañada, the public sector of the new community at La Coyotera consisted of a single plaza featuring two low mounds.

Another important development in the Late Formative period was the construction of an elaborate irrigation facility at La Coyotera. This was a canal that brought water down from a tributary stream behind the site, and from over a dozen arroyos and depressions, by means of aqueducts, and channeled it onto the expanse of high alluvium below (Figure 7). We placed a test excavation across the largest aqueduct and determined that this irrigation facility was erected in the Late Formative Lomas phase, when the hilltop was first settled.[27] With the introduction of canal irrigation technology to Late Formative period communities like La Coyotera, the Cañada's high alluvium could have been brought under cultivation, resulting in an enormous agricultural expansion. Yet, since the local population at these Late Formative communities could have been easily supported by continuing to farm just the low alluvium, it would seem that the great productive expansion in the Cañada during the Late Formative period must have been in response to *external* demands.

Clues as to the nature of these demands come from some Late Formative period midden deposits that we excavated on a residential terrace at La Coyotera, which yielded

[25]Redmond, *A Fuego y Sangre*, pp. 105-106.
[26]Caso, Bernal, and Acosta, *La Cerámica de Monte Albán*, pp. 47, 68.
[27]Spencer, *The Cuicatlán Cañada and Monte Albán*, pp. 222-225.

Table 3
Imported Items in the Cuicatlán Cañada:
A Comparison of Perdido and Lomas Phase Collections

	Number of Collections[a]	Total Ceramic Diagnostics	Total Oaxaca Pottery	Total Oaxaca Pottery Total Diagnostic (x 100)	Total Tehuacán Pottery	Total Obsidian	Total Obsidian Total Diagnostics (x 100)	Total Shell
Perdido Phase	44	2224	33	1.484	1	195	8.768	2
Lomas Phase	15	940	8	.851	1	44	4.681	0

[a]Included in the analysis are all pure Perdido and pure Lomas phase collections from sites in the Central and Southern Cañada.

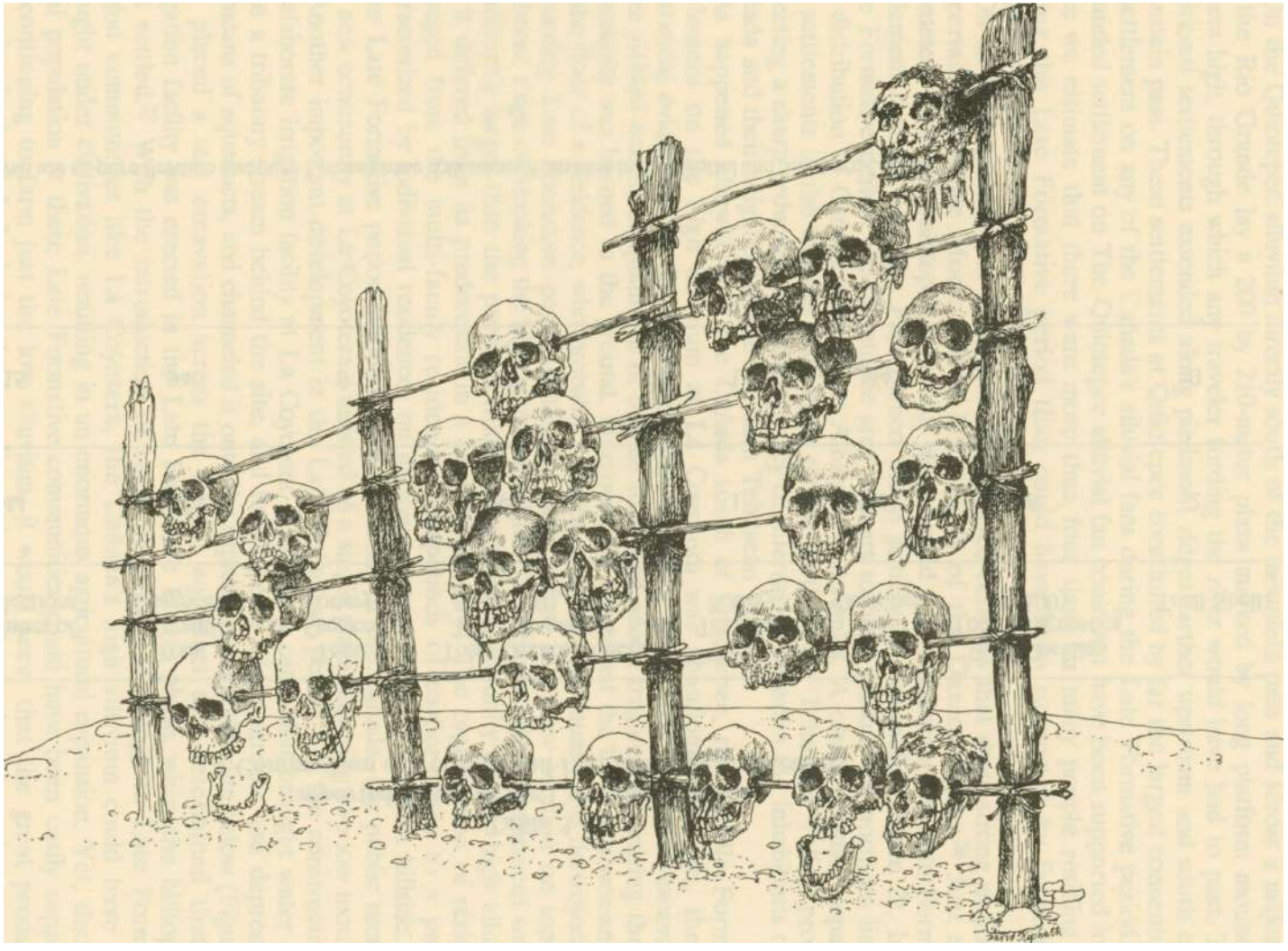

Fig. 8. Artist's reconstruction of the Lomas phase skull rack excavated at La Coyotera

sepectacularly high densities of tropical fruit and nut remains.[28] Table 1 compares the Late Formative Lomas phase midden deposits with those of the previous Middle Formative Perdido phase community, revealing that the Lomas phase midden deposits contained substantially higher quantities of *coyol* palm nuts, black *zapote* seeds, and *ciruela* seeds relative to the volume of midden debris. At the same time that the inhabitants of communities like La Coyotera might have been stepping up the production of certain tropical products, we witness a sharp drop in the variety of craft activities that had previously been performed at the Middle Formative period community there, evidenced by a sharp drop in the relative amount of craft-related artifacts compared to earlier times (Table 1). These findings would appear to reflect a major reorganization of the Cañada's local economy.

Another sign of change in the region's economic organization was manifested in the distribution of goods imported to the Cañada during the Late Formative period. Our surface collections at Late Formative settlements in the heart of the Cañada contained significantly fewer Oaxaca ceramics, obsidian, and marine shell artifacts than those obtained at Middle Formative period settlements (Table 3). This evident reduction in the number of goods imported to the Cañada in the Late Formative Lomas phase points to a disruption of the reciprocal exchange relations that the Cañada had maintained previously with neighboring regions, including the Oaxaca Valley.

Finally, our investigations at La Coyotera indicate than an entirely new political and ideological order was introduced at this hilltop community in the Late Formative period. The ceremonial platforms and courtyards of the Middle Formative community were replaced by a single plaza with two pyramidal mounds. A test excavation that we placed directly in front of the main mound here exposed the remains of at least 61 human skulls, arranged roughly in rows, along with many scattered skull fragments. The skulls represented individuals of both sexes and a full range of ages. Perforations on some of the skulls may indicate that they had originally been hung or attached to something. We propose that these skulls formed part of a collapsed skull rack that had consisted of upright posts(of which we have evidence) with skulls mounted on crossbeams in rows (Figure 8). Skull racks or *tzompantli* have long been associated with the militaristic Toltec and Aztec of the Postclassic period, who used them to display the heads of captives taken in warfare. But as we mentioned in an earlier section of this paper, we know that the Postclassic Zapotec also constructed skull racks, and that they did so in conquered regions when they wanted to terrorize the peoples they had subjugated.

Conclusion

The archaeological data that we collected in the Cañada de Cuicatlán agree with many of the expectations derived from an ethnohistorical model of Zapotec imperialism during the Late Formative period. Our findings in the Cañada support the hypothesis of the region's conquest by the Valley Zapotec in the Late Formative Lomas phase, and suggest that the Cañada was transformed at this time from an autonomous region occupied by several small chiefly communities into a tributary province on the frontier of Monte Albán's expanding territory. Zapotec military might was concentrated in massive installations on the Quiotepec alluvial fan at the northern boundary of the Cañada in order to define and defend the frontier region. Settlements in the central and southern Cañada lay within the zone under direct Zapotec administration, whose policies included the resettlement of the local population off the high alluvium, the introduction of canal irrigation technology in order to bring this high alluvium under cultivation, and the exaction of tribute from the subjugated population. The Zapotec tribute demands probably involved

[28]Smith, "Carbonized Botanical Remains from Quachilco", pp. 238-243.

the supply of provisions and manpower to the large military facilities stationed on the Quiotepec frontier, and the large-scale cultivation of the Cañada's special tropical fruits and nuts. Zapotec administrators enforced these imperial policies at local communities by resorting to some of the terror tactics the Late Postclassic Zapotec are known to have practiced in conquered regions.

We conclude our discussion by returning to examine the prehistoric city and state of Monte Albán from the point of view of its expanded frontiers in the Late Formative period. If each of the 40 conquest slabs on Building J represents a separate region or place that was subjugated by the Valley Zapotec, the extent of Monte Albán's militaristic expansion would have been vast indeed; Marcus's interpretations of some of the other conquest slab inscriptions refer to places located well over 100 kilometers from Monte Albán.[29] In order to carry out the initial subjugation of surrounding regions the Zapotec would have had to muster a large, permanent body of military specialists and warriors. Not surprisingly, there was a proliferation of militaristic themes depicted on carved stones, statues, and effigy urns in Period II, both at Monte Albán and at other settlements in the Oaxaca Valley. Warriors were depicted wearing armor, insignia, and headgear similar to that associated with the military orders known for the Late Postclassic period.[30] This could mean that the Valley Zapotec had instituted a permanent military organization comprised of warrior orders by Period II, precisely the time period when, according to the Building J inscriptions and our data from the Cañada, they were mounting military conquests of regions outside the Oaxaca Valley.

Following their conquest by the Zapotec, these outlying regions would have been incorporated into Monte Albán's tributary realm. As we have seen in the Cañada, the Zapotec erected massive frontier facilities in the conquered regions, introduced sophisticated irrigation technology to open up previously uncultivated lands for agriculture, and replaced the native elites with an imperial administration. We suggest, therefore, that the managerial demands of such an interregional conquest strategy would have called for the development of an internally specialized administration centered at Monte Albán, one that would have had the capacity to delegate partial authority to specializad administrators stationed at distant outposts. Signs of this development are evident at Monte Albán and at other settlements in the Oaxaca Valley during the Late Formative period. Recall that it was during the Late Formative Period II when the Main Plaza at Monte Albán was formally laid out with its diverse array of public buildings, and when specialized administrative facilities appeared at subsidiary settlements on the valley floor. We conclude, then, that the Valley Zapotec's decision to begin a campaign of interregional conquest in the Late Formative period played a key role in the development of the early Zapotec state at Monte Albán. Like its ultimate successor in the sixteenth century, it seems that this earliest Zapotec state was truly a militaristic one.

[29]Joyce Marcus, "The Conquest Slabs of Building J, Monte Albán" in Flannery and Marcus, eds., *The Cloud People*, p. 108.

[30]Alfonso Caso and Ignacio Bernal, *Urnas de Oaxaca*, Memorias del Instituto Nacional de Antropología e Historia, vol. 2 (Mexico City, 1952), pp. 55-64; Joyce Marcus, "The Iconography of Militarism at Monte Albán and Neighboring Sites in the Valley of Oaxaca", in H.B. Nicholson, ed., *The Origins of Religious Art and Iconography in Preclassic Mesoamerica*, pp. 133-135; Joyce Marcus, "Monte Albán II in the Macuilxochitl Area", in Flannery and Marcus, eds., *The Cloud People*, pp. 114-115.