



The Foundation of Monte Albán, Intensification, and Growth: Coactive Processes and Joint Production

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Most early sedentary villages (c. 1500–500 BCE) in the Valley of Oaxaca, Mexico, were situated on or near well-watered land. Around 500 BCE, a new hilltop center, Monte Albán, was established at the nexus of the valley's three arms, where agriculture was far riskier due to unreliable rainfall and a dearth of permanent water sources. During the era of its establishment, not only was Monte Albán larger than any earlier community in the region, but many other settlers moved into the rural area around Monte Albán. This marked shift in settlement patterns in the Valley of Oaxaca and the underlying processes associated with the foundation of Monte Albán have long been debated. How can we account for the immigration of people, some likely from beyond the region itself, to an area where they faced greater risks of crop failure? One perspective, reliant on uniform models of premodern states as despotic, viewed the process from a basically top-down lens; leaders coerced subalterns to move near the capital to provide sustenance for the new center. Yet more recent research has found that governance at Monte Albán was generally more collective than autocratic, and productive activities were centered in domestic units and not managed from above. Based on these new empirical foundations, we reassess earlier settlement and land use studies for the Valley of Oaxaca and view this critical transition as initiated through coactive processes in which new institutions were formed and new relations forged. Shifts in defense, ritual, domestic organization, craft production, and exchange all coincided with this episode of growth fostered by joint production, which intensified agrarian yields through increased domestic labor investments.

Keywords: prehispanic Mesoamerica, Valley of Oaxaca, good governance, distributed power, agricultural intensification, economic growth

INTRODUCTION

With its time depth, archaeology has a novel perspective on the intensification of land use and food procurement (e.g., Stephens et al., 2019), the process through which greater labor inputs are allocated to enhance productivity yields per unit of land. For many decades, explanations for intensification have been framed in two principal ways. One, mainly focused from the bottom up and grounded in the writing of Boserup (1965), views the process as provoked by population pressure on resources and inadequate food supplies, which necessitated that people work harder and take steps to enhance yields through their added labor allocations. The second, underpinned by entrenched truisms regarding the uniformly autocratic, top-down governance of premodern

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societies (Carneiro, 1970; Marx, 1971), views agrarian intensification as the outcome of elite coercion to foster the accumulation of greater surplus and wealth. These two perspectives are not mutually exclusive and have been combined in some arguments (e.g., Sanders et al., 1979). Likewise, they are compatible with the presumption that premodern growth was uniformly constrained by Malthusian factors (but see Netting, 1990; Erdkamp, 2016; Van Limbergen et al., 2020).

Here, we examine an episode of intensification, demographic increase, and economic growth that we argue was neither spurred by demographic pressure nor directed through top-down coercion. In focusing on land use, settlement, and institutional changes at and around the prehispanic Zapotec city, Monte Albán (Valley of Oaxaca, Mexico), during the episode bracketing the city's foundation, we explore a historical chapter in which agrarian intensification occurred in a context of the formation of new institutions of good ("collective") governance (e.g., Bevir, 2012, p. 101–119; Rothstein, 2014; Blanton et al., 2020) that ultimately underpinned the site's 1,300-year duration as the principal central place in its region. We view increased labor inputs both from the bottom up, the factors that attracted domestic units to an emergent center and prompted their investment in significant landscape modifications, and from the top down, the new institutions that drew in-migrants and established a cooperative basis for defense and security that encouraged interhousehold cooperation and sunk-cost (landesque capital) investments (Janssen et al., 2003; Fisher and Feinman, 2005) in terracing and other small-scale agrarian intensifications (Hakansson and Widgren, 2007; Widgren, 2012). At early Monte Albán, intensification was part of a process of joint production (Blanton and Fargher, 2016, p. 245–281) in which higher labor inputs, greater yields, increased population, and intensified economic activity were tied to new socioeconomic arrangements that relied on the exaction of internal resources, muted elite aggrandizement, enhanced defense, transfers through emergent networks of marketplace exchange, and new modes of interpersonal interdependence and cooperation.

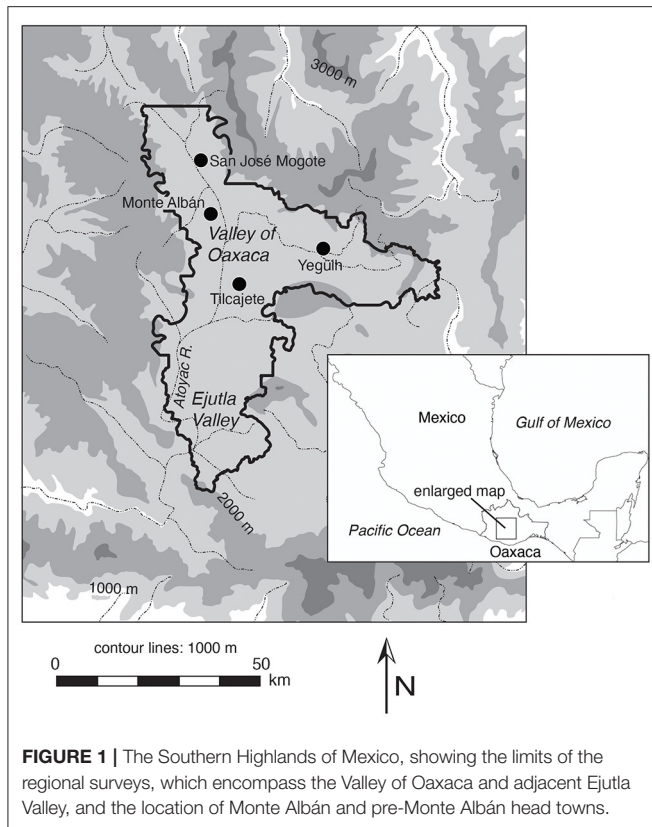
In subsequent sections, we begin with background to prehispanic Mesoamerica, the Valley of Oaxaca, and Monte Albán with a focus on agriculture, production, and the domestic economy. We then review governance and institutions at the valley's central city, focusing on the early periods of its occupation. Based on these discussions, we do not see Monte Albán's establishment as an entirely top-down process (Feinman et al., 2021a). We then move to a more in-depth discussion of settlement, land use, and agrarian productivity in the Valley of Oaxaca, covering the period from before Monte Albán through its episode of most rapid growth. We find no empirical support for population pressure. In conclusion, we present a scenario for joint production and the suite of changes that occurred during the centuries that followed the emergence of Monte Albán. This episode has broader comparative implications for how we conceptualize premodern intensification, governance, economic growth, and their iterative linkages.

BACKGROUND TO OAXACA AND MONTE ALBÁN

Monte Albán was founded c. 500 BCE at the nexus of the three arms of the mountain-ringed Valley of Oaxaca, the largest expanse of flat land in Mexico's Southern Highlands (Blanton, 1978; **Figure 1**). The hilltop settlement grew rapidly to become one of the earliest cities in prehispanic Mesoamerica, a premodern world that stretched across the southern two-thirds of Mexico to the western parts of Honduras and El Salvador. By the time Monte Albán was established, more than a thousand years had passed since foragers transitioned from mobile lifeways to sedentary communities. Maize, beans, and squash, which had been domesticated prior to village formation, were key elements of an agricultural economy, with maize providing the bulk of calories. Early villagers also exploited a mosaic of other natural resources including clay for making ceramic vessels and figurines, stone for making tools and ornaments, and xerophytic plants and succulents that supplemented agricultural produce and provided fiber that was processed into a range of woven products. Yet, even from the earliest sedentary settlements, households were largely not self-sufficient and consumed a range of goods that they did not produce, including obsidian, obtained through both local and long-distance exchange networks (Feinman et al., 2018a; Nicholas et al., 2021). The shift to sedentary life required more than just technological and subsistence innovations; it also was a social process through which formerly dispersed populations not only adjusted but committed to living in larger communities and interacting with larger groups of people on a daily basis.

The three arms of the large Y-shaped Valley of Oaxaca are defined by the Atoyac River and its principal tributary, the intermittent Salado River. The climate is semiarid, rainfall is unpredictable and spatially patchy across the region, and not all sectors of the valley floor receive the minimum annual precipitation (700 mm) necessary for reliable rainfall farming of maize. Valley terrain comprises three principal environmental zones—alluvial valley floor, foothills (piedmont), and mountains—that also are unevenly distributed across the valley and provide an array of resources and different opportunities for farming (Kirkby, 1973; Kowalewski et al., 1989, p. 20–24; Nicholas, 1989).

The prime factor that determines maize productivity is the availability of water (Kirkby, 1973), and a diversity of water management practices have been used since prehispanic times (Flannery et al., 1967; Flannery, 1970). These manipulations, which increase agricultural yields, include wells and pot irrigation, check dams, and small-scale canals, all of which were easily managed or implemented at the household level (**Figure 2**). For prehispanic Mesoamerica more generally, a rich array of documentary and archaeological evidence has documented that production—both craft and farming—was situated almost entirely in domestic contexts and was not centrally managed or controlled from above (Feinman, 1999; Hirth, 2009). Domestic production, household mobility/migration, multicrafting/multiple occupations per domestic unit, and marketplace exchange are recurrent patterns in Oaxaca and



Mesoamerica more broadly (Taylor, 1972; Feinman, 1999, 2006; Inomata, 2004; Feinman and Nicholas, 2007, 2012; López Corral and Hirth, 2012; Inomata et al., 2020), and they remain key elements of the contemporary Mexican economy.

The Valley of Oaxaca was a core politico-economic region of prehispanic Mesoamerica (Palerm and Wolf, 1957). The mapping project at Monte Albán (Blanton, 1978) and regional surveys of the valley and adjacent areas (Blanton et al., 1982; Kowalewski et al., 1989; Feinman and Nicholas, 2013, 2017a; **Figure 1**) recorded the settlement history of the region, including population levels estimated for each site following widely accepted practice and procedures that use site area as the principal empirical component (see Hassan, 1981, p. 66–72; Drennan et al., 2015, p. 16–25). Prior to Monte Albán's founding, most of the populace resided in one of three clusters of settlements, one in each arm of the valley, which were separated from the others by largely unoccupied areas, including the center of the valley where Monte Albán was later situated (Blanton et al., 1999, p. 42). In each arm, a cluster of smaller communities surrounded one larger settlement that had special functions and served as the “head towns” of small competing polities. At the largest of these, San José Mogote, and other surrounding sites, iconographic symbols on ceramic funerary offerings signaled social segmentations both within and between settlements (Marcus, 1989; Marcus and Flannery, 1996, p. 95–96; Blanton et al., 1999, p. 39–42).



FIGURE 2 | Water manipulation practices in the Valley of Oaxaca: small well (top), check dams (center), and small irrigation channel (bottom).

This millennial pattern was broken c. 500 BCE when Monte Albán was built on a steep hilltop in the center of the valley (Blanton, 1978; **Figure 3**). The settlement's establishment and rapid growth in size and monumentality set off a dynamic episode of innovation and change that included demographic, dietary, and other economic shifts (**Table 1**). Populations grew rapidly not only at the new center, which became the largest and most monumental city in the valley's prehispanic history, but also in the surrounding countryside (Blanton et al., 1993; Feinman and Nicholas, 2013, p. 52). This dramatic episode of change required

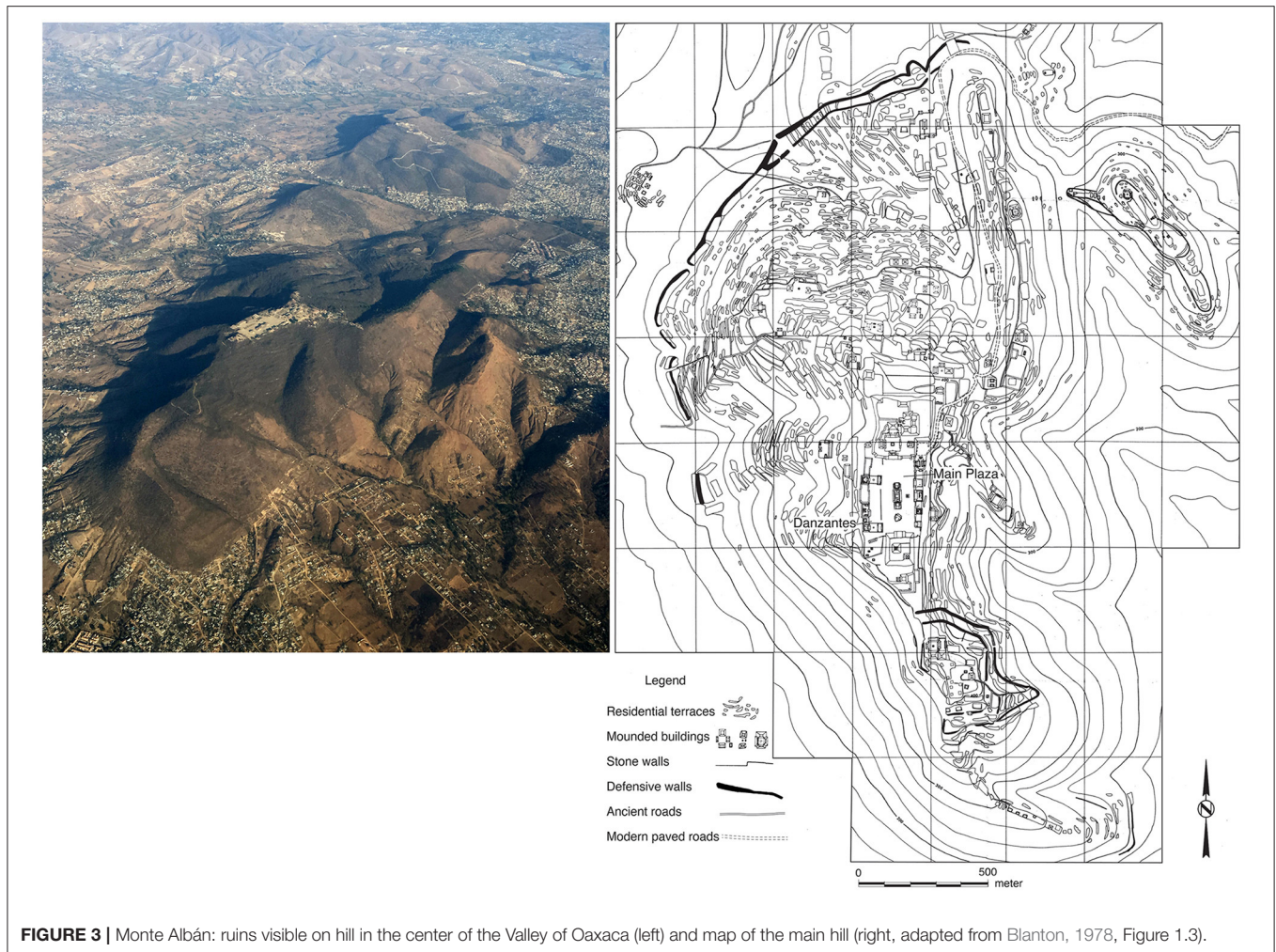


FIGURE 3 | Monte Albán: ruins visible on hill in the center of the Valley of Oaxaca (left) and map of the main hill (right, adapted from Blanton, 1978, Figure 1.3).

the coordination of huge expenditures of labor to build the new city. The rocky hilltop was flattened into a large Main Plaza with monumental buildings constructed along its edges. The scale and orientation of this central plaza represent a key transition from prior community plans in the region, as did the expanded use of carved stone monuments, calendric information, and short glyphic texts (Caso, 1965; Marcus, 1976, 1980, 1992, p. 70–71). Residences for the city's burgeoning population were constructed on the steep slopes of the hill by creating flattened spaces, or terraces, shored up by stone and earthen retaining walls, each of which sustained a domestic unit. At that time, small-scale irrigation features were constructed on the lower slopes of the hill (O'Brien et al., 1982; Rojas and Beccan Dávila, 2020).

There is overall agreement that the establishment of the new center was an episode of transformational change—a hinge point—in the historical trajectory of the region. Proposed explanatory frames have been diverse but largely follow two main approaches. One set emphasizes mostly bottom-up, human/land processes that stress the importance of environmental factors and land quality in the settlement decisions that individuals make (Sanders and Nichols, 1988). Other explanations are top-down,

seeing settlement decisions, or the rise of a new center, as the outgrowth of the increasing power of elites and their use of coercion. In this approach, which affords agency exclusively to leaders, powerful rulers could coerce farmers to migrate and produce surplus for them (Santley, 1980; Marcus and Flannery, 1996, p. 155–158). Existing data and expanding avenues of research shed doubt on both conceptual frames.

GOVERNANCE AT MONTE ALBAN

The despotic nature of non-Western preindustrial societies is a long-held tenet that presumes the concentrated power of principals and state control over modes of production and distribution (Wittfogel, 1957; Marx, 1971). As Mesoamerican archaeologists moved away from antiquarianism in the mid-twentieth century and asked broader questions regarding long-term political and economic change (e.g., Armillas, 1951; Palerm, 1955; Palerm and Wolf, 1957; Sanders, 1976), they presumed that the Mesoamerican past would generally be in accord with Marx's Asiatic Mode, thereby accounting for the major episodes of politico-economic and demographic change that were emerging

TABLE 1 | Changes in the Valley of Oaxaca, 600–150 BCE.

600 BCE	150 BCE
Population about 2,000	Population more than 50,000
Largest community San José Mogote, population 1,200	Largest community Monte Albán, population 17,000
Some 80 other settlements, mostly tiny hamlets	Some 643 other settlements, including towns of >1,000
Nearly universal access to farmland with reliable water	Many dependent on rainfall agriculture alone (greater risk)
Most of the valley covered with trees	Significant deforestation and erosion around settlements
The financing of government was limited, symbolic, personalized	Fiscal financing in labor and goods to support Monte Albán's populace and governance
Beginnings of a warfare human-sacrifice complex	Raiding and violence commemorated in monuments, Monte Albán fortified
Ancestor veneration	State religion of lightning-clouds-rain-fertility
No evidence of canal irrigation	More intensive agriculture, including canal irrigation
Household storage of produce (bell-shaped pits)	Some goods likely acquired through markets (no bell-shaped pits)
Maize cooked by steaming or boiling	Maize cooked as tortillas using comals
Few craft specialists, mostly elite adornments	More craft specialists who produced basic goods for everyday use
Most houses wattle and daub, a few adobe brick	Houses of adobe brick

in the expanding archaeological record. Following decades of painstaking field research and analyses, these presumptions generally have not borne out empirically (Blanton and Fargher, 2008; Feinman, 2017). Yet, for many, “trust in the brave new world of archaeological data is opposed by the belief in a model of human behavior that has guided scholars in the social sciences since the nineteenth century” (Erdkamp, 2020, p. 43). This bias underpinned early top-down views of Monte Albán's foundation.

Comparative archaeological approaches to preindustrial societal change have long been influenced by Carneiro's (1970, p. 733) dichotomous division between coercion and voluntarism. In the former, change is driven by powerful rulers who coerce subalterns to follow their lead. The latter (voluntarism) is a functionalist construct in which people willingly give up core elements of their personal autonomy for the good of the whole. Neither approach is satisfactory as the sole base for the establishment of larger-scale cooperative formations. Social formations based heavily on coercion and predatory rule have and do exist, but they tend to be costly to maintain and are often short-lived (Blanton and Fargher, 2008, 2016), while voluntarism is an untenable basis for the consolidation of political power, as people rarely act to promote the good of the whole if it potentially comes at their own expense. Levi (1988) outlines an alternative, quasi-voluntary compliance, in which political institutions are founded and maintained through social contracts and norms that establish expectations for both leaders and

followers (Ahlquist and Levi, 2011). Compliance is built through trust and assurance, which fosters and affirms cooperation (Cook et al., 2005). When subalterns have degrees of agency, a basis is established for more cooperative forms of governance (Sewell, 1992, 2005, p. 143–146; Blanton and Fargher, 2008, p. 5–6). Yet to address free riding, human cooperative arrangements and collective forms of governance generally construct social institutions and interpersonal relations to monitor, sanction, and punish (Ostrom, 1993, p. 1908–1909; Carballo et al., 2014, p. 103). Diversity in the configuration of these institutions and personal networks reflect variability in the sticks and carrots associated with prosocial behavior (Bevir, 2012, p. 114–115; Simpson and Willer, 2015).

The view that premodern polities were uniformly despotic has been challenged globally. “The state never was a unified entity capable of imposing its will on society” (Bevir, 2012, p. 115). We now know that preindustrial societies in Mesoamerica and across the globe were not always despotic (Blanton and Fargher, 2008, p. 5–11; Feinman and Carballo, 2018), nor did rulers in these preindustrial worlds directly control basic production or the modes of distribution as once presumed (Smith, 2004; Feinman and Nicholas, 2012, 2017b; Feinman, 2017). Just as governing strategies of cities and polities today vary along a continuous scale of autocratic to more collective (Feinman and Carballo, 2018), so did governance in a sample of 30 historical cases that are empirically documented with textual sources (Blanton and Fargher, 2008). In this historical sample, concentrated power (autocratic) tended to co-occur with meager public goods investment, limited government, and reliance on “external” revenue sources, such as the control of spot resources, royal estates, or the monopolization of trade routes. Distributed power (collective) tended to occur with sizable bureaucracies, dispersal of public goods, and reliance on local or “internal” sources of revenue to fund governance. Social scientists may not agree on what accounts for this institutional variance, but organizational diversity in the premodern past is becoming much more broadly recognized (Acemoglu and Robinson, 2012; Bevir, 2012; Stasavage, 2020; Green, 2021).

Archaeologists have begun to work out additional indicators of variation in premodern governance that are expressed in the material record (Blanton and Fargher, 2011; Feinman and Nicholas, 2016a; Feinman and Carballo, 2018). How extreme or muted are disparities of wealth in life or death? Does monumental architecture foster exclusivity (elite tombs and memorials, dynastic temples) or access (e.g., open plazas, wide access ways, community temples)? Are palaces prominent or is it not clear where the leader resided? Does political ideology expressed in art emphasize lineal descent, divine kingship, and royal patron deities or does it emphasize abstract principles of offices, cosmology, and fertility? These physical characteristics tend to co-occur, so that the first alternative from each question is indicative of more autocratic rule and the second part is associated with more collective/good governance.

In a study of 26 prehispanic urban centers in Mesoamerica, Monte Albán was one of 12 that was characterized as a collectively organized city based on a series of indicators that include political economy (external or internal financing), governance (divine

kingship or “faceless” rulership), and architecture (emphasis on palaces or communal architecture) (Feinman and Carballo, 2018). There are numerous indicators that Monte Albán was not a highly unequal city (Feinman et al., 2021a, 2022): there are no rich tombs, no great caches of household riches or other evidence of extreme wealth differences, and no large, ornate palace that is clearly the ruler’s residence. From early in the site’s history, the city’s core was centered on a large plaza that could have accommodated a significant proportion of the site’s population (Levine et al., 2021). Flattening the hill’s rocky top and then defining and creating this large open space entailed planning, coordination, and cooperation. Until very late in the city’s history (c. 800 CE), material representations of rulers were relatively rare, and there is an overall lack of ruler aggrandizement. During the city’s first four centuries (500–100 BCE), there is only one depiction of a seemingly important individual or leader; this carved stone portrays a masked individual who appears to be leading a ritual while impersonating Cocijó, a principal deity (Marcus, 2020, p. 147). Rule was largely faceless (Feinman et al., 2021a, 2022). This stands in contrast to earlier and contemporaneous centers on the Gulf Coast, where carved stone heads and altars were erected (Pool, 2007), and lowland Maya centers from the last centuries before the Common Era, where concentrations of valuable exotics were cached in select funerary contexts (Pugh, 2022).

The allocation of the hill’s apex for civic-ceremonial space and the lower slopes for commoner residences afforded a broad social accord. Built environments are not neutral, but political (Wakefield, 2018, p. 2), and Monte Albán’s footprint with a large, relatively open central space and a dearth of ostentatious displays of leader aggrandizement does not evince exclusionary (non-distributed) power. The city’s concentrated residential precincts comprised strings of artificially flattened terraces that shared long retaining walls. Construction of the terraces required allotments of domestic labor to clear trees, flatten steep inclinations, erect stone walls to retain flat spaces where houses would be built, and to construct drainage channels to divert rainwater from living spaces. The construction, sharing, and maintenance of front retaining walls involved high degrees of interhousehold cooperation between neighbors (Kowalewski et al., 2006). It is hard to see the early processes of community foundation as driven simply by coercion or aggrandizing behavior since the commoner occupants of the city moved there from different places (at least some from beyond the valley), opted to invest their labor in creating a new built environment, and were able to enhance their standard of living in certain ways. For example, commoners adopted construction techniques and basic ceramic wares that previously were the domain of high-status families (Feinman et al., 2021a, 2022). In the early city, most houses included contiguous rooms with plaster floors, often constructed around a patio; they were built with adobe bricks on stone foundations instead of the mud and thatch typical of earlier commoner houses (Winter, 1974; Marcus and Flannery, 1996; Flannery and Marcus, 2005). The reduced-fired, grayware pottery that had previously been confined to decorated serving bowls and ceremonial objects became more broadly distributed in the centuries after Monte Albán was established. This level of

cooperation and coordination, a social charter and norms, reveals that Monte Albán was a collectively governed city from its founding (Fargher, 2016; Joyce and Barber, 2016; Feinman and Nicholas, 2017a, 2019).

Our changing perspective on the nature of early governance at Monte Albán sheds serious doubt on a top-down model of coercive rule to account for Monte Albán’s demographic growth and the intensification of food production necessary to provision the city. No large-scale production has been uncovered, and there is no indication of central-governmental food storage at Monte Albán, as one might expect with top-down economic control or redistribution. Economic production at Monte Albán was situated in domestic contexts (Feinman, 1999). Instead of being coerced to move to Monte Albán, people were attracted to the city. Monte Albán was settled by a sizable group (1,000 people?) and rapidly grew to ~5,000 people within a few hundred years. Populations also increased in the rural areas around Monte Albán, and the annual rate of population growth in the valley (it was even greater at Monte Albán) exceeded what could have been maintained by natural increase alone (Feinman et al., 1985). Populations expanded again in and around Monte Albán after c. 300 BCE. The threefold growth was too large to be accounted for by local, “natural growth,” so that people must have been drawn to Monte Albán and the valley from more distant, extra-regional locations.

Prior to Monte Albán, early “head towns” were generally positioned adjacent to good farmland. But the new city was located in an area of the valley where agriculture was riskier and largely dependent on unpredictable rainfall. Why would people move to a place where they faced a high risk of crop failure, where they could have been taxed more highly, and where, if governance was coercive, they had little voice? Can we better understand the growth of Monte Albán through a lens that also focuses from the bottom up—as a movement to economic opportunity or other decisions made by individuals? Here, we examine settlement and land use in the valley, focusing on the periods that bracket the foundation of Monte Albán, from the preceding Rosario phase (c. 700–500 BCE) through the foundation (Monte Albán Early I, c. 500–300 BCE) and early growth of the city (Monte Albán Late I, c. 300–100 BCE).

SETTLEMENT, LAND USE, AND AGRARIAN PRODUCTIVITY IN THE VALLEY OF OAXACA

Studies of land use and consumption in the Valley of Oaxaca during the latter half of the twentieth century (Kirkby, 1973; Kappel, 1977) provide invaluable information that we use in conjunction with the regional history of prehispanic populations and settlement distributions derived from archaeological survey (Blanton, 1978; Blanton et al., 1982; Kowalewski et al., 1989; Feinman and Nicholas, 2013, 2017a) to examine the dispersal of sedentary villages, including Monte Albán. Kirkby (1973) documented the heterogeneous distribution of land and water resources in the valley and categorized land classes based on yields of maize, the region’s staple and culturally most

important crop (e.g., Joyce, 2021). Her range of per-unit yields for each land class take into account the unreliability and spatial variation in rainfall. Kirkby (1973, p. 124–129) also analyzed archaeological corn cobs from dry caves in the region to extrapolate modern yields back into the prehispanic era. Because cob length is directly related to yield (Kirkby, 1973, Figure 48b), her documentation of a steady increase in length due to human selection provides estimates of increasing maize yields over time.

Drawing on Kirkby's seminal work, we defined three principal land classes (Kowalewski, 1980, 1982; Nicholas, 1989): high water table and canal irrigable (class I), where the highest yields are possible; marginal water table and good flood water farming (class II), where good yields are possible but generally much more variable year to year; and poor flood water farming and dry farming (rainfall dependent, class III), where crops may fail in dry years (Figure 4, left). Based on Kirkby's study, air photographs used during the survey to record site locations, and our on-the-ground observations, we mapped the distribution of these land classes across the valley (Figure 4, right). Most notable was the patchiness of highly productive land (Kowalewski, 1980). We used Kirkby's ranges for each land class to calculate high (wet year) and low (dry year) potential yields (in metric tons) across the valley for each time period. Through weather records, we identified areas that generally receive <700 mm of annual rainfall (the minimum for reliable harvest) and decreased potential yields in areas of chronically low rainfall (Kowalewski, 1980, 1982). These figures do not represent actual prehispanic crop yields but are approximations of the productivity of arable land across the valley at different times in the past. Once we had potential annual maize harvests (used as a proxy), studies of consumption in several small contemporary villages in Oaxaca (Kappel, 1977) provided the basis for calculating potential populations for dry, average, and wet years. Population estimates based on dry-year yields present a lower baseline that is purely hypothetical, as the effects of a dry year are not felt equally, even within valley subregions, where spatially patchy rainfall can result in better harvests for some farmers than others.

In previous works (Kowalewski, 1980; Nicholas et al., 1986; Nicholas, 1989; Feinman and Nicholas, 1990, 1992, 2018), we compared the distribution of ancient populations to potential populations at various spatial scales. For the Valley of Oaxaca as a whole, there was no pressure on resources during the earliest periods when per-unit maize yields were the lowest, at the time that Monte Albán was initially settled, or in later periods when the valley's population reached its highest levels, even in years of lower-than-normal rainfall (Nicholas, 1989, p. 458; cf. Sanders and Nichols, 1988). We also discounted the notion that settlement locations, including Monte Albán, were a direct consequence of household decisions to settle on the best land and that during episodes of population growth, settlements and households maximized their access to prime farmland (Nicholas et al., 1986; Feinman and Nicholas, 1987, 1992). At the time that Monte Albán was settled, all of the best land was not densely occupied or inhabited. There was no systematic infilling of all prime farmland before poorer-quality land was settled (contra Santley, 1980).

Throughout the era of early sedentary villages in the valley (c. 1500–500 BCE), when populations were lower, settlement generally tracked agricultural potential (Nicholas et al., 1986); most villages were located on or near well-watered land, and the largest ones were adjacent to productive patches. This millennial pattern ended with the founding of Monte Albán. The new city was not well-situated relative to prime farmland (contra Sanders and Nichols, 1988), nor were most of the small villages that sprouted up around Monte Albán. Throughout the remainder of the prehispanic era, the clustering of settlements, large and small, did not match the distribution of the best farmland (Nicholas et al., 1986; Nicholas, 1989).

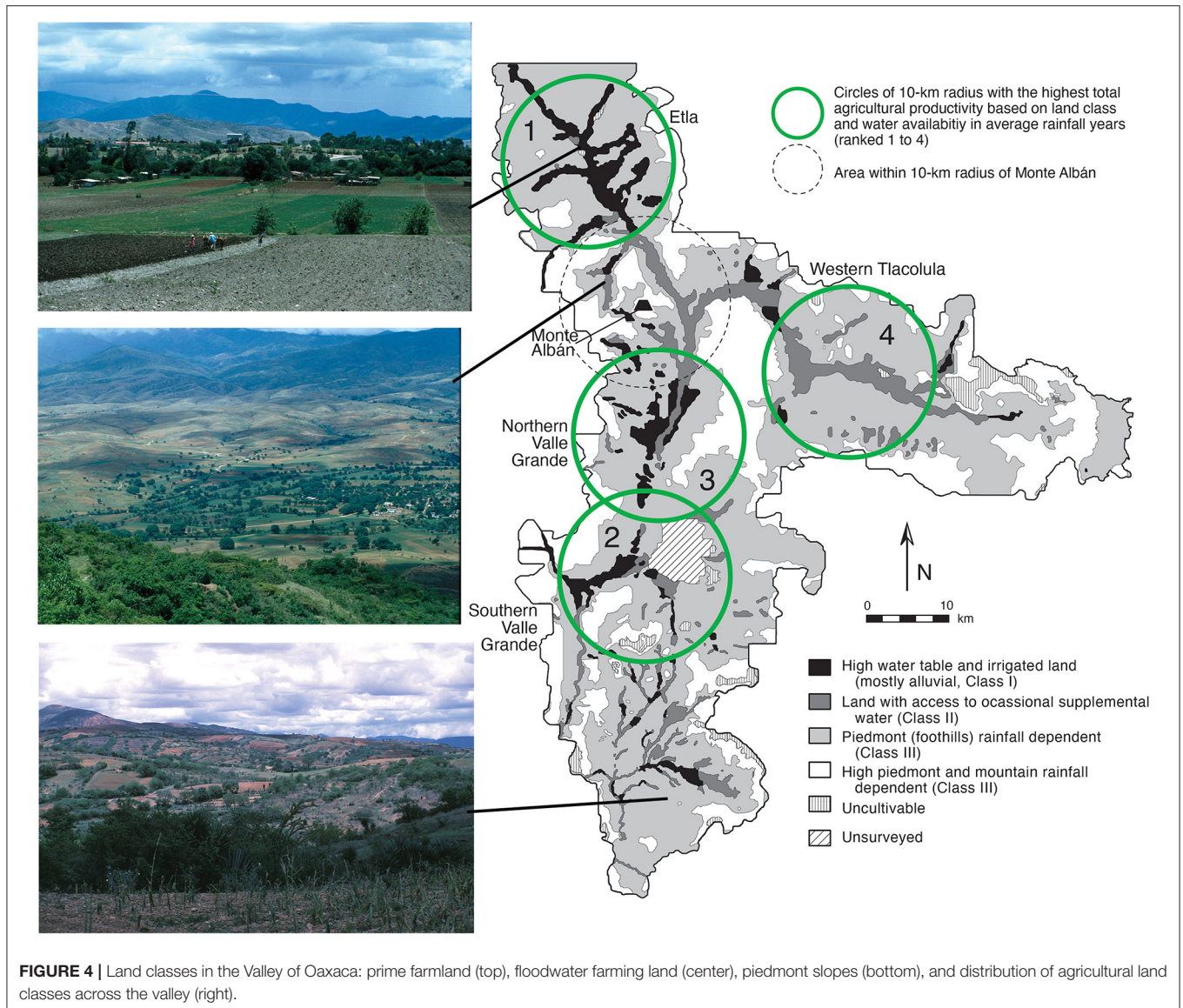
These studies were designed to test models proposing that population/resource imbalances provoked the emergence of hierarchical forms of governance in the Valley of Oaxaca and that agrarian resources played a key role in household decisions of where to settle (Santley, 1980; Sanders and Nichols, 1988); the Oaxaca data do not support either model. The spatial scales employed in these analyses, however, are less appropriate for examining intensification of land use and food procurement in the Valley of Oaxaca before and after the foundation of Monte Albán with a focus on the city and its immediate hinterland. For the present analysis we examine the relationship between changing population and agrarian resources using 10-km-radius circles—a distance easily traversed in a day's round-trip on foot (e.g., Lightfoot, 1979; Drennan, 1984). Without beasts of burden or wheeled transport in prehispanic Mesoamerica, there were limits on how far food could be transported. We systematically calculated total amounts of each land class within 10-km-radius circles overlain on the land use map. Through this exercise we identified the location of the four areas of 10-km radius that have the highest aggregated potential agrarian returns—one in the northern arm, two in the southern subvalley, and one in Tlacolula (Figure 4, right; Table 2). The narrow, northern (Etla) arm has a fertile floodplain, and the streams flowing out of the surrounding mountains provide excellent opportunities for irrigation. The Valle Grande, to the south, has the broadest expanse of flat alluvium and receives slightly more rainfall than other valley arms, so rainfall farming tends to be more productive there. In the eastern (Tlacolula) arm, the most fertile bottomland is in the west along the Salado River, where floodwater farming is possible. The four circles are placed independently of any prehispanic settlement. Theoretically, they could have supported the highest populations; one might expect that a settlement as large as Monte Albán would be located within one of the circles, but it was not.

Prior to 500 BCE (Rosario phase), population centers and smaller settlements were situated in all four circles (Figure 5), which were more densely settled than other parts of the valley but still far below potential carrying capacities (Table 2). After c. 500 BCE, Monte Albán was not positioned in one these areas of prime farmland but on a set of hills in the center of the valley where rain is often inadequate for reliable maize harvests. Much of the area comprises rolling hills and arroyos. To examine population relative to arable land near the new city, we centered an equivalent 10-km-radius circle on Monte Albán. Almost half of the valley population resided there in Early I, a distribution at odds with agrarian potential that placed the city's residents and

TABLE 2 | Maize yields, archaeological populations, and potential populations for the four most productive 10-km-radius circles in the valley and equivalent area around Monte Albán*.

	Etla	Northern Valle Grande	Southern Valle Grande	Western Tlacolula	Monte Albán
Rosario (maize yields in metric tons)					
Based on all arable land average year	8,010	6,354	6,797	5,928	4,781
Dry year	4,166	3,166	3,238	1,380	1,599
Wet year	11,855	9,542	9,659	10,475	7,964
Based on available labor average year	421	64	66	85	68
Dry year	365	44	56	31	40
Wet year	477	84	76	140	96
Early I (maize yields in metric tons)					
Based on all arable land average year	9,516	7,585	8,130	6,492	5,398
Dry year	4,706	3,468	3,449	1,416	1,709
Wet year	14,326	11,701	11,986	11,569	9,087
Based on available labor average year	1,783	684	315	556	804
Dry year	1,465	518	263	174	368
Wet year	2,100	851	367	938	1,239
Late I (maize yields in metric tons)					
Based on all arable land average year	11,563	9,136	9,730	8,326	6,804
Dry year	5,283	3,820	3,799	1,541	1,892
Wet year	17,844	14,452	14,663	15,111	11,716
Based on available labor average year	5,080	2,708	1,276	1,534	3,266
Dry year	3,179	1,365	736	440	1,183
Wet year	6,982	4,051	1,816	2,629	5,349
Rosario archaeological population	963	185	153	281	192
Potential based on all arable land					
Average year	38,843	30,811	31,268	28,744	23,185
Dry year	20,200	15,352	15,701	6,993	7,753
Wet year	57,486	46,271	46,836	50,796	38,618
Potential based on available labor					
Average year	2,042	310	321	414	331
Dry year	1,769	214	271	149	196
Wet year	2,315	406	371	680	466
Early I archaeological population	3,728	1,488	617	1,798	7,114
Potential based on all arable land					
Average year	46,143	36,779	37,423	31,482	26,175
Dry year	22,818	16,817	16,725	6,864	8,287
Wet year	69,469	56,741	58,121	56,100	44,064
Potential based on available labor					
Average year	8,644	3,318	1,526	2,698	3,897
Dry year	7,102	2,512	1,274	846	1,785
Wet year	10,186	4,124	1,778	4,550	6,009
Late I archaeological population	12,062	6,292	2,721	3,860	24,591
Potential based on all arable land					
Average year	56,072	44,303	44,761	40,375	32,994
Dry year	25,617	18,526	18,421	7,472	9,173
Wet year	86,526	70,080	71,102	73,277	56,814
Potential based on available labor					
Average year	24,636	13,130	6,189	7,442	15,838
Dry year	15,416	6,617	3,570	2,134	5,738
Wet year	33,857	19,643	8,808	12,749	25,938

*All circles are placed and labeled on **Figure 4**.

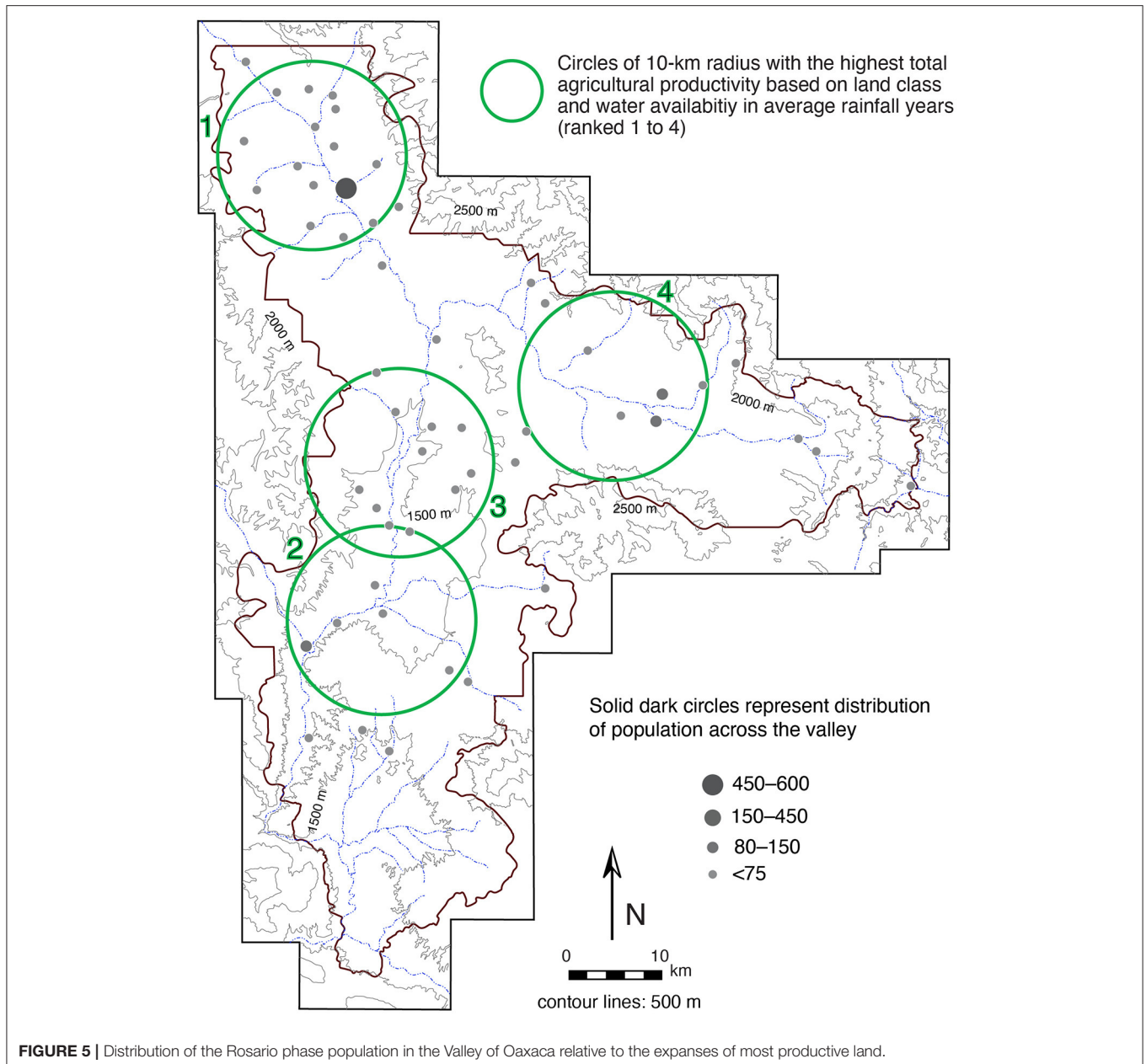


rural neighbors at risk of poor harvests in some years (**Figure 6; Table 2**). For at least two centuries after the founding of Monte Albán (500–300 BCE), none of the four most productive areas experienced population growth that exhausted or filled in all the available prime land, and during Monte Albán Late I (300–100 BCE) (**Figure 7; Table 2**), populations continued to expand in the city and on the surrounding foothills where agriculture was riskier.

To this point, our analysis has considered the amount and quality of arable land in the Valley of Oaxaca. Yet agrarian yields are neither finite nor static; rather they reflect an iterative process that includes labor and human investments (Fisher and Feinman, 2005; Hakansson and Widgren, 2007; Widgren, 2012). To analytically consider labor requires an approximation of the personnel committed to agriculture, how much land one person can farm, and the distance that farmers are willing to travel

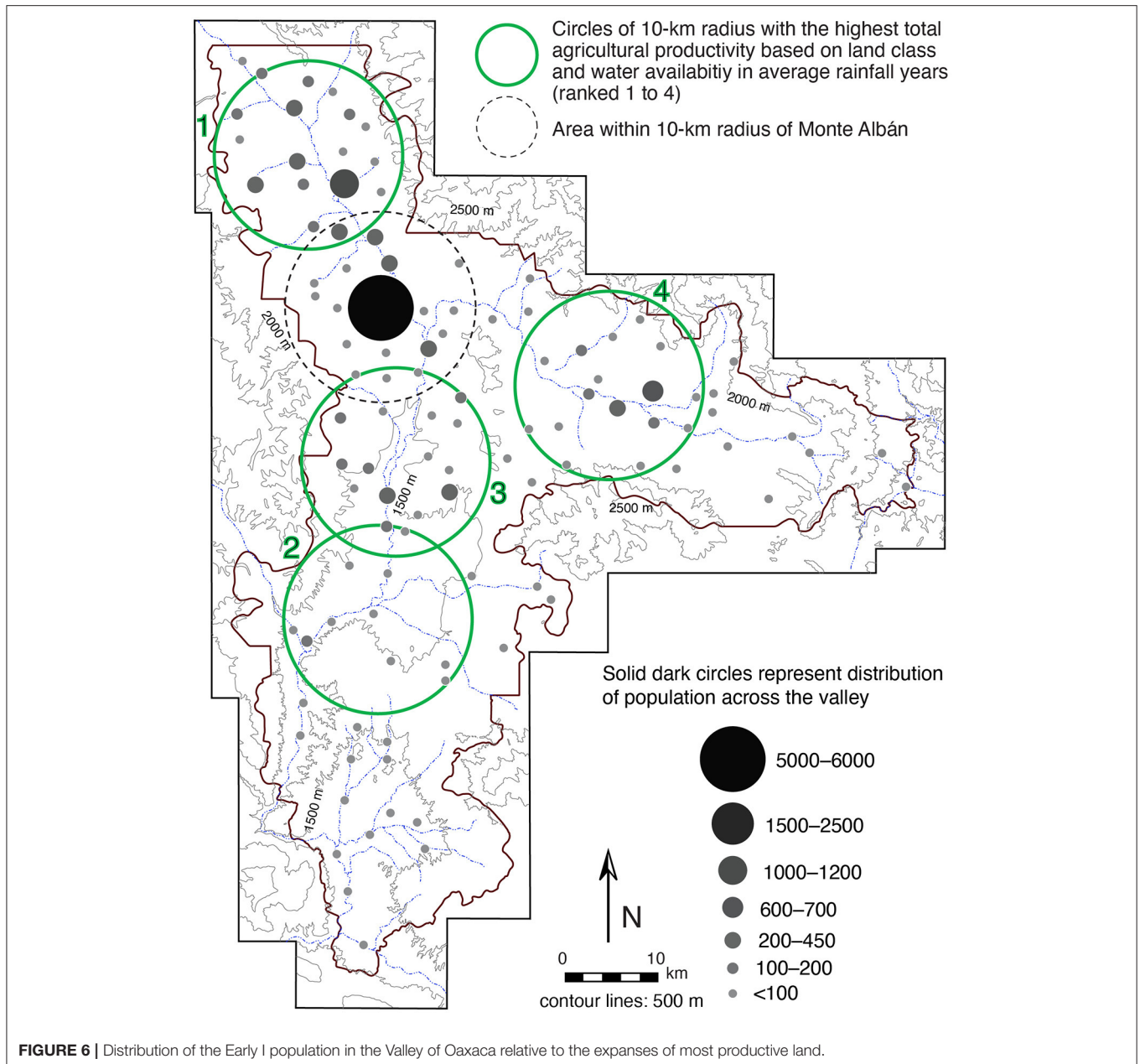
to their fields. First, based on a demographic study of several small villages in the Valley of Oaxaca in the latter half of the twentieth century (Kappel, 1977, p. 425–455), we estimate the farming labor force at 50% of the archaeological population (Kowalewski, 1980, 1982). Second, we rely on Kirkby's (1973, p. 73) estimate that a farmer can cultivate 2 ha of land using the traditional Middle American hoe, the *coa*. Third, without access to dependable transport, farmers tend to live near their fields. In catchment studies, subsistence cultivators generally focus most heavily on arable land within 2 km (Vita-Finzi and Higgs, 1970; Dennell and Webley, 1975; Peebles, 1978) and restrict intensive agriculture to within a 1-km radius of their settlement (Chisholm, 1968). We use 2 km as a reasonable approximation for prehispanic Oaxaca.

Based on these assumptions, families living within the four most productive 10-km circles in Etna, Valle Grande, and western



Tlacolula were able to support themselves on land near their homes from Rosario through Late I (**Table 2**), although in a dry year, some households in western Tlacolula may have relied on surplus food from neighbors who had a more successful harvest. In contrast, the combination of prime farmland and agricultural labor force within 10 km of Monte Albán was not large enough to fully provision the city (**Table 2**). Rural households attracted to the area in Early I could generally grow more than enough food for their own needs, and a ready demand from the city encouraged intensification. But rural surpluses were unlikely to provide enough to feed all of Monte Albán's urban residents, who were not primarily farmers. In dry years,

some rural families also would have depended on surpluses produced by other households. Populations increased three-fold in and around Monte Albán in Late I, with the city's rural hinterland experiencing a greater expansion of population than almost anywhere else in the valley. Many households moved to previously unoccupied piedmont locations where good harvests were possible with sufficient rainfall, but years with poor crops were equally likely. Although much larger than in Early I, the agricultural labor force still was unable to produce enough surplus to fully provision the city in most years, and a larger proportion of rural households faced food deficits in dry years (**Table 2**). Despite these risks, for centuries,



Monte Albán drew people to the area, some of whom must have depended on exchange for sustenance when their crops were insufficient. Alternatively, households engaged in more intensive practices, building check dams, digging wells, and constructing small channels to divert water to their fields, including small systems of canals near the base of Monte Albán to increase agricultural yields (O'Brien et al., 1982; Rojas and Beccan Dávila, 2020).

These settlement–land comparisons illustrate that Monte Albán was not settled and did not grow for reasons principally associated with land quality. When we look at the actual distribution of valley settlements and where there was sufficient labor to grow surplus crops, we suspect that the agricultural

catchment for feeding Monte Albán likely extended 20 km from the city (Feinman, 1998; Blanton et al., 1999), although valley-wide political unification did not occur until later in the prehispanic sequence (Feinman, 1998; Feinman and Nicholas, 2005, 2013, 2017a). The exchange networks that moved food to the city created a high degree of interconnection among small settlements and Monte Albán. This interdependence required cooperation, infrastructure, and institutions that together provided the means of moving food and distributing seasonal surpluses. Human behavior, land use practices, and institutions undergirded the foundation and sustainability of Monte Albán, a place that lasted for 1,300 years as the region's largest and most monumental center.

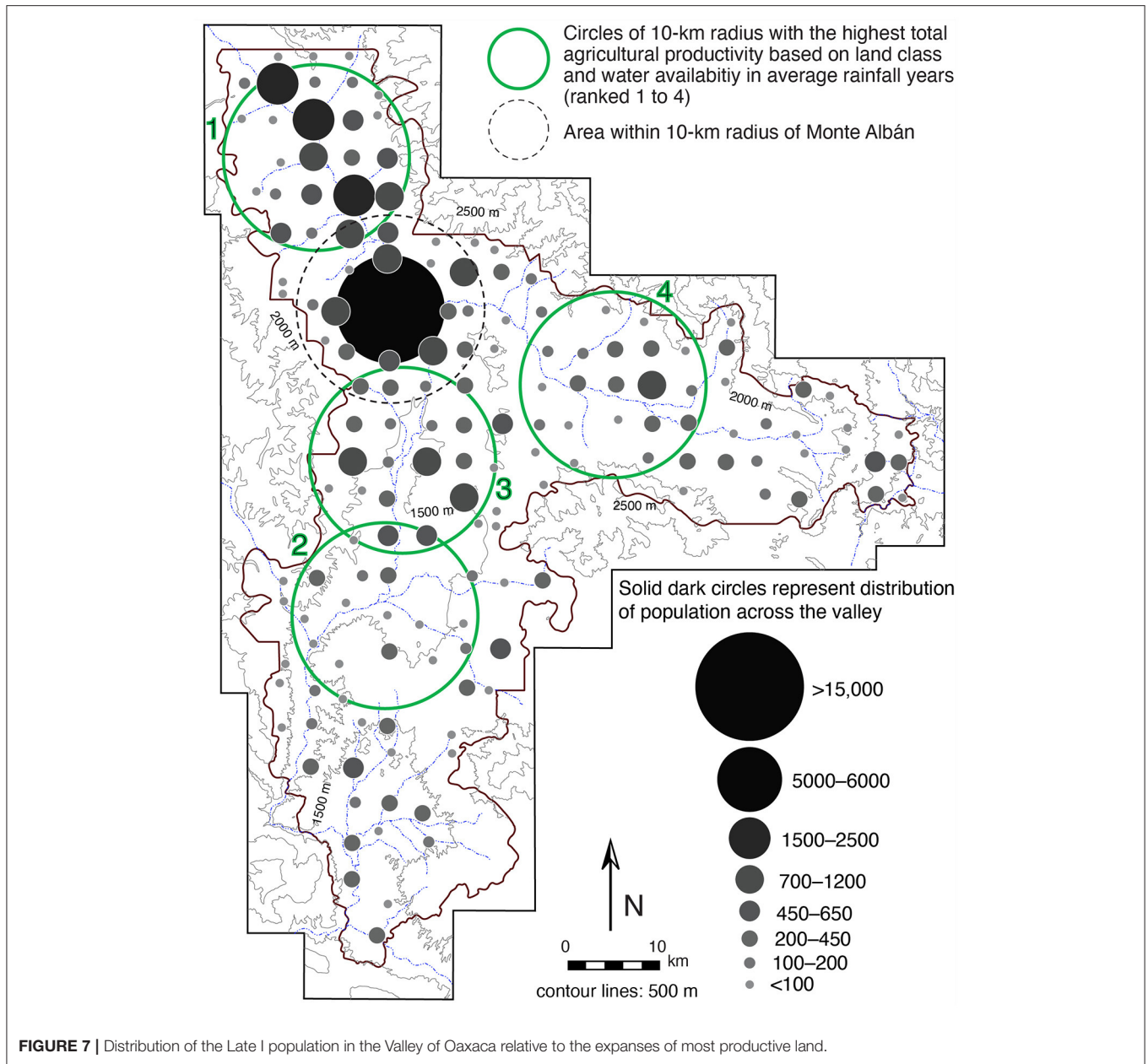


FIGURE 7 | Distribution of the Late I population in the Valley of Oaxaca relative to the expanses of most productive land.

JOINT PRODUCTION, COACTIVE PROCESSES, AND NEW INSTITUTIONS

Monte Albán’s emergence cannot be fully explained by either pervasive population pressure or coercive governance. Any pressure on resources in the area immediately surrounding the new city was a consequence of families choosing to move to perceived opportunities or security. Unilinear models that ignore or minimize interpersonal relations and human institutions are inadequate to account for how people get big things done (Kowalewski and Birch, 2020, p. 30), and c. 500 BCE, the foundation of Monte Albán was one such great transformation. The processes of change were more iterative and coactive, and

to understand this transition we have adopted a multiscalar lens that focuses both bottom-up and top-down, while taking account of people and resources.

Although we refute these uniform, unilinear attempts at explanation, we do not see all aspects of Monte Albán’s rise and seeming sustainability (Feinman and Carballo, 2018; Feinman et al., 2022) as an entirely unique process without historical parallels. Rather, we direct analytical vantage at a middle theoretical range that focuses on recurrent processes and relationships between specific dimensions or directionalities of change (Hedström and Swedberg, 1996; Smith, 2011). More specifically, Monte Albán’s rise signified a historical episode in which agrarian intensification, demographic growth,

nucleation, and economic expansion occurred in the context of new, relatively collective, yet more hierarchical institutions of governance (Sheehan et al., 2018; **Table 1**). Blanton and Fargher (2016) have defined the working of such coactive processes in the context of joint production, where institutional steps were taken that promoted the economic productivity and the well-being of domestic units, thereby enhancing overall agrarian returns while fostering demographic and economic growth. Generally, one of those steps was investments in rural infrastructure (Fargher and Blanton, 2021).

For archaeology, it is empirically challenging to document sustainability and well-being. But there is no question that Monte Albán's lengthy duration as its region's central place was unmatched in the prehispanic Mesoamerican world (Feinman and Carballo, 2018). Likewise, what data we have indicate that there was no marked decline in nutritional health with the foundation of the city (Hodges, 1987, 1989), and throughout its history, the high-status and subaltern cohorts of Monte Albán experienced lesser degrees of disparity in health and diet than was the case in other Mesoamerican cities (Wilkinson and Norelli, 1981; Blitz, 1995; Márquez Morfín et al., 2001). Certainly, in relation to the neighboring cities of the Maya, inequality was relatively muted at Monte Albán (Feinman et al., 2018b; Thompson et al., 2021a,b).

Monte Albán's establishment and the transformational episode of intensification and growth that accompanied it parallels processes outlined by Millett (2001) bracketing the growth of early Rome (see also Hopkins, 1978; Erdkamp, 2016, 2020), which also was organized relatively collectively (Blanton and Fargher, 2008; Blanton et al., 2020). Millett (2001, p. 27–31) listed a suite of indices for premodern growth: (1) more agricultural land under production, (2) population increase, (3) proportional increase in the labor devoted to non-agricultural production, (4) increase in non-agricultural goods, (5) increase in per capita productivity, (6) higher taxation, and (7) the innovation of currency. Despite significant differences in urban scale, transport technologies, and a range of other factors, the indices of growth put forth by Millett for early Rome align with and help us organize and illustrate (see also Stark et al., 2016; Stark, 2020) the changes that occurred in the Valley of Oaxaca (c. 500–100 BCE).

There is no evidence in Monte Albán's early history to suggest that rule at the center was highly autocratic or that there was great inequality. There is no indication of large central storage facilities that would be expected with top-down control of the economy and of the organization and distribution of production. Rather, governance at Monte Albán was collective, and the initial settling and building of the emergent city involved high degrees of cooperation and coordination (Blanton et al., 1999; Feinman et al., 2021a, 2022). From the site's beginning, the apex of the hill was leveled into an open, central plaza that was large enough to hold a significant portion of the city's population (Levine et al., 2021) to engage in ritual and other activities that fostered the building of community. The allocation of the highest reaches of the site for civic-ceremonial space, including the large Main Plaza, and lower slopes for commoner residences required planning and coordination. The

construction of houses on compact, artificially flattened terraces required extensive cooperative labor, and the sharing of retaining walls by neighboring households involved high degrees of shared interhousehold responsibility regarding drainage and the maintenance of communal walls and paths (Kowalewski et al., 2006). The interdependence of adjacent households was fostered through shared concerns with the potential neglect of neighbors that could cause degradation of terrace retaining walls and other shared features (Pérez Rodríguez, 2016).

Institutional shifts that occurred with the foundation of Monte Albán attracted residents and fostered growth. Monte Albán's hilltop location provided an element of security, and defensive walls were erected early in the site's history (Blanton, 1978). Raiding and warfare were persistent threats in pre-Monte Albán times, and the defensive advantage of a hilltop location provided incentives for both the powerful and the producers to move to the new city (Blanton et al., 1993, 1999; Feinman et al., 2022). Rapid growth at Monte Albán led to greater intraregional flows of food and other utilitarian goods that were transferred through a new economic institution, marketplace exchange (Feinman et al., 1984, 2021a,b; Winter, 1984), which helped buffer farmers against unpredictable rainfall. Advantaged by its location at the nexus of the valley's three arms, Monte Albán's emergent networks of marketplace exchange increased the city's interdependence with other parts of the valley, thereby helping ameliorate risk.

Population increases in the Valley of Oaxaca after c. 500 BCE were dramatic, especially at Monte Albán and its immediate surrounds. Part of this growth was internal as the provisioning of the capital's population placed new production demands on rural families. The city provided a ready demand for food, and the new institution of marketplace exchange gave farmers a mechanism to trade surplus crops for other goods they needed. One way that rural households respond to new opportunities and labor demands is to have more children who can work in the fields or assist with other tasks to increase total production for the family (Cowgill, 1975). But the tempo of population growth in and near the city exceeded what could have been maintained by natural increase alone and was fueled in part by in-migration (Feinman et al., 1985). Defense provided by the city's hilltop location and economic opportunities made the valley attractive to people from outside the region so that they were willing to move to terrain with high agrarian risk near the emergent center where they potentially would be subject to institutional demands on their labor and production. Domestic and individual migration has been a recurrent aspect of Mesoamerican economies, past and present (Burgoa, 1674; Taylor, 1972; Blanton et al., 1996).

With in-migration, Monte Albán's early populace was diverse. Cooperation and collective action were fostered at Monte Albán through shifts in ideological messaging, which emphasized supernatural unity at the expense of the prior factions or social segments. During the pre-Monte Albán era, the dualism evidenced through were-jaguar and fire-serpent symbols that were shared across much of the western half of Mesoamerica diminished. At Monte Albán, these symbols largely were replaced by ceramic figures of Cocijo (lightning, rain), a more restrictively Oaxacan supernatural (Blanton et al., 1999, 101–107). Effigy vessels displaying Cocijo (or people wearing the supernatural's



FIGURE 8 | Carved stone *danzantes* at Monte Albán.

attire), as well as other representations associated with water and rain (toads, ducks, shells), increased in prominence (Caso and Bernal, 1952, Figure 30; Caso et al., 1967), associated with an emphasis on general fertility and renewal. With a population drawn from different settlements, this universalizing ideology promoted collective action and goals (Blanton, 2016, p. 24, 31; Feinman, 2016, 2021, p. 11). Cocijo's representational preeminence at Monte Albán (and affiliated sites in the valley) endured for more than a millennium. On Monte Albán's Main Plaza, other rituals were carried out in the *danzantes* gallery (Marcus and Flannery, 1996, p. 150–154), where carved stones commemorated the sacrifice of enemies, likely captives depicted without clothes (Coe, 1962; Marcus, 1976, p. 45, 1992, p. 393; Marcus and Flannery, 1996, p. 153; cf. Urcid and Joyce, 2014; **Figure 8**). This centrally situated, public display seemingly served to legitimate the authority of the city's governors, emphasizing themes of sacrifice and the forging of a collective us vs. them (Joyce, 2009, p. 192; Joyce and Barber, 2016, p. 47; Feinman et al., 2022).

The rural population around Monte Albán grew in sync with the city. Rising food demands in the urban center led to increasing labor demands for clearing and bringing more agricultural land under production. Selection for larger cobs was an ongoing process that raised per-unit agricultural yields, and small-scale water-manipulation practices to increase yields are documented for the prehispanic era (Flannery et al., 1967; Flannery, 1970). Small irrigation canals and other features for diverting and collecting rainwater were constructed on the lower slopes of Monte Albán, mostly for agricultural use (O'Brien et al., 1982; Rojas and Beccan Dávila, 2020). Intensification was a household decision, as these features could easily have been constructed by the labor of a few collaborative households. Planting xerophytic vegetation on the stone retaining walls of residential terraces and other rocky slopes was another form of intensification that helped prevent erosion and provided supplemental food in spaces where maize and other cultivars do not thrive (Feinman et al., 2007; Feinman and Nicholas, 2020a).

The caloric returns of xerophytic plants are significant relative to the amount of labor needed to plant and husband them.

Agricultural intensification did not occur in a vacuum but was interdependent with non-agricultural production, which increased proportionally. The concentrated populace provided scalar advantages to producers in both transport costs and the opportunities for intensified production (Feinman, 1986), making it possible to make more goods at a lower cost per item. Specialized craft production shifted from a small minority of households crafting elite and other items destined for long-distance exchange during the pre-Monte Albán era to expanding numbers of specialists making utilitarian goods for local exchange, notably pottery (Feinman et al., 1984; Feinman, 1986). During Early and Late I, these activities are most apparent in the vicinity of Monte Albán, where farming households shifted labor allocations more heavily to agrarian pursuits, leaving them less time to make their own pots. Ceramic vessels became more standardized; modifications were made for ease of manufacture and transportability at the same time that new forms were created, including the *comal*, or tortilla griddle, for making tortillas, a food whose portability allowed greater flexibility in the deployment of labor. The change to more elaborate houses required greater work inputs and new producers to make the adobe bricks for the walls, to process lime into plaster for floors, and to cut stone blocks for foundations (Blanton et al., 1999), not only in the city but in small communities beyond (Whalen, 1988, p. 293).

The construction of the Main Plaza and the building of monumental public structures that lined the plaza was an infrastructural investment that required lime, cut stone, adobe bricks, and lots of labor, both skilled and unskilled. These public investments imply demands on local producers. In return, residence in the urban center provided a range of goods and services, including defense. Through marketplace exchange networks, the city's residents had access to both local products and a wide range of goods from faraway places, including obsidian tools that were traded to the valley from an expanding suite of sources located hundreds of kilometers away (Nicholas et al., 2021). Nevertheless, although exotics were present at early Monte Albán, the bulk of the evidence supports the financing of the early city based on internal resources, including resident labor, agrarian production, the manufacture of local craft goods, and the emergent marketplace exchange system.

There is no evidence for currency in the early history of Monte Albán. Nevertheless, cloth is a good that was used as currency in later prehispanic Mesoamerica (Baron, 2018). Cloth was woven in Middle Preclassic Mesoamerica (900–600 BCE), and there is evidence of specialized cotton growing at that time in lowland areas, where circular sherd disks with central perforations most likely were used for spinning thread (Stark, 2020, p. 12). Perforated sherd disks at later sites in Oaxaca also were used for spinning (Carpenter et al., 2012); if sherd disks found at pre-Monte Albán sites in Oaxaca (Flannery and Marcus, 2005, p. 77) were as well, then cloth is one possible medium of exchange for emerging marketplace transactions.

The initial founding of Monte Albán and its subsequent growth over the next several hundred years was the most rapid episode of demographic expansion in the prehispanic Valley of Oaxaca. It also was an episode of economic growth. Joint production, a process by which families were encouraged to move to Monte Albán (or nearby) to provision the city as a trade-off for access to a range of goods produced by others as well as greater security and opportunity was a key factor. This critical transition was accomplished through coactive, iterative processes by which new institutions, like marketplace exchange, were formed and new degrees of interdependence and cooperation forged. The spatial layout of the city, the concentrated settlement pattern of residential terraces, roads that connected neighborhoods, water dispersal features, marketplaces, monumental public/ritual buildings, and greater defensive security all facilitated production, distribution, and consumption shifts that yielded the opportunity for enhanced well-being. These early infrastructural investments at Monte Albán also likely undergirded Monte Albán's sustainability in a manner that parallels more contemporary examples (e.g., Amin, 2008; Klinenberg, 2019; Latham and Layton, 2019; Jensen and Ramey, 2020). Although growth slowed after the first 300 years of occupation, Monte Albán remained the preeminent regional central place in the Valley of Oaxaca for 1,300 years.

Governance at Monte Albán was neither stable nor static. After 200 BCE, extra-regional territorial expansion (Redmond and Spencer, 2006) underpinned a shift toward more external revenue sources and more concentrated power and wealth (Feinman and Nicholas, 2013, 2017a; Fargher, 2016; Joyce and Barber, 2016). This shift was reversed circa 300 CE during a subsequent episode of agrarian intensification, marked by distributed power and relatively muted degrees of economic inequality (Feinman et al., 2018b; Feinman and Nicholas, 2020b). Nevertheless, after 700–800 CE, political fragmentation and shifting external relations culminated in the partial abandonment of Monte Albán, which ushered in an episode of more autocratic, transactional political relations (Feinman and Nicholas, 2013, 2016b,c, 2019).

CONCLUSIONS

The establishment of this Zapotec capital illustrates that intensification need not be driven by demographic pressure or top-down coercion. In the prehispanic Valley of Oaxaca, the population never exceeded regional capacities, and any local imbalances that emerged (i.e., Monte Albán's location in an area of agrarian risk) were the consequence of in-migration to economic opportunities rather than movement to prime farmland (Nicholas et al., 1986). Monte Albán was founded on a hilltop in the hub of the valley, at least in part because of its defensible central location, as the product of a coalition or unwritten social contract that benefited both leaders and followers. Offensive warfare is not the sole engine that uniformly

drives increases in settlement aggregation or political complexity and scale (e.g., Kowalewski, 2012; DeMarrais, 2016; Lemke and Carter, 2016; Feinman et al., 2021a).

The provisioning of the new city afforded economic opportunities through joint production that attracted people to move nearby and intensify agricultural yields, thereby fomenting the most rapid episode of demographic growth in the history of the Valley of Oaxaca. Even in the premodern non-Western world, there were eras in which intensification coincided with demographic and economic growth (Stark et al., 2016). What makes Monte Albán's foundational episode all the more important to continue to study is that it appears to have led to a sustainable central place with a relatively low level of inequality and better degree of wellness (health/diet) compared to many of its contemporary (prehispanic) Mesoamerican urban centers. In short, this is a premodern historical instance where early investments in public infrastructure and goods fostered longer-term sustainability (Jensen and Ramey, 2020).

At the same time, coactive processes associated with collective (good) governance at Monte Albán also prompted an episode in which new innovations were adopted or devised that included everyday inventions, such as new ceramic forms (the *comal*) and novel layouts and materials for house construction and burial (subterranean cists and tombs). There also were new public buildings (the *danzantes* gallery), institutions (marketplace exchange), and enhanced public displays of written texts and calendrics. In sum, the establishment of Monte Albán was a period of demographic and economic growth that spurred new innovations in a context of good governance and relative equity and was a hinge point for more than a millennium of subsequent history in the region. Would it also be appropriate to consider it as “enlightened” (e.g., Conrad, 2012)?

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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