War and early state formation in Oaxaca, Mexico

Charles S. Spencer*

Division of Anthropology, American Museum of Natural History, Central Park West at 79th Street, New York, NY 10024-5192

The origin of the state is one of the leading research problems in anthropology (1–4). Archaeologists have been especially concerned with the state; the earliest cases of state formation occurred long before detailed written records were kept and must be studied archaeologically. Although various theories of state origins have been proposed, researchers have increasingly turned their attention to the role played by warfare in state development (1, 5–12). In this issue of PNAS, Flannery and Marcus (13) discuss the archaeological evidence of changing warfare practices in Oaxaca, Mexico, from a pattern of raiding among early sedentary villages after 1500 before Christ (B.C.), through the emergence of the region's first conquest state ≈300–100 B.C. This commentary will highlight the close correspondence in time between the earliest evidence of territorial conquest and the earliest evidence of state organization in Oaxaca, a co-occurrence that lends empirical support to a theoretical model positing a causal link between conquest warfare and the rise of the state (11).

Of special importance for theories of state origins is primary state formation, i.e., when a first-generation state evolves in a context of nonstate societies, without contact with other preexisting states (11, 14). There have been few examples of true primary state formation worldwide (2). Within Mesoamerica, the earliest case of state formation, according to current evidence, was the Zapotec state of Oaxaca (9, 15, 16).

In an influential paper, Wright (3) characterized the state as a society with a centralized and also internally specialized administrative organization. He drew a contrast between the state and the chiefdom, the latter considered to be a society with a centralized but not internally specialized administration. Not all chiefdoms evolve into states, but it has been argued that all first-generation states evolved from preexisting chiefdoms (17–19).

A state administration, from this perspective, is inherently bureaucratic (20). Wright (3) noted that states characteristically have at least four tiers of decision-making. The establishment of subsidiary centers of administration often results in a nested lattice of secondary, tertiary, and even quaternary centers. Population distribution tends to track this administrative lattice, so that states typically exhibit at least a four-tier hierarchy of settlements according to both administrative functions and population size, whereas chiefdoms exhibit no more than three tiers (21).

Fig. 1. Main Plaza of Monte Albán, looking northeast. Inscriptions on Building J (foreground) are interpreted as referring to territories conquered by Monte Albán. This interpretation has been supported through excavation and survey (27, 30).

A state bureaucracy is usually housed in a diverse array of administrative buildings, especially at the state capital (22). At Monte Albán [the Zapotec state capital between 300 B.C. and *anno Domini* (A.D.) 700], various institutional buildings, such as palaces, temples, and ball courts, were constructed in and around the Main Plaza (Fig. 1). Of these, the palace is regarded as an especially useful diagnostic of state organization (23, 24).

The state's ability to delegate partial authority is compatible with ambitious strategies of territorial expansion, including the conquest and long-term holding of distant territories. In chiefdoms, by contrast, the lack of well defined internal administrative specialization precludes the delegation of partial authority, which means that the effective range of chiefly authority is more limited than in a state; this limit is thought to lie about a half-day of travel from the chiefdom's first-order center (11). But the state can transcend such limits and carry out long-distance conquests, which may be evidenced by burned and abandoned villages, specialized forts and administrative outposts established by the conquering state, and enforced changes in the economic, social, and religious behaviors of subjugated peoples (10, 25).

It has been argued that such predatory expansion plays a central role in the formation of a primary state (5, 9). A mathematical model has shown how a strategy involving territorial expansion through the conquest of polities in other regions, coupled with regularized tribute exaction, could potentially bring about a transition from chiefdom to state (11). According to this model, for such a strategy to succeed (especially when the conquered polities lie more than a half-day's trip away) the leadership will have to dispatch components of administration to the subjugated polities, not only to carry out the subjugation but also to maintain long-term control and manage the mobilization and transfer of tribute. Because such a strategy requires that central authority be delegated to these dispatched functionaries, the central leadership should promote internal administrative specialization (and thus bureaucratic proliferation) as a way of narrowing the breadth of authority, and the potential for independent action, pos-

See companion article on page 11801.

*E-mail: cspencer@amnh.org.

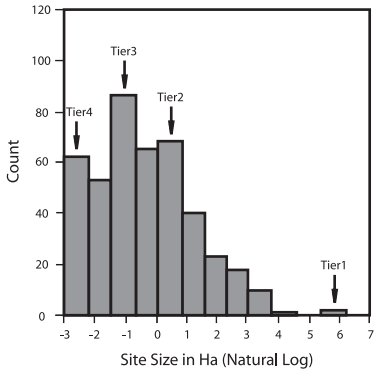

Fig. 2. Histogram showing four modal sizes of sites (expressed as natural log of hectares of occupation) in the core area (Etla-Central zone) of the Monte Albán state, indicating a four-tier settlement hierarchy during the Late Monte Albán I phase (300–100 B.C.). Data are from ref. 32. The graph was redrawn from ref. 33.

sessed by the dispatched functionaries and other officials. Tribute exaction would make new resources available to defray the costs of this administrative transformation. The expansionist model would lead us to look for evidence that the conquest of other polities, especially relatively distant ones, was an integral part of the process of primary state formation.

Archaeological data collected to date in Oaxaca provide support for the expansionist model of Zapotec state formation. Hieroglyphs on Building J in Monte Albán's Main Plaza (Fig. 1) were interpreted by Marcus (26) as referring to the conquest of certain outlying areas. Subsequent fieldwork in the Cañada de Cuicatlán (one of the areas thought to be named in the Building J inscriptions and a 2-day walk north of Monte Albán) found substantial evidence that the Cañada was, indeed, subjugated by Monte Albán in the Lomas phase (300 B.C.–A.D. 200), the beginning of which corresponds to the onset of the Oaxaca Valley's Late Monte Albán I phase (300–100 B.C.) (27). Two overlapping radiocarbon dates from the Cañada help us situate this invasion in time. From the preinvasion site of Llano Perdido, the latest radiocarbon date (β143347) was 2370 ± 100 B.P., with a 2-Sigma calibrated range of 790–195 B.C. (27). From the postinvasion site of Loma de La Coyotera, the earliest radiocarbon date (β143349) was 2170 ± 70 B.P., with a 2-Sigma calibrated range of 390–40 B.C. (27). The midpoint of the overlap in these 2-Sigma ranges is 293 B.C., ≈300 B.C., the beginning of the Late Monte Albán I phase. The dates from the La Coyotera skull rack and the Quiotepec fortress (13, 27) fall slightly later in time, although still within the Lomas phase. Evidence of similar intrusions has been found in the Sola Valley, a 2-day walk southwest of Monte Albán (28), and, farther still, in the Tututepec area on the Pacific Coast of Oaxaca (9, 29, 30).

Researchers have discovered that the Monte Albán state did not expand its territory in a gradual, concentric fashion. Although Monte Albán succeeded in subjugating certain distant regions to the north, west, and southwest by circa 300 B.C., other areas to the east and south managed to resist Monte Albán's aggressive actions for a considerable time. For example, in the San Martín Tilcajete locality in the Ocotlán district, the El Mogote site (SMT-11a) was attacked and burned ≈300 B.C., but the local inhabitants appear to have resisted a complete takeover. They rebuilt their community in a higher location at the nearby El Palenque site (SMT-11b), and they constructed defensive walls for good measure (16). The inhabitants of El Palenque continued to resist Monte Albán until the first century B.C., when they were attacked again. This time, however, they were vanquished and the Tilcajete area was placed firmly under Monte Albán's control (31).

Although archaeologists have known for a quarter-century that the Zapotec state was in existence by the Monte Albán II phase (100 B.C.–A.D. 200) (22), new discoveries are pushing back the time of state formation to the Late Monte Albán I phase (300–100 B.C.). Settlement pattern data (32) document the emergence of a four-tier site-size hierarchy for the core area of the Monte Albán polity during the Late Monte Albán I phase (Fig. 2). In addition, we have recently discovered that the palace also appeared by this phase. Although later construction has made it difficult for archaeologists to excavate the earliest administrative buildings at Monte Albán, a well preserved palace (Fig. 3) was excavated by Spencer and Redmond (16, 33) at the El Palenque site. The time of this palace's initial construction is dated by the earliest associated radiocarbon sample, a small chunk of charcoal embedded in the mud mortar between construction stones; it yielded a conventional radiocarbon age of 2300 ± 80 B.P. (350 b.c., the radiocarbon date after subtracting from A.D. 1950) with a 2-Sigma calibrated designation of 740–710 B.C. and 530–180 B.C. (β147540). The ceramics associated with the palace are unmistakably of the Late Monte Albán I phase. This palace was completely burned upon abandonment, as noted by Flannery and Marcus (13); a charcoal sample associated with the abandonment yielded a conventional radiocarbon age of 1970 ± 60 B.P. (20 b.c.) with a 2-Sigma calibrated designation of 100 B.C.–A.D. 140 (β143355). El Palenque was probably the capital of an autonomous polity that became a small secondary state, a development that enhanced its ability to resist (for a time) Monte Albán's policies of aggressive expansion (16, 33). Using El Palenque as a "cultural barometer" for institutional development in Oaxaca, we can hypothesize that a palace probably also

Fig. 3. Palace (Area I, Structure 7, looking southeast) during excavation at the El Palenque site near Tilcajete, dated by ceramics and radiocarbon analysis to the Late Monte Albán I phase (300–100 B.C.). The residential portion of the palace (visible here) covered 256 m^2, whereas the entire palace complex encompassed 850 m^2. To date, this is the oldest excavated palace in Oaxaca.

existed at Monte Albán itself by the Late Monte Albán I phase. Future excavations at Monte Albán can test this hypothesis.

In sum, the investigations of Flannery, Marcus, and their colleagues are bringing Oaxaca into the forefront of research on the role of warfare in political evolution. The new radiocarbon dates place Monument 3 from San José Mogote no later than 2580–2510 B.P. (630–560 b.c.) (13), making it the earliest-known stone monument with writing in all of Mesoamerica, and it depicts a named, killed captive who was probably a victim of inter-village raiding (for which there is independent evidence). The shift from raiding to territorial conquest occurred ≈300 B.C. in Oaxaca and has been documented not only by interpretations of hieroglyphs but also by survey and excavation in the regions (such as the Cañada and Sola) that were the targets of Monte Albán's expansionistic designs. Finally, recent research has indicated that the onset of Monte Albán's conquest strategy coincided with the appearance of the Zapotec state (the oldest known in Mesoamerica), providing empirical support for the expansionist model of primary state formation.

1. Carneiro, R. L. (1970) *Science* **169,** 733–738.
2. Service, E. R. (1975) *Origins of the State and Civilization* (Norton, New York).
3. Wright, H. T. (1977) *Annu. Rev. Anthropol.* **6,** 379–397.
4. Feinman, G. M. & Marcus, J., eds. (1998) *Archaic States* (School of Am. Research Press, Santa Fe, NM).
5. Algaze, G. (1993) *Am. Anthropol.* **95,** 304–333.
6. Flannery, K. V. (1999) *Cambridge Archaeol. J.* **9,** 3–21.
7. Marcus, J. (1992) *Natl. Geog. Res. Explor.* **8,** 392–411.
8. Marcus, J. (1998) in *Archaic States*, eds. Feinman, G. M. & Marcus, J. (School of Am. Research Press, Santa Fe, NM), pp. 59–94.
9. Marcus, J. & Flannery, K. V. (1996) *Zapotec Civilization* (Thames & Hudson, New York).
10. Redmond, E. M. (1983) *A Fuego y Sangre: Early Zapotec Imperialism in the Cuicatlán Cañada* (Museum Anthropology, Univ. of Michigan, Ann Arbor).
11. Spencer, C. S. (1998) *Cultural Dynamics* **10,** 5–20.
12. Webster, D. (1975) *Am. Antiq.* **40,** 464–470.
13. Flannery, K. V. & Marcus, J. (2003) *Proc. Natl. Acad. Sci. USA* **100,** 11801–11805.
14. Wright, H. T. (1986) in *American Archaeology: Past and Future*, eds. Meltzer, D., Fowler, D. & Sabloff, J. (Smithsonian Inst. Press, Washington, DC), pp. 323–365.
15. Flannery, K. V. & Marcus, J., eds. (1983) *The Cloud People* (Academic, New York).
16. Spencer, C. S. & Redmond, E. M. (2001) *J. Anthropol. Archaeol.* **20,** 195–229.
17. Carneiro, R. L. (1981) in *The Transition to Statehood in the New World*, eds. Jones, G. & Kautz, R. (Cambridge Univ. Press, Cambridge, U.K.), pp. 33–79.
18. Earle, T. K. (1987) *Annu. Rev. Anthropol.* **16,** 279–308.
19. Spencer, C. S. (1990) *J. Anthropol. Archaeol.* **9,** 1–30.
20. Cohen, R. (1978) in *The Early State*, eds. Claessen, H. J. M. & Skalník, P. (Mouton, The Hague, The Netherlands), pp. 31–75.
21. Wright, H. T. & Johnson, G. A. (1975) *Am. Anthropol.* **77,** 267–289.
22. Flannery, K. V. & Marcus, J. (1976) in *Cultural Change and Continuity*, ed. Cleland, C. (Academic, New York), pp. 205–221.
23. Flannery, K. V. (1998) in *Archaic States*, eds. Feinman, G. M. & Marcus, J. (School of Am. Research Press, Santa Fe, NM), pp. 15–57.
24. Sanders, W. T. (1974) in *Reconstructing Complex Societies*, ed. Moore, C. B. (Suppl. Bull. Am. Schools Oriental Research, Cambridge, MA), pp. 97–116.
25. Spencer, C. S. (1982) *The Cuicatlán Cañada and Monte Albán* (Academic, New York).
26. Marcus, J. (1976) in *The Origins of Religious Art and Iconography in Preclassic Mesoamerica*, ed. Nicholson, H. B. (Latin Am. Center, Univ. of California, Los Angeles), pp. 123–139.
27. Spencer, C. S. & Redmond, E. M. (2001) *Lat. Am. Antiq.* **12,** 182–202.
28. Balkansky, A. K. (2002) *The Sola Valley and the Monte Albán State: A Study of Zapotec Imperial Expansion* (Museum Anthropology, Univ. of Michigan, Ann Arbor).
29. DeCicco, G. & Brockington, D. (1956) *Reconocimiento Arqueológico en el Suroeste de Oaxaca*, Informes 6**,** Dirección de Monumentos Prehispánicos (Instituto Nacional de Antropología e Historia, México, D.F., México).
30. Balkansky, A. K. (2001) *Curr. Anthropol.* **42,** 559–561.
31. Elson, C. (2003) Ph.D. dissertation (Univ. of Michigan, Ann Arbor).
32. Kowalewski, S. A., Feinman, G. M., Finsten, L., Blanton, R. E. & Nicholas, L. M. (1989) *Monte Albán's Hinterland, Part II* (Museum Anthropology, Univ. of Michigan, Ann Arbor).
33. Spencer, C. S. & Redmond, E. M. (2003) *Social Evol. Hist.* **2,** 25–70.