A Mesoamerican Middle Age

Mesoamerica after the Decline of Teotihuacan, A.D. 700–900. RICHARD A. DIEHL and JANET CATHERINE BERLO, Eds. Dumbarton Oaks Research Library and Collection, Washington, DC, 1989. viii, 244 pp., illus. $60. Based on a seminar, June 1984.

Tula of the Toltecs. Excavations and Survey. DAN M. HEALAN, Ed. University of Iowa Press, Iowa City, 1989. xii, 301 pp., illus., + charts and diskette. $45.

Five hundred years ago the Europeans discovered a world that was already experienced in catastrophe and cataclysmic change. The Classic civilizations of ancient Mesoamerica, encompassing among them most of modern Mexico, Guatemala, Belize, Honduras, and El Salvador, displayed the diverse inventiveness people can bring to bear on the problems of large society and big government. The lowland Maya had many kingdoms with rulers who routinely declared their political intentions in monumental texts. Yet they lived in large garden communities evincing little of the familiar crowded, gridded patterns of recognizable cities. The rulers of Teotihuacan in highland Mexico did not foster literacy, and they remain anonymous to history behind their elaborate masks and rich garments. Nevertheless they presided over a broad economic hegemony in a city of spectacular scale, planning, and social organization. Between them lay the dominions of the Zapotecs in Oaxaca, with their mountain city of Monte Alban, their military confederacy and central royalty. These peoples, and the other complex societies of their world, were not only neighbors but also allies or enemies in a common pursuit of power and prosperity. The contingency of their fates is documented in a great upheaval spanning the mid-8th through 9th centuries A.D. when Teotihuacan and then the Maya lowland kingdoms collapsed; even the Oaxacans felt this social quake. What happened in this Medieval era and how Mesoamerica recovered are the shared subject of these two excellent books.

Mesoamerica after the Decline of Teotihuacan is an ably edited collection of substantive papers by archeologists and art historians. Robert Santley shows the impressive economic reach of Classic-period Teotihuacan through his study of Matacapan, a large town and Mexican enclave on the south Gulf Coast that distributed obsidian from the city. He argues that the collapse of Teotihuacan and its trade networks especially upset societies in areas like the Gulf Coast that depended heavily upon the importation of chipping stone for tools. Tajin, a city in Central Veracruz, continued to prosper as Teotihuacan declined and may have reworked the obsidian trade away from overland to cheaper canoe and coastal routes. It is probably no coincidence, however, that fierce and cosmopolitan Maya-Mexican mercantile societies arose after Matacapan only slightly further east on the Gulf Coast. The collapse of the great city was a time of opportunity and creative change as well as chaos.

Richard Diehl underscores the fact that this Middle Age is an urban one in highland Mexico. Though parties unknown sacked downtown Teotihuacan around A.D. 750, the city remained a sizable community and center for a century or more afterwards. Collapse of its Classic-era government marked not the end of city life in this part of Mexico but retrenchment at diminished scale into the 10th century, when Tula rose as a great metropolis. Nevertheless, A. Guadalupe Mastache and Robert Cobean believe that, though there is a temporal overlap between the fall of Teotihuacan and the rise of Tula, these developments are not causally connected. The settlement patterns and ceramic analyses Mastache and Cobean present support them in this view. They are impressed with the distinctive public architecture and urban organization of Tula, and also with the influx of new populations from the northern frontiers during the crucial Coyotlatelco phase and afterwards. Mesoamerica too had its invigorating barbarians; perhaps the legends of the Toltec-Chichimeca as founders of Tula have basis in fact. But whoever these foreigners may have been, the city of Tula rose gradually and too late to effect the fall of Teotihuacan. Conversely, Teotihuacan fell too early to pass its institutions directly to Tula.

These points are elaborated in *Tula of the Toltecs*, a well-written and substantive report on the excavations and survey undertaken by the University of Missouri in the 1970s. This monograph, primarily the effort of Dan Healan but with contributions by several colleagues, is a fascinating exploration of life in a Precolumbian city. In addition to detailed discussions of the extensive horizontal exposure in two places, the Canal and El Corral localities, there are sections on the systematic surface survey and artifact collection in urban Tula, background information on the environmental context, and a useful synopsis of previous work at the site. The monograph includes a floppy disk of data on the surface survey for further work on personal computers.

The Missouri work confirms beyond doubt the urban nature of Tula, not only in terms of the extent of the community over 13 square kilometers of dense and continuous occupation but also with respect to the compact, complex organization of dwellings, household temples, and thoroughfares. In the history of household modifications in the Canal locality, one can perceive the slow unfolding of the prosperity and decay of the city from the vantage of ordinary inhabitants. It is a welcome correlative to the dramatic rise and fall of the city's public centers.

One intriguing feature of the survey is the documentation of the regular spatial orientation of buildings and districts at Tula. This is a quality of urban planning that Tula shares with Teotihuacan. On the other hand, Tula's households confirm what can be seen in its centers, namely that they are distinctive and their organization is not inspired by Teotihuacan's famous apartment complexes.

To return to Diehl and Berlo's book, the prospects of a larger legacy of Teotihuacan to Mesoamerica with regard to state arts, militarism, and conquest tribute economy are also complex and diffuse according to the papers by Berlo, Debra Nagao, Ellen Baird, and Kenneth Hirth focusing on Cacaxtla and Xochicalco centers that rose just outside the Valley of Mexico to the east and south. Berlo shows the evidence that Aztec codex manuscripts have antecedents stretching back to Teotihuacan, but in fact highland Mexican logographic writing is primarily a contribution of the Middle Age as evinced in these rising centers after the fall of the great city. For Nagao, the Maya style of Cacaxtla's magnificent murals could register a repudiation of declining Teotihuacan but need not reflect Maya dominance of this center. She marks Xochicalco's synthesis of Maya, Oaxacan, and Teotihuacan symbolism as equally deliberate and experimental, ultimately less radical and more successful in sustaining a major new state. Baird traces the development of a star motif at Teotihuacan into a war symbol in the course of the Classic period, with a parallel but distinct war star among the contemporary lowland

Maya. Did the Teotihuacanos introduce Star Wars among the Maya? Teotihuacan lords clearly inspired Maya kings of the Early Classic period to innovate war practices, but it is the Maya who certainly tied battle to appearances of the moving stars, the planets. Hirth also examines militarism, particularly from the vantage of Xochicalco. He makes a persuasive iconographic and archeological case that the military orders and conquest warfare of the Aztecs are presaged in this and other states which arose after Teotihuacan.

Did Teotihuacan launch this military quality of the Middle Age? The consensus is that it did. Andrea Stone, Joseph Ball and Jennifer Taschek, and Jeff Kowalski offer a series of perspectives from lowland Maya country on the military and economic repercussions of Teotihuacan and its fall. Stone shows that the military art of the Late Classic Maya kingdom of Piedras Negras displays clear affinities with Early Classic Teotihuacan military symbolism. She argues that Maya kings, beginning in the Early Classic, used the symbols of a dominant foreign power to declare their "disconnected" superior status over their people. Ball and Taschek argue that the legendary Itza of the Postclassic invasions of Maya country are in fact not foreigners but southern lowland Cholan Maya speakers who began as intermediaries in the militant Teotihuacano trade networks. They see western Itza and eastern Ytza factions carrying on the trade after Teotihuacan, eventually linking up to establish new domains in the northern lowlands by means of armed force and commercial acumen. Kowalski, provides iconographic and epigraphic evidence that Itza factions were indeed circulating around the Maya area from the southern highlands through the northern lowlands, establishing an areal network of power and trade. Surely the Itza were successful warriors and international in their political symbolism. The case can be made, however, for a substantial indigenous lowland Maya source of military and political inspiration that this volume neglects.

Marvin Cohodas does envision a Maya role in the Mesoamerica of the Middle Age. He suggests a temporal overlap between the fall of Teotihuacan and the rise of Chichen Itza in the Maya lowlands. He further suggests that Chichen Itza may fill the gap in political and cultural innovation between Teotihuacan and Tula through its participation in a broad restructuring of Mesoamerican elite culture in the dying days of the great Mexican city.

Finally, the two papers on Oaxaca illustrate both the theoretical aspirations of scholars trying to understand this tempestuous period and the empirical problems facing them. Marcus Winters provides an alarming analysis to the effect that there is a virtual hiatus in the data of the Valley of Oaxaca in this A.D. 700 to 900 period, that flanking periods have been squeezed over it in previous studies. Joyce Marcus, on the other hand, compares this Middle Age to similar times of trial in the Old World. She suggests that the break-up of large "Classic" states often results in smaller city-states. She further suggests that the Classic Mesoamerican states may have had confederate governments, with pre-existing cleavage lines along political factions that formed them. The principle of confederation is certainly present in the imperial phase of the Aztec empire that follows the Middle Age. Perhaps most intriguing about it in light of these recent interpretations, however, is the increasing evidence that Mesoamerica experienced no broad hiatus in urban society or civilized institutions as in Old World counterparts; it was, seemingly, as much a revolutionary as a devolutionary era.

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Telescopes and Determination

Astronomer by Chance. BERNARD LOVELL. Basic Books, New York, 1990. xiv, 381 pp. + plates. $24.95. Alfred P. Sloan Foundation Series.

Too few scientists devote the effort to writing their autobiographies. In comparison with soldiers and statesmen, they may feel less compelled to justify their actions, or that their work would be of little interest to the general public. Yet, as the preface to Bernard Lovell's *Astronomer by Chance* points out, "An understanding of the scientific enterprise, as distinct from data, concepts, and theories, is certainly within the grasp of us all. It is an enterprise conducted by men and women who are stimulated by hopes and purposes that are universal, rewarded by occasional successes, and distressed by setback." The Sloan Foundation is to be commended for bringing us this book, which better captures the personal side of the Lovell story than Dudley Saward's recent, *Bernard Lovell: A Biography* (Hale, 1984).

The book is organized into some 24 chapters each of which stands somewhat on its own. Chapters 2 through 22 describe Lovell's life in historical sequence, commencing with his experiences growing up near Bristol and later studying physics at Bristol University. The war years and Lovell's role in helping develop airborne radar (H_2S) at the Telecommunications Research Establishment are dealt with next. Returning to Manchester University after the war, Lovell set out, using surplus wartime radar equipment, to try to detect electron showers created in the atmosphere by energetic cosmic ray particles, an experiment based upon what later proved to be faulty calculations. The radar detected the ionized trails from meteors and led instead to their study, the discovery of the daytime showers, and settlement of the question whether sporadic meteors are of solar or galactic origin. A 220-foot vertically pointing, parabolic reflector then built to improve the prospect of detecting cosmic ray showers led in turn to work in radio astronomy, the construction of the 250-foot fully steerable telescope, and Jodrell Bank's place among the large radio astronomy observatories of the world.

Years ago, when reviewing *The Sleepwalkers* by Arthur Koestler, Lovell took issue with the thesis that unraveling the motions of the planets in the solar system was accomplished by chance rather than design. There is a mild irony in that his autobiography makes it clear that his own career was very much governed by chance. This is, however, an interesting tale, well told. Lovell has a gift for explaining the science involved in his work with a minimum of words, making the book eminently readable to the non-specialist. Lovell has had a remarkable ability to surround himself with bright people and stimulate them to do great things. He is unstinting in his praise for these associates and for the many other important figures in the British scientific establishment and at the University of Manchester who helped him.

Much of the drama in Lovell's story is centered on the construction of the 250-foot (Mark I) telescope, and the largest part of the book is devoted to this (and has been chronicled earlier by Lovell in *The Story of Jodrell Bank* and its sequel *Out of the Zenith* [Oxford University Press, 1968 and 1973]). Surprisingly, Lovell makes no mention of the partial stroke he suffered at the time of greatest stress during those years and would have readers believe that only his family knew the extent to which he suffered; this really wasn't entirely so. Some other minor inaccuracies are evident in descriptions of some of the events with which I am familiar, but it is not clear whether these have arisen through an effort to compress the story or simply from the passage of time.

Lovell draws interesting comparisons between the management of this project and the subsequent growth of "big science" with its plethora of oversight committees and checks and balances. In hindsight, it is clear that the task of building a 250-foot fully steerable telescope was embarked upon with