

little faith in the patron gods of their distant overlords, while a hegemon could only attend properly to the gods of his subordinates by moving their images to his capital, far from their own people. The political-religious strategies that worked on a local level thus made larger structures fragile.

That suggestion is intriguing and plausible as far as it goes, but *Patron Gods and Patron Lords* would have benefited from a more thorough and comparative exploration of it. Yes, local deity cults contributed to small-scale political stability and large-scale instability; yes, the fundamentally personal nature of Maya politics also opened up certain strategies for large-scale organization while leaving those structures unsteady; yes, religious localism and political personalism informed one another. But a fuller explanation of Classic Maya macro-political instability would have to ask: did localism and personalism both stem somehow from the same cause, address the same problem? Technological and biological constraints on Classic Maya civilization, with their implications for travel and communication, suggest themselves as such root causes. More cross-cultural comparison would also have been welcome. Other elites in other civilizations also governed in social worlds inhabited by local supernatural patrons; was it because similar material conditions encouraged convergent cultural evolution?

That *Patron Gods and Patron Lords* is not more concerned with those questions in no way detracts from its value to its multiple, specialist audiences: Mayanist archaeologists and epigraphers, but also anyone interested in Peircean approaches to archaeological interpretation. What the book does do is done superbly, and to such readers it is strongly recommended.

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*Manufactured Light: Mirrors in the Mesoamerican Realm*,  
edited by Emiliano Gallaga M. & Marc G. Blainey, 2016.  
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84 figs., 5 tables

James A. Doyle

Reflective surfaces created out of lustrous minerals, either solid or composed of precisely cut tesserae, abound in the archaeological record in Mesoamerica. *Manufactured Light: Mirrors in the Mesoamerican Realm* is the first comprehensive

volume dedicated to such materials, commonly referred to as 'mirrors'. Overall, it is a welcome contribution to scholarship on the material science and cultural significance of Mesoamerican mirrors (a topic that receives too little attention in both archaeological reports and synthetic studies), providing extensive geographic coverage within the region. These chapters definitively connect the technology required to produce such objects to their special status as costume elements, vital ritual tools and cosmological agents among diverse archaeological and post-conquest cultures.

Gallaga M.'s introduction lays out the cultural-geographic scope of the volume and the generalities of Mesoamerican mirrors. He also raises important questions about the form that mirrors take in certain contexts: why, for example, do many mirrors feature carved scenes on the reverse surfaces, presumably never to be seen by anyone but the wearer? The major strength of the volume lies in its first section (Chapters 2–5, 7, 8), addressing the technical aspects and archaeological contexts of iron-ore mirrors, which had long been recognized as some of the most labour-intensive objects to be produced in Mesoamerica, all without metal tools. Gallaga M. (Chapter 2) challenges the common assumption that these took countless person-hours to make by performing experimental archaeology to produce a mirror back and pyrite plaques.

Chapter 3 by Melgar *et al.*, describing the different tools in use at archaeological sites across time and space for manufacturing pyrite items, will be a valuable resource for future archaeological studies of pyrite tesserae and inlays. Kovacevich (Chapter 4) extends her groundbreaking work on jade production to cover the pyrite industry at Cancún, Guatemala, and its implications for the interaction between non-royal and royal households. Her suggestion that Classic Maya elites could have been levying tribute in the form of pyrite plaques, perhaps in a segmented form of production, is compelling, given the evidence from Cancún.

Teotihuacan was an exceptional city for many reasons, including the amount of haematite and pyrite objects recovered there. Gazzola *et al.* (Chapter 5) add crucial information about the degradation of these metallic minerals under certain conditions, effectively challenging archaeologists to recognize and differentiate these materials better in excavations and laboratory analysis. Critical new data are also presented from western and north-central Mexico (Mountjoy, Chapter 7; Lelgemann, Chapter 8) that expand knowledge of pyrite-working traditions into the remote past, as early as 1000–800 BC, and in places often overlooked.

Lunazzi's Chapter 6, containing speculations about the possible uses of mirrors, is interesting, if not grounded in archaeology. Inserted between empirically richer studies, the chapter leaves the reader wondering more about potential research on well-preserved mirrors from the Andes illustrated by Lunazzi, a topic also considered by Taube in the concluding remarks (p. 288). Ethnographic evidence of ritual divining with quartz crystals by the late John McGraw (Chapter 10) draws further attention to other types of reflective materials beyond mirrors. He intriguingly invites an exploration of the cognitive effect that reflective surfaces have on humans, and makes a case for a universal attraction to a

reflection in various materials, without making jarring interpretive leaps. Similarly, the rich Huichol case study (Chapter 12) by Olivia Kindl allows the reader to take the conceptual journey from a modern ethnography of mirrors to their implications for archaeology in a productive way.

Co-editor Blainey's chapter (9) makes bold claims and is intentionally provocative with 'commonsensical' (p. 185) ruminations on Classic Maya mirrors. The heuristic device he introduces to tie together these chapters, the 'reflective surface complex', is a welcome addition. Blainey presents many interesting iconographic interpretations about 'entheogens' among the ancient Maya in relation to mirrors, though not all may be substantiated by available evidence. For example, the supposed clumps of mushrooms held by rulers in Maya courts are, most likely, bouquets of flowers, as illustrated in the sub-royal household scene from the site of Río Azul on the Denver Art Museum vessel in figure 9.6 (see Tokovinine & Beliaev 2013, 179). Likewise, in the same figure detail, the alleged 'strange otherworldly life form' represented by the seated little person speaks: '*tzakbaj keleem*', or 'the young men are placed in order', as if narrating the line-up of individuals in the palace (see Donatiello 2005, 2). In front of the speaker, there are white cotton bags marked 'our beans, our beans, our three [bags of] beans', not likely the materials that would accompany a 'spirit entity' or 'vision' from the 'underworld' (pp. 191–4). This scene does, however, underscore the mirror itself as a pivotal object for a Maya elite person—using an explicitly non-royal, non-divine title—to include in the commissioned painting of his household's worldly possessions and collected tribute.

Taube (Chapter 13) tempers the enthusiasm for evidence of entheogens and underscores alcoholic visions as an alternative interpretation for Classic Maya mirror use (pp. 300–302). Blainey's speculative discussion of dwarves and mushrooms (which illustrates a rare wooden Mirror-Bearer now in the Metropolitan Museum's collection: see Acc. No. 1979.206.1063) might have been sidelined for an expansion of a leitmotif only referenced in passing: the connection of mirrors and the Maya moon, both through the Moon Goddess and the rabbit. Could rounded reflective surfaces have referenced the silvery lunar body itself? Taube presents persuasive evidence of iron-ore mirrors as sun disks in his summary, so more information on the connection of disc-mirrors to celestial orbs might have clarified some of the imagery of portable mirrors presented in Maya ceramic paintings.

A recent wider trend in studying Mesoamerican connections to contemporaneous cultures in Costa Rica, Panama and Colombia makes Dennett and Blainey's Chapter 11 on mirrors in Central America particularly timely and useful. In line with the point above about celestial bodies made manifest in reflective disks, the chapter seems to skate past a potential connection: peoples in Costa Rica and Panama ornamented their bodies with hammered, burnished gold disks. This cross-cultural fascination with shiny surfaces may have led them to desire similar heirloom objects from the distant north, with a greater heft. The sun as

a golden mirror in Mesoamerica, as mentioned by Taube (p. 306), is a belief that Central Americans could easily have shared, expressed in their hammered-gold works. Similarly, in their discussion of 'gifting back' northward, the authors mention the Panamanian bells found in the Chichen Itza *cenote*, but not the dozens of blank, circular gold plaques found there.

The conceptual connection of the 'reflective surface complex' evident in brilliant regalia in the Maya area and Central America, as well as the authors' 'emulation' and 'peer elite' hypotheses (pp. 243–5), could have been strengthened by not bracketing Lothrop's discussion of mirror backs at Sitio Conte (pp. 249–50 n. 2). For example, a cast gold pendant that Lothrop describes as a 'mirror-frame' (Lothrop 1937, 105, frontispiece h, fig. 71) shows an anthropomorphic figure wearing or holding an inlay, presumably iron ore that unfortunately degraded. There are indeed gold-alloy pendants that depict figures wearing disks of inlaid pyrite from Costa Rica and Panama (see, for example, Metropolitan Museum Acc. No. 1979.206.1064, Crocodile-Head Figure Pendant), in addition to the actual slate mirror backs from Sitio Conte graves (Lothrop 1937, 102–5, figs. 68, 69).

Taube's excellent concluding chapter sparks many areas for future research. He effectively traces a major source of Mesoamerican mirrors' power and pervasiveness to the ambitions of the residents of Teotihuacan (p. 299). This case underscores a chronological point made earlier by Lelgemann, in his discussion of evidence from Zacatecas (p. 168):

During the heyday of Teotihuacan as the undisputed political, economic, and probably military superpower between AD 300 and 500, it would seem that wearing iron-ore-coated plates (as one piece or multicomponent mosaics) reflected at the same time political power, military prowess, and some sort of connection to the prestigious metropolis in the Valley of Mexico ...

The volume thus implicitly ascribes major importance to Teotihuacan in the foundation of the Mesoamerican 'reflective surface complex'. Given the preponderance of iron-ore artefacts discussed by Gazzola *et al.* at Teotihuacan, the obvious Teotihuacan–Maya interaction evident in mirrors cited throughout the volume at Kaminaljuyu and the Guatemalan Pacific coast, and even the Teotihuacan-style mirror back excavated in Costa Rica (fig. 11.4b: see Finamore 2010, 147–8), the next step in shedding light on Mesoamerican mirrors could be to revisit more deeply Taube's important work on the symbolism of reflective objects at the metropolis itself.

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## Gary M. Feinman

With global population increasingly nucleated in cities, the world's attention turns to questions concerning what makes such settlements resilient (or not); how do variable modes of institutional governance and infrastructure relate to livability and durability; and what are the historical bases for such assessments? Archaeology, with its extended time depth and lengthy record of investigating central places, should have a key role in these interdisciplinary dialogues, but it has been slow to materialize. In this volume, David M. Carballo bridges elements of our discipline's past, present and potential future to illustrate, through an examination of central Mexico's deep, prehispanic past, how the deft juxtaposition of theory and data can be marshalled to address questions concerning urban organizational variability and long-term historical outcomes.

The volume's scope is central Mexico from the rise of the region's initial cities (c. 650–100 BC) to the growth of major urban centres, most notably Teotihuacan, during the early centuries of the first millennium AD. The approach is explicitly multiscalar, diachronic and material. At the same time, it admirably plumbs a bilingual literature to offer in-depth consideration of what is known about 20 early central places in the Basin of Mexico, Puebla and Tlaxcala, as well as three later, larger metropolises (Teotihuacan, Cantona and Cholula). Carballo (p. 8) defines 'cities' as 'a human settlement type that is of greater scale (size and population) and of greater societal importance' than other, smaller communities, stressing (p. 2) that the processes associated with urbanism involve both 'integration, as more people live in one place' and differentiation, 'as they assume more varied so-

cial and economic roles'. Religious beliefs and practices, recognized as having both the potential to integrate and divide, are judged to have had a key (although not always equivalent case to case) role in the processes of central Mexican urbanization. Thus, Carballo's (p. 1) expressed aim here is 'to explore these social entanglements and the coevolution of religion and urbanism during this pivotal period' that is foundational to the development of a prehispanic urban tradition.

The analysis is underpinned by constructs that originally were defined, refined and further tailored through excavations and earlier analysis by Carballo (e.g. 2012) at La Laguna (Tlaxcala), one of the 20 early centres examined in this study. Inspiration is derived from a fiscal theory of collective action as applied to human aggregation and cooperative formations (e.g. Blanton 2016; Blanton & Fargher 2008; Levi 1988), which the author crafts to outline a series of expectations (p. 120) for assessing inter-site variation in the processes of urbanism at the sites under investigation. Past uses of space, architecture, representational art and other artefacts are all carefully weighed (as available empirically) and integrated. I find this holistic and comparative assessment of relative collectivity (conjoined with a consideration of scale) to be insightful, yet the reader should be aware that I have published on related approaches, including with the author (Carballo & Feinman 2016; Carballo *et al.* 2014; Feinman 2013; Feinman & Nicholas 2016).

In the analysis, the collective action frame is deftly interwoven with a consideration of long-standing central Mexican traditions of ritual and cosmology. Here, the author draws heavily on documentary and archaeological sources for the Aztec as well as an approach to religion focused on internal cultural logic (e.g. Handelman 1997). Through this diachronic consideration, Carballo recognizes a conservative, enduring 'hard nucleus' of prehispanic central Mexican belief systems that was monistic (a cohesive totality of existence), polytheistic and cosmogenic, including strong dualities between both fire–water and earth–sky. Issues of greatest collective concern, such as creation, existential dualisms and fertility cycles, fostered cohesion and tended to be resilient across time and space. At the same time, central Mexican belief systems allowed for heterogeneity in religious symbolism and ritual practice as different communities, or distinct social classes within a single community, varied in what version of the cosmos was to be regenerated through ritual acts. Thus, group divisions along lines of lineage, status, community and larger affiliations—different forms of cooperation and collectivity—turned over with much greater frequency over time. This analytical frame, which decouples more conservative elements of culture, such as cosmology, from other more flexible cultural practices, such as political relations, offers potential future avenues for explicating continuity, diversity and change within specific macroscale landscapes.

The study provides a revealing deep-temporal, broad-spatial perspective on the rise and governance of Teotihuacan, an urban centre often considered somewhat anomalous or otherwise perplexing (e.g. Pasztory 1997; Sugiyama 2005, 236). Based on long-standing theoretical frames that equate