the fortress that originally featured masonry components. As with some of these, work on the earliest amphitheatre (1a) appears to have been aborted before it was finished. The apparent hiatus before completion of the amphitheatre (1b) has been linked to a change in the resident garrison. When this building was in turn replaced it was encased by the successor amphitheatre (2), which was constructed on a scale that makes it the largest example currently known from Roman Britain. Sadly, as the excavators note, "the level of survival […] is in inverse proportion to its original size and form" (p. 162). Nevertheless, ingenious study of the surviving structural elements allows a somewhat austere superstructure to be reconstructed with a high degree of certainty.

One of the most fascinating elements of the report is the evidence for activity in and around the 1a and 1b amphitheatres. Postholes beside an external stair to amphitheatre 1b would suit a tented stall similar to that featured on a Pompeian fresco, while the unusually high proportion of poultry bones may point to a popular spectator snack food. The long-known shrine dedicated to the goddess Nemesis provides evidence for ritual activity, alongside another small, near-square feature also interpreted as a shrine. One puzzling feature is the wealth of finds associated with activity at the—seemingly unfinished—amphitheatre 1a. Pit 1256, which is interpreted as one of three latrines servicing patrons during this period, is of particular interest here. It was apparently filled over a short period with layers containing material such as pottery, glass, small bronze objects—including a representation of a human face—a single coin of AD 85, animal and fish bones, and, in the uppermost layer, a sawn piece of deer antler. This is perfectly reasonably viewed as rubbish. Even so, Holly Miller and Naomi Sykes have recently discussed the use of deer antlers in Roman zootherapy, seemingly strengthening Christian Karst's equally recent proposal that combinations of deer antler and objects including isolated coins in subterranean structured deposits at Roman military sites could have ritual significance. It is possible that the contents of pit 1256 were more deliberate than they appear.

It is clear throughout that the excavations were conducted with a precision and flair to be expected from a team managed by directors with the combined experience of Wilmott and Garner. They are also to be congratulated on a report that manages to combine engaging and incisive overviews of the amphitheatre and its environs—including the fortress—with a detailed scientific account of the work and its results. The stratigraphic sequence can be easily cross-referenced with the wide-ranging specialist reports, allowing interpretations to be interrogated. Such a pursuit is aided by the wealth of colour plans, and indeed images of all kinds. Among these, the reconstructions of the amphitheatre 1b seating framework and the entirety of amphitheatre 2 are especially impressive. The text displays a keen awareness of comparanda from amphitheatres elsewhere in the empire, making this volume an essential contribution to the study of these structures and provincial life in Roman Britain more generally. A teaser for the second volume provided in the conclusion to this instalment indicates that the amphitheatre proved to be of long-standing importance; the same will surely be true of this report.

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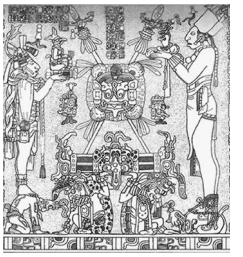
David A. Freidel, Arlen F. Chase, Anne S. Dowd & Jerry Murdock (ed.). *Maya E groups: calendars, astronomy, and urbanism in the early lowlands*. 2017. Gainesville: University Press of Florida; 978-0-8130-5435-3 $125.



E-Groups, sounding more like something out of pharmacology than architecture, take their name from the Maya city of Uaxactun in the Petén rainforest of northern Guatemala. Carnegie Institution researchers classified the monumental Classic Period centre of the mid and late first millennium AD, studded with carved stelae, into groups A and B. Stela 9 of AD 327 was for almost half a century the earliest-dated Maya monument known, and from its Long Count date in Baktun 8, identified as the 'eight-stone' from which Uaxactun took its pseudo-Mayan name.

Group E was different: its heart was Preclassic, dating to before AD 300. E-VII-sub, a radial pyramid with four stairways flanked by huge deity masks, was the first Preclassic structure to be fully excavated. East of it





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was a long north–south mound, capped by three small temples in the middle and at the ends. Oliver Ricketson, directing the Group E excavations, proposed that an observer on E-VII could note the rising sun on the solstices and equinoxes using the temples as foresights. Given the known Maya preoccupation with astronomical calculations—the lunar and Venus tables in the late pre-Hispanic Dresden Codex had been known for decades—precise solar observation came as no surprise. Similar architectural groupings with a western pyramid and a long eastern counterpart were noted elsewhere over the years, including Middle Preclassic ones at Tikal and Cival, and an even earlier one, dating to *c.* 950 BC, at Ceibal. But it was also apparent that for many of these E-groups, the eastern horizon was too elevated for use as a practical solar observatory: what they were, and when and why they were built, is the subject of these useful essays.

Arlen Chase suggests two successive forms of E-Group—the Late Preclassic 'Cenote' type (named for that site in Petén) has a long eastern structure with a prominent central/axial 'temple' construction, which was succeeded by the 'Uaxactun' type at the transition from Late Preclassic to Early Classic around the third century AD. Its format, the original and canonical E-Group design, has three constructions located at the ends and centre of the eastern mound. Susan Milbrath adds a third type, pointing out that the earliest E-Groups, such as that at Tikal, have a simple long mound to the east, lacking superstructures.

So we would seem to have at least a three-stage evolution of this early public architecture; there may be a fourth, rather later than most contributors consider, at Classic-period Xunantunich in Belize (p. 390). Also in Belize, at La Milpa, the late Stephen Hopkins (cited by Milbrath, p. 122) suggested an E-group using stela 18 at the base of structure 9 on the west side of the Great Plaza as the sighting-point, and the row of large pyramids, structures 1, 2 and 3, lining the eastern margin as the triune foresights. Our excavations in 2000–2002 showed that the massive pyramid, structure 10, which would have blocked the northern sightline, was a late intrusion into the plaza layout, together with the elongated structure 8 to its south (the pair in fact forming an E-group plan, but rotated 90º clockwise). La Milpa's major architectural development is after AD 700. If Hopkins is right, we have an extension in both date and scale of the E-Group concept.

The book's first section covers the history of the study, distribution and potential significance of E-Groups, followed by four chapters dealing with astronomy (Aveni and Dowd), calendrics (Milbrath), 'Timescape', including Preclassic figurines (Rice), and 'Cosmology and the origins of Maya rulership' (Freidel). Some of these digress from the E-group theme, sometimes quite far and with varying degrees of credibility. Part III, 'The archaeology of E-Groups', has nine chapters that are the meat of the book. They range from links with the Olmec, Chiapas and the Isthmus of Tehuantepec to the west of the Maya Area (Inomata), through early examples in several sites in Petén including Cival (Estrada-Belli), San Bartolo (Saturno *et al.*), El Palmar and Tikal (Doyle). There are further connections with places in Belize including Xunantunich (Brown) and its tiny satellite Chan (Robin), while the complex question of E-Groups and 'Eastern Triadic Assemblages' in the Belize Valley (Awe *et al.*) is also discussed. These last not to be confused with the notable Late Preclassic public-architecture complex, the Triadic Group (Szymanski 2013). Reese-Taylor covers the karstic region north of Petén into Campeche, and Stanton claims that in Yucatan, E-Groups mark Preclassic trade routes from the south. In the final section, Dowd places E-Groups within a broader context of temple precinct development in Mesoamerica, and argues that "ritual and practical astronomy in E Groups is key to understanding beliefs and practices underlying Maya community life, governance, and religion" (p. 517). Just how she does not specify. An Epilogue (D. Chase, McAnany, and Sabloff) reiterates the significance of E-Groups as "architectural chameleons" (p. 582), their consistent association with "ground- and horizon-based astronomy" as "the earliest replicated public architecture in the Maya Lowlands", and their importance for "performative activities linked to dynastic concerns and the long count" (p. 578).

Maya E-Groups are an important, if still not fully understood, "window to their ancient ritual world" (p. 20). From these contributions we conclude that they were the earliest form of Maya public monumental architecture, constructed from the early first millennium BC onwards and similar to structures at coeval Olmec sites to the west and others in Chiapas. By the end of the millennium, the addition of a central temple on the eastern long building resulted in a triune structure. An initial Middle Preclassic function of solar observation, perhaps astronomically quasi-accurate, modulated into more general ritual commemoration of the importance of heavenly bodies and, in some cases, into regal







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sepulture. By the fourth century AD this underpinned the notion of the ruler as Sun God, portrayed in Classic Maya art and reified in the Late Classic Twin Pyramid Groups of Tikal and Yaxha (Coggins 1980). The construction of an eastern ancestor shrine in residential groups may have been a domestication of public architectural forms, the lineage founder and ruler writ small. What we still do not know is *why* a public architecture emerged in the Maya lowlands almost three millennia ago, although this book goes some way to documenting the what, where, when and how.

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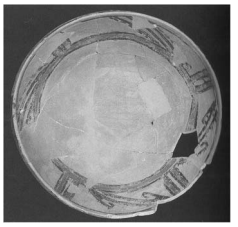
Katherine A. Spielmann (ed.). *Landscapes of social transformation in the Salinas Province and the eastern Pueblo world*. 2017. Tucson: The University of Arizona Press; 978-0-8165-3569-9 $65.



The Pueblo Indian world in the American Southwest underwent a fundamental transformation between the thirteenth and sixteenth centuries. Pueblo people who had been previously living in small hamlets and villages began to coalesce into large towns. Concurrent with the construction of these new communities was the development of unique socio-political and ceremonial systems similar to those encountered by the Spanish in the sixteenth century, and by anthropologists at the turn of the twentieth. In short, this was a period of Pueblo ethnogenesis, and a significant step in the process of becoming the Pueblo people of today. The modern Pueblo people speak multiple languages and live in 31 settlements, encompassing an area from the Hopi villages in northern Arizona to Taos Pueblo in northern New Mexico. Although the Pueblos (and their ancestors) share many similarities, from subsistence to cosmology, anthropologists have noted important distinctions in how these villages created their own unique social and ceremonial organisation, landscapes and identities. This has led archaeologists to enquire about the historical processes that can account for these similarities and differences. It is within this context that Spielmann's volume, derived from 16 seasons of excavation and survey in the Salinas Province of central New Mexico, both supports and challenges our understanding of Pueblo history.

In much of the Pueblo world, the formation of large, aggregated communities with new social and ceremonial systems is attributed to the coming together of diverse peoples (migrant and indigenous populations) in the aftermath of demographic upheaval and reorganisation in the thirteenth century. While the precise circumstances are debated—and probably varied between ancestral Pueblo villages—acknowledging the impact of migration has been critical to the ongoing discussion and understanding of Pueblo history. An influx of migrants does not appear to have happened in the Salinas Province, where population estimates remain remarkably consistent between the twelfth and seventeenth centuries, even as the people who lived in *jacal* (wattle and daub) hamlets began to build the large villages that were eventually missionised by the Spanish. Still, the emergence of these large, complex towns shares similar traits with trends in other Pueblo communities to the north and west. What contributed to and catalysed these changes? The authors in this volume demonstrate that although the Salinas people persisted in place, they had dynamic and diverse ties with people from surrounding regions, some of which acted to transform Salinas society. Through eight chapters (excluding the Introduction by Spielmann), the contributors support their arguments using a wide range of data including settlement patterns, domestic and ritual architecture, and pottery (including ceramic petrography, INAA (instrumental neutron activation analysis), lead isotopes and stylistic analyses).

The Salinas Province offers Southwestern archaeologists an important 'foil' to re-examine models of Pueblo





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