Climate Change and Ritual Response in Western Belize: Power Sharing in Late to Terminal Classic Maya Cave Use

Holley Moyes, University of California, Merced

And

Jaime Awe, Institute of Archaeology, Belmopan, Belize

Abstract

The Classic Maya 9th century collapse has been defined, redefined, and studied by generations of archaeologists. Recent studies emphasize the processes of social change at work in times of stress. Our work in the ritual caves of western Belize investigates religious practices during this tumultuous time, and demonstrates that there is a major change in ritual practice in caves in the later part of the Late Classic period. We proposed elsewhere that this change was a direct response to drought conditions, constituting a Late Classic drought cult. Not only is there a change in the way that rituals are conducted, but more caves come into use during this time than at any other temporal period. In this paper we review our findings and suggest that increased cave use is a result of power sharing by elites designed to deflect blame for failed rain rites, and is likely an attempt to secure or salvage elite hegemonic rule.
Over the past 15 years we have been conducting research in the caves of western Belize. Jaime Awe has spearheaded the Western Belize Regional Cave Project that has operated since 1996, and Holley Moyes and Awe have been co-investigators of the Belize Speleothem Project, the Minanha Cave Project, and most recently Moyes has initiated the Las Cuevas Archaeological Reconnaissance. The two authors have investigated over 75 caves, but the most intensive research (and possibly the most intensive archaeological research in any single Mesoamerican cave) was conducted at Chechem Ha Cave in western Belize. Based on the analysis presented in Moyes’ dissertation research, the authors have argued that a Late Classic drought cult was initiated in the western Belize sub-region in the late part of the Late Classic period (Spanish Lookout ceramic phase) sometime between A.D. 680 and A.D 960., on the eve of the collapse (Moyes 2007, 2008; Moyes et al. 2009). These dates are based on both ceramic chronologies (Gifford 1976) and a suite of 48 radiocarbon dates, so despite the fact that cave material is sometimes hard to pin down chronologically, we feel quite confident about our rigorous dating methods. In our previous article concerning the drought cult (Moyes et al. 2009), an important issue was left vague. We did not pursue the question regarding who was responsible for this major change in ritual practice during this stressful time in Maya history. We now suggest that the change in practice was the result of changing social structures in the Late to Terminal Classic period (850 A.D-950 A.D.). Cave rites that were
once the prerogative of apical elites fell into the hands of others such as lesser nobles or community leaders.

**Elite Cave Use**

There have been a number of arguments that the use of dark zones in caves was an elite prerogative (Brady and Stone 1986; Stone 1995). Based on architectural constructions we can demonstrate archaeologically that the entrances of caves could be used for large public rites, but it is unlikely that anyone except elites or ritual specialists were privy to rituals in dark zones. Just as today, one would not enter a cave without being accompanied by someone with the special knowledge and spiritual acumen to enter such a sacred place. In modern ceremonies, one must cultivate close relationships with the indwelling deities or understand their proper treatment (eg. Andrews 1970; Christenson 2008; Nash 1970:23; LaFarge 1947:124-129; Tozzer 1907).

Awe and his colleagues (2005) argued for the presence of elite cave use, based on the erection of undecorated monuments found in some caves. Dominique Rissolo (2001:348; 2005) suggested that the art, architecture, and offerings found in Yucatan caves represented elite use, adding that the restrictive nature of some
caves further suggested exclusivity. Keith Prufer's (2002:638; 2005) data from Maya Mountain area caves also suggested that dark zone rituals appeared to be more esoteric, whereas large public ceremonies were conducted in lighter open areas. Additionally, Moyes and Prufer argued that Kayuko Naj Tunich, a cave set high in a karst tower, served as a foundational shrine for the establishment of a royal lineage at the southern Belize polity of Uxbenká (Moyes and Prufer 2009; Prufer et al. 2011)

James Brady and his colleagues have long argued that caves were integral to the establishment of elite status and power (Brady 1997; Brady et al. 1997). Work at Dos Pilas was particularly instructive in this regard. This research brought to light a pattern, common among the Classic period Maya, of building temples and palaces directly above natural or human-made caves. As Brady and Wendy Ashmore (1999) point out, at Dos Pilas the royal palace complex was built above the Cueva de Murciélagos (Cave of the Bats). This cave served as an outlet for an entire drainage system at the site. To this day, during heavy rains water gushes from the mouth of the cave with such force that the roar can be heard half a kilometer away. They suggested that this was a sensory cue that announced the beginning of the rainy season, and its purpose was to reify the power and control of the king over life giving water.
The association of kingship with cave use in Mesoamerica dates back to the Olmec. Iconography on Olmec thrones illustrates their close connection with early rulership. A central element of many of the thrones is an individual emerging from a niche. The carving on the thrones portrays the niche as the open mouth of the jaguar or earth monster, a well-recognized cave motif. David Grove (1973) sees this statement of cave emergence as a central element in the rulers’ claim to legitimacy. This agrees well with Linda Schele (1987:16), who argues that much Olmec iconography illustrates the king controlling the cave portal between this world and the supernatural world. Additionally, the famous El Rey monument from Chalcatzingo located in the Mexican Highlands and considered by Kent Reilly to be Olmec in style, illustrates a personage, likely a ruler or ancestor, sitting within a cave holding a cloud scroll (Reilly 1994:85). It is raining in the scene and plants grow above the cave. The associations of caves with the earth, rain, fertility, and creation at this very early time in Mesoamerican history imply that they were important symbolic ritual spaces in the early development of political power.

Of note in the examples above is the relationship between caves, rulers, rain and fertility that has a very deep history. This ideological nexus continues through
time and the use of caves for shamanic practice and fertility rites became a part of elite ritual that bolstered Classic Maya kingship. For instance, on the north wall of the Late Preclassic Maya murals from San Bartolo that date to the first century B.C., there is an image of an anthropomorphic cave, probably a cave of origin, bearing morphological similarities to that depicted on the El Rey monument (Saturno et al. 2005). The mural is placed inside of a palace structure and is clearly positioned for limited viewing. It illustrates a creation event in which maize tamales and a gourd of water are being handed out of the entrance of a cave. An early representation of the ancient Maya Maize God stands at the cave mouth accepting the offerings. The association suggests that both the first maize and primordial water issued from caves, which helps to explain the importance of caves in later water and fertility rites. Later on, we find depictions on Late Classic Maya vases of Chac the rain deity living in caves (eg. Coe 1978:78, no.11), which makes a clear statement that caves are associated with water rites in the Classic period.

**Chechem Ha Cave**

Chechem Ha is a deep cave system located in western Belize near the Guatemalan border (Figure 1). The cave contains over 300m of tunnels. The tunnel system is 198m in length and has two primary conduits, Tunnel 1 and Tunnel 2 (Figure 2).
It was found by the local land owners and the entrance was blocked at the time of discovery. Since then it was opened for tourism but has been carefully curated by the local owners who lead tours to the cave. The cave’s use dates from the Early Preclassic to the Late Classic period (1300BC-960AD), based on 2-sigma radiocarbon dates, and thus spans the entire history of Maya settlement in the region. This makes it one of the oldest ritual caves in the Maya lowlands. The cave is also unusual because of its intact deep subsurface deposits and excellent stratigraphy (Moyes 2006; Moyes et al. 2009).

Moyes’ dissertation work was designed to assess changes in ritual practice over time by analyzing the use of space (modification and artifact placement), artifact assemblage (objects deposited in the cave and their condition), and ritual intensity (frequency of use). The idea of ritual intensity is based on anthropological studies of “ritual density.” It is a quantitative measure used to examine why some societies or historical periods have more ritual than others by looking at the frequency of ritual, or number of ritual types, conducted by a group (Bell 1997:173).

To examine changes in practice at Chechem Ha, two proxies for cave use were employed, one “direct” and one “indirect” (see Moyes 2006, 2007, 2008; Moyes et al. 2009). Ceramics were likely to have been part of rituals so we considered
them “direct.” Sherds and whole or partial vessels were found on the surface and in excavations. These were mapped and analyzed using type-variety methodology for chronology. The second proxy was charcoal flecks, shed by torches used to light the cave, which were considered to be “indirect” because they were part of ritual activity, as well as serving a more utilitarian function. The charcoal data was collected from Chamber 2 in the center of the cave where we conducted a 2m x 8m horizontal excavation, consisting of 17 levels. After clearing a level, our team recorded each charcoal fleck on the surface using Pentop computers. Some levels had thousands of charcoal flecks embedded into the matrix, while others had very few. We also dated each of the levels using AMS. Dates are reported at the 2-sigma range and have been calibrated using OxCal 3.9.

The chart in Figure 3 illustrates our results. In the Early/Middle Preclassic there are very few sherds but lots of charcoal. This suggests that the early cave rites emphasized performance over offerings. In the Late Preclassic there is a sharp reduction in cave use indicated by the sparse amount of charcoal and few ceramics. In the Early Classic it appears there is increased cave use because of the increased numbers of charcoal flecks and ceramics being brought into the cave. Curiously, in the Late Classic there is a sharp increase in the number of ceramics being left in the cave but the charcoal counts are quite low. This can be seen in other areas of the cave as well. For instance, on ledges that date solely to the Late
Classic period, there is little charcoal though there are many vessels. These data indicate that a major change in ritual practice occurs at this time that is an inversion from Early /Middle Preclassic use in that there is virtually no performance, but a strong emphasis on offerings. Additionally, more ceramics were brought in during the Late Classic than in all other periods combined. We also may conclude that a large number of people must have been bringing in these artifacts, some of which are large, intact vessels.

If we look at the transition between the Early and Late Classic periods, there is a change in the ritual assemblage as well. Although ceramics have been brought into the cave since the end of the Early Preclassic Period, during the Early Classic we begin to see Peten-style polychromes. There are perhaps two or three partially intact vessels from these periods, while most other vessels are either smashed or incomplete. Alternatively, it is probable that only sherds are being imported into the cave. However, in the Late Classic we begin to see a larger number of whole or partially intact vessels. Most of these intact vessels are jars, though a few intact Late Classic polychromes were located in an elevated passage that Moyes (2005) has argued elsewhere is a ritual sweatbath.

The chronological data suggest that there was almost no use of the cave during the early part of the Late Classic in the “Tiger Run” phase (Tepeu 1, A.D. 650-900),
but that Late Classic use is more or less confined to the “Spanish Lookout” or Tepeu 2-3 phases that Gifford dates from A. D. 700-900. In fact, the cave appears to have been closed off and reopened at this time. There are four AMS dates for this period, which indicate that Late Classic use began sometime after A. D. 680 and was discontinued by A. D. 960. By this time the entrance of the cave was closed off and not to be reopened until 1989.

The Late Classic Drought Cult

What does one make of the intact jars in Chechem Ha Cave? Their presence suggests an elaboration of traditional cave rites in which jars are the most common artifact in all assemblages from the Late Preclassic onward. However, prior to the Late Classic it appears that mostly sherds are imported into the cave because there are few intact vessels. Additionally, only two of the jars in Chechem Ha served as containers, and the rest either had holes in the bases or were empty. This suggests that they did not serve as containers, but that they were the offerings. Though the jars in the cave were likely to have functioned in utilitarian ways during their prior use-life, we know that among the modern Maya it is not unusual to repurpose household objects to be used in ritual contexts (Hayden and Cannon 1984:239). We consider the jars located in Chechem
Ha and elsewhere as appropriate gifts for rain deities that take on symbolic
currency when used in cave rites. Years ago Robert Rands (1955:344)
noted a belief that rain was poured from a container throughout
Mesoamerica and found that water poured from jars was the most
common iconographic motif used to symbolize rain. Following Rands, we
argue that these vessels are indicative of rain rites and are the
quintessential offering for these deities.

Images in the Dresden codex support Rand’s argument. On page 74 is an
illustration of the primordial flood that Taube has associated with the
original Maya creation event (Figure 4). An old woman, named in the
codex as Chac Chel, hangs in the sky. Karl Taube (1988a:146; 1995:71)
and others (See Vail and Stone for discussion 2002:209-215) associate her
with the moon, rain, and fertility. In her hands there is an inverted olla
pouring water, similar to her depiction on page 43b. Likewise in the
Madrid Codex flood pages she is seen in a similar stance on pages 10b and
29b. On page 30a of the Madrid both she and Chac are in similar poses
pouring water from inverted jars. Owing to her presence in the cave
paintings at Naj Tunich, Brady (1989:47-49) and Stone (1995:143) have
long argued that this female deity is associated with caves.
Not only are these Late Classic vessels found in Chechem Ha, they are present in almost every cave that we have visited in Belize. The jars are usually located in remote and hard to reach areas. This, plus their limited aesthetic value, ensures that even when caves are heavily looted the jars are left intact and in their original context. Additionally, with the exception of Kayuko Naj Tunich in southern Belize that dates exclusively to the Early Classic period, (Moyes and Prufer 2009; Prufer et al. 2011), every cave we have visited exhibits Late Classic use. In many cases it appears that the caves only came into use during the Late Classic period. Examples include the Main Chamber at Actun Tunichil Muknal that dates to Late to Terminal Classic period and many smaller caves such as Actun Tzul near Pacbitun, Actun Kaxtun in Progresso Village, and Actun Siyaj Che’en in the Macal Valley near Minanha. David Pendergast (1970) noted the abundance of Late Classic material from all the caves in the Mountain Pine Ridge, which lead him to suggest that the caves had been used solely during this time period.

To understand changes in ritual practice, we must contextualize these practices within their sociopolitical and environmental histories. In the 9th century A.D., changes clearly occurred within Maya civilization. This series of events, generally referred to as the “Classic Collapse,” was not the failure of an entire civilization but the decline of the elite class and the abandonment of the institution of kingship in the Maya Lowlands (Demarest et. al. 2004). Most Mayanists agree
that there was in fact a major change in both population and social organization, and it is clear that many sites were abandoned during this time, including several of those in western Belize. Although there is much argument regarding the proximate causes, it is apparent that drought was a significant factor (Yaegar and Hodell 2008). Agency theories remind us that it is not the event per se but the human response to adverse conditions that caused changes in the social order.

Climate data from paleoenvironmental analyses, suggest that there were droughts in the immediate area in the Late Classic period (Polk et al. 2007) The most accurate assessments are derived from speleothem analyses by James Webster and his colleagues (2007; also see Moyes et al. 2009) The speleothem data show major droughts beginning in the 8th century, the first peaking at A.D. 780 and the second at A.D. 910. Both of these dates fit comfortably into the Late Classic dates proposed for the change in ritual activity at Chechem Ha, hence there is excellent temporal agreement between climate change and changes in ritual practice. When we consider the relationship between caves, rain, and agricultural fertility, it is hardly surprising that caves should become the focus of specialized ritual during a time of climatic stress. The existence of this response suggests that droughts were not an abstract but a perceived problem for ancient Maya people. It provides indirect evidence to suggest that in reality crops were failing and ritual technology
was used to mitigate the situation in the form of the Late Classic Drought Cult in caves.

Cave Users in the Late Classic Period

So who are the groups conducting these cave rites? We entertained the notion that increases in cave use could be a function of population, but based on ceramic chronologies there is no constant correlation between use-frequencies and population size. Cave use in the Early Classic period is quite intense (as is the charcoal intensity proxy), yet local populations on nearby surface contexts remain stable (Moyes 2006: 545, 546, 586). Also, if cave use was traditionally an elite prerogative, only the expansion or demise of the elite, not increase in the general population, could account for increased cave use. Our work at Chechem Ha Cave suggests that caves were regulated and controlled by community leaders in the remote past and by elites in the Terminal Preclassic to Early Classic period, concomitant with the rise of rulership in the region. By the Early Classic period (beginning after A.D. 210) there is a substantial increase in Petén-style polychrome dishes, a hallmark of the Maya elite (Moyes 2006: 531). Beyond Chechem Ha at other sites in the Macal Valley we find evidence of monumental construction in caves as early as the Late Preclassic period, coeval with the rise of the elite (Moyes and Awe 2010).
When we consider the social contexts of the Late to Terminal Classic period, it becomes more likely that the increase in cave use, the number of caves used, and the changes in practice may be attributed to shifting political circumstances and the weakening of elite power. As Lisa LeCount (1996, 1999) argued based on her study of elite polychrome wares during the Tsak’ phase at Xunantunich from AD 780 to AD 890, elites began sharing power with lesser nobility and local community leaders. Further afield, Martin and Grube (2000:99) noted that at Caracol a number of monuments depict pairs of lords engaged in conversation or performing ceremonies together. They interpret this as the sharing of power with other elites in an attempt to hold the social structure together.

Research by Christophe Helmke and Dorie Reents-Budet (2008) suggests that lesser elites were using caves during the Late to Terminal Classic period. Helmke studied Late to Terminal Classic molded-carved vases that are typically are found in cave deposits. In a spatial analysis of their distribution in surface contexts surrounding the site of Altun Ha, he found that these vessels were most commonly excavated from structures belonging to lesser elites. He and Reents-Budet further argued that these vessels represented the “restructuring of social negotiations—from the hands of paramount royalty during the Late Classic period
to the hands of lesser nobles...in Terminal Classic times” (2008:47). This suggests that rites in caves became connected to these lesser elites.

So why would sharing cave rites be beneficial to high elites or paramount rulers? An analog from Africa helps us to understand the social processes associated with leaders that are responsible for crops and fertility, much like Maya kings. In societies in which African chiefs or kings are associated with rain making, drought poses a serious threat to the leadership. Throughout Africa, kings are considered to be "the ritual mediators between society and the forces of nature" (Packard 1981:6). Leaders with strong support from allies and other ritual specialists were often able to retain their credibility whereas those that did not possess these resources often lost power. In extreme cases such as among the Jukun of Nigeria (Young 1966) kings could even be ritually murdered. This lead Africanist Randall Packard (1981) to conclude that environmental catastrophe was often associated with political repositioning. A number of other scholars have drawn links between these unpredictable environments in relationship to the development of ideological beliefs and to the transformation of political structures (Maddox et al. 1996).

African social systems often exhibit a number of socially acceptable mechanisms built into belief systems designed to deflect blame for environmental catastrophe.
These mechanisms re-assign failures to others including the populace, ritual specialists, or rival chiefs. For instance, Gerald Hartwig (1976:144-149), working among the Kerebe of northwest Tanzania, noted that while rain making capabilities added to the kings prestige when successful, he could be deposed should he fail over an extended period of time. In practice, the king could take credit for successes. In the event of drought, a distinguished rainmaker from a non-royal clan would be called to court to perform rites using the king's ritual paraphernalia. The rainmaker could then be blamed in the case of failure. As astute politicians, Maya rulers would surely have considered such mechanisms during times of stress.

**Conclusion**

In this paper, we have argued that the Late to Terminal Classic periods in Maya history were a tempestuous time in which climatic stress lead to social upheavals and political maneuverings. This argument is consistent with agency-based approaches to the archaeological record that seek to understand social and political changes, by putting human decision-making in the forefront of analyses. We argue that during stressful times, lesser elites began to practice behaviors that were traditionally within the purview of paramount rulers. Whether this was a deliberate move on the part of the apical elite, or a consequence of their waning
powers remains a question. It is possible that like their African counterparts, Maya rulers moved to deflect blame for failed rain rituals by allowing or encouraging lesser elites to take action for the good of the populace though it may have entailed relinquishing certain powers, which we argue included their exclusive rights to the organization and performance of cave ritual.

Acknowledgments

The authors would like to thank members of the Belize Institute of Archaeology including John Morris, George Thompson, and Brian Woodeye. Moyes and Awe extend appreciation to the Morales and Plytez families as well as our crew members over the years. We would also like to thank the various organizations who have provided funding for our projects including the Social Science Research Council of Canada, the National Science Foundation, the Foundation for the Advancement of Mesoamerican Studies, Inc., the Cave and Karst Conservancy, the Cave Research Foundation, Mark Diamond fund at the University at Buffalo, the National Geographic Society, and most recently the Alphawood Foundation.

References Cited
Andrews, E. Wyllys I


Awe, Jaime J., Sherry Gibbs, and Cameron Griffith


Bell, Catherine


Brady, James E.


Brady, James E. and Wendy Ashmore


Brady, James E., Ann Scott, Allan Cobb, Irma Rodas, John Fogerty, and Monica Urquizú Sanchez


Brady, Jame E. and Andrea Stone


Christenson, Allen

Coe, Michael


Demarest, Arthur A., Prudence M. Rice, and Don S. Rice


Gifford, James C.


Grove, David C.

Hartwig, Gerald W.


Hayden, Brian and Aubrey Cannon


Helmke, Christophe G. B. and Dorie Reents-Budet


La Farge, Oliver


LeCount, Lisa J.


Maddox, Gregory, James L. Giblin, and Isaria N. Kimambo


Martin, Simon and Nikolai Grube

2000  *Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya*. Thames and Hudson, London.

Moyes, Holley


Moyes, Holley and Jaime J. Awe

Longstaffe, pp. 144-175. Social Archeology Research Program, Department of Anthropology, Trent University, Peterborough, Ontario.

Moyes, Holley, Jaime J. Awe, George Brook, and James Webster


Moyes, Holley and Keith M. Prufer


Nash, June


Pendergast, David M.


Packard, Randall M.


Prufer, Keith M.


Prufer, Keith M., Holley Moyes, Brendan Culleton, Andrew Kindon, and Douglas Kennett

Rands, Robert L.

1955 *Some Manifestations of Water in Mesoamerican Art.*


Reilly, F. Kent, III

1994 *Visions to Another World: Art, Shamanism, and Political Power in Middle Formative Mesoamerica,* Unpublished Ph.D. dissertation, Department of Art History, University of Texas, Austin.

Rissolo, Dominique A.

2001 *Ancient Maya Cave Use in the Yalahau Region, Northern Quintana Roo, Mexico.* Unpublished Ph. D. dissertation, Department of Anthropology, University of California, Riverside.

2005 *Beneath the Yalahau: Emerging Patterns of Ancient May Ritual Cave Use from Northern Quintana Roo, Mexico.* In *In the Maw of the*

Saturno, William A., Karl A. Taube, David Stuart, and Heather Hurst


Schele, Linda

1987 Sacred Landscape and Maya Kingship. Symbols (June):12-16.

Stone, Andrea


Taube, Karl A.


1995 The Legendary Past: Aztec and Maya Myths. University of Texas Press, Austin.

Tozzer, Alfred M.

Vail, Gabrielle and Andrea Stone


Villacorta, J. Antonio

1992  *The Dresden Codex: Drawings of the Pages*. Mayan Studies No. 3. Aegean Park Press, Walnut Creek, California.

Webster, James W., George A. Brook, L. Bruce Railsback, Hai Cheng, R. Lawrence Edwards, Clark Alexander, and Philip P. Reeder


Yaegar, Jason and David Hoddell

Young, Michael W.

Figure 1. Map of Belize illustrating location of Chechem Ha Cave and some sites discussed in text.
Figure 2. Chechem Ha tunnel system.

Figure 3. Results of the use-frequency analyses. Chart shows the percentages of ceramic and charcoal data for each major temporal period. There is less than one percent of the total number of charcoal flecks on the surface (Late Classic context) of Chamber 2.
Figure 4. Page 74 of the Dresden Codex illustrates the Moon Goddess hanging in the sky and Chac the rain deity is positioned below (Villacorta 1992; Courtesy of Aegean Park Press). In her hands is a large jar from which she pours water. Taube (1992:100; 1995:71) has identified this scene as the primordial flood event.