

Daily life of the ancient Maya recorded on murals at Calakmul, Mexico

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Research into ancient societies frequently faces a major challenge in accessing the lives of those who made up the majority of their populations, since the available evidence so often concerns only the ruling elite. Our excavations at the ancient Maya site of Calakmul, Mexico, have uncovered a “painted pyramid:” a structure decorated with murals depicting scenes of its inhabitants giving, receiving, and consuming diverse foods, as well as displaying and transporting other goods. Many are accompanied by hieroglyphic captions that describe the participants, and include spellings of key subsistence items. Collectively, they offer insights into the social mechanisms by which goods were circulated within major Maya centers.

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Archaeological remains always present a skewed image of the human past, supplying bountiful information about some aspects of ancient societies but a dearth about others. Many of the issues that most concern scholars—the social processes, behaviors, and relationships integral to living communities—fall into the latter category and leave little or no physical trace. Cultures with a strong tradition of art and writing fill some of these gaps, but here data are usually restricted to the social elite, leaving fundamental questions about societies as a whole unanswered.

This is certainly true of the ancient Maya civilization of Mesoamerica, where writing and iconography provide rich information about the ruling class. From public monuments to the more intimate scale of painted ceramics and personal jewelry, scholars have learned much about the practice and performance of courtly life. Missing from these sources are the lower echelons of society, the population that supported the opulent lifestyles of the elite. The role such people played in circulating goods and services, as well as the social systems through which this was accomplished, are virtually unknown. Our work at the site of Calakmul, Mexico, offers data that address these issues.

Results

First reported in 1931, the site of Calakmul covers over 3,000 hectares in total and lies today within a 726,000-hectare biosphere reserve of the same name in the state of Campeche (1–4) (Fig. 1). Since 1993 the site has been investigated by the Calakmul Archaeological Project of Consejo Nacional para la Cultura y las Artes-Instituto Nacional de Antropología e Historia (CONACULTA-INAH), a department of the Mexican government (5–6). In 2004, we began excavations in the Chiik Nahb complex, an architectural group covering about 2.5 hectares to the north of the site core (Fig. 2). Surface mapping identified some 68 buildings within its bounds, and we designated the tallest Structure 1. Encountered as a collapsed mound, it was first cleared of surface debris and consolidated before a tunnel was dug to explore its interior. Like many Maya buildings, the Structure 1 “pyramid” proved to be an accretion of superimposed remodelings. Stylistic analysis of the ceramics found within the rubble core of each version suggests that construction began at some point between A.D. 420 and 620, and that the



Fig. 1. Map showing Calakmul in relation to other ancient Maya sites with extensive mural paintings.

seventh and final remodeling was initiated between A.D. 820 and 1020 (7), although this was apparently abandoned unfinished.

The third remodeling, dubbed Sub 1–4, was exceptional in that it was decorated with a program of exterior murals, an extremely rare feature in the Maya area (Fig. 3). The plan of Sub 1–4 is square, approximately 11 m wide on each side, and the building rises in three distinct tiers of sloping panels separated by recessed moldings to a height of 4.7 m. Access to the summit was from four stairways, each aligned to a cardinal direction in a cruciform pattern. The summit itself, and with it any trace of a superstructure, was destroyed in the construction of the subsequent version, Sub 1–3. There is clear evidence that Sub 1–3 was built with the preservation of the Sub 1–4 paintings in mind. Their delicate surfaces were packed with a layer of mud and small stones, very much in contrast to the normal practice of breaking up stucco facings to give greater adhesion for the new masonry that will cover them. The date of Sub 1–4 is difficult to isolate with precision. The styles of some of the vessels depicted on the murals suggest that it was decorated between A.D. 620–700 (8), while the painting style and the paleography of the hieroglyphs are consistent with a seventh-century attribution.

Painted scenes were applied to the panels on all three tiers, as well as to the sidewalls of the projecting stairways. Some of the

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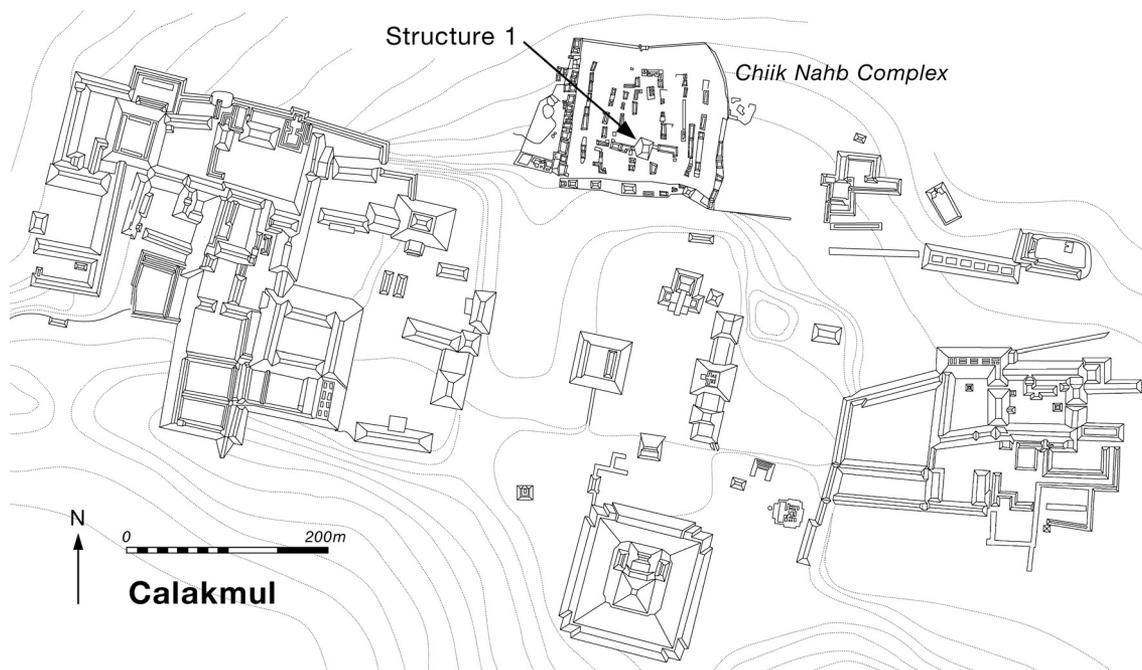


Fig. 2. Map showing the position of the Chiik Nahb complex within the center of the Calakmul site.

recessed moldings between the panels were also painted, either with continuations of the scenes or with short hieroglyphic texts. Some 30 individual scenes have been exposed on the lowest two tiers, while tests on the highest, unexcavated tier indicate that this originally carried as many as 16 more. Preservation ranges widely from good to very poor. We distinguish two phases of painting separated by a thin layer of stucco, seen most clearly where damage to the surface of Phase 2 has exposed portions of Phase 1 beneath. The cleared surfaces have been analyzed with multispectral photography by Gene Ware of Brigham Young University, revealing some faint or obscured details that cannot readily be seen with the naked eye.

The paintings are currently undergoing cleaning and conservation. The chemistry of the pigments, the technique of application, and methods to ensure the long-term preservation of the murals are under study by Piero Baglioni and his team at the University of Florence. Although not produced by a true fresco technique, provisional results suggest that the paints formed a durable bond with the plaster surface similar in its effect to *mezzo fresco*. To consolidate the pictorial surface, calcium hydroxide nanoparticles in an alcohol suspension have been applied to mimic the original reaction that converts lime [calcium hydroxide $\text{Ca}(\text{OH})_2$] into plaster (calcium carbonate CaCO_3) (9).

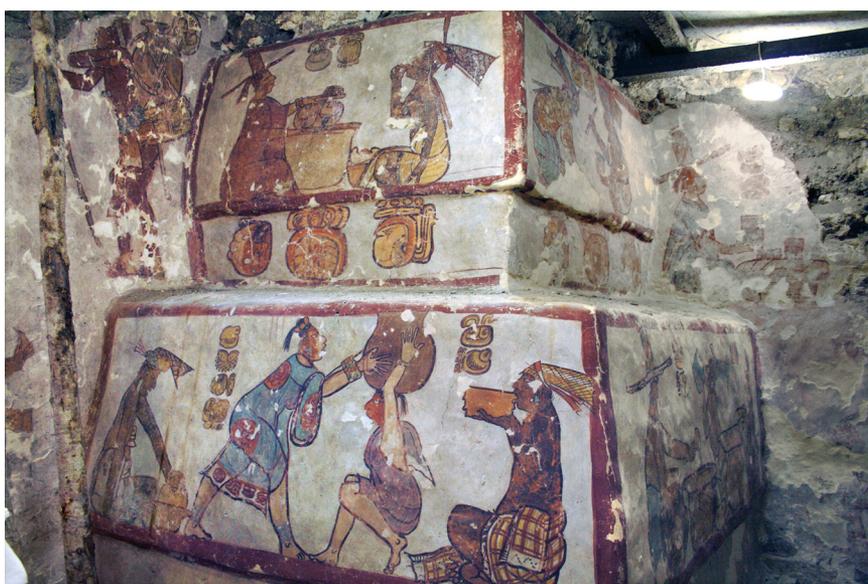


Fig. 3. The southeast corner of Structure Sub 1-4 of the Chiik Nahb complex.

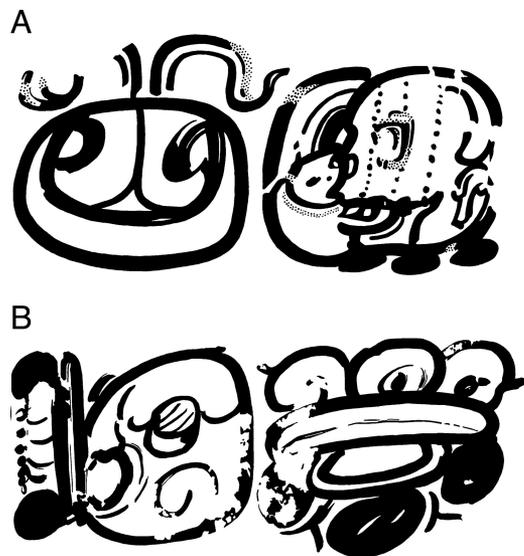


Fig. 6. Hieroglyphic spellings of two titles from the murals: (A) *aj ix'im* "Maize-grain person" (AJ-i-xi-ma); (B) *aj atz'aam* "Salt person" (AJ-a tz'a-mi).

The majority of texts share a common formula that begins with the agentive term *aj*, a word applied to either sex that can be glossed as "person." In every case *aj* is followed by the name of a particular foodstuff or material. Thus AJ u-lu *aj ul* "Maize-gruel person" accompanies a man with a large pot, dish, and spoon, shown facing another individual who drinks from a bowl as a second, female server looks on (Fig. 5). Another scene shows a woman with a basket loaded with maize-bread *tamales* who offers them on a basketwork-platter to a man that eats one. The associated caption reads AJ wa-WAAJ-ji *aj waaj* "Maize-bread person." These two types of prepared maize are joined by the unprocessed form, previously unattested in the Maya script, as a group of figures shown with bowls and a tied sack are labeled with the sequence AJ i-xi-ma *aj ixim* for "Maize-grain person" (Fig. 6A). Salt was another important staple of the Maya diet and a scene that features a man with a basket and spoon carries the form AJ-a tz'a-mi for *aj atz'aam* "Salt-person," a second unattested spelling in the script (Fig. 6B). Another consumable appears in the caption AJ ma-ya for *aj mahy* "Tobacco person," which shows two men, one holding a spatula and pot that presumably held a powdered or processed form of the leaf. One lone woman who has a basket with cylindrical pots in it is identified as AJ ja-yi *aj jaay* "Clay-vessel person" (Fig. 7).

It is clear that the purpose of most of the Phase 2 captions is to establish generic descriptions of the figures portrayed, without identifying any of them as a particular individual. The personal names and lordly honorifics so common in Maya texts are absent here. The three large hieroglyphs repeated within several of the inset moldings may be rather different. These provide the name or title of a female, although her relevance to the painted program and to the structure as a whole is currently enigmatic.

Discussion

The full implications of these finds will take time to evaluate and requires the exposure of all of the paintings. Ongoing excavations will more fully situate Structure 1 within the wider archaeological context of the Chiik Nahb complex and aid its interpretation. We have very little hard information about the social processes by which foodstuffs and goods circulated within Maya polities



Fig. 7. Scene showing a woman with ceramic cylinder vessels in a basket. The hieroglyphic caption reads *aj jaay* "Clay-vessel person" (AJ ja-yi).

and the varying roles of festivals, gift-giving, communal feasting, and exchange, all of which are attested in ethnohistorical sources. These murals evidently depict one or more of these activities and thereby portray an ancient social mechanism that has left no other evidence of its existence.

Materials and Methods

Investigation of Structure 1 began with the clearance of covering vegetation and the removal of earth and stone debris. Where the original lines of the building were clear, fallen masonry blocks were reset using a limestone mortar mixed with small quantities of cement. Exploration of the interior began at its southeastern corner, where a tunnel approximately 0.7 m wide was driven in a northerly direction at ground level using hand tools. This encountered and passed through the damaged façades of three previous versions: Sub 1-1, Sub 1-2, and Sub 1-3. After about 2 m, the excavation came to the painted façade of Sub 1-4 and thereafter proceeded laterally to follow its surface. Ultimately, the work opened a cavity around the whole southeastern corner approximately 5 m on each side and 3.5 m in height, reaching the top of the second tier. This method was repeated for the southwestern, northeastern, and northwestern corners of the building (in that order), leaving the consolidated final version of Structure 1 as a protective enclosure. The third, highest tier on the southeast corner was briefly explored from above and then reburied. We are currently developing a plan for the long-term conservation of the murals that will allow for the exposure and study of the third tier. Evidence for two earlier versions, Sub 1-5 and Sub 1-6, was gained from a tunnel 6 m long and 0.8 m wide heading west that was sunk into the remains of the eastern stairway of Sub 1-4. Fragments of ceramic vessels were recovered from the interior fill of each version of the building for style-dating analysis.

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