



Figure 1. Detail of scene SE-S1 of the southeast corner, first tier.
Photo: Rogelio Valencia Rivera / PAC.

Maya Archaeology Reports

The Murals of Chiik Nahb Structure Sub 1-4, Calakmul, Mexico

Ramón Carrasco Vargas
María Cordeiro Baqueiro

The ruins of Calakmul, Campeche, have produced a series of significant archaeological finds over the years. Among the most recent and important is a buried platform whose exterior is covered in figural murals (Figure 1). Mural paintings are among the greatest artistic achievements of the Maya, and yet very few have survived ancient destruction or the subsequent ravages of the tropical climate. Thanks to these well-preserved images we are offered an important view of Maya society, one very different from the normal representations of the lordly elite or supernatural worlds.

We have brought together a wide range of specialists to conserve and study the paintings, ranging from archaeology to pigment and ceramic analysis, multi-spectral photography, iconography, and epigraphy (Aguirre Tanús and Cordeiro Baqueiro 2007; Baglioni and Giorgi 2006:299; Boucher and Quiñones 2007; Carrasco Vargas and Bojalil 2005; Carrasco

Vargas and Colón González 2005; Carrasco Vargas and Vázquez López 2007; Carrasco Vargas, Vázquez López, and Martin 2009; Desprat 2006; García Barrios and Carrasco Vargas 2008; Martin this volume, n.d.b; Vázquez López 2006; Ware 2008). This article presents an overview of the finds made so far. A fuller description will be possible when the technical analyses are completed and the remaining images are exposed and studied.

Calakmul is the largest settlement yet identified for the Classic Maya. First reported to the outside world in 1931, it was visited a year later by a Carnegie Institution expedition, which produced a map of the core area and a report on its monuments (Lundell 1933; Morley 1933; Ruppert and Denison 1943). More recently, mapping of Calakmul's epicenter and surrounding settlement have revealed a city covering some 30 km² (Folan 1992; May Hau et al. 1990). Since 1993 the site has been the

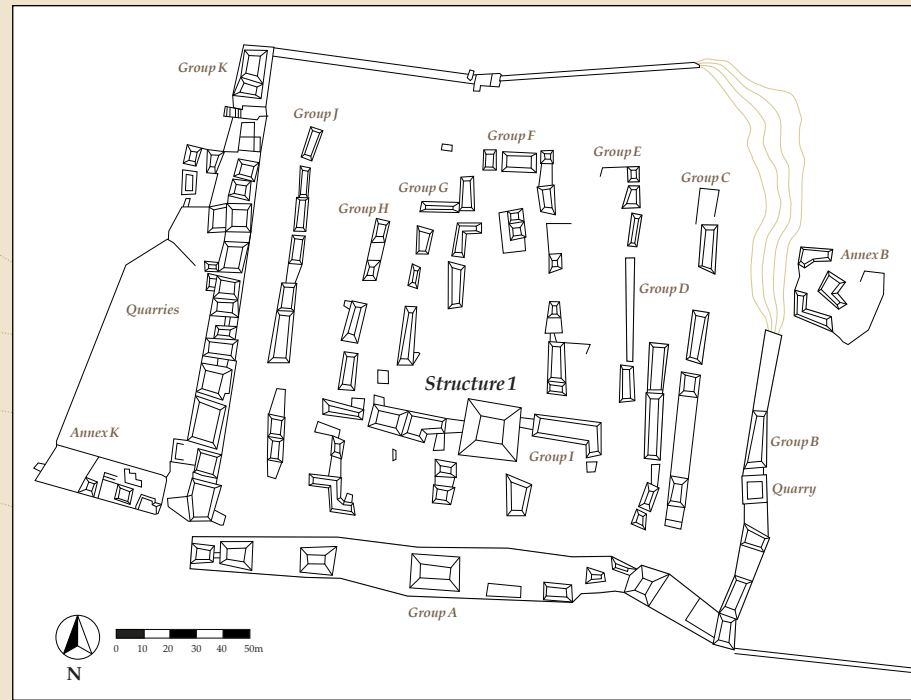


Figure 2. The Chiik Nahb complex (inset) and its location in the northern site core. Scale is approximate.

subject of research by the Proyecto Arqueológico Calakmul (PAC) of Mexico's Instituto Nacional de Antropología e Historia (INAH). Programs of excavation have been conducted across a range of locations in the epicenter, including the massive platforms of Structures 1 and 2; Structures 4, 5, 6, and 7 around the Great Plaza; the Ballcourt and Structures 13, 14, and 15 in the West Plaza; and several complexes within the Great Acropolis and the more remote Northeast Acropolis (Carrasco Vargas 1996, 1998, 2005; Carrasco Vargas and Colón González 2005; Carrasco Vargas and Rodríguez Campero 2003; Rodríguez Campero 2008). Each has added to our knowledge of the site and its developmental history. It is now clear that Calakmul was founded around 550 BC and that it continued to be occupied for more than 1500 years until the general demise of Classic Maya civilization in the ninth century AD, with a much-reduced presence that extended into the Postclassic period.



Figure 3. View of Structure 1 after initial consolidation in 2006. Photo: Simon Martin/PAC.

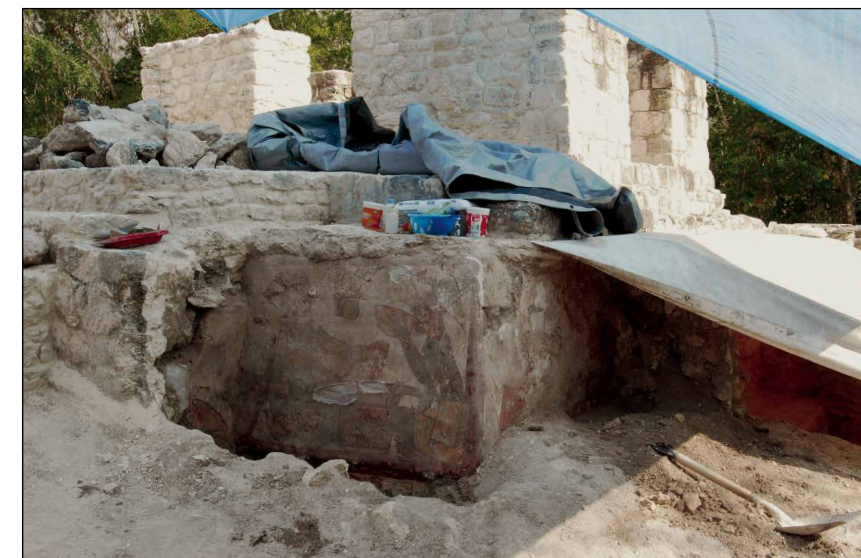


Figure 4. The third tier of the southeast corner exposed, revealing panel SE-S3. Photo: María Cordeiro Baqueiro/PAC.

Archaeological Investigations

In 2004, we directed our investigations toward the northern portion of the site core and to an architectural group now called the Chiik Nahb complex (Figure 2). Broadly square in design, this compound as defined measures about 150 m on each side and covers approximately 2.5 hectares. Mapping of surface features revealed at least 68 structures within its limits, broadly separated into 11 clusters that we have labeled as Groups A through K. The complex is fronted by Group A, which has a substructure in the form of a walkway painted with a mural that covers its full width. This depicts birds, aquatic scenes, and a recurring hieroglyph reading *Chiik Nahb Kot*, a probable reference to the larger architectural complex as a public space of Calakmul (Carrasco Vargas and Bojalil 2005; García Barrios and Carrasco Vargas 2008). The tallest building—a mound in Group I, close to the center line of the complex—was

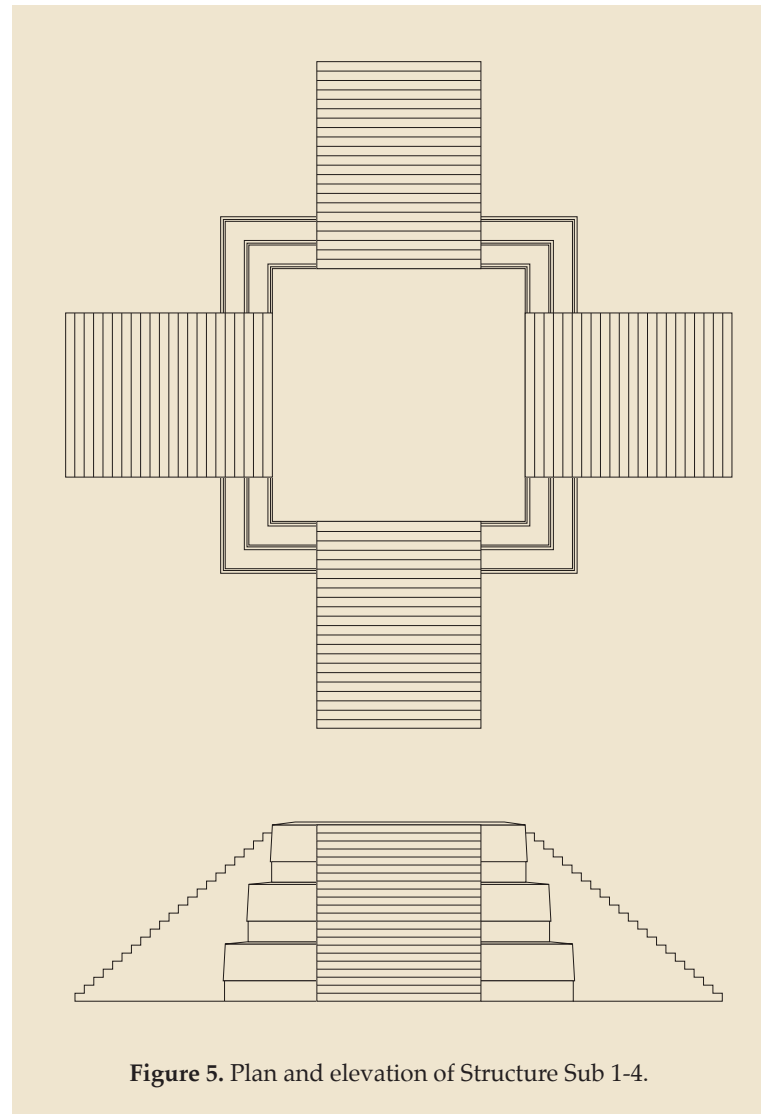


Figure 5. Plan and elevation of Structure Sub 1-4.

designated Structure 1 (Figure 3). The excavation of Structure 1 began with the clearing of covering vegetation and surface debris. Once the outlines of the in situ architecture became clear we consolidated its remains, resetting fallen masonry blocks using a limestone mortar mixed with small amounts of cement.

Exploration of the interior began with a tunnel dug at ground level in a northerly direction, starting at the building's southeastern corner. This encountered a sequence of previous versions, demonstrating that Structure 1, like most Maya buildings, was not the result of a single construction episode but rather a series of structures superimposed one over another. The tunnel passed through the outer facings of Sub 1-1, Sub 1-2, and Sub 1-3 before encountering the painted facade of Sub 1-4. This became the main focus of our excavation and conservation efforts. We later penetrated the interior of this version by means

of a tunnel driven in a westerly direction through the remains of its east stairway. This found evidence for two earlier construction episodes, Sub 1-5 and Sub 1-6. An excavation around the whole southeastern corner of Sub 1-4 freed the building from its overburden and exposed its polychrome murals up to the height of the second tier. This strategy was repeated for the southwest, northeast, and northwest corners, leaving the consolidated final version of Structure 1 as a protective encasement. In 2009 we conducted an exploratory excavation on the southeast corner of the third tier from above (Figure 4). This was reburied until such time as the third tier could be fully exposed and conserved as part of an expanded enclosure, due for completion in the Fall of 2012.

By now Structure Sub 1-4 was revealed as square in plan and measuring approximately 11 m on each side (Figure 5). Four stairways, each about 5 m in width, provided access to the summit in a radial arrangement aligned to the cardinal directions. The building rose in three tiers of slightly inclined panels separated by recessed moldings, reaching a maximum height of 4.7 meters. Maya platforms of this kind were typically designed to support a superstructure, which is certainly true of the final version. In the case of Sub 1-4, the construction of the subsequent version, Sub 1-3, destroyed any trace of a surmounting building. In all other ways Sub 1-3 had a major role in preserving its predecessor. In most cases new construction would begin with breaking up the stucco facings of the architecture to be built over, in order to provide better adhesion for the new fill. However, during the construction of Sub 1-3 the stucco facing of Sub 1-4 was packed with mud and small stones to protect the surface, a method that favored conservation over structural stability. Once the larger covering stones had been removed in the excavation, the paintings beneath were revealed (Figure 6).

The painted scenes of Sub 1-4 appear on the corner panels of all three tiers, but



Figure 6. Panel NE-N1 of the northeast corner is exposed, with Ramón Carrasco Vargas at work in the inset photo. Photos: Simon Martin/PAC.

also extend laterally, with additional images on the sides of the adjacent stairways. Some of the recessed moldings between the panels were also painted, either with continuations of the scenes or with short hieroglyphic texts. This layout provides space for a possible 48 separate scenes, with 16 on each tier and 12 on each corner. As of early 2012, 30 had been exposed on the lowest two tiers of Sub 1-4, while nine more had been uncovered on the third. Each corner of the building presents scenes of groups and individuals engaged in various activities. The groups are generally depicted in framed panels on the substructure, with individuals generally isolated on the sides of the four stairways. On the basis of this distribution of the scenes

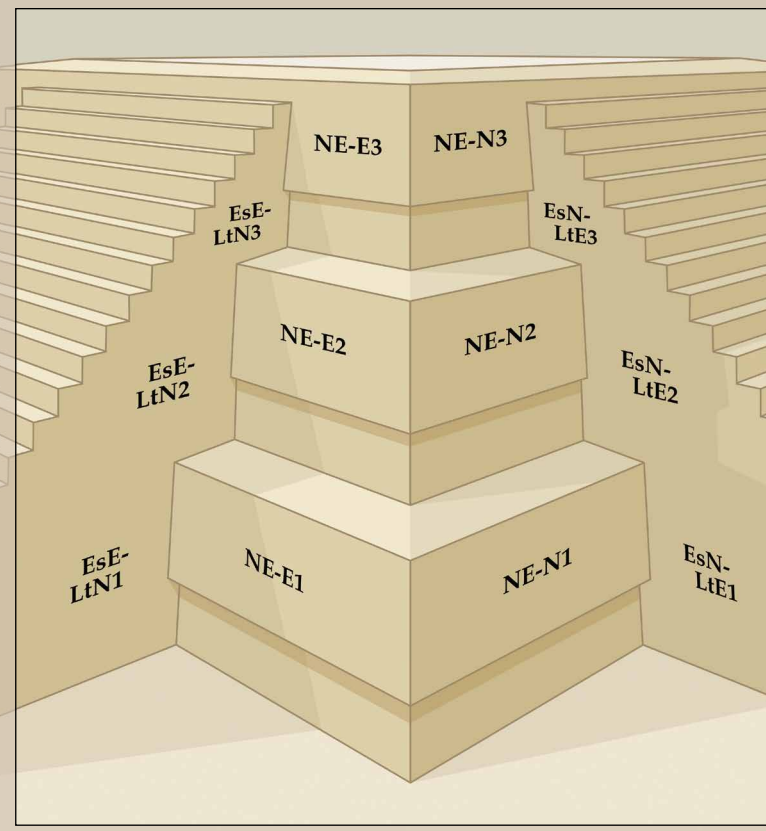


Figure 7. Diagram of numbering system showing the northeast corner.

and in consideration of the form of the structure, a descriptive scheme was established (Figure 7). Scenes which appear on the corners are distinguished as northeast (*nordeste*), southeast (*sudeste*), southwest (*sudoeste*), and northwest (*noroeste*) by the abbreviations “NE,” “SE,” “SO,” and “NO.” The tiers are identified by the numbers “1,” “2,” and “3”—with “1” at the base and “3” at the top. A scene is described according to its orientation. Thus “SE-S1” refers to the scene on the southeast corner oriented to the south, on the first tier. With regard to the scenes that appear on the stairways, these are described according to the orientation of the given stairway (*escalinata* in Spanish, abbreviated as “Es”)—thus “EsN” for the north stairway, “EsE” for the east, etc.—as well as the orientation of the image on the stairway side (*lateral* in Spanish, abbreviated as “Lt”), and the level occupied by the scene. Thus “EsN-LtE3” refers to the scene of the north stairway, east side, third level.

Ceramics recovered from construction fill—a total of 2,091 sherds—have been analyzed to provide a developmental chronology for Structure 1 (Boucher and Quiñones 2007:29-34). The tunnel driven into its core from the east stairway provided a sample from the earliest version, Sub 1-6. This contained the typical local wares of Ciricote, Águila, Balanza,

and undesignated Mudanza, consistent with a construction date in the second half of the Early Classic period or the first half of the Late Classic period, or between AD 420 and 620. The same excavation provided a sample from the fill of Sub 1-5, which, with the addition of Triunfo, reflected a similar mix of pottery and points to the same broad time-span. An excavation on the first tier of Sub 1-4 recovered sherds of the Triunfo, Ciricote, Águila, Balanza, and Pucte groups as well as a variety of undesignated Mudanza and undesignated polychromes. These data provide no greater definition and place the painted version of the building within the aforementioned two-century range. However, the Ciricote

group, found in the constituent fills of Sub 1-6, Sub 1-5, and Sub 1-4, is elsewhere associated with Saxche Orange, a polychrome assigned to the Tepeu 1 phase (Boucher et al. 2006:137-138). This would appear to favor a seventh-century construction date.

In using ceramic styles to place Sub 1-4 within a temporal sequence we also have information from the vessels depicted in the murals. For example, the wide serving dishes in the scenes SE-E1 and NE-N1 (Figure 8a and Figure 9) are typical of the Águila Orange group from the second half of the Early Classic, while the large vessel in the first of these scenes probably corresponds to Ciricote Compuesto, another Early Classic type. On the other hand, the blue-painted drinking vessel from SE-E1 can be assigned to the Tepeu 1 phase, and similar pots—covered in a blue stucco wash—have been found in tombs from the first part of the Late Classic. Tall cylinder vessels of the kind seen in EsE-LtS2 (Figure 8b) are common in the Late Classic and represented in groups such as Sibal Ante, Juleki Cream, and Zacatal Cream. In total, 11 vessels shown in the murals can be assigned to Early Classic groups, while 11 can be assigned to Late Classic ones. Together these factors suggest a rather later and narrower date-range for Sub 1-4 of AD 620-700 (Boucher and Quiñones 2007:47).



Figure 8. Wide serving dishes and tall cylinder vessels: (a) scene SE-E1 of the southeast corner, first tier; (b) scene EsE-LtS2 of the southeast corner, second tier. Photos: Gene Ware/PAC.

The Study and Conservation of the Paintings

The condition of the murals ranges widely. Some from the southeastern corner are among the best-preserved paintings anywhere in the Maya world, whereas others—particularly in the northwestern and southwestern corners—are badly degraded (Aguirre Tanús and Cordeiro Baqueiro 2007). Some scenes were broken in the ancient remodeling of the building, but for the most part the damage has been caused by the breakdown of the original binder in the pigments, leading to a flaking and powdering of the surface layer. Since the very high humidity in the region continues to accelerate these natural processes of decay, some remedial intervention was clearly required.



Figure 9. Scene NE-N1 of the northeast corner, first tier. Photo: Gene Ware/PAC.

We therefore invited Piero Baglioni and his colleagues of the Consorzio per lo Sviluppo dei Sistemi a Grande Interfase (CSGI) at the University of Florence to conduct a physical and chemical study of the murals, with a view to applying the latest conservation technologies. For the physical analysis, samples were taken and embedded in epoxy resin blocks, which were then sliced to obtain cross-sections of the paint layer, revealing the stratigraphy of the painting technique. Analysis of the pigments was carried out by X-ray spectroscopy, coupled to a scanning electron microscope. X-ray microanalysis, effective for inorganic pigments, was used to study the element composition, while infrared spectroscopy provided additional information about organic components, including the colorants and binding media of the paint layer. In order to arrest further deterioration and consolidate the pictorial surface, select areas of the painting were treated with a suspension of calcium hydroxide nanoparticles (Figure 10). The special properties of this material work to reproduce the original reaction that converts lime into plaster, restoring integrity and stability to the stucco surface. As an added benefit, the renewed cohesion of the pigments with their substrate restores some of the intensity of their color (Baglioni and Giorgi 2006:299). Although their study has yet to be completed, initial results indicate that the pigments form a durable bond with the plaster surface similar to that of *mezzo fresco*, although they were not produced by a true fresco technique.

Figure 10. Conservation of the murals on the southeast corner. Photo: Rogelio Valencia Rivera/PAC.





Damage to the painted surface reveals that there was more than one phase to the mural program. The precise details of the layering must await the full technical report, but preliminary analysis suggests that there were three phases that can be isolated by their artistic style and the physical evidence of superimposition. Scenes from the final Phase 3 are the best preserved and numerous, but in various areas portions of the underlying Phase 2 and Phase 1 show through. There are uneven patterns of damage, especially on the northwest and southwest corners, where scenes that mix separate phases can be observed. A clear case of this phenomenon is seen on EsS-LtE1 where Phase 2 can be distinguished from Phase 3 (Figure 11). Where the final phase of painting was devoid of information and too destroyed to save, it was removed in order to study and conserve the painting surviving beneath.

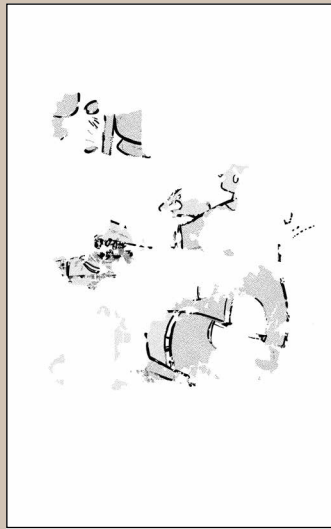
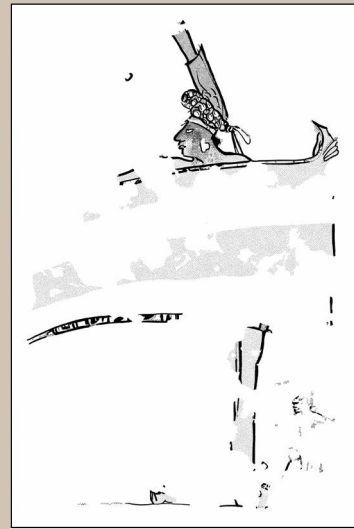
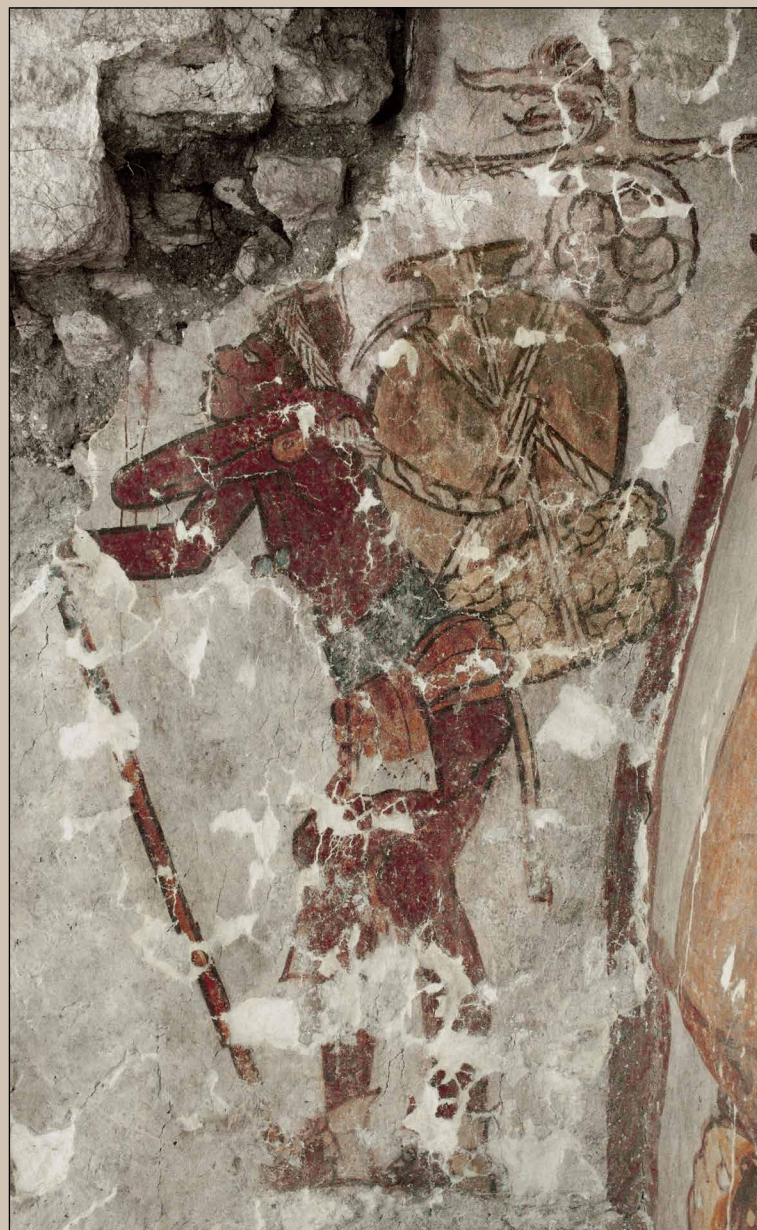


Figure 11. Figure from scene EsS-LtE1 of the southeast corner, first tier, with drawings showing painting from phase 3 (left) and phase 2 (right). Photos: Rogelio Valencia Rivera/PAC; drawings: Simon Martin/PAC.





Figure 12. Multispectral image (center) of glyphs from scene NO-N2 of the northwest corner, second tier, with photograph (left) and drawing (right). Photo: Rogelio Valencia Rivera/PAC; multispectral image: Gene Ware/PAC; drawing: Simon Martin/PAC.



The paintings have been further analyzed with multispectral imaging conducted by Gene Ware of the Ancient Textual Imaging Group at Brigham Young University (Ware 2008). This technology takes digital photographs through a series of filters sensitive to wavelengths ranging from 400 to 1000 nanometers. The resulting images are in black and white, but their different tonal values serve to enhance or subdue different colors, bringing some details into greater prominence. Although the technique could not penetrate the stucco layers that separate one phase from another, it did clarify some areas within the same phase (Figure 12). In particular, multispectral images provided useful reference for producing the line renderings of the scenes that are part of the wider effort at recording Structure Sub 1-4 (see Martin, this volume) (Figure 13).

Figure 13. Multispectral image (center) of scene EsS-LtE2 of the southeast corner, second tier, with photograph (left) and drawing (right). Photo: Simon Martin/PAC; multispectral image: Gene Ware/PAC; drawing: Simon Martin/PAC.

The process of creating the murals began with the application of stucco, which was covered by a fine surface layer on which the first guidelines were laid down (Figure 14). Then, guided by this underpainting, colors were applied one by one. Finally the artist made the outlines and certain details in a dark reddish brown color. The color palette varies depending on the phase of painting. In the first phase, the palette consists of five colors, while in the third there are 12 distinct colors using different binders.

Figure 14. Detail of scene SE-S1 of the southeast corner, first tier, with guidelines visible.
Photo: Rogelio Valencia Rivera / PAC.



Since the murals are applied to the exterior surfaces of the Sub 1-4 platform, they were originally open to the sky (Figure 15). The bright colors and almost unblemished surface of at least some portions of the final phase could suggest that they were not exposed for very long, but until we know more about the stability of the pigments it would be premature to speculate on this issue. No fragments of painted stucco recovered in our excavations can be definitively assigned to any other version of Structure 1 than Sub 1-4, and so if earlier or later versions were also painted we currently lack physical evidence of the fact.

Figure 15. Before they were covered by successive layers of construction, the murals of Sub 1-4 were exposed to the sky. The final version of Structure 1 serves as their protective encasement. In the center of the photo is panel SE-E2 of the southeast corner, second tier. Photo: Rogelio Valencia Rivera/PAC.





The contents of the murals—the figural scenes and their accompanying hieroglyphs—have the potential to illuminate important aspects of life in a major ancient Maya settlement and are open to art historical, iconographic, and epigraphic analysis. The scenes illustrate a range of people engaged in different activities. Many involve depictions of food and drink, with some people dispensing comestibles and others consuming them. There are a number of materials depicted, from wood, ceramic, and textile, to cords and basketry. Some figures are engaged in transportation, with pots or sacks carried on tumplines (e.g., Figure 13). One scene shows a scarlet macaw perched on a wooden stand (for photo, see back cover of this volume). Earlier phases of painting show broadly similar topics, although as far as we can judge they are not direct replicas. Some 76 full or partial human figures were identified during the cleaning and consolidation work performed so far. The final phase contributes about 52 of these, of which about a third are female. This 3:1 ratio is much higher than we see in other wall paintings or in the secular scenes found on polychrome ceramics. The portrait of a child is one of very few in Maya art (Figure 36), while that of an old woman may be unique outside a mythological context (Figure 39).

The paintings are a rich source on the clothing of the ancient Maya of Calakmul, as well as the hairstyles and personal adornment of the elite (García Barrios and Carrasco Vargas 2008) (Figures 16-44). Textiles with different designs are apparent in every preserved scene, as are various hats and tied headscarves. Headscarves are a garment worn only by men. With the sole exception of a

male figure who wears a bowler, hats are worn by women. These are sombreros with wide brims woven from fibers and decorated with beads and painted designs. Most of the women wear red face-paint, sometimes with a stepped border applied across the cheek. It is also common for both sexes to wear ear ornaments and necklaces with pendants, and some have wristlets and tattoos on the ankle as well.

Epigraphic analysis of the accompanying captions reveals that the majority are personal titles associated with the objects and materials pictured in the scenes. These include: *aj ul* “atole person,” *aj waaj* “tamale person,” *aj mahy* “tobacco person,” *aj jaay* “clay vessel person,” *aj atz’aam* “salt person,” *aj ixiiim* “maize grain person,” among others (see Martin, this volume). We are still investigating in what ways these illuminate the actions that the depicted characters perform.

The future holds a number of technical and research challenges. We will continue to consolidate the paintings with conservative interventions while we implement a plan for their long-term preservation. For this, we are creating a climate-controlled environment to stabilize their future condition. This environment will allow for the excavation and conservation of the third tier. It will take time, together with the full study of Structure Sub 1-4 and a wider investigation of the Chiik Nahb complex as a whole, before the full implications of these important finds can be assessed. There can be little question that the activities shown in the paintings portray a complex social and ideological system (Carrasco Vargas and Bojalil 2005; García Barrios and Carrasco Vargas 2008).



Figure 16. Detail of scene SE-S2 of the southeast corner, second tier. Photo: Rogelio Valencia Rivera/PAC.



Figures 17 and 18. Details of scene SE-S2 of the southeast corner, second tier. Photos: Rogelio Valencia Rivera/PAC.

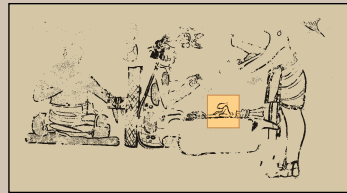




Figures 19 and 20. Scene SE-S2 of the southeast corner, second tier, and a detail of the scene.
Photos: Gene Ware/PAC and Rogelio Valencia Rivera/PAC.



Figures 21 and 22. Detail of scene NO-O2 of the northwest corner, second tier, and view of the southeast corner, first and second tiers. Photos: Rogelio Valencia Rivera / PAC.





Figures 23 and 24. Details of scene SE-S1 of the southeast corner, first tier. Photos: Gene Ware/PAC and Rogelio Valencia Rivera/PAC.





Figures 25 and 26.
 Details of scene SE-S1
 of the southeast corner,
 first tier. Photos:
 Rogelio Valencia
 Rivera/PAC.



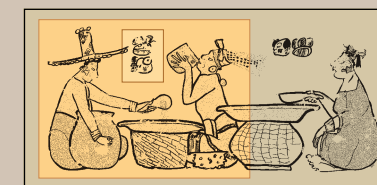
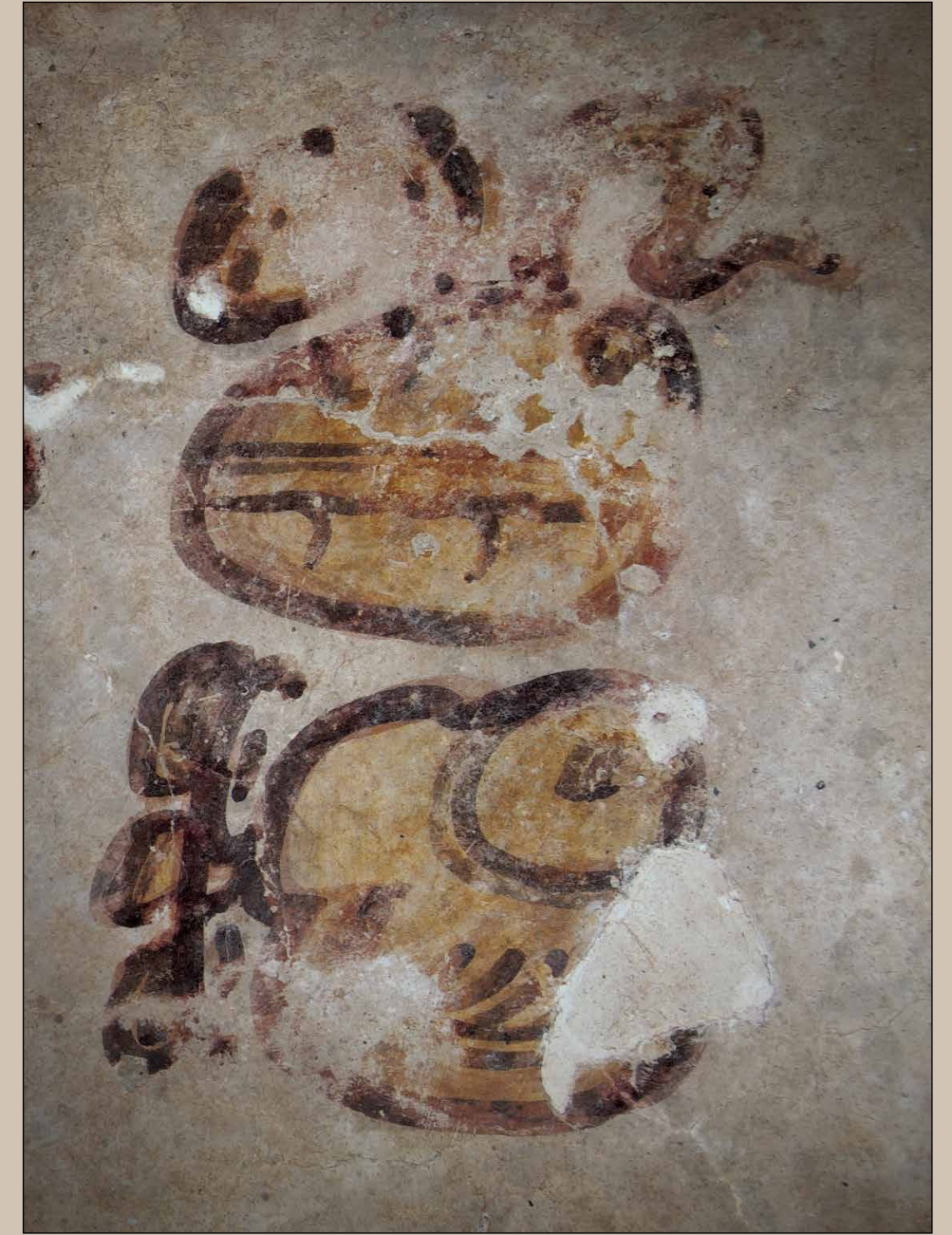


Figure 27. Scene SE-E2 of the southeast corner, second tier. Photo: Gene Ware/PAC.



Figures 28 and 29. Details of scene SE-E2 of the southeast corner, second tier. Photos: Rogelio Valencia Rivera/PAC.





Figures 30 and 31. Details of scene SE-E1 of the southeast corner, first tier. Photos: Gene Ware/PAC and Rogelio Valencia Rivera/PAC.

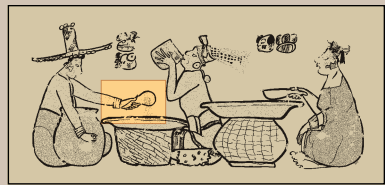
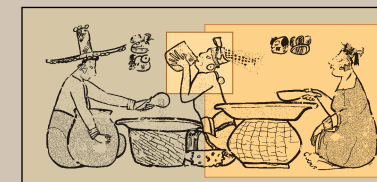


Figure 32. Detail of scene SE-E1 of the southeast corner, first tier. Photo: Rogelio Valencia Rivera/PAC.





Figures 33 and 34. Details of scene SE-E1 of the southeast corner, first tier.
Photos: Rogelio Valencia Rivera / PAC.



Figure 35. Detail of scene EsS-LtE1 of the southeast corner, first tier. Photo: Rogelio Valencia Rivera/PAC.



Figure 36. Detail of scene NE-N2 of the northeast corner, second tier. Photo: Rogelio Valencia Rivera/PAC.





Figures 37 and 38. Details of scene EsO-LtN1 of the northwest corner, first tier. Photos: Harri Kettunen/PAC.





Figure 40. Detail of scene SO-S1 of the southwest corner, first tier. Photo: Rogelio Valencia Rivera/PAC.



Figure 39. Detail of scene EsN-LtE1 of the northeast corner, first tier. Photo: Gene Ware/PAC.

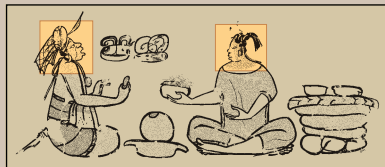


Figures 41 and 42. Details of scene NE-E1 of the northeast corner, first tier. Photos: Rogelio Valencia Rivera / PAC.





Figures 43 and 44. Details of scene NE-N1 of the northeast corner, first tier. Photos: Rogelio Valencia Rivera/PAC.



Maya Archaeology

References Cited

- Adams, Richard E. W., ed.
1986 *Río Azul Reports, No. 2: The 1984 Season*. Center for Archaeological Research, University of Texas at San Antonio.
- Aguirre Tanús, Mariana, and María Cordeiro Baqueiro
2007 Pinturas murales del Clásico Temprano en el reino de Ka'an. In *Los Investigadores de la Cultura Maya* 15(1):167-177. Universidad Autónoma de Campeche, Campeche.
- Arnauld, Marie Charlotte
1986 *Archéologie de l'habitat en Alta Verapaz, Guatemala*. Collection Études Mésoaméricaines 10. Centre d'Études Mexicaines et Centraméricaines, Mexico.
- Aulie, H. Wilbur, and Evelyn W. de Aulie
1978 *Diccionario ch'ol-español, español-ch'ol*. Instituto Lingüístico de Verano, Mexico.
- Baglioni, Piero, and Rodrigo Giorgi
2006 Soft and Hard Nanomaterials for Restoration and Conservation of Cultural Heritage. *Soft Matter* 2:293-303.
- Barrera-Vásquez, Alfredo, Juan Ramón Bastarrachea Manzano, William Brito Sansores, Refugio Vermont Salas, David Dzul Góngora, and Domingo Dzul Pot
1980 *Diccionario maya Cordemex, maya-español, español-maya*. Ediciones Cordemex, Mexico.
- Bassie-Sweet, Karen
1996 *At the Edge of the World: Caves and Late Classic Maya World View*. University of Oklahoma Press, Norman.
- Bassie-Sweet, Karen, Nicholas A. Hopkins, and J. Kathryn Josserand
2008 A Classic Maya Headdress. Manuscript.
- Baudez, Claude Francois
1994 *Maya Sculpture of Copan: The Iconography*. University of Oklahoma Press, Norman.
- Becquelin, Pierre
2001[1969] *Arqueología de la región de Nebaj*. Cuadernos de Estudios Guatemaltecos 5. Centro Frances de Estudios Mexicanos y Centroamericanos, Guatemala.
- Bernal Romero, Guillermo
2002a U Pakal K'inich Janahb' Pakal, el nuevo gobernante de Palenque. *Lakamha': Boletín Informativo del Museo de Sitio y Zona Arqueológica de Palenque* 4:4-9.
2002b Análisis epigráfico del Tablero de K'an Tok, Palenque, Chiapas. In *La organización social entre los mayas prehispánicos, coloniales y modernos. Memoria de la Tercera Mesa Redonda de Palenque*, edited by Vera Tiesler Blos, Rafael Cobos, and Merle Greene Robertson, v. 1, pp. 401-423. Conaculta; INAH, Mexico.
- 2006 El trono de K'inich Ahkal Mo' Nahb': una inscripción glífica del Templo XXI de Palenque. MA thesis, Universidad Nacional Autónoma de México, Mexico.
- Borgstede, Greg
2004 Archaeology and Ethnicity in the Western Maya Highlands, Guatemala. Ph.D. dissertation, University of Pennsylvania, Philadelphia.
- Borhegyi, Stefan F. de
1959 The Composite or Assemble-it-Yourself Censer, a New Lowland Maya Variety of the Three-Pronged Incense Burner. *American Antiquity* 25(1):51-65.
- Boucher, Sylviane, and Lucía Quiñones
2007 Entre mercados, ferias y festines: los murales de la Sub 1-4 de Chiik Nahb, Calakmul. *Mayab* 19:27-50.

- Boucher, Sylviane, Yoly Palomo, and Sara Dzul
2006 Informe cerámico del depósito especial de la Estructura XX. Report submitted to the Proyecto Arqueológico Calakmul, Campeche.
- Braswell, Geoffrey
1996 A Maya Obsidian Source: The Geoarchaeology, Settlement History, and Ancient Economy of San Martín Jilotepeque, Guatemala. Ph.D. dissertation, Tulane University, New Orleans.
- Bricker, Victoria, Eleuterio Po'ot Yah, and Ofelia Dzul de Po'ot
1998 *A Dictionary of the Maya Language as Spoken in Hocabá, Yucatán*. University of Utah Press, Salt Lake City.
- Carmack, Robert
1981 *The Quiché Mayas of Utiatlán: The Evolution of a Highland Guatemala Kingdom*. University of Oklahoma Press, Norman.
- Carrasco Vargas, Ramón
1996 Calakmul, Campeche. *Arqueología Mexicana* 3(18):46-51.
1998 The Metropolis of Calakmul, Campeche. In *Maya*, edited by Peter Schmidt, Mercedes de la Garza, and Enrique Nalda, pp. 372-385. Rizzoli, New York.
2005 The Sacred Mountain: Preclassic Architecture in Calakmul. In *Lords of Creation: The Origins of Sacred Maya Kingship*, edited by Virginia M. Fields and Dorie Reents-Budet, pp. 62-66. Los Angeles County Museum of Art; Scala, London.
- Carrasco Vargas, Ramón, and André Bojalil
2005 Nuevos datos para la historia del arte y la iconografía del Clásico Temprano en el área maya: el reino de Ka'an. Paper presented at the XIX Simposio de Investigaciones Arqueológicas en Guatemala, Guatemala City.
- Carrasco Vargas, Ramón, and Marinés Colón González
2005 El reino de Kaan y la antigua ciudad maya de Calakmul. *Arqueología Mexicana* 13(75):40-47.
- Carrasco Vargas, Ramón, and Omar Rodríguez Campero
2003 La antigua ciudad maya de Calakmul: una perspectiva. *Revista de la Universidad Nacional Autónoma de México* 623:48.
- Carrasco Vargas, Ramón, and Verónica A. Vázquez López
2007 Nuevas evidencias del Clásico Temprano en el registro arqueológico del reino de Kaan. In *Los Investigadores de la Cultura Maya* 15(1):155-165. Universidad Autónoma de Campeche, Campeche.
- Carrasco Vargas, Ramón, Verónica A. Vázquez López, and Simon Martin
2009 Daily Life of the Ancient Maya Recorded on Murals at Calakmul, Mexico. *Proceedings of the National Academy of Sciences (PNAS)* 106(46):19245-19249.
- Closs, Michael P.
1988 The Hieroglyphic Text of Stela 9, Lamanai, Belize. *Research Reports on Ancient Maya Writing* 21:9-16. Center for Maya Research, Washington, D.C. Available: www.mesoweb.com/bearc/cmr/21.html.
- Coe, Michael D.
1973 *The Maya Scribe and his World*. The Grolier Club, New York.
1977 Supernatural Patrons of Maya Scribes and Artists. In *Social Process in Maya Prehistory: Studies in Honor of Sir Eric Thompson*, edited by Norman Hammond, pp. 327-347. Academic Press, New York.
1989 The Hero Twins: Myth and Image. In *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr, Volume 1*, pp. 161-184. Kerr Associates, New York. Available: www.mesoweb.com/publications/MayaVase/Coe1989.html.
- Cordeiro Baqueiro, María
2012 Expresión artística. In *Calakmul. Patrimonio de la Humanidad*, edited by Regina Martínez Vera, pp. 212-237. Grupo Azabache, Mexico.
- Coto, Tomás de
1983 *Thesaurus verboru[m]. Vocabulario de la lengua cakchiquel u [el] guatemalteca, nuevamente hecho y recopilado con summo estudio, trabajo y erudición*. René Acuña, ed. Universidad Nacional Autónoma de México, Mexico.
- Culbert, T. Patrick
1965 *The Ceramic History of the Central Highlands of Chiapas, Mexico*. Papers of the New World Archaeological Foundation 14. Brigham Young University, Provo.
- Delgaty, Colin C.
1964 *Vocabulario tzotzil de San Andrés, Chiapas*. Serie de Vocabulario Indígenas Mariano Silva y Aceves 10. Instituto Lingüístico de Verano, Mexico.
- Desprat, Alice
2006 Las pinturas decorativos del Clásico Temprano y su conservación: los artistas del reino de Kaan. In *Los Investigadores de la Cultura Maya* 14(2):242-254. Universidad Autónoma de Campeche, Campeche.
- Dutton, Bertha P., and Hulda Hobbs
1943 *Excavations at Tajumulco, Guatemala*. Monograph 9. School for American Research, Santa Fe.
- Eberl, Markus, and Daniel Graña-Behrens
2004 Proper Names and Throne Names: On the Naming Practice of Classic Maya Rulers. In *Continuity and Change: Maya Religious Practices in Temporal Perspective*, edited by Daniel Graña-Behrens, Nikolai Grube, Christian M. Prager, Frauke Sachse, Stefanie Teufel, and Elizabeth Wagner, pp. 101-120. Verlag Anton Saurwein, Markt Schwaben.
- Fields, Virginia
1991 The Iconographic Heritage of the Maya Jester God. In *Sixth Palenque Round Table, 1986*, edited by Virginia M. Fields, pp. 167-174. University of Oklahoma Press, Norman. Available: www.mesoweb.com/pari/publications/RT08/JesterGod.html.
- Fields, Virginia, and Dorie Reents-Budet
2005 *Lords of Creation: The Origins of Sacred Maya Kingship*. Los Angeles County Museum of Art; Scala, London.
- Folan, William J.
1992 Calakmul, Campeche: A Centralized Urban Administrative Center in the Northern Petén. *World Archaeology* 24:158-168.
- Fox, John
1978 *Quiché Conquest*. University of New Mexico Press, Albuquerque.
- Freidel, David A.
1981 The Political Economies of Residential Dispersion among the Lowland Maya. In *Lowland Maya Settlement Patterns*, edited by Wendy Ashmore, pp. 371-382. School of American Research Advanced Seminar Series. University of New Mexico Press, Albuquerque.
1990 Jester God: The Beginning and End of a Maya Royal Symbol. In *Vision and Revision in Maya Studies*, edited by Flora S. Clancy and Peter D. Harrison, pp. 67-78. University of New Mexico Press, Albuquerque.
- Freidel, David A., and Barbara MacLeod
2000 Creation Redux: New Thoughts on Maya Cosmology from Epigraphy, Iconography, and Archaeology. *The PARI Journal* 1(2):1-8. Available: www.mesoweb.com/pari/publications/journal/02/Creation.pdf.
- Galinier, Jacques
1987 *Pueblos de la Sierra Madre. Etnografía de la comunidad otomí*. Instituto Nacional Indigenista, Mexico.
- García Barrios, Ana, and Ramón Carrasco Vargas
2008 Una aproximación a los estilos pictóricos de la pirámide de las pinturas de la Acrópolis Chiik Nahb' de Calakmul. In *XXI Simposio de Investigaciones Arqueológicas en Guatemala, 2007*, edited by Juan Pedro Laporte, Bárbara Arroyo, and Héctor E. Mejía, v. 2, pp. 687-702. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal; Fundación Arqueológica del Nuevo Mundo, Guatemala.
- Gifford, James
1960 The Type-Variety Method of Ceramic Classification as an Indicator of Cultural Phenomena. *American Antiquity* 25(3):341-347.
1976 *Prehistoric Pottery Analysis and the Ceramics of Barton Ramie in the Belize Valley*. Memoirs 18. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.
- Graham, Ian
1977 *Corpus of Maya Hieroglyphic Inscriptions, Volume 3, Part 1: Yaxchilan*. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.
1978 *Corpus of Maya Hieroglyphic Inscriptions, Volume 2, Part 2: Naranjo, Chunhuitz and Xunantunich*. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.
- Grube, Nikolai
1990 The Primary Standard Sequence on Chocholá Style Ceramics. In *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr, Volume 2*, edited by Barbara Kerr and Justin Kerr, pp. 320-330. Kerr Associates, New York.
2004a El origen del dinastía Kan. In *Los cautivos de Dzibanché*, edited by Enrique Nalda, pp. 117-132. Instituto Nacional de Antropolgía e Historia, Mexico.
2004b The Orthographic Distinction Between Velar and Glottal Spirants in Maya Hieroglyphic Writing. In *The Linguistics of Maya Writing*, edited by Søren Wichmann, pp. 61-82. University of Utah Press, Salt Lake City.
- Haberland, Wolfgang
1964 Marihua Red-on-Buff and the Pipil Question. *Ethnos* 29:73-86.
- Hammond, Norman
1972 A Minor Criticism of the Type-Variety System of Ceramic Analysis. *American Antiquity* 37(3):450-452.
- Hellmuth, Nicholas
1987 *Monster und Menschen in der Maya-Kunst: Eine Ikonographie der alten Religionen Mexikos und Guatemalas*. Akademische Druk- u. Verlagsanstalt, Graz.
- Hill, Robert M.
1996 Eastern Chajomá Political Geography: Ethnohistorical and Archaeological Contributions to the Study of a Late Postclassic Maya Polity. *Ancient Mesoamerica* 7(1):63-87.
- Hofling, Charles Andrew, and Félix Fernando Tesucún
1997 *Itzaj Maya—Spanish—English Dictionary*. University of Utah Press, Salt Lake City.
- Hopkins, Nicholas A., J. Kathryn Josserand, and Ausencio Cruz Guzmán
2011 *A Historical Dictionary of Chol (Mayan): The Lexical Sources from 1789 to 1935*. Jaguar Tours, Tallahassee.
- Houston, Stephen D., and David Stuart
1989 *The Way Glyph: Evidence for "Co-essences" among the Classic Maya*. Research Reports on Ancient Maya Writing 30. Center for Maya Research, Washington D.C.
- Hull, Kerry
2003 Verbal Art and Performance in Ch'orti' and Maya Hieroglyphic Writing. Ph.D. dissertation, University of Texas at Austin.
2005 An Abbreviated Dictionary of Ch'orti' Maya. *FAMSI*: www.famsi.org/reports/03031/index.html.
- Ichon, Alain
1987 Regional Ceramic Development in El Quiche and Baja Verapaz, Guatemala. In *Maya Ceramics: Papers from the 1985 Maya Ceramics Conference*, edited by Prudence Rice and Robert Sharer, v. 1, pp. 277-306. BAR International Series 345. J. and E. Hedges, Oxford.
- Inomata, Takeshi, Daniela Triadan, Erick Ponciano, Estela Pinto, Richard Terry, and Markus Eberl
2002 Domestic and Political Lives of Maya Elites: The Excavation of Rapidly Abandoned Structures at Aguateca, Guatemala. *Latin American Antiquity* 13(3):305-330.
- Jackson, Sarah, and David Stuart
2001 The Aj K'uhun Title: Deciphering a Classic Maya Term of Rank. *Ancient Mesoamerica* 12(2):217-228.
- Karttunen, Frances
1992 *An Analytical Dictionary of Nahuatl*. University of Oklahoma Press, Norman.
- Kaufman, Terrence
2003 A Preliminary Mayan Etymological Dictionary. *FAMSI*: www.famsi.org/reports/01051/index.html.
- Kaufman, Terrence, and William M. Norman
1984 An Outline of Proto-Cholan Phonology, Morphology and Vocabulary. In *Phoneticism in Mayan Hieroglyphic Writing*, edited by John S. Justeson and Lyle Campbell, pp. 77-166. Institute for Mesoamerican Studies, State University of New York, Albany.
- Kelley, David H.
1982 Costume and Name in Mesoamerica. *Visible Language* 16(1):39-48.
- Kerr, Barbara, and Justin Kerr, eds.
1990 *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr, Volume 2*. Kerr Associates, New York.
1991 *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr, Volume 3*. Kerr Associates, New York.
2000 *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr, Volume 6*. Kerr Associates, New York.
- Lacadena, Alfonso
1997 Comments on the (u)-**ja-yi** Compound in the Primary Standard Sequence. Paper presented at the 2nd European Maya Conference, Leiden University, Leiden.
2002 El corpus glífico de Ek' Balam, Yucatán, Mexico. Report submitted to the Foundation for the Advancement of Mesoamerican Studies. Available: www.famsi.org/reports/01057es/index.html.
2005 Los jeroglíficos de Ek' Balam. *Arqueología Mexicana* 13(76):64-69.

- Lacadena, Alfonso, and Søren Wichmann
2004 On the Representation of the Glottal Stop in Maya Writing. In *The Linguistics of Maya Writing*, edited by Søren Wichmann, pp. 100-164. University of Utah Press, Salt Lake City.
- Landa, Fray Diego de
1941 *Landa's Relación de las Cosas de Yucatan: A Translation*. Edited with notes by Alfred M. Tozzer. Papers 18. Peabody Museum of American Archaeology and Ethnology, Harvard University, Cambridge, MA.
- Laughlin, Robert M.
1975 *The Great Tzotzil Dictionary of San Lorenzo Zinacantán*. Contributions to Anthropology 19. Smithsonian Institution, Washington, D.C.
- Lothrop, Samuel
1936 *Zacualpa: A Study of Ancient Quiché Artifacts*. Publication 472. Carnegie Institution of Washington, Washington, D.C.
- Lounsbury, Floyd G.
1973 On the Derivation and Reading of the 'Ben-Ich' Prefix. In *Mesoamerican Writing Systems*, edited by Elizabeth P. Benson, pp. 99-143. Dumbarton Oaks, Washington, D.C.
- Lowe, Gareth W.
1959 *Archaeological Exploration of the Upper Grijalva, Chiapas, Mexico*. Publications 2. New World Archaeological Foundation, Brigham Young University, Provo.
- Lundell, Cyrus L.
1933 Archaeological Discoveries in the Maya Area. *Proceedings of the American Philosophical Society* 72(3):147-179.
- Martin, Simon
2003 In Line of the Founder: A View of Dynastic Politics at Tikal. In *Tikal: Dynasties, Foreigners, and Affairs of State*, edited by Jeremy Sabloff, pp. 3-45. School of American Research Advanced Seminar Series. School of American Research Press, Santa Fe.
2007 A Provisional Report on the Murals of Structure 1 of the Chiik Nahb Acropolis. Report submitted to the Proyecto Arqueológico Calakmul, Campeche.
- n.d.a Ideology and the Early Maya Polity. In *Origins of Maya States*, edited by Robert J. Sharer. University Museum, University of Pennsylvania, Philadelphia, in press.
n.d.b Reading Calakmul: Recent Epigraphic Finds of the Proyecto Arqueológico de Calakmul. In *Memorias de la VI Mesa Redonda de Palenque. Arqueología, imagen y texto*. Instituto Nacional de Antropología e Historia, Mexico, in press.
n.d.c Inscripciones encontradas en las pinturas murales de Calakmul, Campeche, México. In *La Pintura Mural Prehispánica en México. Area maya, Calakmul*, edited by Leticia Staines. Universidad Nacional Autónoma de México, Mexico, in press.
- May Hau, Jacinto, R. Cohuah Muñoz, Raymundo González Heredia, and William J. Folan
1990 *El mapa de las ruinas de Calakmul, Campeche, México*. Universidad Autónoma de Campeche, Campeche.
- McAnany, Patricia Ann
1993 The Economics of Social Power and Wealth among Eighth-Century Maya Households. In *Lowland Maya Civilization in the Eighth Century A.D.*, edited by Jeremy A. Sabloff and John S. Henderson, pp. 65-89. Dumbarton Oaks, Washington, D.C.
- Mellanes Castellanos, Esdras
1951 *Monografía de Palenque*. Departamento de Prensa y Turismo, Tuxtla Gutiérrez.
- Miller, Mary, and Simon Martin
2004 *Courtly Art of the Ancient Maya*. Thames and Hudson, New York.
- Miller, Mary, and Karl Taube
1993 *The Gods and Symbols of Ancient Mexico and the Maya: An Illustrated Dictionary Of Mesoamerican Religion*. Thames and Hudson, New York.
- Morley, Sylvanus G.
1933 The Calakmul Expedition. *Scientific Monthly* 367:193-206.
- Nance, C. Roger
2003a Ceramic Type Distributions. In *Archaeology and Ethnohistory of Iximché*, edited by C. Roger Nance, Stephen Whittington, and Barbara Borg, pp. 181-190. University Press of Florida, Gainesville.
2003b Typological Descriptions and Extra-Site Relationships. In *Archaeology and Ethnohistory of Iximché*, edited by C. Roger Nance, Stephen Whittington, and Barbara Borg, pp. 117-180. University Press of Florida, Gainesville.
- Navarrete, Carlos
1961 *La cerámica de Mixco Viejo*. Cuadernos de Antropología 1. Universidad de San Carlos de Guatemala, Guatemala.
- Poponoe de Hatch, Marion
1997 *Kaminaljuyú/San Jorge. Evidencia arqueológica de la actividad económica en el Valle de Guatemala, 300 a.C. – 300 d.C.* Universidad del Valle de Guatemala, Guatemala.
- Proskouriakoff, Tatiana
1974 *Jades from the Cenote of Sacrifice, Chichen Itza, Yucatan*. Memoirs 10(1). Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.
- Rands, Robert, and Robert Smith
1965 Pottery of the Guatemalan Highlands. In *Archaeology of Southern Mesoamerica, Part One*, edited by Gordon R. Willey, pp. 95-145. Handbook of Middle American Indians 2. University of Texas Press, Austin.
- Reents-Budet, Dorie
1988 The Iconography of Lamanai Stela 9. *Research Reports on Ancient Maya Writing* 22:17-32. Center for Maya Research, Washington, D.C.
- Riese, Berthold
1989 The Inscription on the Sculpted Bench of the House of the Bacabs. In *The House of the Bacabs, Copan, Honduras*, edited by David Webster, pp. 82-88. Studies in Pre-Columbian Art and Archaeology 29. Dumbarton Oaks, Washington, D.C.
- Ringle, William M.
1988 Of Mice and Monkeys: The Value and Meaning of T1016, the God C Hieroglyph. *Research Reports on Ancient Maya Writing* 18:1-22. Center for Maya Research, Washington D.C. Available: www.mesoweb.com/bearc/cmr/18.html.
- Rivero Torres, Sonia
1997 La cerámica y lítica de Lagartero, Chiapas, procedente del Limonal, Unidad I. In *Homenaje al profesor César A. Sáenz*, edited by Ángel García Cook, Alba Guadalupe Mastache, Leonor Merino, and Sonia Rivero Torres, pp. 201-250. Instituto Nacional de Antropología e Historia, Mexico.
- Robertson, John S.
2004 *A Brief Response to Wichmann's "Hieroglyphic Evidence for the Historical Configuration of Eastern Ch'olan"* (RRAMW 51), with *A Reply to Robertson by Søren Wichmann, and Final Response*. Research Reports on Ancient Maya Writing 51a. Center for Maya Research, Barnardsville, NC.
- Robertson, Merle Greene
1985 *The Sculpture of Palenque, Volume II: The Early Buildings of the Palace and the Wall Paintings*. Princeton University Press, Princeton.
- Robinson, Eugenia
1998 Organización del estado kaqchikel: el centro de Chitak Tzak. *Mesoamérica* 35:49-71.
- Rodríguez Campero, Omar
2008 Características de la composición urbana de los sitios de Calakmul, Balamku y Nadzca'an. In *XXI Simposio de Investigaciones Arqueológicas en Guatemala, 2007*, edited by Juan Pedro Laporte, Bárbara Arroyo, and Héctor E. Mejía, v. 2, pp. 311-324. Ministerio de Cultura y Deportes; Instituto de Antropología e Historia; Asociación Tikal; Fundación Arqueológica del Nuevo Mundo, Guatemala.
- Roys, Ralph L.
1931 *The Ethno-Botany of the Maya*. Publication 2. Department of Middle American Research, Tulane University, New Orleans.
- Ruppert, Karl, and John H. Denison, Jr.
1943 *Archaeological Reconnaissance in Campeche, Quintana Roo, and Peten*. Publication 543. Carnegie Institution of Washington, Washington, D.C.
- Ruz Lhuillier, Alberto
1952 Exploraciones arqueológicas en Palenque: 1949. *Anales* 4(32):49-60. Instituto Nacional de Antropología e Historia, Mexico.
1958a Exploraciones arqueológicas en Palenque: 1954. *Anales* 10(39):117-184. Instituto Nacional de Antropología e Historia, Mexico.
1958b Exploraciones arqueológicas en Palenque: 1955. *Anales* 10(39):185-240. Instituto Nacional de Antropología e Historia, Mexico.
1973 *El Templo de las Inscripciones, Palenque*. Instituto Nacional de Antropología e Historia, Mexico.
- Sachse, Frauke, ed.
2004 *Maldonado de Matos. Arte de la lengua szinca*. Fuentes Mesoamericanas 5. Verlag Anton Saurwein, Markt Schwaben.
- Schele, Linda
1974 Observations on the Cross Motif at Palenque. In *Primera Mesa Redonda de Palenque, Part I: A Conference on the Art, Iconography, and Dynastic History of Palenque, 1973*, edited by Merle Greene Robertson, pp. 41-61. Robert Louis Stevenson School, Pebble Beach, CA. Available: www.mesoweb.com/pari/publications/RT01/Observations.html.
1976 Accession Iconography of Chan-Bahlum in the Group of the Cross at Palenque. In *The Art, Iconography and Dynastic History of Palenque, Part III: Proceedings of the Segunda Mesa Redonda de Palenque, 1974*, edited by Merle Greene Robertson, pp. 9-34. Robert Louis Stevenson School, Pebble Beach, CA. Available: www.mesoweb.com/pari/publications/RT03/Schele1976.html.
1979 Genealogical Documentation on the Tri-figure Panels at Palenque. In *Tercera Mesa Redonda de Palenque*, edited by Merle Greene Robertson and Donnan Call Jeffers, pp. 41-70. Pre-Columbian Art Research; Herald Printers, Monterey, CA. Available: www.mesoweb.com/pari/publications/RT04/Tri-Figure.html.
1992 A New Look at the Dynastic History of Palenque. In *Handbook of Middle American Indians, Supplement 5: Epigraphy*, edited by Victoria R. Bricker, pp. 82-109. University of Texas Press, Austin.
- Schele, Linda, and Peter Mathews
1979 *The Bodega of Palenque, Chiapas, Mexico*. Dumbarton Oaks, Washington, D.C.
1998 *The Code of Kings: The Language of Seven Sacred Maya Temples and Tombs*. Scribner, New York.
- Schele, Linda, Peter Mathews, and Floyd Lounsbury
1990 Untying the Headband. *Texas Notes on Precolumbian Art, Writing, and Culture* 4.
- Schele, Linda, and Mary Ellen Miller
1986 *The Blood of Kings: Dynasty and Ritual in Maya Art*. Braziller; Kimbell Art Museum, Fort Worth.
- Sharer, Robert J., Wendy Ashmore, and Robert Hill
n.d. The Pottery of Antigua, Guatemala: A Report of the Collections Recovered by The Hispanic American Research Project, 1969-1970. Manuscript.
- Slocum, Marianna C., Florencia L. Gerdel, and Manuel Cruz Aguilar
1999 *Diccionario tzeltal de Bachajón, Chiapas*. Instituto Lingüístico de Verano, Mexico.
- Starr, Frederick
1900-1901 Notes upon the Ethnography of Southern Mexico. *Proceedings of the Davenport Academy of Natural Sciences* 8:102-198, 9:63-172.
- Stuart, David
1985a The Yaxha Emblem Glyph as *Yax-ha*. *Research Reports on Ancient Maya Writing* 1:1-6. Center for Maya Research, Washington, D.C. Available: www.mesoweb.com/bearc/cmr/01.html.
1985b The "Count-of-Captives" Epithet in Classic Maya Writing. In *Fifth Palenque Round Table, 1983*, edited by Virginia M. Fields, pp. 97-101. Pre-Columbian Art Research Institute, San Francisco. Available: www.mesoweb.com/pari/publications/RT07/CountOfCaptives.html.
1987 *Ten Phonetic Syllables*. Research Reports on Ancient Maya Writing 14. Center for Maya Research, Washington, D.C. Available: www.mesoweb.com/bearc/cmr/14.html.
1989 Hieroglyphs on Maya Vessels. In *The Maya Vase Book: A Corpus of Rollout Photographs of Maya Vases by Justin Kerr, Volume 1*, pp. 149-160. Kerr Associates, New York. Available: www.mesoweb.com/publications/MayaVase/Stuart1989.html.
1998 "Fire Enters His House": Architecture and Ritual in Classic Maya Texts. In *Function and Meaning in Classic Maya Architecture*, edited by Stephen D. Houston, pp. 373-425. Dumbarton Oaks, Washington, D.C.
2003 Longer Live the King: The Questionable Demise of K'inich K'an Joy Chitam of Palenque. *The PARI Journal* 4(1):1-4. Available: www.mesoweb.com/pari/journal.html.
2004a La concha decorada de la tumba del Templo del Búho, Dzibanché. In *Los cautivos de Dzibanché*, edited by Enrique Nalda, pp. 133-140. Instituto Nacional de Antropología e Historia, Mexico.
2004b The Beginnings of the Copan Dynasty: A Review of the Hieroglyphic and Historical Evidence. In *Understanding Early Classic Copan*, edited by Ellen E. Bell, Marcello A. Canuto, and Robert J. Sharer, pp. 215-248. University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.
2005 *The Inscriptions of Temple XIX at Palenque*. Pre-Columbian Art Research Institute, San Francisco. Available: www.mesoweb.com/publications/Stuart/TXIX.html.
2006a The Language of Chocolate: References to Cacao on Classic Maya Drinking Vessels. In *Chocolate in Mesoamerica: A Cultural History of Cacao*, edited by Cameron McNeil, pp. 184-201. University Press of Florida, Gainesville.

- 2006b The Palenque Mythology. In *Sourcebook for the 30th Maya Meetings, March 14-19, 2006*, pp. 85-194. Mesoamerican Center; Department of Art and Art History, University of Texas, Austin.
- 2008a Proper Names in the History of Mesoamerican Writing. Paper presented at the 2008 Pre-Columbian Symposium at Dumbarton Oaks, "Scripts, Signs, and Notational Systems in Pre-Columbian America," Washington, D.C.
- 2008b The Jeweled Eagle and the First Lord: Reconstructing an Episode of Classic Maya Mythology. Paper presented at the "Mesoamerican Mythologies" symposium, New World Archaeology Council, Irvine, CA.
- 2011 Some Working Notes on the Text of Tikal Stela 31. *Mesoweb*: www.mesoweb.com/stuart/notes/Tikal.pdf.
- Stuart, David, and Stephen D. Houston
1994 *Classic Maya Place Names*. Studies in Pre-Columbian Art and Archaeology 33. Dumbarton Oaks, Washington, D.C.
- Stuart, David, Stephen D. Houston, and John Robertson
1999 Recovering the Past: Classic Mayan Language and Classic Maya Gods. In *Notebook for the XXIIIrd Maya Hieroglyphic Forum at Texas, March, 1999*, pt. 2. Department of Art and Art History; College of Fine Arts; Institute of Latin American Studies, University of Texas, Austin.
- Stuart, David, and Danny Law
2010 Testimony, Oration, and Dynastic Memory in the Monuments of Copan. Paper presented at the 15th European Maya Conference, "Maya Society and Socio-Territorial Organization," Madrid.
- Stuart, David, and George Stuart
2008 *Palenque: Eternal City of the Maya*. Thames and Hudson, New York.
- Taube, Karl A.
1998 The Jade Hearth: Centrality, Rulership, and the Classic Maya Temple. In *Function and Meaning in Classic Maya Architecture*, edited by Stephen D. Houston, pp. 427-478. Dumbarton Oaks, Washington, D.C.
- 2005 The Symbolism of Jade in Classic Maya Religion. *Ancient Mesoamerica* 16(1):25-50.
- Thompson, J. Eric S.
1930 *Ethnology of the Mayas of Southern and Central British Honduras*. Publication 274. Anthropological Series 17(2). Field Museum of Natural History, Chicago.
- 1950 *Maya Hieroglyphic Writing: Introduction*. Publication 589. Carnegie Institution of Washington, Washington, D.C. Available: www.mesoweb.com/publications/Thompson/Thompson1950.html.
- 1952 La inscripción jeroglífica del Tablero del Palacio, Palenque. *Anales* 4(32):61-68. Instituto Nacional de Antropología e Historia, Mexico.
- 1962 *A Catalog of Maya Hieroglyphs*. University of Oklahoma Press, Norman.
- 1970 *Maya History and Religion*. University of Oklahoma Press, Norman.
- Ulrich, E. Matthew, and Rosemary Dixon de Ulrich
1976 *Diccionario maya mopan-español, español-maya mopan*. Instituto Lingüístico de Verano, Guatemala.
- Vázquez López, Verónica A.
2006 Pintura mural y arquitectura como medios de transmisión ideológica: la acrópolis Chiik Nahb'. In *Los Investigadores de la Cultura Maya* 14(2):105-114. Universidad Autónoma de Campeche, Campeche.
- Ware, Gene A.
2008 Multispectral Images: Mural Paintings of the Chiik Nahb Acropolis. MSI Data Report 2007(2). Report submitted to the Proyecto Arqueológico Calakmul, Campeche.
- Wauchope, Robert
1970 Protohistoric Pottery of the Guatemala Highlands. In *Monographs and Papers in Maya Archaeology*, edited by William R. Bullard, pp. 91-242. Papers 61. Peabody Museum of Archaeology and Ethnology, Harvard University, Cambridge, MA.
- Weeks, John M.
1983 *Chisalin: A Late Postclassic Maya Settlement in Highland Guatemala*. BAR International Series 169. J. and E. Hedges, Oxford.
- Wichmann, Søren
2006 Mayan Historical Linguistics and Epigraphy: A New Synthesis. *Annual Review of Anthropology* 35:279-294.
- Woodbury, Richard, and Aubrey Trik
1953 *The Ruins of Zaculeu, Guatemala*. United Fruit Company; William Bird Press, Richmond, VA.
- Yadeun, Juan
1992 *Toniná*. Citibank, Mexico.
- Zender, Marc
2005a 'Flaming Ak'bal' and the Glyphic Representation of the *aj-* Agentive Prefix. *The PARI Journal* 5(3):8-10. Available: www.mesoweb.com/pari/journal.html.
- 2005b The Raccoon Glyph in Classic Maya Writing. *The PARI Journal* 5(4):6-16. Available: www.mesoweb.com/pari/journal.html.