

Chapter 2

Ceramic Traditions in the Calakmul Region: An Indicator of the Movement of Ideas or Populations?

María del Rosario Domínguez Carrasco and William J. Folan Higgins

Introduction

An archaeological and physical–chemical analysis of ceramic materials in the region of Calakmul and surrounding areas (Fig. 2.1) has provided important data on movements of populations in this as well as neighboring regions, as determined both by the distribution, presence, or absence of ceramic traditions, as well as by the physical attributes of the vessels and by the chemical composition of the ceramic pastes.

The findings presented here include a comparative analysis of the ceramic materials, collected from different sites neighboring the Calakmul region, and belonging to different chronological periods. Sites sampled include the Regional State of Calakmul (Folan et al. 1999, 2008, 2010), the region bordering the eastern boundary of the State of Calakmul (Šprajc 2001, 2003, 2005, 2006; Šprajc et al. 1996), the northern region of the Guatemalan Peten (Hermes Cifuentes 2002; Hermes Cifuentes and Contreras 2002), and the northern region of Calakmul that borders the Regional State of Rio Bec (Domínguez Carrasco and Espinosa Pesqueira 2009; Domínguez Carrasco et al. 2010, 2011; Folan et al. 2009) (Fig. 2.2). These were studied for the purpose of identifying the different ceramic traditions of Calakmul in the specified regions, and based on this to infer possible movements of ceramic objects that would have functioned at a determined time as an indicator of the movement of population groups at inter- and intra-regional level.

M.d.R. Domínguez Carrasco (✉) • W.J. Folan Higgins
Centro de Investigaciones Históricas y Sociales, Universidad Autónoma
de Campeche, Campeche 24039, Campeche, Mexico
e-mail: mrdoming@yahoo.com; wjfolan@gmail.com

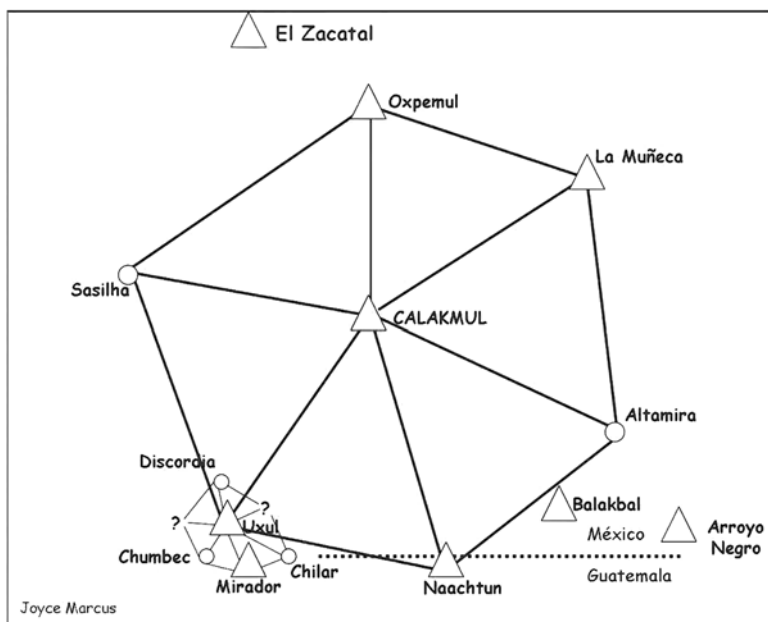


Fig. 2.1 Regional State of Calakmul and some of its tributary cities (Marcus 1973, 1976)

Materials Analysis

The process used to study the materials included an initial analysis of the ceramic using the type-variety method, in order to identify the chronology of the settlements and also to determine the presence of significant ceramic traditions. After this, we selected samples of the ceramic types that represent the different periods of occupation, in order to analyze them by physical–chemical techniques such as X-ray diffraction, low vacuum electronic microscopy (Domínguez Carrasco et al. 2001, 2002a, b, 2003; Domínguez Carrasco and Espinosa Pesqueira 2009), petrography (Chung et al. 1997; Chung and Morales 1999), and neutron activation analysis (Domínguez Carrasco et al. 1998).

The ceramic samples from the Regional State of Calakmul range from the Late Preclassic to the Terminal Classic (Domínguez Carrasco 2008). Materials from the northern region of the Guatemalan Peten included ceramics corresponding to periods from the Late Classic to the Terminal Classic (Hermes Cifuentes and Martínez 2005), while materials from the eastern region adjacent to Calakmul (García 2006) as well as those from the northern region of the State of Calakmul Reserve, that borders the Regional State of Rio Bec, showed occupation from the Middle to the Terminal Classic periods (Domínguez Carrasco et al. 2011). The 103 samples selected are both utilitarian and prestigious vessels, with the Sierra, Aguila, Balanza, Triunfo, Nanzal, Tinaja, Infierno, Maquina, Cambio, Encanto, and Saxche groups standing out for their frequency.



Fig. 2.2 Region of the State of Calakmul, Eastern region sharing borders with the State of Calakmul, Northern Guatemalan Peten and Calakmul's northern territories bordering with the Regional State of Rio Bec (map by Domínguez Carrasco, based on the information provided by Vela Ramirez 2010)

The samples of clay collected in the different study regions (37 samples) were characterized as having a homogeneous pattern in terms of their chemical composition, with montmorillonite clay appearing as one of the principal clays in the Peten, both in southern Campeche as well as northern Guatemala, unlike caolinite which was distributed through the northern part of the Yucatan Peninsula (Domínguez Carrasco 2008; Rodríguez Lugo et al. 2000) (Fig. 2.3). The ceramic samples analyzed presented variants in their chemical composition according to the different study regions (Domínguez Carrasco et al. 2005).

Presence and Distribution of Ceramic Traditions

A combination and comparison of the chemical analysis of the ceramic sherds and the clays revealed that during the Late Preclassic period ceramics from the Calakmul region as well as those from the region on the east of Rio Bec showed a great similarity with those from the south, mainly with the Guatemalan Peten, where the vessels seem to present the same manufacturing technique with forms and finishes similar to those represented by the Sierra, Polvero, Flor Crema, Achiote, and Sapote ceramic groups.



Fig. 2.3 Regional distribution of the identified clays (map by Domínguez Carrasco, based on the information provided by Vela Ramirez 2010)

However there are also ceramic materials from the northern region that exhibit a stronger relationship with the Rio Bec region, such as some varieties of the Flor Cream and Sapote groups as well as the ceramics from the Maxcanu group of this region.

From the chemical point of view the Red Sierra type presents a homogeneous manufacture in all the regions under study, based on carbonates and ceramic fragments which are generally present in clays with hematite, showing a visible defined ceramic tradition at the regional level. Nevertheless it is important to point out in the Sierra group ceramic from the north near the Rio Bec region the presence of a wide variety of ceramic pastes, of surface finish, and of thickness of the vessel walls that are not present in the other regions of this study. Ball (1977) likewise reported this aspect for the site of Becan. This indicates different ceramic productions, with the exploitation of a larger number of clay mines for this Rio Bec region.

The Early Classic period saw the rise of the Maya regional capitals, with Calakmul establishing itself as the capital of a new Regional State (Marcus 1973, 1976). The analyses of materials from this period in general indicate a strong filiation with the Tzokol sphere of the Guatemalan Peten, reflected by the high frequency of orange and black monochrome types belonging to the Aguila and Balanza ceramic groups, respectively, and polychrome ceramics from the Dos Arroyos group. There

is likewise a balance between the presence of ceramic traditions from the Río Bec and the Peten regions; this confirms the findings of Ferguson and Adams (2001) with respect to the cultural influence of the Calakmul sphere in the Regional State of Río Bec during what is characterized as a period of maximum autonomy for Río Bec. It is in this northern region and during this period that a large-scale local production of Flamboyán, that belong to the Aguila ceramic group, occurred; at the same time, its absence in the Calakmul region, in the eastern territories, and in the Guatemalan Peten confirms its restricted production and distribution within the Río Bec region and in the northern part of the Regional State of Calakmul.

The Late Classic period reflects a time of great cultural and demographic intensity in these regions. The high percentages of ceramic vessels and the wide variety of utilitarian and prestigious types manifest a moment of maximum cultural extension in the majority of the sites within the region under study. During this very same time period, the close similarity between the physical attributes of highly diagnostic ceramics types of Calakmul, like the Nanzal, Infierno, and Chinja Impreso, with those of the eastern region and the Guatemalan Peten, is indicative of the existence of patterns of regional ceramic traditions. On the other hand the expression of ceramic traditions shared by the Calakmul and Río Bec regions continues during this period through ceramic types that are absent in southern Calakmul, such as the Traino group that shows very important standardization and regionalization attributes.

With regard to the polychrome ceramics, we have also defined the presence of two widely spread and well-delimited ceramic traditions. The first formed by the Saxche and Palmar groups, and we will refer to it as the southern tradition, extended all the way to the Peten region, including the Regional State of Calakmul and its eastern section. This tradition was found in Becan as an imported good, the use of which was apparently very restricted, while it appears frequently in the Calakmul region as a result of a defined cultural relationship between Calakmul and the sites in the central Peten. The second tradition, formed by the Chimbote group, is distributed mostly through the Río Bec region, the Chenes and northern Yucatan. We refer to this group as the northern tradition as it had a minimal presence in the other study regions (eastern region of Calakmul and the Guatemala Peten).

The Terminal Classic period reflects a time of important changes in ceramics. New types were introduced from the regions of northern Yucatan, which underwent new forms of decoration upon their arrival at the region of Calakmul. The presence of Fine Orange, Fine Grey, Slate, and Thin Slate vessels is likewise found, demonstrating a closeness with the ceramic traditions of northwest Yucatan and the Usumacinta. Nevertheless a strong presence of ceramic traditions of the Peten persists, reflecting cultural relations between Calakmul and the study regions.

The Postclassic period, or Cehache Complex, is represented in Calakmul mainly by Mayapan type incense burners, some of which were produced locally while others show changes in the paste composition, shedding doubt on their origin as they also show chemical differences with the original incense burners from Mayapan. All of this indicates a relationship with the ceramic traditions of Mayapan and Dzibilchaltun through the imitation of their style, more than the importation of goods or the movement of people from the north to settle in Calakmul.

Movements of Populations in the Calakmul Region During the Classic and Postclassic Periods

According to the ceramic materials and considering the predominant power of Calakmul in the area encompassed by its Regional State, which influenced even more distant regions, as witnessed by the distribution of its emblem glyph (Marcus 1993, 2004), the Early Classic period saw an exceptionally strong regional presence from the political and social point of view through the flow of people and ceremonial and domestic goods both inside and outside its regional territory.

During this period, we found a distribution of the Calakmul ceramic traditions both in the northern section, i.e., the Regional State of Rio Bec, as well as in the south, encompassing almost all of the region of the Guatemalan Peten, and in the eastern part, including sites like El Palmar (Fig. 2.4). This indicates the broad cultural relationship held by Calakmul with its neighboring regions, despite the stronger autonomy of the Regional State of Rio Bec where sites that formed part of the Regional State of Calakmul, like Oxpeul, seem to have been under the influence of Rio Bec as the ceramic tradition recovered at the site seems to indicate.



Fig. 2.4 Population movement and flow of goods in the region of Calakmul during the Early Classic (map by Domínguez Carrasco, based on the information provided by Vela Ramirez 2010)

On the other hand, towards the south no particular aspects are observed in the ceramic traditions shared by Calakmul with the different sites that comprise the Peten region of Guatemala, including the ceramics of southernmost sites such as Barton Ramie (Gifford 1976). The data mentioned above lead us to infer a constant movement of populations from north to south and from east to west, where Calakmul is seen as a center of traditional ceramic production of monochrome as well as bichrome and polychrome vessels.

During the Late Classic period and considering the great cultural intensity and demographic expansion shown by Calakmul, the high percentages of ceramics and the wide variety of utilitarian and prestigious types indicate evident limitations in the distribution of types of ceramics, where Calakmul appears as a center that receives and transmits ceramic traditions (Fig. 2.5). This means that some of the traditions of the north reached Calakmul, where their designs are modified such as in the case of polychrome vessels, to give them their own style, without being present farther south. In the case of the traditions of the south we see a similar pattern, where types of ceramics from the Peten are identified in Calakmul, although they are absent in the region of Rio Bec.

This leads us to think of a well-defined regionalization process with the two regions controlled by Calakmul, perhaps as a result of the power exercised as the



Fig. 2.5 Population movement and flow of goods in the region of Calakmul during the Late Classic (map by Domínguez Carrasco, based on the information provided by Vela Ramirez 2010)

capital of a Regional State, where the production of goods seems to have represented a pattern of identity as can also be seen in the Naachtun site in Guatemala for earlier times (Patiño Contreras 2011), a model that has also been reinforced by the chemical–physical analyses on ceramics and clays of the region.

The chemical analysis performed on pigments from Oxpemul and Calakmul also shows diverse patterns in the presence of certain chemical elements that formed part of the pigment recipes that were applied as coatings to stele and altars at both sites and that coincide with the results obtained in this study. This may be the result of the marked autonomy and power shown by the different political entities of the Maya area during this period, which must have expressed themselves with the production of their own ceramic traditions, among other indicators. This was also the case of the codex-style vessels, whose chemical characterization placed them in pottery workshops and with artisans located in Nakbe or El Mirador and which were transferred to Calakmul as part of a power mechanism and political alliance.

During the Terminal Classic period, sources of the raw materials used to produce ceramic goods seem to have been located at shorter distances from the regional capital than in the previous period (Fig. 2.6). This also coincides with the rural demographics study based on ceramics collected in 75 sites, which shows an apparent movement of people towards the interior of the Regional State of Calakmul at the end of the Late Classic and during the Terminal Classic period, evidencing an abandonment



Fig. 2.6 Population movement and flow of goods in the region of Calakmul during the Terminal Classic (map by Domínguez Carrasco, based on the information provided by Vela Ramirez 2010)

of the northernmost sites of their regional territory (Domínguez Carrasco 2008; Folan et al. 1999).

This movement of populations is manifest also in the large architectural remodeling of the main facade of Structure II, considered one of the most important ceremonial civic buildings during the Early and Late Classic periods (Folan et al. 2007, 2010) and that shows a strong occupation during this period. The cultural materials allow us to infer the practice of different activities related to everyday life, completely transforming the function of the building and showing a clear political and social decadence of Calakmul as the capital of a Regional State.

Likewise, Calakmul does not show any evident occupation during the Postclassic period like the majority of the cities of the region. The scarce ceramic materials recovered, including Mayapan type incense burners and fragments of Slate type vessels similar to those of Muna ceramic group of Muna, Yucatan, were produced locally. We must remember that the principal urban activity in the northern regions of the Maya area during the Postclassic period seems to have centered in the walled city of Mayapan (Gill 2000). This informs us of the presence of a “ceramic mode” process, where the vessel finishes as well as the different elements of style were imitated, as we can see in the incense burners. It would appear in this sense that population movements to Calakmul were only carried out as pilgrimages, without constituting defined settlements (Fig. 2.7), as was the case of Chichen Itza which was an important



Fig. 2.7 Population movement and flow of goods in the region of Calakmul during the Postclassic (map by Domínguez Carrasco, based on the information provided by Vela Ramírez 2010)

pilgrimage destination during this period despite maintaining a strong occupation, or like San Gervasio or the island of Cozumel, which maintained large populations during the Postclassic period and which were both pilgrimage destinations or places used to practice rituals (Stanton and Magnoni 2008).

We have attempted here to transmit the importance represented by the study of ceramic traditions, including the analysis of typology and its corresponding chemical analysis, to infer population movements at the inter- and intra-regional levels through their continuity and/or discontinuity during the different periods in Mesoamerica. In this specific case, the study was applied to Calakmul as the regional capital and the area comprising it, from a chronological perspective that included its occupation from the Late Preclassic to the Terminal Classic periods.

References

- Ball, J. W. (1977). *The archaeological ceramics of Becán, Campeche, México*. Middle American Research Institute, Publications 43. New Orleans: Tulane University.
- Chung, S. H., Flores, J. J., & Morales, V. A. (1997). *Estudio petrográfico de las cerámicas de Calakmul. Informe de trabajo*. Report on file. Campeche, Mexico: Centro de Investigaciones Históricas y Sociales, Universidad Autónoma de Campeche.
- Chung, S. H., & Morales, V. A. (1999). *Estudio petrográfico de la cerámica arqueológica de Calakmul, Campeche*. Report on file. Campeche, Mexico: Centro de Investigaciones Históricas y Sociales, Universidad Autónoma de Campeche.
- Domínguez Carrasco, M. R. (2008). *Análisis químico y sociopolítico de producción cerámica prehispánica en la región de Calakmul, Campeche*. Colección Arqueología 6. Campeche: Universidad Autónoma de Campeche.
- Domínguez Carrasco, M. R., & Espinosa Pesqueira, M. E. (2009). Caracterización de cerámicas arqueológicas procedentes del sur y sureste de Campeche. In D. Mendoza Anaya, J. Arenas Alatorre & V. Rodríguez Lugo (Eds.), *La ciencia de materiales y su impacto en la arqueología* (Vol. IV, pp. 33–42). Mexico: Academia Mexicana de Ciencias de Materiales.
- Domínguez Carrasco, M. R., Espinosa Pesqueira, M. E., Rodríguez Lugo, V., Mendoza Anaya, D., Chung, H., Folan, W. J. et al. (2001). Estudio sobre la producción cerámica en el Estado Regional de Calakmul, Campeche, México: Análisis microestructural y cultural. *XIV Simposio de Investigaciones Arqueológicas en Guatemala* (Vol. 14, No. 2, pp. 789–805). Guatemala: Instituto de Antropología e Historia de Guatemala
- Domínguez Carrasco, M. R., Espinosa Pesqueira, M. E., Rodríguez Lugo, V., & Folan, W. J. (2002a). Resultado de los análisis por MEB-BV y DRX de cerámica arqueológica de Calakmul, Campeche. *XV Simposio de Investigaciones Arqueológicas en Guatemala* (Vol. 15, No. 2, pp. 543–554). Guatemala: Instituto de Antropología e Historia de Guatemala.
- Domínguez Carrasco, M. R., Espinosa Pesqueira, M. E., Rodríguez Lugo, V., & Folan, W. J. (2002b). Aplicación de petrografía MEB-BV y DRX a estudios de producción cerámica en el Estado Regional de Calakmul, Campeche. *Estudios Mesoamericanos* (Vol. 3–4, pp. 13–22). Mexico City: Universidad Nacional Autónoma de México.
- Domínguez Carrasco, M. R., Espinosa Pesqueira, M. E., Rodríguez Lugo, V., & Folan, W. J. (2003). La producción cerámica en el área maya: Propuestas de producción y especialización en el Estado Regional de Calakmul. *Los Investigadores de la Cultura Maya* (Vol. 11, No. 1, pp. 104–115). Campeche: Universidad Autónoma de Campeche.
- Domínguez Carrasco, M. R., Espinosa Pesqueira, M. E., Rodríguez Lugo, V., & Folan, W. J. (2005). Análisis físico-químico de arcillas y cerámicos del Estado Regional de Calakmul: Modelos de producción, distribución y consumo. In D. Mendoza Anaya, J. Arenas Alatorre

- & V. Rodríguez Lugo (Eds.), *La ciencia de materiales y su impacto en la arqueología* (Vol. II, pp. 143–165). Mexico: Academia Mexicana de Ciencias de Materiales.
- Domínguez Carrasco, M. R., Espinosa Pesqueira, M. E., & Folan, W. J. (2010). Los materiales arqueológicos de Oxpemul, Campeche y su contexto regional. *Los Investigadores de la Cultura Maya* (Vol. 18, No. 1, pp. 253–268). Campeche: Universidad Autónoma de Campeche.
- Domínguez Carrasco, M. R., Puc Tejero, L. C., & Folan, W. J. (2011). Oxpemul, Campeche: Un acercamiento a la temporalidad de su asentamiento. *Estudios de Cultura Maya*, XXXVII, 45–63. Mexico City: Universidad Nacional Autónoma de México.
- Domínguez Carrasco, M. R., Reents-Budet, D., Bishop, R., & Folan, W. J. (1998). La cerámica de Calakmul: Un análisis químico y sociopolítico. *Los Investigadores de la Cultura Maya* (Vol. 6, pp. 361–375). Campeche: Universidad Autónoma de Campeche.
- Ferguson, W. M., & Adams, R. E. W. (2001). *Mesoamerica's ancient cities. Aerial views of Pre-Columbian ruins in Mexico, Guatemala, Belize, and Honduras*. Albuquerque: University of New Mexico Press.
- Folan, W. J., Domínguez Carrasco, M. R., & Anaya Hernández, A. (2008). Calakmul, Campeche, Mexico: Development and decline in the Northern Petén: 1000 B.C. to A.D. 1600. In L. E. Grinin, D. D. Beliaev & A. V. Korotayev (Eds.), *Hierarchy and power in the history of civilizations. Ancient and medieval cultures* (pp. 163–188). Moscow: Russian Academy of Sciences, Russian State University, Volgograd Center for Social Research.
- Folan, W. J., González Heredia, R., Morales López, A., Domínguez Carrasco, M. R., Zamora Crescencio, P., Barnes, E., et al. (2009). Las ruinas de Oxpemul: Un sitio fortificado en la frontera entre el Petén campechano y el Río Bec. *Estudios de Cultura Maya*, XXXIV, 12–44. Mexico City: Universidad Nacional Autónoma de México.
- Folan, W. J., Morales López, A., Domínguez Carrasco, M. R., Chung, H., Gunn, J. D., González Heredia, R., et al. (1999). Acercamiento a la demografía rural del norte del Estado Regional de Calakmul. *XII Simposio de Investigaciones Arqueológicas en Guatemala* (Vol. 12, No. 1, pp. 355–384). Guatemala: Instituto de Antropología e Historia de Guatemala.
- Folan, W. J., Morales López, A., González Heredia, R., Domínguez Carrasco, M. R., Anaya Hernández, A., Gunn, J. D., et al. (2010). El Estado Regional de Calakmul, Campeche, México: Descubrimientos recientes. In A. Benavides Castillo & E. Vargas Pacheco (Eds.), *La península de Yucatán: Investigaciones recientes y cronologías alternativas* (No. 7, pp. 58–90). Campeche: Universidad Autónoma de Campeche.
- Folan, W. J., Morales López, A., González Heredia, R., Domínguez Carrasco, M. R., Anaya Hernández, A., Gunn, J. D. (2007). Calakmul, Campeche: El desarrollo de la Estructura II desde el Clásico Temprano hasta sus últimos días durante el Clásico Terminal. *Los Investigadores de la Cultura Maya* (Vol. 15, No. 1, pp. 37–145). Campeche: Universidad Autónoma de Campeche.
- García López, M. I. (2006). *Arqueología del sureste del Estado de Campeche a través de sus materiales*. B.A. Thesis. Mexico City: Escuela Nacional de Antropología e Historia.
- Gifford, J. C. (1976). *Prehistoric pottery analysis and the ceramic of Barton Ramie in the Belize Valley*. Memoirs of the Peabody Museum of Archaeology and Ethnology, Vol. 18. Cambridge: Harvard University.
- Gill, R. B. (2000). *The great Maya droughts: Water, life and death*. Albuquerque: University of New Mexico Press.
- Hermes Cifuentes, B. (2002). Síntesis preliminar de la ocupación prehispánica en el área central de Nakúm. *Beiträge Zur Allgemeinen und Vergleichenden Archäologie*, 22, 277–285.
- Hermes Cifuentes, B., & Contreras, A. (2002). Investigación arqueológica y trabajos de conservación realizados por el Proyecto Triángulo en el sitio de Poza Maya. *XV Simposio de Investigaciones Arqueológicas en Guatemala* (Vol. 15, No. 1, pp. 271–311). Guatemala: Instituto de Antropología e Historia de Guatemala.
- Hermes Cifuentes, B., & Martínez, G. (2005). El Clásico Terminal en el área de la Laguna Yaxha, Petén. *XVIII Simposio de Investigaciones Arqueológicas en Guatemala* (Vol. 18, No. 1, pp. 145–152). Guatemala: Instituto de Antropología e Historia de Guatemala.
- Marcus, J. (1973). Territorial organization of the Lowland Classic Maya. *Science*, 180, 911–916.

- Marcus, J. (1976). *Emblem and state in the Classic Maya Lowlands: An epigraphic approach to territorial organization*. Washington, DC: Dumbarton Oaks.
- Marcus, J. (1993). Ancient Maya political organization. In A. Sabloff & J. S. Henderson (Eds.), *Lowland Maya civilization in the eighth century A.D.* (pp. 111–183). Washington, DC: Dumbarton Oaks.
- Marcus, J. (2004). Calakmúl y su papel en el origen del estado maya. *Los Investigadores de la Cultura Maya* (Vol. 12, No. 1, pp. 15–31). Campeche: Universidad Autónoma de Campeche.
- Patiño Contreras, A. (2011). Orden, legitimidad y cerámica: Patrones de producción de alfarería durante el Clásico Temprano en el sitio Naachtún, Petén, Guatemala. *Los Investigadores de la Cultura Maya* (Vol. 19, No. 1, pp. 55–71). Campeche: Universidad Autónoma de Campeche.
- Rodríguez Lugo, V., De Mendoza, A. P., Espinosa, M. E., Chung, H., Domínguez Carrasco, M. R., Folan, et al. (2000). El Estado Regional de Calakmúl, Campeche, México: Su evidencia material y cultural. *Los Investigadores de la Cultura Maya* (Vol. 8, No. 2, pp. 324–336). Campeche: Universidad Autónoma de Campeche.
- Šprajc, I. (2001). *Reconocimiento arqueológico en el sureste del estado de Campeche, México. Proyecto de investigación*. Manuscript on file. Mexico: Direction of Public Archive of Monuments and Archaeological Parks, Instituto Nacional de Antropología e Historia.
- Šprajc, I. (2003). Reconocimiento arqueológico en el sureste de Campeche: Temporada 2002. *Los Investigadores de la Cultura Maya* (Vol. 11, No. 1, pp. 86–103). Campeche: Universidad Autónoma de Campeche.
- Šprajc, I. (2005). *Reconocimiento arqueológico en el sur de Campeche: Informe de la temporada de 2004*. Manuscript on file. Ljubljana: Scientific Research Center of the Slovenian Academy of Sciences and Arts.
- Šprajc, I. (2006). *Archaeological reconnaissance in southern Campeche, Mexico: 2005 field season report*. Manuscript on file. Ljubljana: Scientific Research Center of the Slovenian Academy of Sciences and Arts.
- Šprajc, I., García Cruz, F., & Ojeda Mas, H. (1996). *Proyecto de reconocimiento arqueológico en el sureste del estado de Campeche, PROCEDE*. Manuscript on file. Mexico: Direction of Public Archive of Monuments and Archaeological Parks, Instituto Nacional de Antropología e Historia.
- Stanton, T. W., & Magnoni, A. (2008). Places of remembrance: The use and perception of abandoned structures in the Maya Lowlands. In T. W. Stanton & A. Magnoni (Eds.), *Ruins of the past. The use and perception of abandoned structures in the Maya Lowlands* (pp. 1–24). Denver: University Press of Colorado.
- Vela Ramirez, E. (2010). Culturas prehispanicas de Mexico. *Arqueologia Mexicana*. Edicion Especial 34, 6–8. Mexico: Raices.

Archaeology and Bioarchaeology of Population

Movement among the Prehispanic Maya

Cucina, A. (Ed.)

2015, XIII, 159 p. 43 illus., 16 illus. in color., Softcover

ISBN: 978-3-319-10857-5