

Artistic Expressions in Maya Architecture: Analysis and Documentation Techniques

Expresiones artísticas en la arquitectura maya:
Técnicas de análisis y documentación

Edited by

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A new look at Maya Art and Architecture

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Abstract: *Prehispanic Maya architecture features a large variety of artistic expression, from reliefs and sculptures made of stone or stucco to mural paintings and graffiti found on the plastered surfaces of their walls and façades. All of this constitutes both an important artistic component which complements the architecture, and a new source of information about the people who built these buildings and those who lived within them. Unfortunately, in many cases, the artistic elements have begun to disappear because of centuries of environmental conditions that have caused the majority to become extremely fragile. For this reason, it is vital that innovative techniques are used during archaeological excavations and explorations which allow detailed records to be made immediately after the discovery of such ancient vestiges in order to preserve data for in-depth analyses now and in the future. We are convinced that we can make significant progress in increasing and sharing our knowledge of the artistic culture of the ancient Maya, and with this in mind, this chapter contains a summary of the participants' discussions during the Science Conference 'The Decoration of Maya Architecture. Innovative analysis techniques' whose individual reports comprise the contents of this publication.*

Resumen: *La arquitectura maya prehispánica presenta una gran variedad de manifestaciones artísticas, desde la creada por los mismos elementos arquitectónicos y constructivos hasta la realizada sobre la superficie estucada de sus muros y fachadas en forma de pinturas murales o grafitos, pasando por las notables decoraciones escultóricas de piedra o estuco. Todo ello supone un importante complemento artístico de la arquitectura y una fuente novedosa de información sobre los artífices de estas edificaciones y sobre la sociedad que las habitó. Lamentablemente, en muchas ocasiones se ha podido constatar que tras su descubrimiento se inicia la carrera de su progresiva desaparición, ya que la mayoría de estas expresiones plásticas, al ser expuestas a unas nuevas condiciones medioambientales, presentan una enorme fragilidad material. Por ello, es fundamental que durante las exploraciones y excavaciones arqueológicas se apliquen técnicas innovadoras que permitan una toma de datos pormenorizada de estos vestigios del pasado de manera inmediata a su descubrimiento, con el fin de obtener una información que posteriormente pueda ser reproducida y analizada. Convencidos de que con ello se logrará un gran avance para profundizar en el conocimiento y difusión de la cultura artística de los mayas antiguos, se presenta en este capítulo una síntesis de los debates surgidos durante la celebración de la reunión científica "La decoración de la arquitectura maya. Técnicas de análisis innovadoras", y de las principales aportaciones de los participantes en la misma, que constituyen el contenido de este volumen.*

One of the main challenges facing those responsible for researching and promoting Maya cultural heritage is to guarantee that it is properly preserved. This is not always easy due to the often destructive environmental situations in which the majority of the ancient Maya settlements are located, including on-going agricultural endeavors and urban development. We must also consider the damage caused by various kinds of human activity, particularly looting of the ancient sites as well as the difficulty of access to many of these locations which makes follow-up and maintenance work impossible.

When Maya buildings begin to fall into ruin, the most affected part is the 'skin', that is, the exterior cladding of the building upon which is found the decorative artistic features. In their heyday, these features would have formed part of an iconographic programme of artistic forms carefully created by the people who built them, including reliefs, paintings, sculptures and other narrative expressions such as graffiti. Typically only remnants of these features are partially preserved (Fig. 1).



Fig. 1 Artistic remnants in the Great Plaza of Copán, from an engraving by F. Catherwood. (After Catherwood 1993: Lám II).

With these difficulties in mind, a Science Conference was held in Vienna, Austria in 2012. The purpose was to provide a forum where we could discuss the techniques for documentation and analysis of architectural decorative remnants in use by a variety of research teams currently working in the Maya area. Given the problems at hand and the often high cost of recording and preservation approaches, the forum allowed the participants to share experiences and reflect on their respective results -both successful and less than optimal. This publication presents selected studies chosen from the forum, all of which have undergone a rigorous peer review process.

One of the first issues that arose during our discussions concerns terminology, beginning with choosing the most appropriate term for the collection of artistic expressions created on the 'skin' of Maya buildings. Neither 'decoration' nor 'ornamentation' -which we understand to mean a set of secondary elements which embellish something¹ - seemed appropriate. Dominique Michelet pointed out that both these terms, although convenient, could be misleading² in the case of Maya architecture where elements traditionally catalogued as decorative

are by no means of secondary importance. Rather, they are intimately entwined with the very conception of the architecture and both its function and intended purpose. This is explained very well by Miguel Rivera in Chapter 7, which examines the so-called "Common monsters" prevalent in the architecture of Yucatán.

Therefore, in previous works³ we had always insisted on examining three crucial areas during an initial classification and interpretation of Maya buildings including the technology used in construction, the function or type of building, and its formal aesthetics. The consideration of the formal aesthetics involve not only analyzing and interpreting the decorative elements integrated in the architecture but also considering their intentional use and how the aesthetic treatment may have stirred the senses or aroused the imagination.

In short, as is normal in discussions about terminology, it is not always easy to lay down terms which satisfy everyone and meet all the considerations mentioned so far. Hence we have opted to call this publication *Artistic expressions in Maya architecture. Analysis and documentation techniques*, which best describes the contents of the

1 According to FATÁS and BORRÁS 1993: 179.

2 See STRAULINO *et al.* within this publication: Note 1.

3 VIDAL and MUÑOZ 1993; VIDAL 1996-1997.

book. Its chapters may be grouped into three thematic areas according to the main artistic category examined in each one: graffiti (Chapters 2 to 6), reliefs and architectural sculptures, particularly ‘masks’ (Chapters 7 to 12), and mural painting (Chapters 13 and 14).

The publication contains a diverse range of analysis and documentation techniques ranging from the most traditional, typically adopted *in situ* during reconnaissance visits to archaeological sites or in urgent cases, to the most sophisticated which require the use of new technology and many hours of analytical work to process the data recorded in the field. In addition, the authors outline the measures taken to consolidate or restore buildings in order to preserve the artistic expressions for later documentation and analysis.

An example of the use of a traditional technique in the preliminary phase of registering Maya graffiti is the application of digital photography outlined by Karl Mayer in his interesting study of the graffiti of Kakab. Mayer was able to document with considerable success the abundant graffiti engraved on the walls of Structure 1 of this Maya settlement in Yucatán. In his introduction, the author uses the term graffiti and refers to the *First International Workshop of Prehispanic Graffiti. Maya Graffiti*, held in Valencia in 2008 and which set the wheels in motion for the subsequent Science Conference in Vienna four years later. At the Valencia workshop, the creation of a database of Maya graffiti (*Base de Datos de Grafitos Maya-BDGM*) was proposed, and Chapter 2 of this publication outlines the development of the database.

The workshop and publication on Maya graffiti⁴ underscored the need to register, document, and preserve these unique manifestations of Maya art, most of which are fragmentary, fragile, and difficult to preserve. Fortunately, many new sites with graffiti have been discovered in recent years, and these have been appropriately documented and thus preserved for future study, a notable example being the graffiti at a residential building in Tz’ibatnah, Petén, Guatemala. This is outlined by Milan Kováč in Chapter 4, and he proposes a curious interpretation of the graffiti.

Chapter 5 features Jarosław Żrałka’s discussion of the advantages of comparative studies of graffiti from other cultures, such as Egyptian, Greek, Roman, and even medieval European forms which may allow us to make deductions to better understand exactly how the graffiti were created and how to interpret them. Similar to the conclusions of other contributors to the Maya graffiti publication⁵, both Kováč and Żrałka presume that the graffiti were, in most instances, drawn by the inhabitants of the buildings where they were found. This assumption dispels the old hypotheses interpreting the drawings as those of the so-called «barbarians» of the Postclassic period as well

as highlighting how much we can learn about the everyday life of the ancient Mayas from studying the graffiti (Fig.2).



Fig. 2. Graffiti representing a member of the elite, from one of the palaces of the Acropolis at Chilonché. (Drawing by M. Á. Villanueva, PLB 2012).

Chapters 2 through 5 also examine the many difficulties of preserving graffiti and making them available to visitors to the sites, hence the importance of producing on-site didactic material and other sources of information for both the public and the academic community like the database mentioned earlier (the BDGM) and the closely linked project outlined by Andrea Peiró and Nuria Matarredona in Chapter 6. These authors discuss new virtual re-creation technology as a tool for research and data dissemination which they have undertaken for the palaces of the Acropolis at La Blanca. This technology allows us not only to show the current condition of the graffiti, but also to show them as they would have appeared to the ancient

⁴ VIDAL and MUÑOZ (Eds.) 2009.

⁵ PATROIS and NONDÉDÉO 2009: 44; VIDAL and MUÑOZ 2009: 115-11. See also STRAULINO *et al.* within this publication.

Maya. This technology requires a long time to process data, but the result is so effective that it is difficult to imagine doing without it today when sharing information about archaeological sites with specialists, the general public, and especially local people who live near the sites.

One proposal for creating a synergy between traditional methods and new technology for documenting Maya architecture is the methodology outlined in Chapter 9 by Manuel May and Beatriz Martín, members of the Cultural Heritage and Development Cooperation research team⁶. Via a number of case studies, they illustrate examples of this methodology whose development began in 2009. The approach combines the use of traditional methods (i.e., measurements taken by hand with metric tape and a laser distance measurer) with photogrammetric techniques and the generation of 3D models. The case studies chosen by the authors are focused primarily on elements of unquestionable aesthetic value such as the graffiti of Building N at Nakum and the mask at Chilonché.

One recent form of technology that can be used for documenting and disseminating cultural heritage in all shapes and sizes is the laser scanner. Although the use of laser scanning to analyze architectural façades and sculptures can be traced back to the 1990s in Europe⁷, it has only recently been used in Maya architecture, and the La Blanca Project is one of the prime projects in the Maya area to have pioneered the implementation of laser scanning during fieldwork at the sites of La Blanca and Chilonché. Thanks to these scans, we now have vital information on two exceptional pieces of art from both sites' acropolis structures -the aforementioned mask at Chilonché, which was difficult to record and preserve due to the space restrictions of the excavation tunnel where it was discovered, and the La Blanca frieze with a mask in Substructure 6J2-Sub.2. This frieze needed to be documented immediately during the field season due to the requirements of the excavation project and the myriad conservation issues concerning fragile stucco. The laser scanner was the most suitable solution in both instances, and we discuss the two applications in Chapter 8.

In Chapter 8, we also explore the symbolism of the artistic elements on the façades of Maya buildings, because, in addition to making the buildings more visually attractive they allow ideologically charged messages to be transmitted. As mentioned, this is dealt with in the chapter by Miguel Rivera as well as in the two chapters dedicated to Río Bec (Chapters 10 and 11). The authors of these two chapters are members of the French project which worked at the site between 2002 and 2009. They also place special emphasis on the need to use appropriate registration measures when it comes to replacing fallen or partly-

destroyed fragments of sculptures from façades and crests on the buildings in the Río Bec micro-region. We are of the same opinion as the authors; if one fails to apply rigorous documentation and analytical measures, one runs the risk of betraying the true content of these coded messages, both in terms of restoration and interpretation. Inaccuracies in either case causes irreparable and irreversible damage to the archaeological record as is well known to have happened at a number of Maya sites including the famous example of the hieroglyphic staircase at Copán (Fig. 3).



Fig 3. Reconstruction drawing of the hieroglyphic staircase at Copán by T. Proskouriakoff. (After Proskouriakoff 1976: 37).

The difficulties of restoring and enhancing the reliefs and stucco masks which are so abundant in Maya architecture (Fig.4) is outlined in Chapter 12, featuring the discovery and reconstruction of a mask in Group H North at Uaxactún. There is a wide range of criteria for restoration work in Maya architecture -both in the past and the present day-, and in many cases, a wide range of techniques is employed to ensure the preservation of Maya architecture. In the case of the masks at Uaxactún, following a long discussion of various different methods, it was decided to experiment by partially restoring and then reburying the masks for a year and a half, followed by a detailed inspection to assess whether this method is appropriate or not.

⁶ This research team is led by Gaspar Muñoz Cosme, from the Instituto de Restauración del Patrimonio of the Universidad Politécnica de Valencia (the IRP).

⁷ For an example of this, see *The Digital Michelangelo 3D Digital Project* (Levoy et al. 2000).

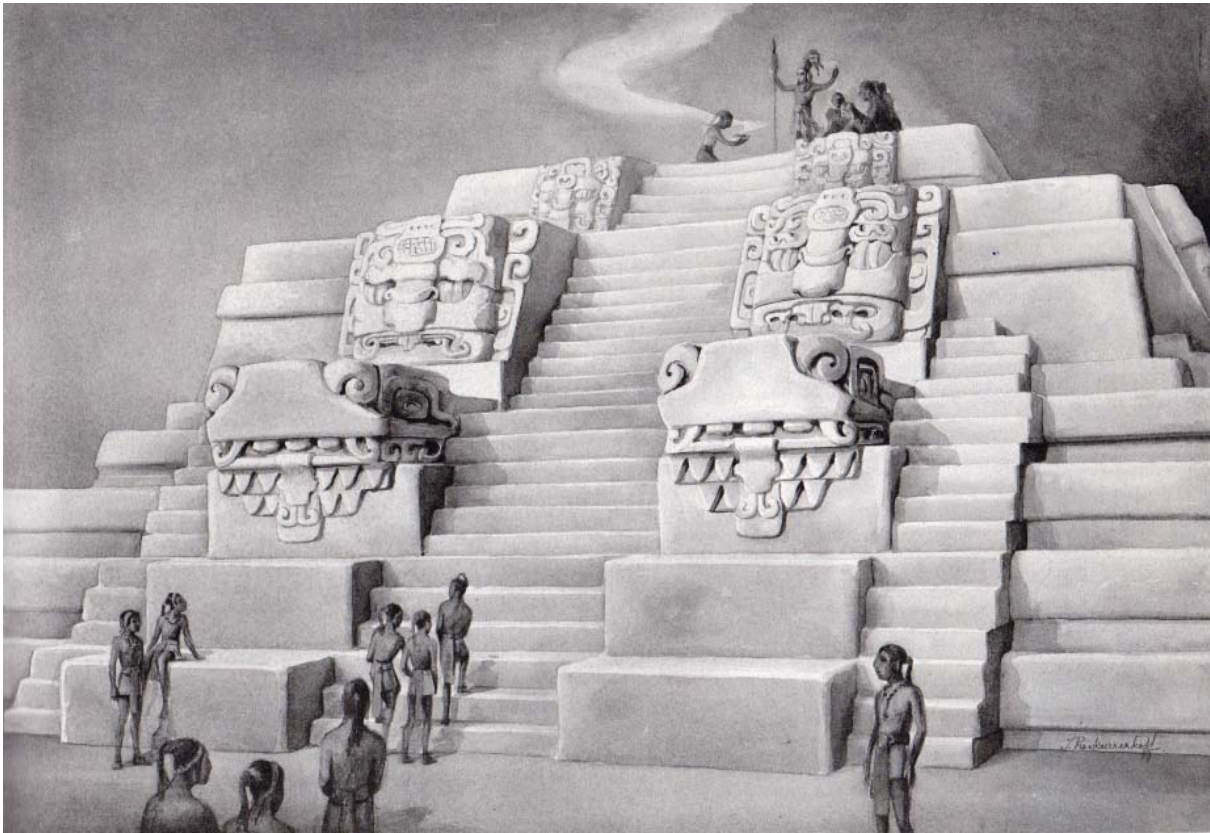


Fig 4. Reconstruction drawing of Structure E-VII sub at Uaxactún by T. Proskouriakoff. (After Proskouriakoff 1976: 5).

A system for protecting graffiti and other ornamentation is proposed in Chapter 10 discussing the architectural decoration at Río Bec. Here the authors propose covering the graffiti with various materials and then protecting them behind a wall. This solution has already been used at other Maya sites, although it does raise the issue that despite assuring the preservation of the artistic features it also conceals them from the visitor and makes it difficult to get a sense of what the buildings and architectural spaces originally looked like.

Another sublime artistic element found in Maya architecture is mural painting, although unfortunately very few have survived to the present day (Fig. 5). Extensive evidence does exist of paintings on building exteriors, generally in the form of red stucco cladding. However, it is the painted interiors of palaces and temples that would have been spectacular, the pictorial imagery depicting figurative scenes featuring human and supernatural beings and hieroglyphic inscriptions in a wide variety of colours. As mentioned, only a small number has survived or been preserved.



Fig 5. Mural painting at Uaxactún (Str. B-XIII). Drawing by A. Reséndiz from the reconstruction painting made by the artist A. Tejada as the murals have not survived. (After De la Fuente coord. 1999: fig. 101).

One of the most recent discoveries is the mural at Chilonché, which was found in 2011 in one of the Late Classic palaces of the Acropolis, its discovery resulting from an attempted looting of the building. In Chapter 13, we outline the analysis and documentation techniques used by the La Blanca Project to ensure that this mural is appropriately studied and preserved. This is preceded by a detailed account of the archaeometric techniques that have been used for over a century in studying the materials and techniques of Maya mural painting. In the case of Chilonché, thanks to the use of the most innovative archaeometric techniques, we have been able to determine the original painting technique used to create this mural and the manufacturing process that the painters followed to prepare the mural's various pigments.

These sophisticated techniques -particularly electro-chemical, together with microscopic and spectroscopic analyses- have also allowed us to make considerable progress in the study of the ancient Mayas' most revered colour: Maya blue. Chapter 14 contains a summary of the research on this famous material as well as the latest results from laboratories at the University of Valencia and the Polytechnic University of Valencia pertaining to the manufacturing process for not only Maya blue but also related green and yellow pigmentations stemming from a common preparative procedure.

At the beginning of this introduction, we briefly mentioned the difficulties in preserving Maya architecture, particularly the 'skin' of the buildings. We are convinced that the variety of analytical and documentation techniques presented by the contributors to this book will be a useful reference for other researchers addressing similar situations. These techniques have allowed us not only to gain a deeper knowledge of Maya artistic elements from an interdisciplinary point of view but also to contribute to the preservation of this extraordinary cultural heritage by sharing the knowledge gained by these projects with archaeologists, art historians, conservators and other materials scientists, government officials, and members of the general public (Fig. 6).



Fig 6. Consolidating and documenting a relief in the inner courtyard of the Acropolis at La Blanca, while inhabitants from a local community look on. (Photo by A. Peiró. PLB 2008).

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References

- CATHERWOOD, Frédérick, 1993. *Les Cités Mayas*. Bibliothèque de l'Image, Paris.
- DE LA FUENTE, Beatriz (Coord.), 1999. *Pintura mural prehispánica*. Conaculta, México.
- FATÁS, Guillermo and Gonzalo M. BORRÁS, 1993. *Diccionario de términos de arte*. Alianza, Madrid.
- LEVOY, Marc, Kari PULLI, Brian CURLESS, Szymon RUSINKIEWICZ, David KOLLER, Lucas PEREIRA, Matt GINZTON, Sean ANDERSON, James DAVIS, Jeremy GINSBERG, Jonathan SHADE and Duane FULK, 2000. The Digital Michelangelo Project 3D scanning of large statues. In *Siggraph 2000, Computer Graphics Proceedings*, Annual Conference Series, K. Akeley (Ed.), pp: 131-144. ACM Press, Addison Wesley Longman.
- PATROIS, Julie and Philippe NONDÉDÉO, 2009. Los grafitos mayas prehispánicos en la micro-región de Río Bec (Campeche, México). In *Los grafitos mayas*, C. Vidal and G. Muñoz (Eds.), pp. 29-59. Cuadernos de arquitectura y arqueología maya 2. Editorial UPV, Valencia.
- PROSKOURIAKOFF, Tatiana, 1976. *An Album of Maya Architecture*. University of Oklahoma Press, Norman.
- VIDAL LORENZO, Cristina, 1996-1997. Arquitectura maya: un nuevo enfoque para la clasificación estilística de los edificios del Norte de Yucatán. *Ars Longa*, 7-8: 15-31.
- VIDAL LORENZO, Cristina and Gaspar MUÑOZ COSME, 1993. Nuevas aportaciones a la evolución arquitectónica en el área Puuc. In *Perspectivas antropológicas en el mundo maya*, M^a J. Iglesias and F. Ligorred (Eds.), pp. 225-236. Sociedad Española de Estudios Mayas, Madrid.
- VIDAL LORENZO, Cristina and Gaspar MUÑOZ COSME, 2009. Los grafitos de La Blanca. Metodología para su estudio y análisis iconográfico. In *Los grafitos mayas*, C. Vidal and G. Muñoz (Eds.), pp. 99-118. Cuadernos de arquitectura y arqueología maya 2. Editorial UPV, Valencia.
- VIDAL LORENZO, Cristina and Gaspar MUÑOZ COSME (Eds.), 2009. *Los grafitos mayas*. Cuadernos de arquitectura y arqueología maya 2. Editorial UPV, Valencia.