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TYPOLOGIES AND CONSTRUCTION SYSTEMS IN THE MAYA ARCHITECTURE OF PETÉN

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No doubt, Maya architecture is a major cultural expression which features an exceptional development and profound bonds between all the examples known, from Comalcalco to Copan, and from the Pacific Coast to the Caribbean waters; but in order to grasp its essence and roots it is necessary to go deep into the backgrounds and origins of the Maya way of doing architecture, or in another words, into their construction systems and the typologies they present (Figure 1).

Figure 1. Walls and vault remains at Comalcalco, Tabasco, Mexico.

In fact, these invariants that remained after apparent formal and iconographic changes in the different areas or regions took place are the ones that grant them cultural unity and allow for ascribing, without the hint of a doubt, one particular building to that which is understood as Maya architecture. This is corroborated whenever the construction systems used are analyzed, to see that they adjust to the particular characteristics of each period of time and of each place, though always underlying the architectural creation as a clear reflection of the technologies available and of what constituted their cultural identity. Therefore, in moving forward in the description and identification of the different construction systems, we shall be able to establish the backbone of the possible crucial traits of their architecture, tinged in each place and situation with the corresponding ornamental and stylistic variables (Figure 2).

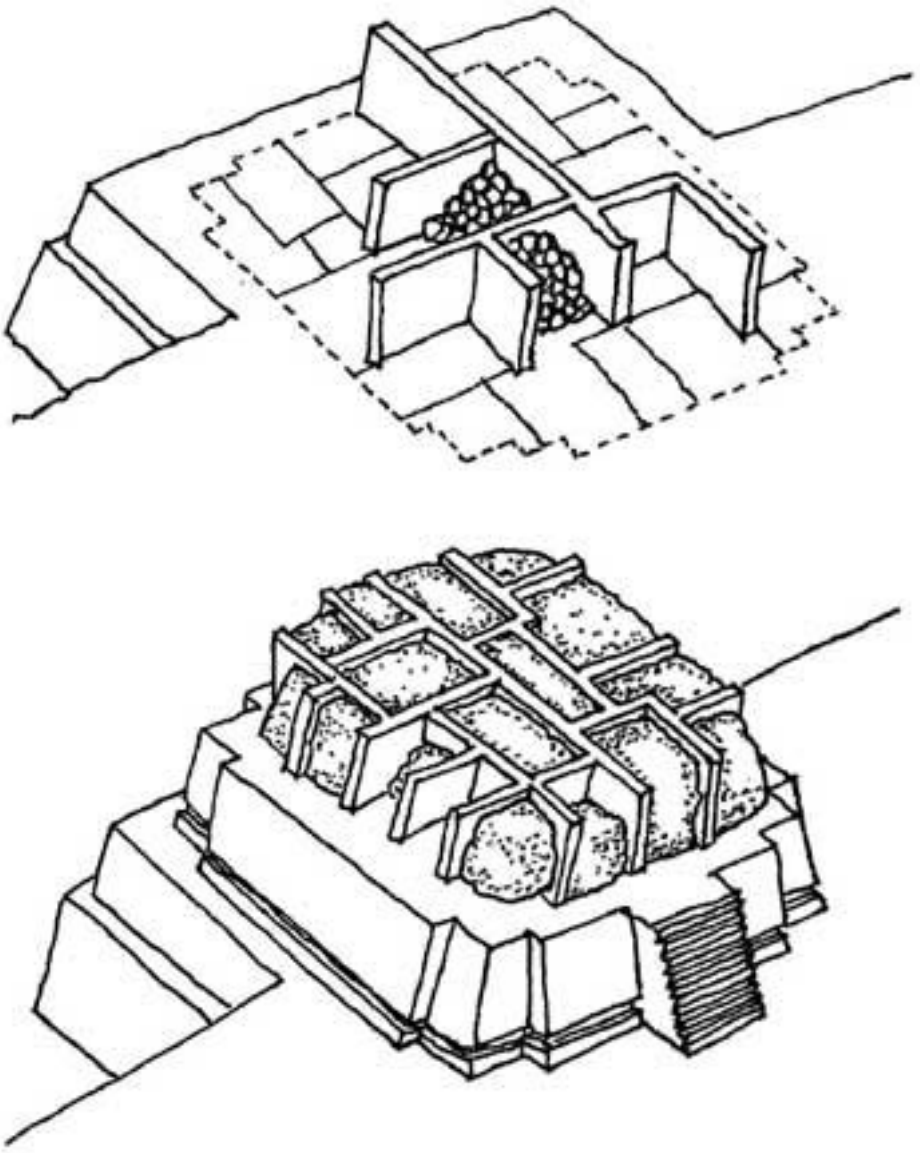

Figure 2. Scheme of the construction system of small boxes (drawing by the author).

If, simultaneously, an attempt to establish a relationship between the construction systems used in each moment and the different architectural typologies is made, a structure will begin to take shape which will allow us to understand in a much more coherent way, the concepts and the formulation of Maya architecture during its Classic period. The focus, in this case, was placed on several such typical traits present in one of the areas featuring the greatest architectural wealth in the Maya area: Petén.

MAYA ARCHITECTURE IN PETÉN

Maya architecture in Petén displays some of the most outstanding characteristics of an evolution that gives way to that which could be denominated a classic formulation of architecture. It has been called this way in immediate comparison with other architectures, such as the Greek or the Roman, wherefrom the term “classic” derives, and somehow, this is conveying a meaning of harmony and proportion of forms. The origins appear with a remarkable vigor in the Late Preclassic period, as shown in splendid temples found at places such as Nakbe, El Mirador, while in other cities such as Tikal and Uaxactún, that which would later become one of the most extended and fruitful architectural occupations was in its very earlier stage.

Some authors differentiate what they call the nuclear architecture from Central Petén from the architecture built in the northern area in places like Calakmul, Xultun, El Mirador and others, though perhaps such differentiation responds to a greater knowledge and study of the architectures existing in Tikal, Uaxactún, and their nearby surrounding areas. The minute studies and excavations accomplished in Uaxactún by the Carnegie Institution and the works of the Pennsylvania University Museum at Tikal have been two crucial landmarks in the recent research history of the Maya culture. The results obtained have yielded comprehensive information of an outstanding descriptive quality regarding the architecture of both these cities. But architecture at Petén is much more abundant. There are countless sites and buildings that have not been for now fully documented, while the research works of identification and classification of such architectures are still in a preliminary stage.

In this sense, it is important to outline the recent contribution of Óscar Quintana and Wolfgang W. Wurster to the study of Maya cities located in north-eastern Petén through a detailed study, the result of huge research and field works that addressed succinctly and very graphically the typological classification of urban spaces and some particular architectural traits found at 64 cities located in the north-eastern quadrant of Petén, a territory with an extension of 10.000 km2. The minute comparative study expressed in some of the charts allow for extracting several preliminary conclusions in regard to the architectural practices of the Classic Maya architecture of Petén, and the extension and dissemination of their models and patterns.

Figure 3. Building 1, Corozal Torre, Petén.

Besides, a methodical study of the construction systems observed in Petén as well as in the broader Maya area, will result in a deeper understanding of architecture and in our capability of more correctly applying the different anticipated conservation and restoration techniques on these buildings. No doubt, it is common knowledge that once the Maya buildings are excavated and restored, they are at the worst moment of their extended lives. After 300 or 400 years of active life and ten centuries of sleeping a dream under the ground, the rubble and the vegetation, these buildings, throughout a revalorization process that will make it possible to exhibit them once again, must deal with the difficult balance of overcoming their ruinous state, lacking the systems of protection they originally had, and within a very aggressive environment. Heavy rains, abrupt changes of temperature, fertile vegetation with deep roots that penetrate and remove their entrails, are all realities contributing to the fragility of their conservation. This is the most dramatic moment of their life, with an added number of variables of human origin that intensify this situation even more. We are referring to different cases of lootings, which guided by the ambition of obtaining ceramic pieces or other objects, produce serious and at times irreversible damages in the cultural legacy. Works aimed at protecting and

preventing damages are indispensable and very necessary for the conservation of this valuable cultural patrimony, which, for being so scattered and abundant, makes its protection very difficult (Figures 3 and 4).

Figure 4. Looting tunnel in Building 1, Corozal Torre, Petén.

These buildings that suffered environmental erosion, human aggression, or a combination of both, need urgent intervention. But these operations of rescue, consolidation and restoration must be conducted based on a profound knowledge of the original construction systems, of the materials used, and of the typologies that are at the origin of their design (Figure 5). Everyone has had the opportunity to observe some solutions enforced in earlier restoring interventions, which have now proved more destructive than beneficial, and which after several years need new interventions to remove the solution enforced first. Therefore, progress regarding our knowledge of the construction systems, of the construction materials used, and how builders obtained them, appears to be necessary and urgent for laying the foundations of the intervention and restoration criteria of Maya architecture in Petén (Figure 6).

Figure 5. Fallen tree, Topoxte, Petén.

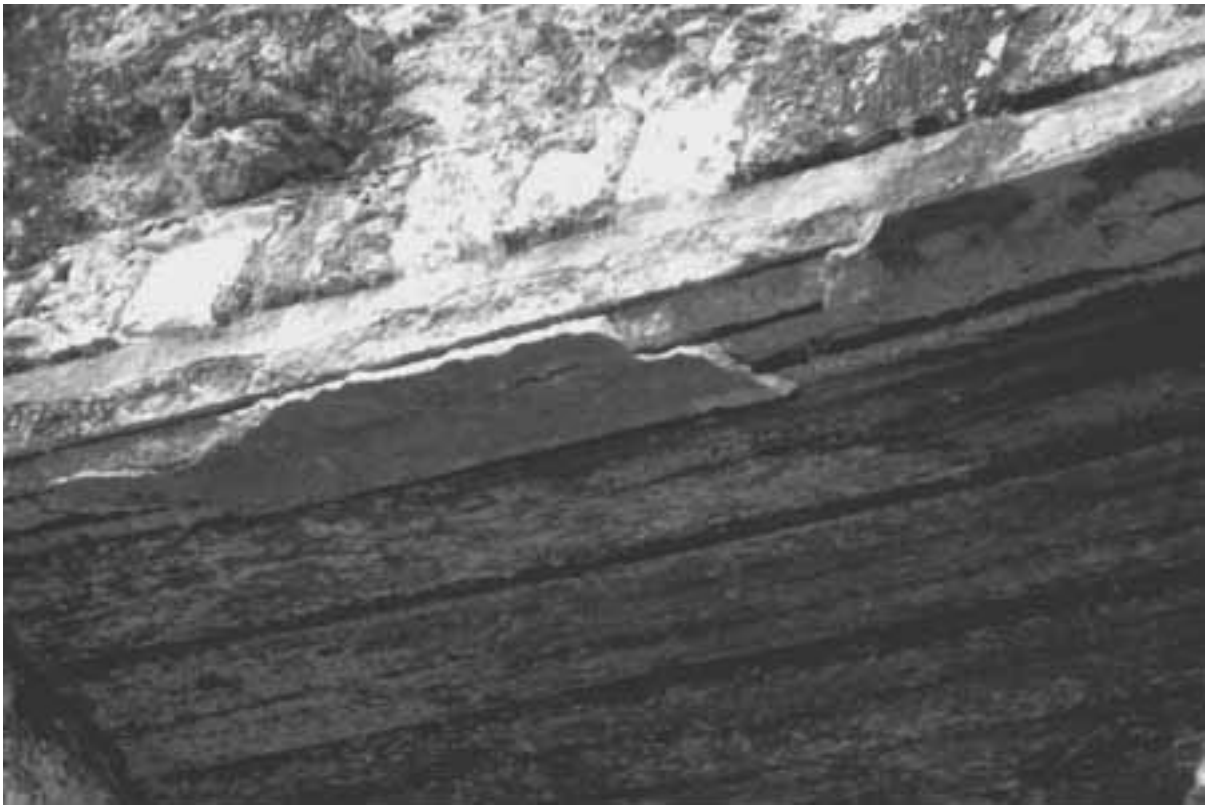

Figure 6. Lintel of Temple IV, Tikal, Petén.

CHARACTERISTIC FEATURES

There is a number of characteristic features in the Maya architecture of Petén which perhaps have contributed to make it more widely acknowledged, as is the case of the huge roof combs, the large stepped, massive foundations, the passageways, the approximation vaults with different characteristics, and very particularly, the four-sided vaults or vaults with a square plan observed in a number of sites. No doubt, we should add other solutions for city planning that show repetitive groupings of buildings to form singular urban spaces. But then, we should be introducing ourselves in a different field in the sphere of urban design with great possibilities of analysis and development, an effort that must await a later stage of works (Figure 7 and 8).

Figure 7. Roof comb of Temple III, Tikal, Petén.

In this sense, it is necessary to go deep into the classification and study of all these examples of architecture, analyzing them with the broadest methods and criteria to achieve an adequate classification and definition of the construction systems and the typologies involved. To such purpose, we are posing an analytic method already presented elsewhere, but which could become the basis for the systematic study of Maya architecture in Petén.

Figure 8. Four-sided vault, La Blanca, Petén.

METHODOLOGY OF ANALYSIS OF MAYA ARCHITECTURE

Since the initial explorations, the will to describe and classify Maya architecture has existed, a will reflected in graphic examples found in archives and museums that include the Palenque drawings made by Antonio Bernasconi in 1785, or the examples of Eusebio Lara's drawings sketched during the expedition of Colonel Modesto Méndez to Tikal in 1848. In the past years, many methods and systems have been used to establish an analysis that would help to create a classification and organization of architecture in the Maya area. Almost always, attempts were made to use a number of formal, decorative or constructive aspects to then provide a temporal or stylistic framework for some particular building or structure. Often times, as well, scholars have turned to a number of auxiliary subjects of an archaeological character such as ceramics, associated objects or other data recovered through deep excavations, in an attempt to provide information and a reliable dating for such constructions.

Nevertheless, it is only logical to think about the need to establish a method for architectural analysis, one with a certain degree of autonomy and independence,

and one based on a number of crucial points of view fit to provide an adequate classification of Maya architecture, with the possibility of further accomplishing all the analytical corroborations of the materials used (mortars, woods, C-14, human remains, ceramics), aimed at confirming the veracity of the hypotheses established. For this reason, the most sensible approach, in our view, consists in establishing privileged points of view fit to summarize the major variables present in Maya architecture, to thereafter analyze the buildings and to obtain a systematic framework of the characteristics present that would enable us to connect them with other buildings in the surrounding areas, understanding the principles and objectives the original builders and dwellers had.

It is indeed known that the evolution of construction systems is crucial for the historic process, though not always should it be inferred that architecture has gradually followed the guidelines of these progresses in a linear manner, while it is also known that often times there were situations of return or reversion to earlier technologies or forms, notwithstanding the availability of more advanced technologies.

After an extended experience in the Maya area, four pathways appear like the most adequate for architectural analysis; these, like four points of observation may make it possible to classify and interpret the buildings based on the perception and measurement of the architecture, as well as on the interpretation founded on the cultural backgrounds of the observer. These pathways may be expressed as follows: construction technology, functional typology, formal aesthetics, and symbolic content. Jointly with temporal and territorial variables, they will allow for establishing an orderly general classification.

Construction technology must be the first aspect to consider in the analysis of a given building. The application of this aspect involves the observation of the different construction and structural features such as walls, vaults, closures, pillars, columns, etc., and the different solutions adopted to solve the different construction problems. An evolution towards more complex and advanced systems is always presumed, even when regressive stages may exist as a consequence of external reasons; thus, we start from the standpoint that once a certain stage of knowledge and practice has been achieved, it is always possible to use earlier, simpler systems.

The functional typology starts as of the architectural concept of “type”, understood as the repetition of formal solutions that consolidate one way of resolving specific needs. The way of conducting a study will be based on the analysis of distributions and compartmentation of the different buildings, as well as of the juxtaposition of the different parts that constitute a functional architectural unit. Therefore, bays are studied, together with the number of rooms or halls, the connections between them, the outer doorways, the number of floors or stories, the room dimensions, the orientation, and the overall structuring of the building. It will also be indispensable to study the urban groups and the outer spaces generated between one another.

This begins with a first generic classification of palaces, pyramid temples, Ballgames, markets, labyrinths, etc., though it will be necessary to gradually provide more details and to enhance this classification in the development and analysis of buildings. Formal analysis, from the aesthetic and compositional point of view, leads

the way to study the special and formal conception of the building in its widest sense, searching for its perceptual link with the solutions adopted for its construction.

Surfaces skilfully treated to show perfect levels, articulation of interior spaces and their designs, repetitive or single decorations characterizing the façades, facings and interior treatments and all those details that are more focused on the feeling of the observer than on the solving of a construction problem, although at times, both things are compatible. No doubt, at different times these factors somehow became independent of the constructive and functional ones, achieving a significant leading role in Maya architecture. In others, perhaps, they may have acted as boosters of new techniques to achieve a greater refinement and aesthetic quality of the finishing.

The symbolic content leads us to study the different iconographic representations present in architecture, as well as the possible meanings of the buildings derived from their placement or shape, and their relationship with other urban buildings or spaces within the city or the surrounding areas; this would seem a crucial matter to provide an explanation for some of the characteristics of Maya architecture (Figure 9). Issues of orientation, shadows cast by the sunlight at different times of the year, relative position with respect to other buildings for the observation of stars, images represented or references made by means of symbols of cosmogonic myths, are, among others, so relevant for this culture that they are present in almost the totality of its most representative buildings, and without the knowledge of them, it would be very difficult to explain some of the more outstanding characteristics they reveal (Figure 10).

All this could be accomplished by means of a system for collecting direct information from the different buildings, to further create a comprehensive database temporally and geographically organized. The repetition of models and systems could lead to establishing a general and accurate classification of both the construction systems and typologies of Maya architecture. This is a difficult thing to do, but indispensable if one ultimately wants to structure and to gain a thorough knowledge on one of the most amazing examples of architecture, the Maya architecture of Petén.

Figure 9. A mask from Labná, Yucatán, México.

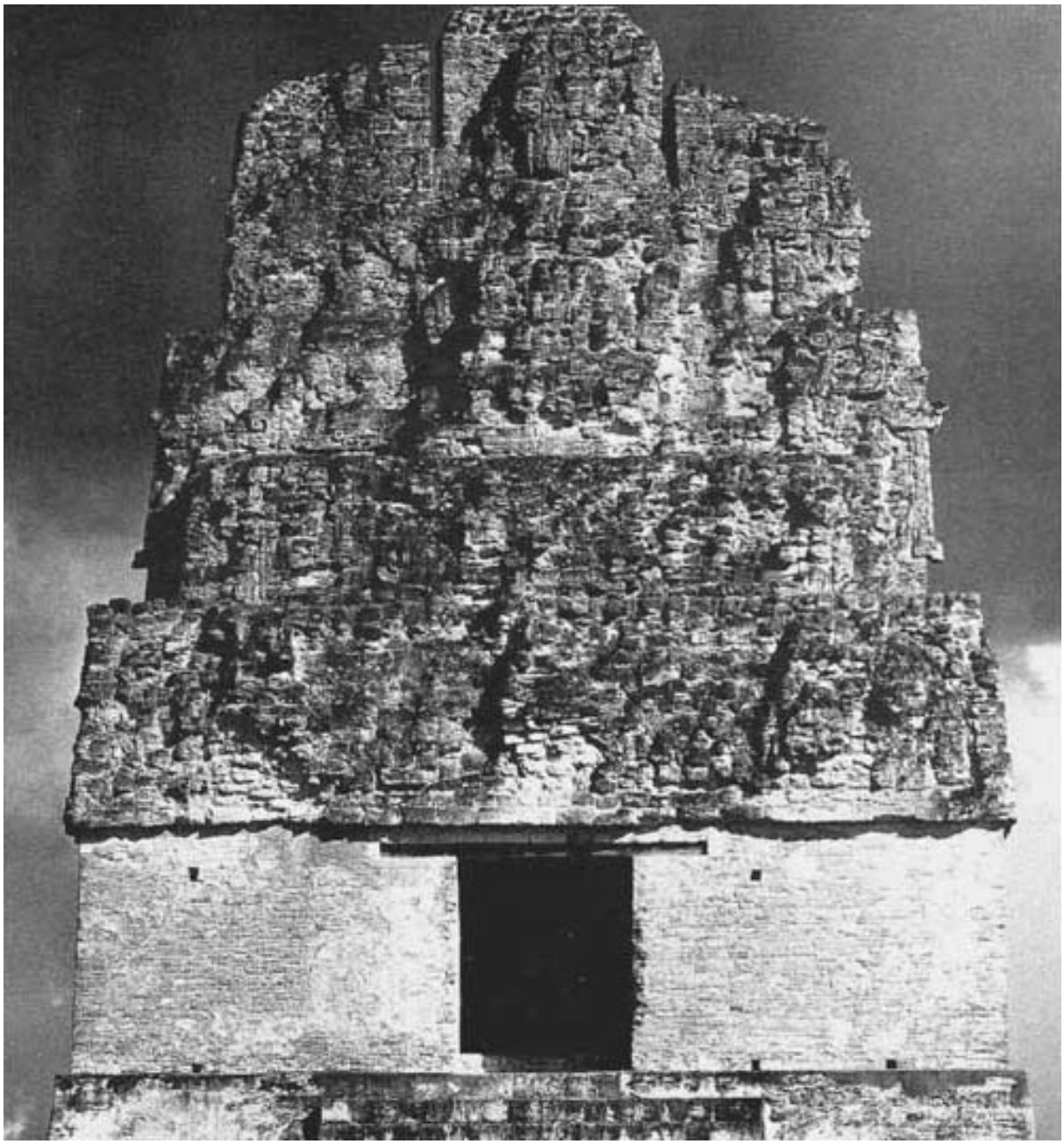

Figure 10. Roof comb of Temple 1, as shown in a photo of the University of Pennsylvania Museum.