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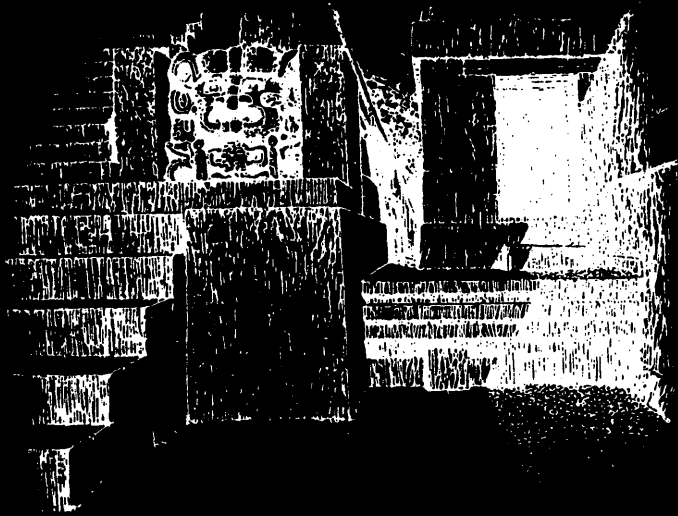
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Diane Z. Chase and Arlen F. Chase



## 5. Emergence of an Architectural Style on Caana

*Joseph M. Ballay, Carnegie Mellon University*

A local architectural style is emerging in excavations of the Late Classic Maya city of Caracol in southwestern Belize. It would be pushing the concept of this style too far to suggest that it was intentional on the part of the Maya or understood by them in today's terms. But regardless of how it was understood, the patterns of building observable today are sufficiently consistent and cohesive to provide the basis for visualizing their finished architecture as it existed centuries ago.

Finished surfaces of the architecture at Caracol have only survived in small samples. Sometimes such archaeologically recovered surfaces may be as small as a meter across; other times they are more extensive. At the present time, the evidence for a style is concentrated in the large complex known as Caana because it has been the focus of investigations which are at a scale that can reveal architectural form. Some architectural evidence elsewhere on the site is consistent with the Caana pattern, but it is too limited to determine whether we are seeing just a Caana style or one that is characteristic of buildings throughout Caracol.

### The Caana Context

Caana is a very large and expansive construction that dominates the Caracol epicenter (Figure 1.1). It appears to have elements of a residential and administrative center built into what is primarily a ritual temple complex. Its main mass is a two-tiered pyramid, about 82 meters wide by 102 meters deep at its base, situated at the north side of a ground-level plaza. There is a terrace at the top of the lower tier and a summit plaza measuring approximately 60 by 52 meters at the top of the upper tier. The summit plaza is 26.9 meters above the immediate ground-level plaza and is crowned by three temples, known as Structures B18, B19, and B20, each on its own pyramid base. The exposed floor of the front room of the temple at the top of Structure B19, the tallest of the three, is 12.2 meters above the summit plaza; reconstruction drawings indicate that the top of the temple was conservatively about 9 meters above this floor. This means that Caana at one time rose more than 48 meters above the main plaza it commanded to the south. By any contemporary standard, this is a huge building complex!

Entrance to Caana is by way of a monumental stair on the south face of the main mass. At the top of the lower tier the way to the summit passes through the center of a terrace-level range building. The stair then climbs the second tier, ending at a passageway through the center of a second summit-level range building. This passageway opens onto the south side of the summit plaza; Structures B18, B19, and B20 are located at the west, north, and east sides, respectively, of this plaza. At the northwest corner, between Structures B18 and B19, there is a combination residential and storage quad; a similar residential quad is located at the northeast corner of the summit, between Structures B19 and B20.

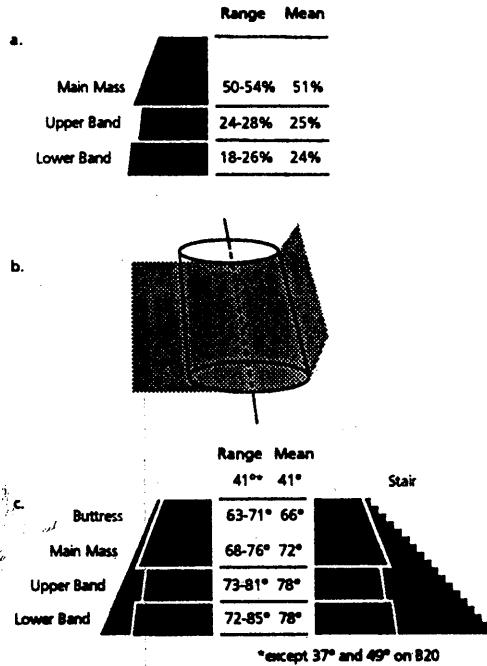


Figure 5.1. Proportional studies of stylistic features found on Caana: a) proportions of inset bands from the temple pyramids; b) oblique conical corner; c) typical inclination angles.

## Patterns of the Caana Style

As in the architecture at other Maya sites, the "Caana style" involves the massed repetition of basic architectural elements with near bilateral symmetry around central axes which are at near right angles to one another. These architectural elements can be thought of as falling roughly into three categories of scale: (1) the scale of whole building with its spatial relationships to other buildings and the site; (2) the scale of building components such as walls, stairs, or roofs which collectively comprise the building; and (3) the scale of detailing or surface embellishment which is applied to the building.

The Caana style, as it has been revealed so far, involves three patterns of construction at the building component scale: patterns of inset bands, oblique conical corners, and inclination angles. These features, understood as repeating structural patterns,

have been used to visualize parts of Caana which are irretrievably lost and to predict the form of structures which still remain buried.

### Inset Bands

A truncated rectangular pyramid is the basic massive form used in much Maya architecture. On Caana these pyramids are typically stacked for two or three levels, each level involving a double inset band running completely around the perimeter except where it is interrupted by stairs, buttresses, or other features. The relative proportions of these bands are what provide the distinctive Caana style. As a first approximation, the two bands occupy the lower half of the pyramid's face, with that area again divided in half between the two bands. The lower band is inset a few centimeters inside the plane of the pyramid; the upper band is further inset by about the same dimension. Figure 5.1a summarizes the proportions of these bands in greater detail.

### Conical Corners

The building platforms found on Caana all involve corners which are rounded in the plan view. The shape of the corner is best described as an oblique conical surface. Its axis is tipped inward to a position about halfway between vertical and the angle of inclination of the pyramid. This arrangement gives the builder some opportunity to resolve adjacent the corner radii when stacking levels or to accommodate irregu-

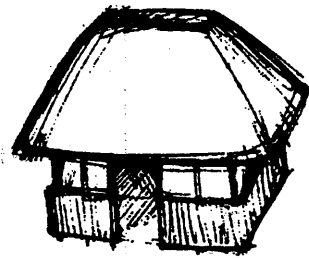
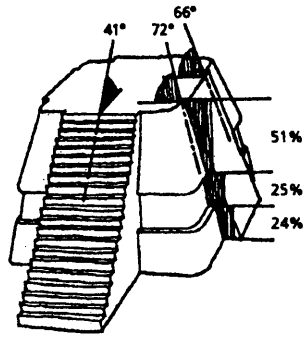


Figure 5.2. A hypothetical one level pyramid with form parameters typical of Caana and a sketch of a Maya house for comparison.

upper stair angle in the final building was about 49°; the lower main stair rises at 37°. In addition to stair angles, inclination data has been collected for the upper main masses of the pyramids, the inset bands, and the buttresses. This data is summarized in Figure 5.1c.

lar building lines. Indeed, in those pyramids which involve a slightly convex or "inflated" profile, such as in the first level of Structure B20-2nd, the convex profile carries right around the conical surface. Figure 5.1b shows the geometry of an oblique conical corner.

#### Inclination Angles

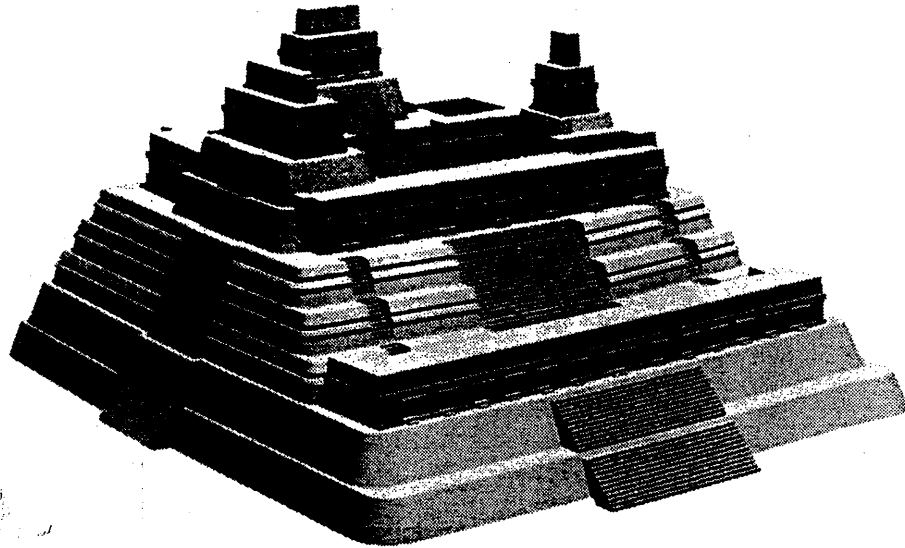
The angles of inclination found in the stairs, buttresses, and pyramid walls of Caana are remarkably consistent within any one structure, usually varying less than one degree; they are even rather consistent between structures. This consistency of inclination makes it possible to visualize the original architectural form, even when much of the structure is irretrievably ruined.

Perhaps the most remarkable consistency is the recurrence of a stair angle of 41° above horizontal. It occurs all over Caana—lower main stair, upper main stair, the Structure B18 stair, the Structure B19 stair—but not on Structure B20. Structure B20 appears to have had a physically constrained base area, requiring steeper inclinations to attain its height. The up-

#### The Caana Style used in Visualization

By combining this information, it is possible to determine the form of key components that characterize a typical, single level pyramid of the Caana style. It would resemble the sketch in Figure 5.2.

As the work of visualization began, there was no explicit goal of describing an architectural style for Caana or the rest of Caracol. It became a *necessity* as the condition of the buildings was revealed and it became a *possibility* as building patterns were revealed with it. Noticing the building patterns was a by-product of the investigation. As the deteriorated condition of most buildings was revealed, it became clear that simply "cleaning up" the remains—extending the lines and filling in the corners—would not get very far. Instead, it would be necessary to describe the building patterns explicitly and use them to predict structures which are not yet revealed and propose the probable form of those that can never again be seen.



*Figure 5.3. One view of a computer solid model based on the author's visualization drawings; modeling was undertaken by Robert O'Connell and Charles Palmer. Features at the summit of Caana are shown clockwise from the top of the main stair: the range building; Structure B18; the northwest quad; Structure B19; the northeast quad; Structure B20; and the "red room."*

#### **Visualizing the Summit of Caana**

Analytic and reconstructive drawing began in 1992, piecemeal, on the whole of Caana in an attempt to visualize the entire building complex. By 1994 enough field notes and preliminary drawings had been completed that it was reasonable to begin a computer solid model of Caana. The purpose of the model was to provide an adaptive visual record of our evolving understanding of Caana's architecture, one that could be easily updated as more information came to light and one that could be examined from a variety of viewing angles or by a programmed "walk through." Figure 5.3 shows a view of the model in a recent state. On-site ground measurements provided the gross dimensions of the complex, but the patterns of inclinations, conical corners, and inset bands were used for modeling at the building component level. Since the model depends on the sequence in which Caana is being archaeologically revealed, it is most detailed at the summit.

The division of the lower tier of the main mass into two levels is mostly conjectural. While it is almost certain that this tier had more than one level, the number and proportion of the levels is not yet visible. By contrast, the upper tier is known, by evidence recovered in relation to the side stairs, to consist of three levels with a banded profile something like the one shown. Small scraps of banding indentations were revealed at the main stair and at the eastern side stair; and these, combined with what is known of the Caana banding pattern, lead to a reasonably certain visualization of the upper tier. Later work focusing on Structure B20 (reported below) indicates that the upper tier of Caana was originally two levels high, the final

third level being added in a late major rebuilding of the temple complex at the summit.

### **Detailed Visualization of the Structure B20 Sequence**

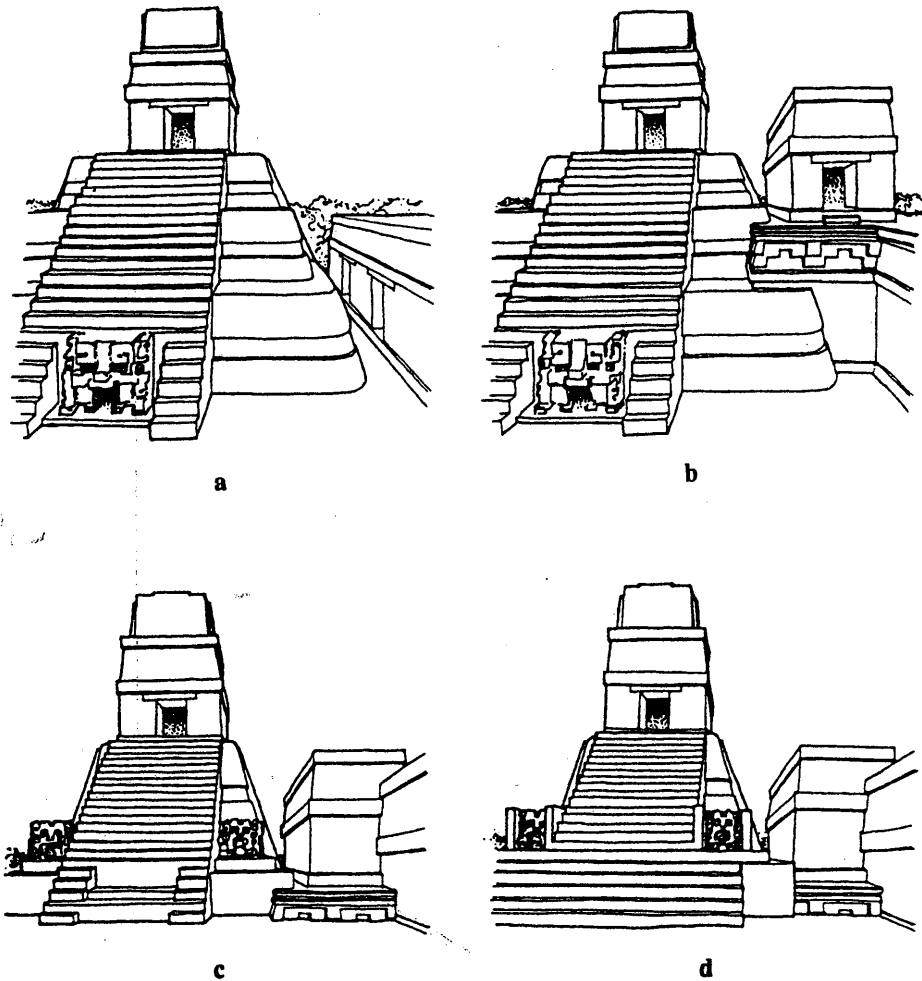
Recent investigations at the summit of Caana have focused on clarifying the sequence of building for Structure B20 and the constructions which are known to have preceded it. It was known from excavations as early as 1986 that an earlier plaza floor lies approximately 4.1 meters below the present summit plaza. Similarly, parts of Structure B20-2nd and earlier structures had been encountered in excavations into the main stair of Structure B20-1st. Yet there was no cohesive image of the architectural expression of Structure B20 and its immediate predecessors. Developing such an image would be the beginning of a process to visualize the entire rebuilding project that occurred at the summit of Caana.

There had been an untested assumption that the pyramid and temple that rose from the final summit plaza were essentially a single phase of construction. However, the configuration of the "red room," an unlabeled building forming a visual second story for the eastern end of Structure B16, cast some doubt on this assumption. The "red room," so called for the extensive areas of red paint that were still in place when it was excavated, is a complex of three small rooms immediately to the south of Structure B20. It was raised on a platform about 1.1 meters above the summit plaza, the west wall of the platform showing decorative stonework facing onto the plaza. The platform and rooms were seemingly wedged between the temple pyramid and the range building on the southern edge of the plaza. The arrangement of levels and doors left questions about how the "red room" was used and how the occupants gained access to it.

A test-pit in front of the platform wall revealed that it was not a wall at all, but a roof-like building component set above a buried wall that was, in turn, constructed on the previous summit plaza, 4.1 meters below. As the excavation was extended, the original first level of the Structure B20 pyramid came into view, completely revising notions of what could be seen in the final structure. The platform appears to be a blocking or retaining structure added between the southern side of the original Structure B20 temple and the northern side of the original Structure B16. No doorways are visible. And it is now believed to have never enclosed a room, but to instead have been filled with rubble so as to provide a building platform for the "red room."

The appearance of the Structure B20's first level made it possible to get much more complete and reliable dimensions on key parts of the building relative to the lower plaza, the upper plaza, the building platform of the "red room," and the peak of the ruined temple building. In some places the measurements were necessarily discontinuous owing to the only partial exposure of the buried portions and to the poor condition of much of the exposed portions. But, by resolving the measurements against evidence of masonry sequences and what is known of the Caana style, it has been possible to project a four-phase construction sequence for Structure B20 and the area to its immediate south, as shown in Figure 5.4.

In Phase I there is a pyramid, three levels high, probably topped by a temple building with one doorway. This pyramid is fronted at the plaza level by a giant mask (Chase and Chase 1987a:fig. 17). To its south is a range building.



*Figure 5.4. Visualization of the Structure B20 building sequence: a) Phase I: three level pyramid constructed on an earlier plaza; level heights approximate a decreasing geometric proportion; angles, corners, and bands derived from site data and stylistic patterns; b) Phase II: building platform with blocking wall constructed on earlier plaza; "red room" on top with door at west end; c) Phase III: raised plaza is constructed burying much of the pyramid and nearby structures; fourth level and new temple added to the pyramid; level heights now approximate an increasing geometric proportion; stair is extended forward and upward at 49° to intersect the new top of the pyramid; mask images flank the stair; new range building set on raised plaza; entry to "red room" is reconfigured; d) Phase IV: new monumental stair at 37°; masks reconfigured to coincide with the transition between lower and upper stairs.*

In Phase II the blocking platform is built south of the pyramid with a wall and roof profile which matched the then-existing range building which it abutted. The "red room" is constructed on top of this blocking platform.

In Phase III the entire summit plaza is raised 4.1 meters, burying the pyramid's first level, the lower half of its second level, and most of the blocking platform. This is a major building project requiring a new range building to the south and reconfiguration of the exposed part of Structure B20 and, presumably, all other

structures at the summit of Caana. From the exterior view of Caana, it results in the upper tier being configured as three levels instead of two. With the upward extension of Caana, the area available for construction at the summit has decreased. Instead of rebuilding Structure B20 completely anew on the higher plaza, a fourth level is added to the existing pyramid and a new temple is placed at its peak. New stairs are built over the originals, extending them forward and upward while maintaining approximately the original inclination and adding an inset stair-balk, perhaps emulating the function of the now-buried mask. However, the image of the mask now appears duplicated and flanking the stair.

In Phase IV a new and more monumental lower stair is built up to approximately the floor level of the "red room." The flanking masks are also reconfigured to be compatible with the shifts of levels that occur where the new stairs and earlier stairs meet.

#### Anticipating a Complete Visualization

Excavation of Structure B19 is currently in progress; it too is being accompanied with analytic and reconstructive drawing. Hopefully, a similar process will ensue with the future investigation of Structure B18. This would provide a detailed visualization of an extensive rebuilding project undertaken on the main architectural complex of a major Maya site—a project which apparently occurred just a few years before Caracol went into a steep decline.

#### Conclusion

The massed form associated with Caana's pyramids repeats, with variations of proportion and detail, throughout Maya architecture. So pervasive and powerful is the form that it is compelling to look for its origins deeper in Maya culture. It may represent an abstract codification of the basic Maya house form. Leaving the stair and buttresses out of the picture, the inclinations, conical corners, and inset banding produce a visual effect similar to the thatched roofs, walls, and windows that are still found in indigenous Maya domestic architecture and are assumed to have existed long before Maya culture reached its Classic Period (see Figure 5.2). This is not to say that the Maya consciously developed this form paradigm or intentionally carried over measured proportions from their pole-and-thatch buildings to their masonry buildings (cf. Wauchoppe 1938:151). But it is aesthetically satisfying to imagine that these builders, confronted with developing a canonical architecture for their most important structures, settled on this combination and proportion of elements which "just looked right" given their experiences and history of building.

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