

A WATER MANAGEMENT SYSTEM AT THE NORTH GROUP OF CHOCOLA, SUCHITEPEQUEZ

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The ancient inhabitants of Chocola came to realize something a long time ago: cats and dogs rained in this place. However, there is a dryer season when water, though far from being scarce, slows down its flow. They were perfectly aware of this fact too.

Despite Wittfogel's idea that water managements were directly associated with communal works and bureaucracy is now considered a rather extremist one, water management is viewed as a determining factor in the development of complex societies; from the point of view of the definition provided by Vernon Scarborough (1991:101), it is understood like the *"interruption and reorientation of the natural flow of water or the storage thereof"*. Following the logic of the hydraulic model, it is this *"tradition what forms the core of society in an ecological, economical and a moral sense, inasmuch as rules are generated for sharing water, a scarce resource"* (Trawick 2001: 361-362).

When talking about water management, the temptation exists to consider the irrigation of the growing fields as an engine of social complexity; and even though this model is perfectly valid in settlements where water is scarce (Davis-Salazar 2003:275), it is not that much useful to understand the socio-political nature of locations surrounded by rivers, by mouths, and with considerably heavy annual rainfalls, as is the case with the boca costa region of Guatemala.

Although it is true that we should be careful at the time of attributing the emergence of social complexity to water management works, ethnographic observations corroborate that such practice continues to be one of the pillars of social cohesion. The feeling of belonging in a place or community is indicated through the administrative borders of such flow. The modern town of Chocola has several committees in charge of the maintenance of receiver tanks and the cleaning of the water taps.

In the first half of the XX century, the German companies that owned the site adapted a water system designed by José Guardiola to move machinery with hydraulic energy. The German ditches were metal-made in some cases, and stone-made in others.

The prehispanic society that settled in Chocoma was closely related to the issue of water management, both to avoid excesses and for its re-channeling for practical purposes. The water taps that were the result of human works were intended to deviate the floodway towards a receiver tank or a plantation, to supply the community with water for domestic use, and are still crucial for the functioning of the community. The careful attention paid to the cleaning of these intakes is crucial for the health of inhabitants and visitors.

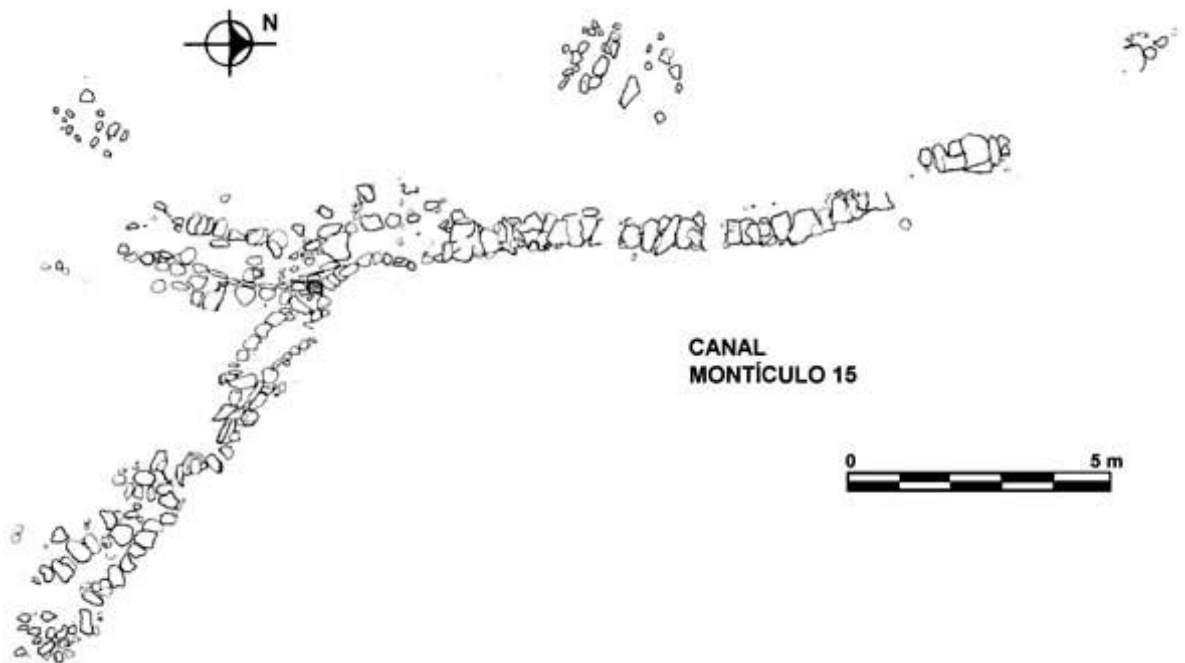


Figure 1. Portion of ditch laid on a north-south axis with bifurcations at east and west.

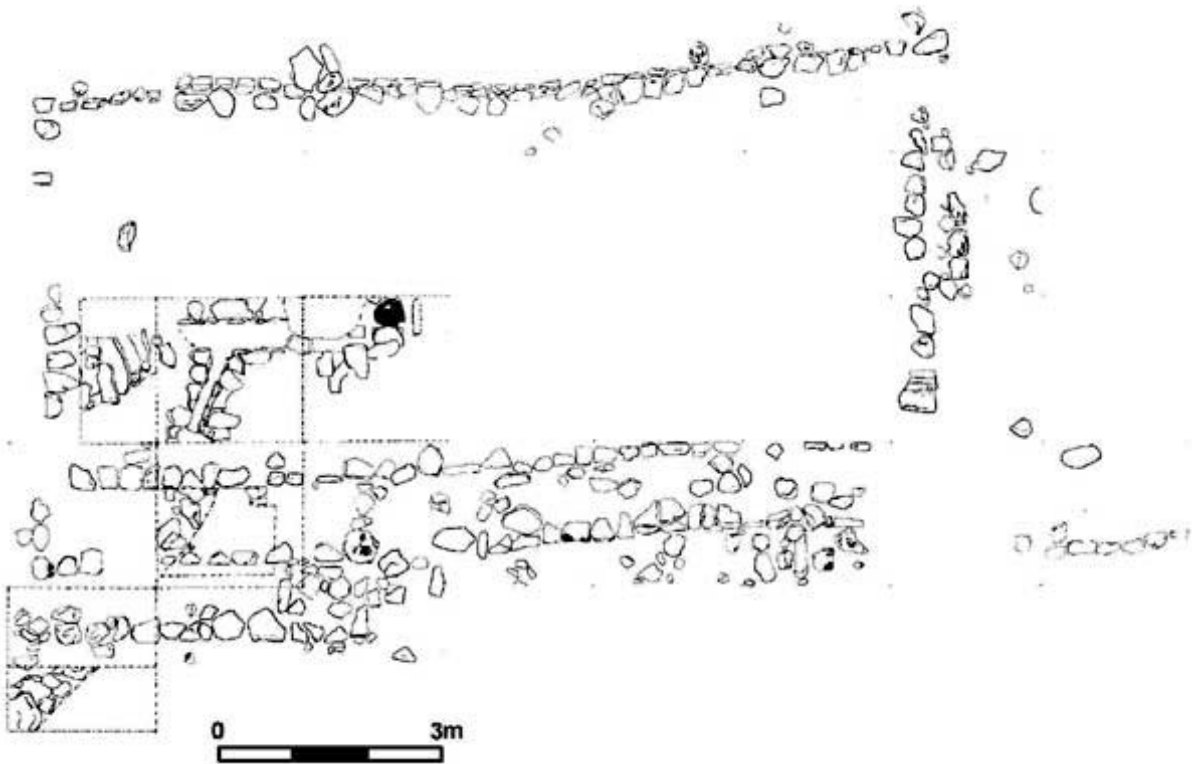


Figure 2. Structure 1, Mound 15.

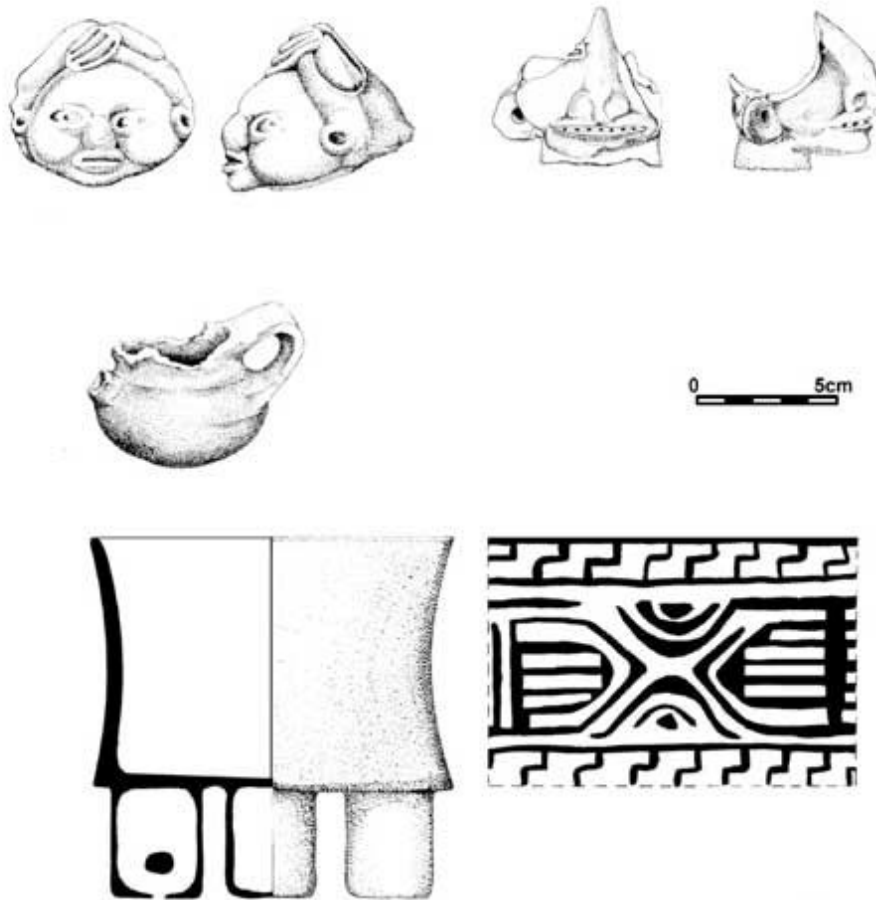


Figure 3. Architectural traits in Mound 15 with associated ceramic materials.

WATER MANAGEMENT IN THE NORTH GROUP OF CHOCOLA

Mound 15 was built on an artificial terrace in the north end of Group A, so as to take advantage of the natural slope of the topography (Paredes et al. 2003). The structure is 75 m long in its north-south axis, with a variable elevation that reaches a height of 8m. It is located northeast of a plaza enclosed to the southwest by a mound of larger dimensions, Mound 9. The work hypotheses tend to identify the north area of the settlement with an area of restricted habitation, close to administrative and ritual buildings.

Excavations revealed that the construction system of the mound consisted of packed mud, stone, at times carved, cut, retouched, and used as springing for the structures (Figure 2) and to form retaining walls for the platform and its bodies, elaborated with mud refill and *taxcal*, an andesite rock in decomposition.

The research conducted in 2003 was in charge of Diana Belches (Pits 1, 4, and 6), Cristina Vidal (Pits 9 and 17), and Federico Paredes (Pits 5, 8, 20, and the clearing of the north-south profile as of the road that cuts the mound).

Two different sections of the draining system were found with test pits opened in the first season (Pits 4, 6, and 17). The clearing of the mound's profile revealed two additional sections perpendicular to the cut. One of them is connected with the section found at the bottom of Pit 17 (Figure 4), and we now know that it is also connected with the portion excavated by Diana Belches.

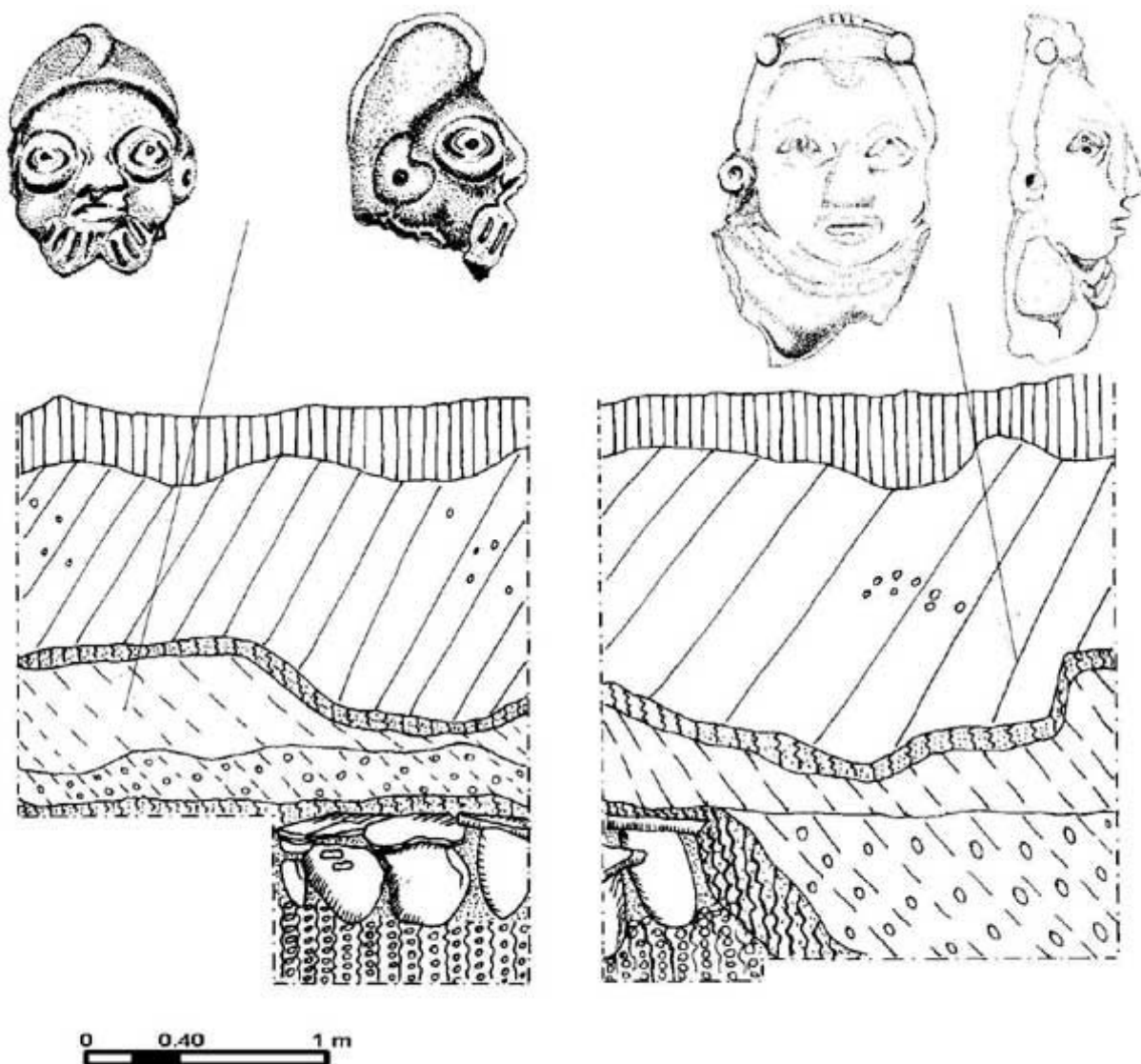


Figure 4. Stratigraphy at Pit 17 showing the location of figurines in the refill found on the ditch.

In the 2004 season, the excavation was carried out by means of a grid system for horizontal excavation with units of 2 m x 2 m, that exposed a new branching of the system. The excavation was conducted by Margarita Cossich. Before initiating the excavations, a gradiometer survey was accomplished by David Monsees, with results that proved of great help to us. When the excavations were initiated, traits were discovered that contributed to understand even more the construction patterns of the canals. Thirty four meters of a new ditch were excavated, corroborating the importance of the management of the water resource in Mound 15. This discovery does not only represent the largest segment of the ditch found in this mound, but one that is also well preserved, thus facilitating its investigation (Paredes et al. 2004).

This new ditch runs from north to south and forks southeast and southwest (Figure 1). The construction materials used vary between andesite stones and metamorphic rocks with high concentrations of iron used as lateral walls. Some sections of the ditch show carved lids of a slab-type. Like additional construction features, we have

observed small stones (0.5 m to 0.15 m in diameter) and medium size stones (0.20 m to 0.35 m in diameter), which were used at that time as wedges to reinforce the construction; the small ones refilled the holes, and the medium ones compensated the level of the lateral walls to support the lid horizontally.

The construction system varies in its entire extension, and it may present two, three or even four stone rows one on top of the other at the laterals, placed both horizontally and vertically. The use of lids and bases for the ditch in the form of a floor is variable, and it likely responds to specific needs derived of the site's topography or of the practical uses of the system of fluid distribution.

Within the construction system of the same ditch, we observed the use of sections with covers followed by sections without covers. The reason of this change is possibly due to the fact that the ditch also received rainwater along its itinerary to further store it in a given place; those uncovered spaces may have also been used for a greater comfort, allowing people to be supplied with this resource in a direct manner.

In general, the construction systems of the canals in Mound 15 may be divided as follows:

- Laterals with no lid and no horizontal stone in the inner surface
- Laterals with lids
- Laterals with horizontal stone in the inner surface

Like already said, the ditch has been excavated in 34 m of its itinerary, with traits of continuity to the southeast that have not been excavated so far. Of these 34 m, only 18 m run from north to south, 2 m run southwest, and the remaining 14 m run southeast, the two latter sections beginning in a forking. The forking that heads southeast, despite being the lengthiest one, was sealed to prevent the passage of water. The southwest ramification is shorter, and its end shows a poor state of preservation because of damages caused by tree roots.

The entire southeast ramification presents horizontal stones in the inner surface, following the slope of the ground. There are very abrupt steps with stones placed as landings in a 90° angle, possibly to lessen the impact of the water course on its way down, perhaps to avoid erosion of the soil or perhaps to diminish its permeability.

The ditch runs under Structure 1, excavated by Diana Belches in 2004. This is a rectangular structure with a main axis that follows a north-south direction. Two sections of the ditch were located under the construction of the structure at a depth of 1.50 m. One section of the ditch has lids and follows the north-south alignment. Another adjacent section shows no lids, contrary to what was expected to be found under the structure. This suggests that Structure 1 and the ditch were not contemporary.

During the excavations, several figurines were found in association with the ditch (Figures 3, 5, and 6): a possible zoomorphic whistle at a distance of 0.20 m on the ditch, at west; a headless body associated to the intersection of the ditch and

Structure 1; one anthropomorphic female face with headdress, at a distance of 0.10 m on the ditch in the last pit excavated at the southeast forking. These pieces may help to date their own style, but apparently they rest in a refill context, and do not have the character of offerings.

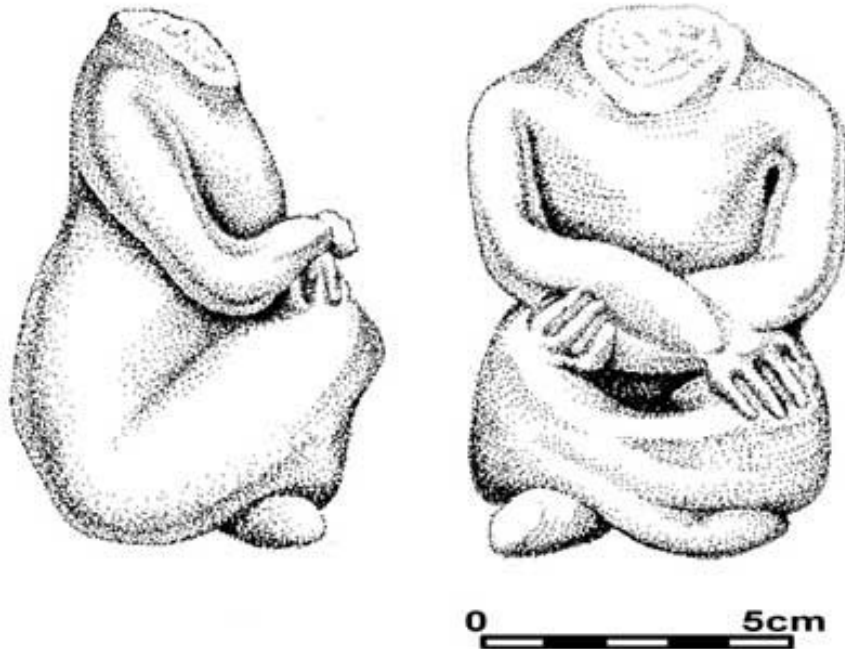


Figure 5. Sitting headless figurine, associated with the ditch.

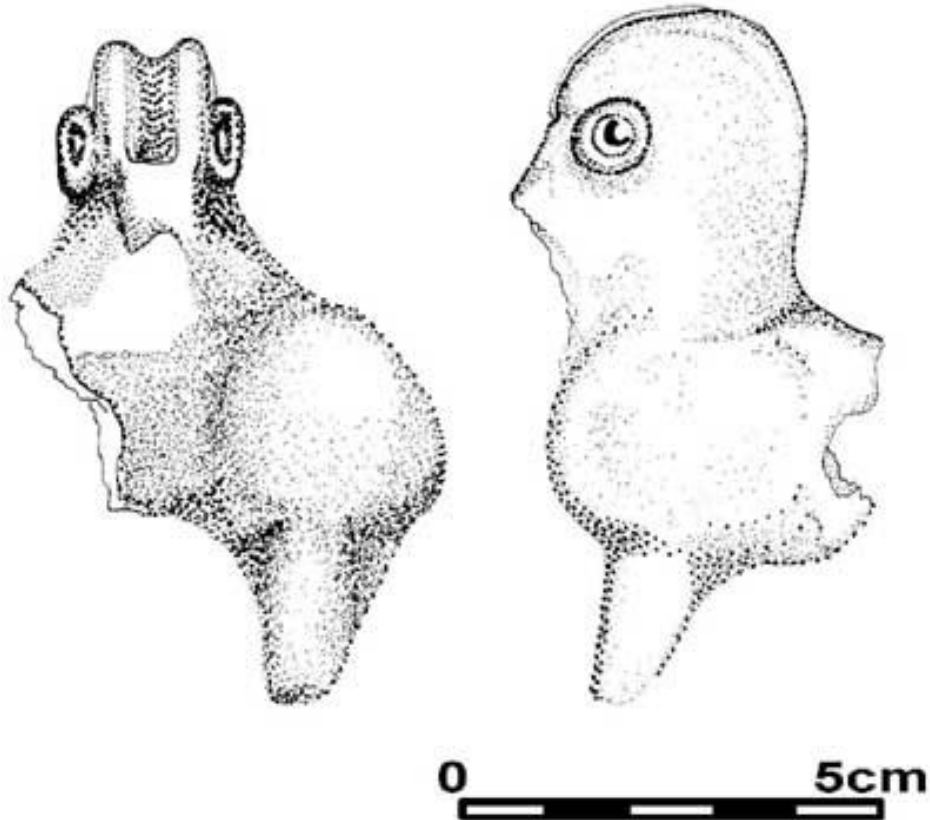


Figure 6. Zoomorphic figurine associated with the ditch.

Also, interesting ceramic pieces were recovered around the ditch, such as a 0.10 m miniature vessel and a tripod vase with straight cylindrical supports, of a cream color, negative decoration and geometric designs in its middle portion framed by ornamented horizontal strips. This vase was located inside the ditch in an uncovered section, near the bifurcation that heads southwest. Its form suggests the second half of the Early Classic period, it is not a frequent type in the ceramic sample of the site, and it neither seems to be representative of the material excavated in Mound 15, at least to this day.

Two nearly complete vessels were spotted during the excavations conducted at Structure 1. One of them is associated with a level that seems to be the original landing of the springing of the stones corresponding to the west wall of the structure. One pit to the south of this finding, and deeper, revealed an open portion of the ditch which contained a vessel at its bottom, probably a pitcher that fell down when used to get water, or a closing ritual for the ditch.

CONSIDERATIONS ABOUT THE EVIDENCE

- The ditch is located over 1 m below the structure and has no relation whatsoever with it. The structure is a later construction and was placed on a ditch that very likely was no longer in use, or either continued to be underground and was used from another source. The more convincing evidence in this sense is the absence of a cover for the section that runs below the house.
- The ditch presents two sections: one under the surface, and the other one on the surface, forming drops that could be outlining the bodies of Mound 15. To this date, the construction refills of Chocoma include high amounts of *taxca* and clays, but do not show profiles with consistent slopes that could show masses of structures.
- The bifurcations present differences in construction; this may be a consequence of having been built at different times, or that the branching that heads southeast simply contained as a new construction feature, horizontal stones in the inner surface to help water in its itinerary along the natural slope.
- If Structure 1 and the ditch are connected, one of the functions of the canal may have been that of supplying water to the interior of the structure. In this case, the function of the structure may have been that of a dwelling, or of a building for the management of the resource, as in its inside there was a box for redistribution of the flow along two different branches.

FINAL CONSIDERATIONS

The ceramic recovered in Mound 15 presents a range of Postclassic diagnostic types in lots close to the surface (of the “Melo Red” type, K’iche Ceramic; Marion Popenoe de Hatch, personal communication 2004); Early Classic ceramics (globular supports with rattles and a brown-black slip), and Late Classic ceramics (pitchers of a yellowish coarse paste, with curve everted rims, and bowls with an everted and straight flat rim) in the lower levels. The structure refill undoubtedly includes Late Preclassic material (bowls with a straight and divergent wall with sub-lip molding and rounded rim), and Middle Preclassic material (*Xuc*, oranges, reds and glossy browns; blacks, brown-blacks and incised reds consistent with the phase Guatalón of the South Coast; 600-400 BC).

Other draining or ditch systems with a similar technology have been described for the neighbor site of Tak’alik’ Ab’aj at the boca costa region (Schieber 1997). Its dating based on the recovered ceramics would point to the end of the Late Preclassic and the beginning of the Classic period. In the Guatemalan Altiplano, some mounds of the Kaminaljuyu Acropolis feature a draining system that shows a close resemblance in technology and style, and is dated to the beginning of the Classic and the Late Classic period.

Tak’alik’ Ab’aj shows difference in the size of stones throughout time, as follows: absence of stones in the Middle Preclassic period, medium size stones in the Late Preclassic period, large stones in the Early Classic period, and massive stones in the Late Classic period. The Late Classic ditches used massive stones as lids (Beatriz Marroquín, personal communication 2004), and the Late Preclassic ones were medium size stones (Schieber 1997). The essential difference between the Chocola and the Tak’alik’ Ab’aj systems is that the latter uses selected stones as lids instead of slabs, a characteristic that is shared by Chocola and Kaminaljuyu.

Considering the abundance of water at Chocola, it came as no surprise to find, early in our investigations, evidence of a sophisticated water management system. Given the fact that stratigraphic and ceramic evidence is still preliminary, the possibility should be considered –or not- of a temporal and functional relationship between Structure 1 and the ditch running below. Water control in residential contexts seems to serve two needs: the evacuation and draining of the water surplus to protect architecture, and the delivery of fresh water inside the structures. The possible use of the canal to irrigate the growing fields is not ruled out, but the present evidence prevents us from going deeper into this matter.

Water management in archaeology constitutes a central issue and encourages the approach to comparative developments towards social complexity. While the results in Mound 15 are still preliminary, we anticipate substantial and productive studies in future seasons at Chocola and the boca costa region, with questions regarding the impacted ancient community and how they took advantage of the abundance of this natural resource.

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- Figure 4 Stratigraphy of Pit 17 showing the location of figurines in the refill found on the ditch.
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