# Chapter 7

# Excavations at the North Group: The Canals at Mound 15

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## Introduction

This work presents the excavation results of 41 pits during PACH's second field season, accomplished to define the route of a water management system at Mound 15 [Fig. 7-1 a, b].

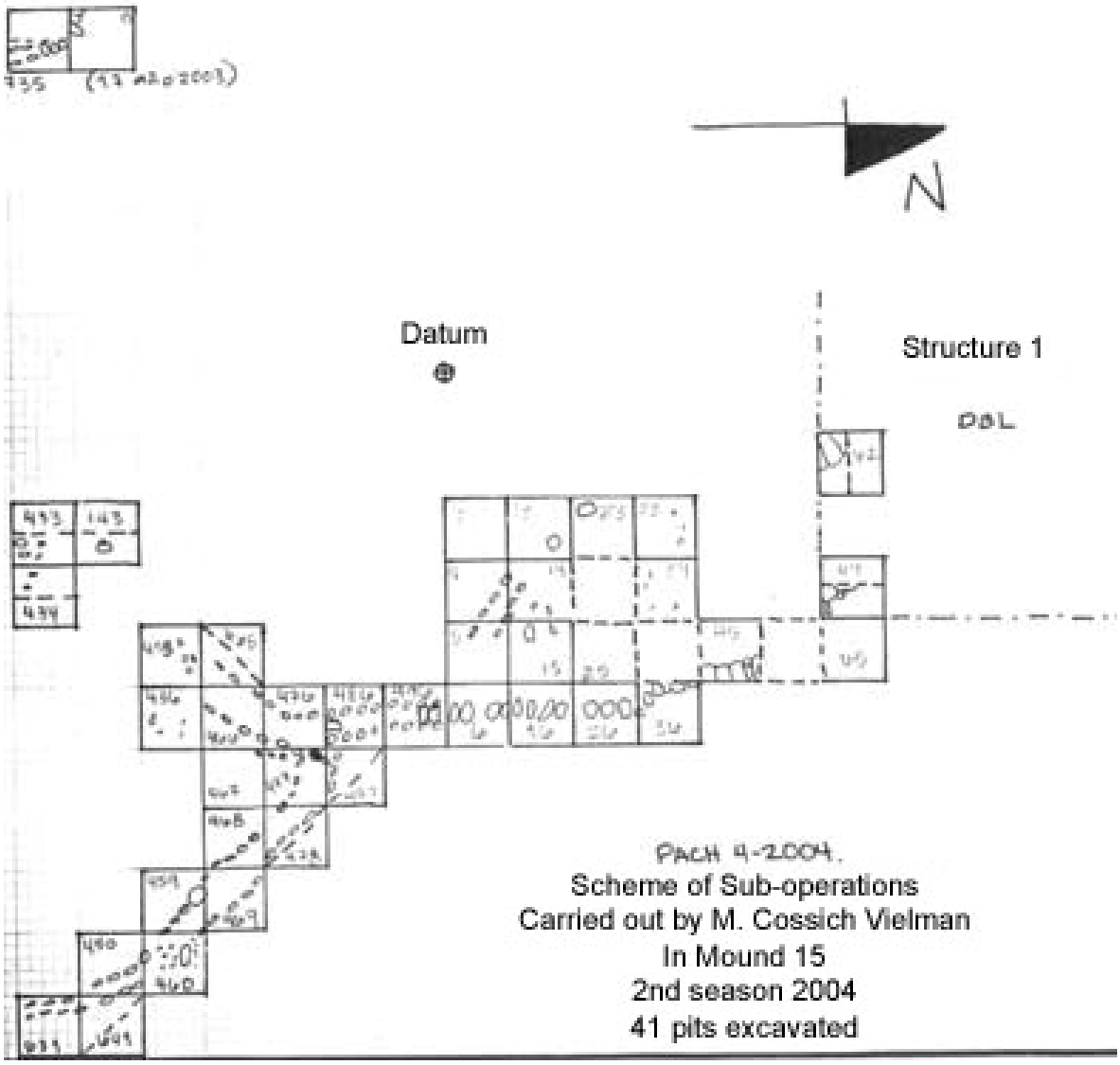

**Fig. 7-1 a, b. The 41 Cartesian units that reveal the canals at Mound 15, and the plan view of the canals, PACH 2004.**

Traits of a very sophisticated ancient hydraulic technology were discovered, during the 2003 fieldwork, in the road cut that transversally splits Mound 15. These traits were located approximately at a depth of one meter below the surface in the transversal cut, as well as in test pits completed on the top of this mound [Fig. 7-2 a, b, c, d, e, f, g, h] (see Valdés and Kaplan, 2003). Cartesian excavations carried out later and discussed here, revealed other traits connected with this water management system.

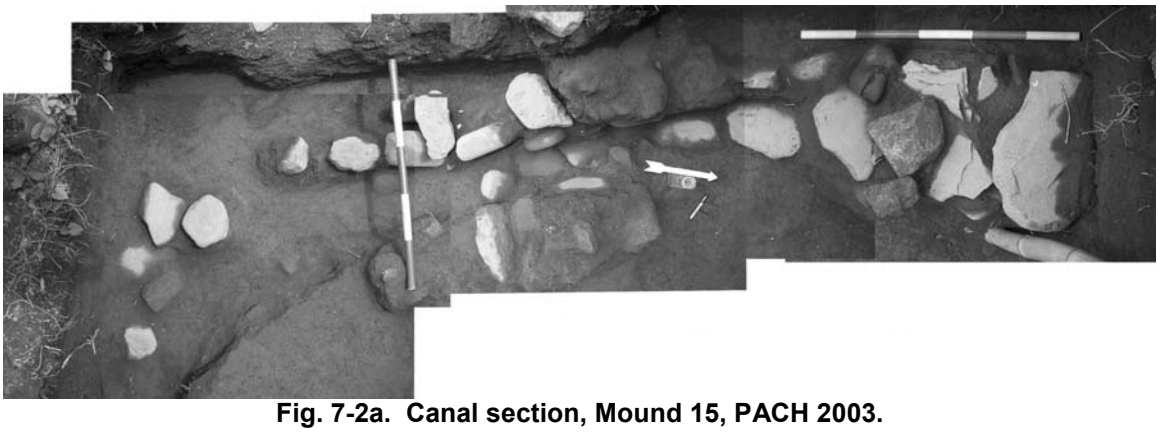

**Fig. 7-2a. Canal section, Mound 15, PACH 2003.**


**Fig. 7-2b. Canal section, Mound 15, PACH 2003.**

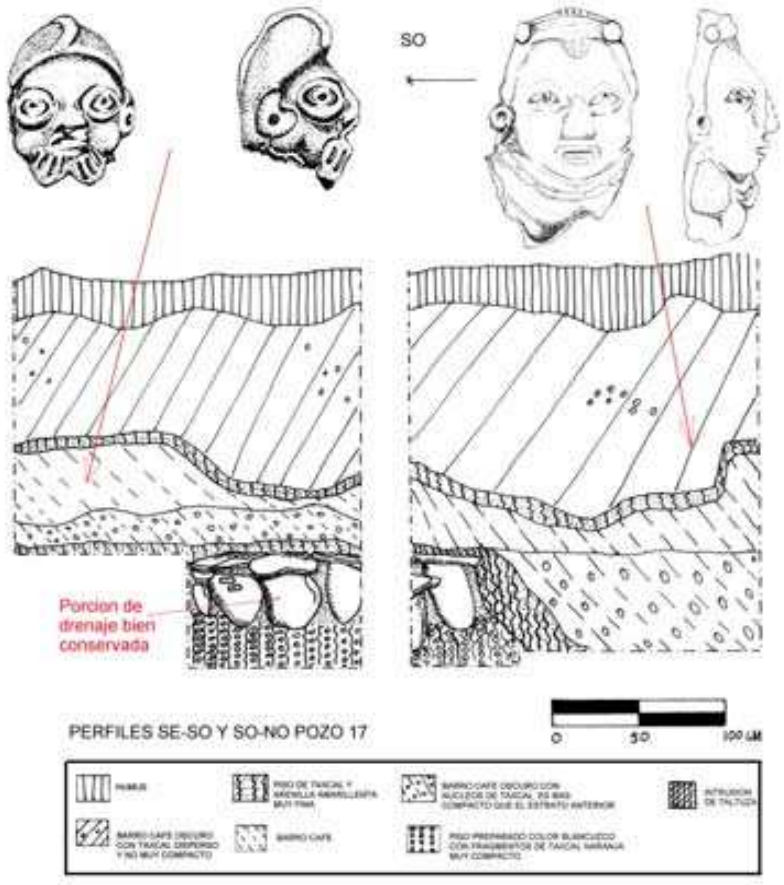


**Fig. 7-2c. Canal profile, Mound 15, PACH 2003, with associated artifacts.**


**Fig. 7-2d. Canal, Mound 15, PACH 2003.**

**Fig. 7-2e,f. Road cut showing the canals, Mound 15, PACH 2003.**

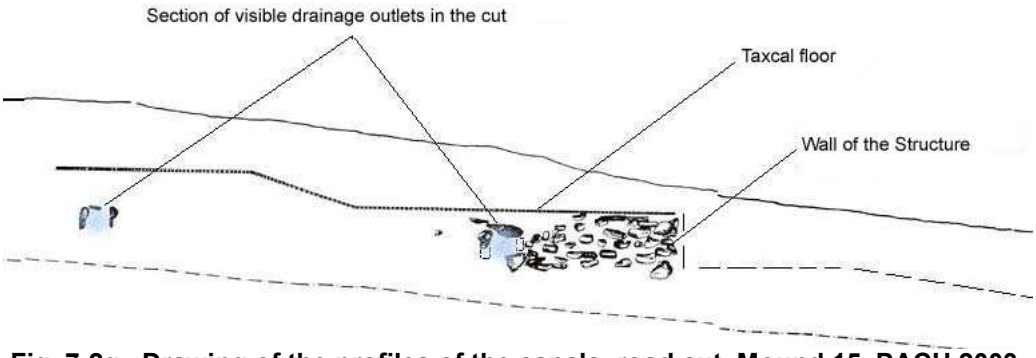


**Fig. 7-2g. Drawing of the profiles of the canals, road cut, Mound 15, PACH 2003.**

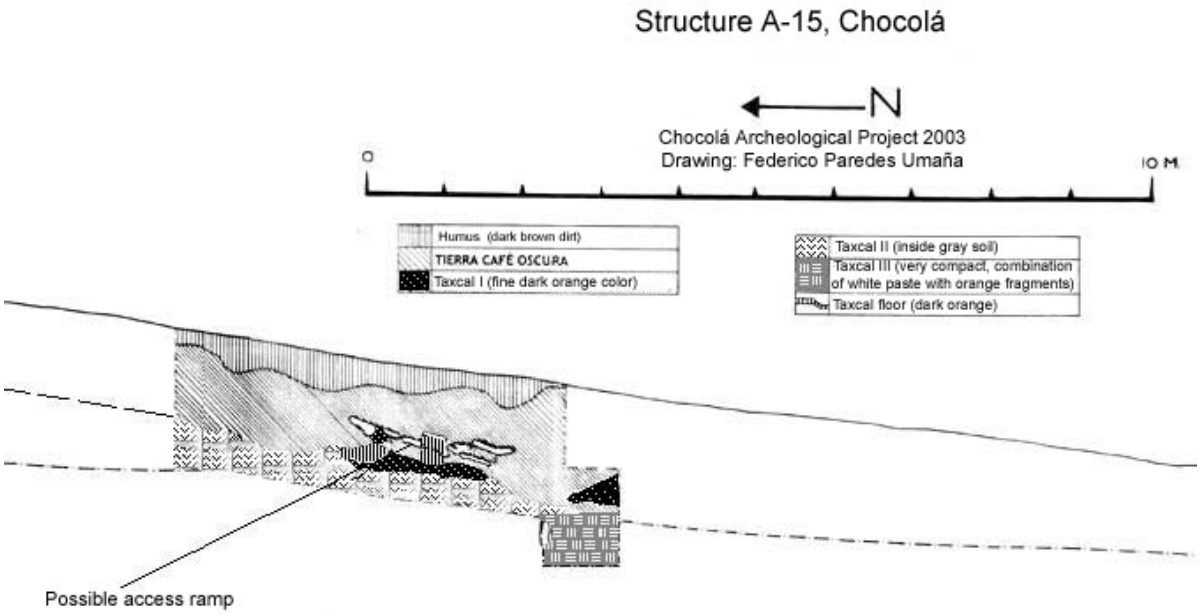


**Fig. 7-2h. Drawing of profile, road cut, Mound 15, PACH, 2003.**

The verification of the existence of hydraulic works during the 2003 field season in two mounds, 9 and 15 [Fig. 7-3] represents an important aspect for understanding the nature of the achievements attained by the ancient inhabitants of Chocolá.

**Fig. 7-3. Section of the underground canal found north of Mound 9.**

Such achievements represent a high degree of social complexity, apparently very early within the context of the Maya. The discoveries of the 2003 season, at this site, provided the guidelines to continue investigating the functions of the water

management system as well as the particular aspects of its construction, its extension through other mounds and sections of the site, and its similarities with other systems known from Tak'alik Ab'aj and K'aminaljuyú [Fig. 7-4].

**Fig. 7-4. Canals at K'aminaljuyú (photo by Mauricio Acevedo).**

The significance and ubiquity of water management systems has been well understood in world prehistory (Scarborough, 2003). The variety in function and magnitude of these ancient networks was relatively large, but the impact on each type of society and culture was less variable. Usually, water management has had the effect of increasing social complexity in a hierarchical manner; leading to the emergence of a bureaucracy with formal attributions assigned to specific groups. The implication is that societies with water systems generated advantages and opportunities that were not transferred to other societies, in the sense of a collective and organized action. However, in Scarborough's view (ibid.), the achievement of these changes in the political evolution of ancient societies depended on the degree of centralization of power. As we may see, the scenario appears to be rather more complex than that described by Wittfogel (1957), who only required a few specific aspects to define a hydraulic society as equivalent to the "absolute power of the state": 1) an entity that surpasses the generation of surplus production; 2) an entity that overcomes the dependency on rain cycles, and 3) an entity below the level of private property as the base of industrial civilization (Wittfogel, 1957:12, quoted in Scarborough, 2003: 17-18). Clearly, ancient Chocolá fulfilled these characteristics, but, does this mean that it was a state with a strong centralization of power? Moreover, Wittfogel's strict determinist model cannot be applied in all its details. However, it may offer us somewhat of a base to explain the complex developments of societies with sophisticated water management systems (Scarborough, 2003: 11-12).

The discovery of hydraulic management in ancient Chocolá is significant towards the understanding of its context –history of its development, functions and uses, and the real implications for the ancient society. In fact, the project is being initiated as long term work and it is not possible at this stage to resolve all issues about the water management system at the site. No doubt this subject will be the focus of future investigations and will surpass the proposal that motivated them at present; like the implications of the presence of intensive cocoa plantations and the monopolized

exchange of this crop to explain the early development of a great Mayan city, considering the water demand that such a crop required. For example, we may reach an understanding of the social structure through additional investigations of the water control systems, as this will allow the identification of the driving forces in the ancient city with respect to their close or distant neighbors and competitors.

**Per unit description of the excavations**

***Pit 4-14***

The first pits worked as of SD 3 were excavated by JK and MCV. The first lot at Pit 4-5, which contained humus and dark brown earth was already showing the first large stones of the season on the northwest side of the pit. At the same time, in Pit 4-14 other stones forming an alignment with the stones of the previous pit were located. Two lots were excavated in this pit. In lot 1 there were: 88 ceramic and 13 obsidian artifacts, one piece of glass, one plain stone, and 4 charcoal samples; in lot 2: 68 ceramic and 6 obsidian artifacts, and 11 taxcal samples.

***Pit 4-5***

Three lots were excavated in Pit 4-5. The first and second lots contained cobbles (on dark brown soil), and the third lot was excavated in an attempt to find a continuation of the stone alignment, but the search proved unsuccessful. In the north profile, three different layers were observed: humus, dark brown earth, and light brown earth, perhaps part of a floor, in view of the large amount of taxcal it contained. Three lots were excavated. Lot 1 contained: 57 ceramic and 17 obsidian artifacts, one carved stone, and 1 taxcal sample; lot 2 contained: 67 ceramic and 22 obsidian artifacts, as well as 16 taxcal samples; lot 3 contained: 49 ceramic and 15 obsidian artifacts, 1 charcoal and 4 taxcal samples, and one stone slab.

***Pit 4-4***

Other pits were opened with the purpose of locating the continuation of the first stone alignment. We could finally locate the connection of the stone alignment at the northeast corner of Pit 4-4. Pit 4-4 was excavated in three lots. On the east profile of Pit 4-14, and in addition to the alignment, several other stones were present; therefore, Pit 4-15 was excavated to find new stones and one stone slab (the largest of the group), which had probably collapsed from the upper part of the previously located bases. We descended in the three lots to a light brown earth layer, but no further traits were identified. At this point we deduced that the trait of the aligned stones constituted a canal (traits 4-R-1 and 4-R-2), though only just a section of it. In lot 1 we recovered: 115 ceramic and 18 obsidian artifacts, 1 carved stone and 2 taxcal samples. In lot 2 we found: 36 ceramic and 5 obsidian artifacts, 15 taxcal and 3 charcoal samples; and in lot 3: 30 ceramic artifacts.

***Pit 4-3***

Pit 4-3 was excavated in two lots with the purpose of locating other stones associated with the alignment, previously found in the west profile of Pit 4-4, but nothing regarding the alignment was found. We reached the light brown soil with taxcal (a possible floor) at a depth of 0.80-1.10 m. The second layer (dark brown)

presented a large amount of mica, and in this pit the layer was similar to sand. In lot 1 there were: 84 ceramic and 28 obsidian artifacts, as well as 7 taxcal and 1 charcoal samples. In lot 2 we found: 34 ceramic and 2 obsidian artifacts.

***Pit 4-13***

Pit 4-13 was excavated in four lots (plus one special excavation inside trait 4-R-3) and we continued with the search for the continuation of the stone alignment; in lot 3 we reached the level of a light brown soil with taxcal, which is the same layer found in Pit 4-3, lot 2. This layer was deepened an extra 10 cm, but no other stones were found. Two different layers were noted in the south profile: the first composed of dark brown sand, and a second one of more granulous sand. We collected samples of both of them, as well as of the light brown layer, for laboratory analysis. In lot 1 we found: 68 ceramic and 6 obsidian artifacts, and 3 taxcal samples; in lot 2 we found: 83 ceramic and 6 obsidian artifacts, and 1 taxcal sample; in lot 3 we found: 55 ceramic and 9 obsidian artifacts, and 3 charcoal samples; lot 4 contained: 53 ceramic and 8 obsidian artifacts. A possible floor was observed in the special excavation inside trait 4-R-3, it was found at an elevation of 0.86 cm below SD 3 and may possibly continue at 1.10 m.

***Pit 4-25***

We proceeded with Pit 4-25, searching for a trait that could be part of the stone alignment found at Pit 4-15. Here, at 1.24 m, we reached the possible floor, which was left as an indicator. In lot 1 we found: 107 ceramic and 17 obsidian artifacts, and 5 taxcal samples. In lot 2 we found: 65 ceramic and 4 obsidian artifacts, and 5 taxcal samples.

***Pit 4-34***

Pit 4-34 was excavated to find out whether there was a relation between the pits of DBL (4-84, 4-74, 4-64 and 4-54) and those of MCV. Two lots were excavated to the floor level. Only several small stones were found. Lot 1 yielded: 53 ceramic and 4 obsidian artifacts, and 1 pumice stone. Lot 2 yielded: 28 ceramic, and 25 obsidian artifacts.

***Pit 4-33***

Pit 4-33 was excavated to locate the light brown floor with taxcal that would connect it with DBL's pits. A possible gravel floor was benched (above which the stones found by DBL at Pit 64 were located) with small stones resting on it; the excavation was stopped when the light brown floor with taxcal was reached. From lot 1 we recovered: 60 ceramic and 3 obsidian artifacts. Lot 2 yielded: 43 ceramic and 8 obsidian artifacts, and one charcoal sample. Lot 3 yielded: 40 ceramic and 2 obsidian artifacts, one charcoal sample, and one stone slab.

**Pit 4-23**

In the dark brown soil there was a large stone initially believed to be aligned with the traits excavated by DBL at pits 73 and 83, but only small stones were found and benched; when the excavation was concluded we discovered that the stone alignment of DBL's pits formed the east face of Structure 15-1. Three mammiform supports were recovered, one of which was still adhered to a dish fragment. A black

anthropomorphic head was also found. The pit was excavated until the beginning of the floor (light brown floor with taxcal) was reached. In lot 1 there were: 67 ceramic and 9 obsidian artifacts, one charcoal sample, and two stones; in lot 2: 44 ceramic and 3 obsidian artifacts, and 3 taxcal samples; and in lot 3: 108 ceramic artifacts, 3 obsidian fragments, 3 taxcal samples, and 8 figurines. Additionally, the black anthropomorphic figurine was found [Fig. 7-5a, b] in a lot denominated 2/3, which eliminated the bench.

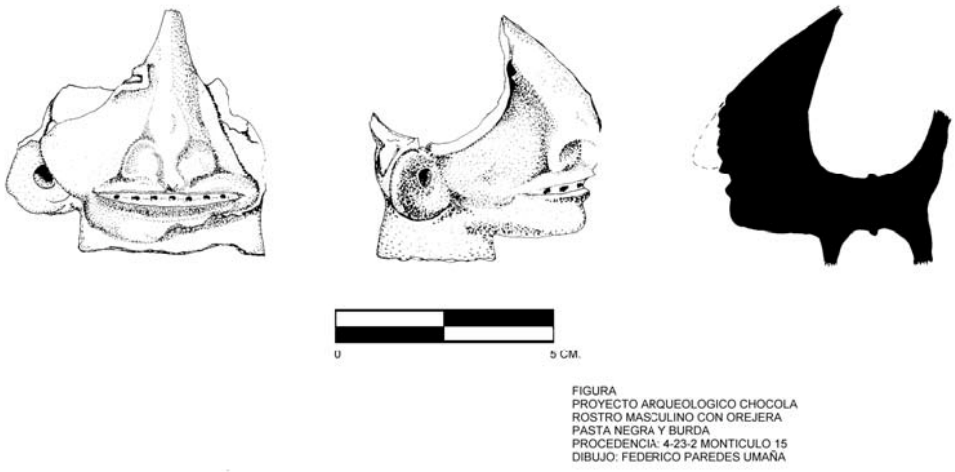


**Fig. 7-5a, b. Probable fragment of a black incense burner, recovered in lot 2/3 (the bench), Pit 4-23, at a depth of 0.65 m below SD 3.**

***Pit 4-6***

This pit was initially excavated thinking that we would locate within its perimeter the continuation of the canal found in pits 4-5, 4-4, 4-14, and 4-15. At the north side a bench was excavated due to the presence of a possible floor, evidenced by a change in the color and texture of the soil, which contained more gravel. We found a miniature black bowl, fragmented at the neck, in the third lot, at a depth of 1.89 m and on the south side of the pit; a drawing was made and the corresponding dimensions were recorded for further analysis at the laboratory.

The excavation proceeded after this finding. Other stone slabs were located 10 cm to the west of the miniature (at a depth of 1.99 m), but interestingly, these run on a north-south direction leading us to believe that they were not the continuation of trait 4-R-9 discovered earlier; these slabs continued to the north and the south. Therefore, it was decided to excavate towards the north and to demolish the bench previously excavated, to discern whether it was worthwhile to excavate the next pit to the north. Once the bench was demolished, we could observe that in fact the slabs continued, and that their sizes were larger than the ones previously found.

At the time of discovering the stone slabs (Trait 4-R-9) present at the south side of this pit, we observed that the color of the soil changed from dark brown to light brown on the west side, while the east side maintained its dark brown coloration. The doubt arose at a certain point whether this was a canal (like the one found during the first field season, farther west of the 2004 excavations) or a burial, so we proceeded to remove one slab (the smallest one, and the one that would damage the architectural trait the least). Excavation continued down to a depth of 2.42 m to uncover its interior, where sand was found, confirming that this was in fact a canal.

Pit 4-6 was excavated in five lots plus an additional lot denominated 4/5 inside the canal. In lot 1 we have found: 53 ceramic and 7 obsidian artifacts; in lot 2: 35 ceramic and 7 obsidian artifacts, as well as 2 charcoal samples; in lot 3: 24 ceramic and 10 obsidian artifacts, as well as one charcoal sample, and one small pitcher [Fig. 7-6 a, b, c]; in lot 4: 5 ceramic artifacts; no artifacts were found in lot 5 inside the canal; but in lot 4/5 we found: 7 ceramic artifacts.


**Fig. 7-6 a, b, c. Small pitcher found in lot 3, pit 4-6, at a depth of 1.89 m below SD 3.**

### *Pit 4-16*

Pit 4-16 was excavated next, and we expected that slabs would be found at a depth of 1.99 m, but the first slab was uncovered at 1.55 m. The north side of the pit was excavated first to see whether the slabs continued towards the north, in Pit 4-26, to simultaneously excavate it, if this was the case. The south side was excavated, leaving at the southwest the root of a tree. The slabs maintained the north to south orientation of Pit 4-6, and were found in the light brown soil. In lot 1 we found: 50 ceramic, 1 metal, and 5 obsidian artifacts; in lot 2: 5 ceramic and 5 obsidian artifacts; in lot 3: 55 ceramic and 5 obsidian artifacts; and in lot 4: 11 ceramic artifacts.

### *Pit 4-26*

Pit 4-26 was the next pit following the orientation of the stone slab alignment. At a depth of 1.40 m a small bench was left to mark a possible taxcal floor associated with the floor of Pit 4-25. The continuation of the slab alignment of the previous pits was found at 1.50 m (higher than the previous ones). In lot 1 we recovered: 75 ceramic and 6 obsidian artifacts; in lot 2: 47 ceramic, and 4 obsidian artifacts, as well as 1 charcoal sample; in lot 3: 52 ceramic and 8 obsidian artifacts, as well as 2 mica, one charcoal, and 6 taxcal samples; no artifacts were recovered in lot 4 (excavated approximately two weeks after the others); and no artifacts were found in lot 5 (excavated one day after lot 4).

***Pit 4-36***

More slabs were discovered at a depth of 1.51 m in Pit 4-36; when observing the stratigraphy of this pit in relation to the others, we discovered that the light brown earth (yellow) with abundant taxcal was placed above the slabs and at the sides, the other possibility is that the natural soil layer had been dug up to put the canal in place. This section of the canal presented a curve, it was no longer located in the middle of the pit like the previous ones, and it leaned towards the west. For that reason it was decided to excavate Pit 4-45 instead of 46, like we had previously planned. In lot 1 we found: 35 ceramic and 22 obsidian artifacts, one carved stone, one white stone, 8 taxcal samples, and one nail; in lot 2: 46 ceramic and 9 obsidian artifacts; in lot 3: 33 ceramic and 3 obsidian artifacts; no artifacts were found in lot 4 excavated approximately two weeks later.

***Pit 4-45***

Pit 4-45 was somehow bizarre, as slabs were expected to appear at a depth of approximately 1.40 m, though in fact they were seen, just like in Pit 4-36, at 1.53 m, these continued towards the north but adjacent to the eastern profile of the pit. This led us to excavate Pit 4-65 (Pit 4-55 could not be excavated because there was a tree precisely within its perimeter). Pit 4-45 was selected as the main pit through which we would obtain the largest possible amount of ceramic material we could recover associated with the canal; 17 lots were excavated to a depth of 3.80 m (in relation to Subdatum 3) where we opted to end the excavation due to the absence of materials. In lot 1 we found: 6 ceramic and 52 obsidian artifacts, and one white stone; no artifacts were found in lot 2; lot 3: 63 ceramic and 6 obsidian artifacts; lot 4: 20 ceramic artifacts; lot 5: 34 ceramic and 5 obsidian artifacts; no artifacts were found in lots 6 to 17. Therefore, it appears that the occupational phases associated with the canal and probably with any presence of human life, encompass lots 1 to 5 with a maximum depth of 1.60 m below the datum.

***Pit 4-65***

In this pit, we switched the point of reference to SD 4, located 0.60 m above the benchmark. This SD was the one used by Diana Belches, who had initiated the excavation of this pit several days before and had left it in the third lot. Work at this pit was very tedious, because even at a depth of over 1.70 m no slabs were found, and this was the depth we had anticipated for their location in relation with the other pits. A headless figurine of a human body was recovered at 1.76 m [Fig. 7-7], and we continued excavating down to 2.45 m, but found no slabs. Only then we understood that exactly under the tree that hindered the excavation of Pit 4-55, the canal made a turn to introduce itself under the structure (denominated Structure 15-1 for being the first one found in the season) [Fig. 7-8a, b] that was being excavated, simultaneously, by DBL. In lot 1 we found: 165 ceramic and 28 obsidian artifacts, and one charcoal sample; no artifacts were found in lots 2 to 6.

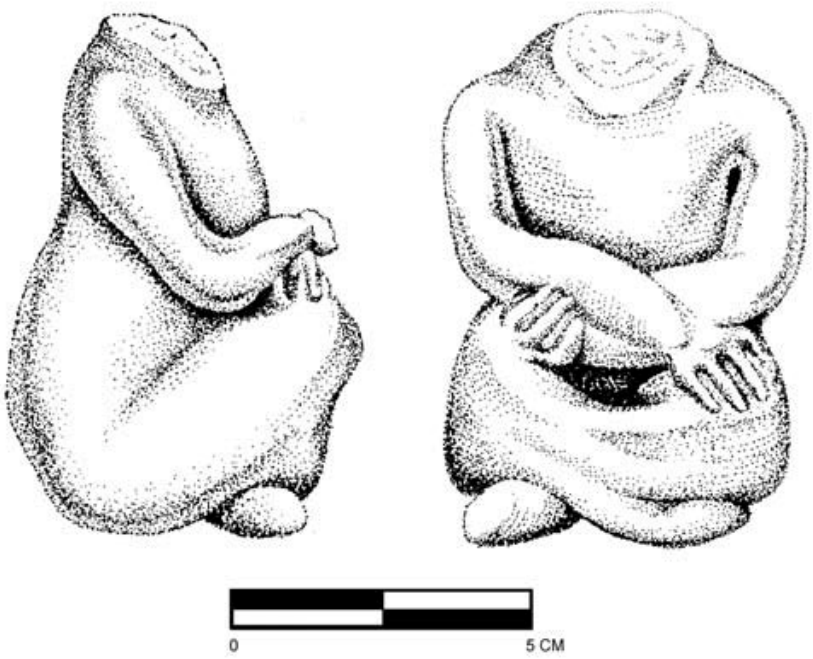


**Fig. 7-7. Seated headless figurine with hands resting on its knees, found in lot 4, pit 4-65, at a depth of 1.76 m below SD 4.**

**Fig. 7-8. Pits 4-65 and 4-64 show the clear continuation of the canal from the outside of the house to the inside, following the water reservoir (not visible in this photo).**

### *Pit 4-64*

The following pit was Pit 4-64, already excavated by DBL, but after finding stones on the west profile, I continued excavating only the east side, and stopped upon reaching a depth of 1.65 m. The pit was re-excavated with the purpose of locating the canal. At 2.05 m the slabs we had anticipated finally appeared, still curving towards the west and penetrating underneath the structure; for this reason work in

this pit was discontinued, as doing otherwise would have implied removing stones that shaped Structure 15-1. In lot 1 we found: 121 ceramic and 17 obsidian artifacts; in lot 2: 75 ceramic and 8 obsidian artifacts, and one stone; in lot 3: 75 ceramic and 10 obsidian artifacts, and a few rocks for matrix description; in lot 4: 74 ceramic and 3 obsidian artifacts; no artifacts were recovered in lot 5; ceramic 40, obsidian 30; in lot 6: 21 ceramic artifacts and 8 taxcal samples.

***Pit 4-486***

To resume the study of the canal without causing damage to DBL's work, it was decided to try to locate the canal that was positioned towards the south; we therefore moved to Pit 4-486 (this pit was out of the IG - Initial Grid - so a new grid was added, with numbers between 401 and 500). Its reference was Subdatum 2, located at the same level than the datum but 15 m towards the southeast. This pit was placed at the south of Pit 4-6. Pit 4-496 was in between pits 4-6 and 4-486 but was not going to be excavated to avoid wasting time searching for connections we already knew existed. At 0.60 m we observed 3 large stones which we benched to carry on with the excavation. Additional stones and a large stone slab were discovered during our excavation of the south and northeast of this pit. These stones, unlike the previous ones, were located below the dark brown earth, and sat on the earth with abundant gravel (the same soil texture on which the stones of Structure 15-1, excavated by DBL, were placed). In lot 1 we found: 103 ceramic and 16 obsidian artifacts; and in lot 2: 52 ceramic and 14 obsidian artifacts.

***Pit 4-496***

The previous pit yielded no slabs, like the ones found earlier, in its entire extension. Therefore, Pit 4-496, between pits 4-6 and 4-486, was excavated to try to understand the connection between those two pits and the reason for the absence of slabs, considering the possibility that it could be due to a wall or another structure. Large stones were observed in Pit 4-496 at a depth of 0.60 m, but only in the upper part of the west side. In lot 3 we finally saw the slabs that were the continuation of those in Pit 4-6, and at the center of the lot, we saw the part of the canal with no slabs, leading us to conclude that the lack of slabs was part of the construction system. In the east side of the lot a grinding stone was found, face down, reused as a lateral stone of the canal. The complete canal was uncovered, revealing that it was built on dark brown earth. In lot 1 we found: 65 ceramic and 17 obsidian artifacts, 2 carved stones, and one conical stone; in lot 2: 50 ceramic and 6 obsidian artifacts, as well as one charcoal and 2 taxcal samples; in lot 3: 8 ceramic and 2 obsidian artifacts, and one charcoal sample; no artifacts were found in lot 4.

***Pit 4-476***

In this pit we found the continuation of the canal towards the southwest. The canal followed the natural slope of the terrain to the south. We were certainly impressed, as we had expected that the course of the canal would proceed towards the southeastern slope of the terrain. At this stage of the investigation, the height disparity observed in the walls of the canal led us to consider a possible different architectural trait, an assumption we would later dismiss. The stones were positioned on dark brown earth with gravel. At the same level of the canal stones in lot 4 of this pit, we discovered a tripod vase with designs of black paint on buff, placed under a stone (possibly collapsed) at the center of the canal [Fig. 7-9 a, b, c]. Lot 1 yielded: 80 ceramic and 15 obsidian artifacts; lot 2: 21 ceramic and 7 obsidian artifacts; lot 3: 7 ceramic and 4 obsidian artifacts; no artifacts were recovered in lot 4.


**Fig. 7-9a, b, c. Painted tripod vase found in lot 4, Pit 4-476 at the same level of the canal stones.**

### *Pit 4-477*

With the purpose of understanding the context of this section, we continued with Pit 4-477, east of Pit 4-478. Anticipating that we would find the canal (because of the drop in the terrain), we verified there was indeed a canal, but with a different alignment than that of the previous one. At this point we realized this was a canal branch located between pits 4-476 and 4-477, with a fork situated in a southeast direction, and another one in a southwest direction. Lot 1 yielded: 34 ceramic and 10 obsidian artifacts; lot 2: 21 ceramic and 8 obsidian artifacts; no artifacts were found in lot 3.

### *Pit 4-466*

Pit 4-466 was excavated to confirm the continuity of the canal towards the southwest. In lot 2 we verified that the canal here was a ramification that descended

along the slope of the terrain. The stones lied on dark brown earth with gravel. Less than 100 m away there was a depression where possibly the canal ended, or where water possibly arrived from Structure 15-1.[1] In lot 1 we found: 30 ceramic and 12 obsidian artifacts; in lot 2: 31 ceramic and 9 obsidian artifacts; no artifacts were found in lot 3.

### *Pit 4-456*

Pit 4-456 was excavated with the purpose of investigating whether the canal also continued towards southwest. The excavation proceeded following the possible orientation of the stones, expecting they would not present such an abrupt curve as the one observed in the northern sections of the canal. At 1.64 m we located half of the face of a figurine (mouth and chin). Some stones appeared at the center and south of the pit, but none gave the impression of being part of a stone alignment for a canal. The reason for the interruption of the canal may have been a nearby reservoir for water storage, a trait that was not sought, or perhaps the roots may have simply displaced the canal stones. Another option is that these stones were stolen at some later stage, after the trait was abandoned. In lot 1 we found: 41 ceramic and 11 obsidian artifacts, as well as one carved stone; in lot 2: 50 ceramic and 15 obsidian artifacts, and one charcoal sample; in lot 3: 43 ceramic and 15 obsidian artifacts, one charcoal sample, and the figurine [Fig. 7-10]; and in lot 4: 51 ceramic and 7 obsidian artifacts, and one carved stone.

**Fig. 7-10. Figurine found at lot 3, pit 4-456, at a depth of 1.64 m below SD 2.**

### *Pit 4-467*

Pit 4-467 was excavated with the purpose of finding some special trait, but only two slabs on the floor at a depth of 1.50 m were uncovered; the slabs merged with the east wall of the canal section of Pit 4-466, since there was no large stone associated with them and no indication that they were fallen canal covers, we concluded that very probably that was their original position. Only one lot was excavated, which yielded: 85 ceramic and 32 obsidian artifacts.

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[11] Structure excavated by Diana Belches, See Report on Field Methodology # 2, Chocola, School of History, USAC 2004 (Informe de prácticas de campo No. 2, Chocolá, Escuela de Historia, USAC, 2004).

***Pit 4-455***

We continued with Pit 4-455, in the belief that the canal had a curve that placed it further southwest (pits 4-466 and 4-456 were excavated in their north and south portions respectively, as there was a very large tree occupying this space). In lot 2 of Pit 4-455, a number of stones were located to the north, but they lacked any arrangement and showed no continuity with regard to the previous ones. Upon deepening the excavation to 1.50 m, we only found the light brown earth layer. In lot 1 we found: 70 ceramic and 20 obsidian artifacts, and 2 taxcal samples; in lot 2: 29 ceramic and 21 obsidian artifacts, 3 pumice stones, and one charcoal sample; and in lot 3: 31 ceramic and 19 obsidian artifacts.

***Pit 4-465***

Only half of Pit 4-465 was excavated, due to the presence of tree roots. We found two stones of the continuation of the west wall of the canal from Pit 4-466, but there was no other prolongation of the trait. In lot 1 there were: 21 ceramic and 3 obsidian artifacts; in lot 2: 27 ceramic and 13 obsidian artifacts; in lot 3: 30 ceramic and 3 obsidian artifacts; and in lot 4: 10 ceramic and 3 obsidian artifacts.

***Pits 4-433, 4-443, 4-434***

The pits we excavated next were pits 4-433, 4-443, and 4-434, with the purpose of finding some sign of the canal's continuation, but only very distant and small stones were found, which were benched and drawn up. An agglomeration of light sand on the southeast profile of Pit 4-434 was located at 1.30 m. No artifacts were found.

***Pit 4-487***

Pit 4-487 was excavated again in the search of the eastern bifurcation (Trait 4-R-13). Only half of this pit was excavated as the purpose was merely to locate the east wall of the bifurcation and to observe whether it was connected with the stones of Pit 4-486. In the west of this pit we saw the stones of the wall with a curve built with small stones, the ramification could be clearly observed. No artifacts were found.

***Pit 4-478***

In Pit 4-478 we intended to locate the route the canal followed towards the southeast. As was the case with pit 487, only half of this pit was excavated since the dirt from other pits had been placed exactly in its space. Lot 3 showed the stone alignment that went along the slope of the terrain, and we saw that it was increasingly oriented towards the east, making it necessary to excavate Pit 4-468. Lot 1 yielded: 40 ceramic and 2 obsidian artifacts, as well as one carved stone; lot 2: 47 ceramic and 1 obsidian artifacts; lot 3: 12 ceramic and 5 obsidian artifacts; and lot 4: 19 ceramic and 1 obsidian artifacts.

***Pit 4-468***

In this pit only the west wall of the canal was excavated, since this was the most disordered or disturbed stone alignment observed so far. Nonetheless, we were able to locate the wall, with the stones located at a level that preceded the level of the stones from Pit 4-478. In lot 1 we found: 35 ceramic and 3 obsidian artifacts; in lot 2:

51 ceramic and 5 obsidian artifacts; in lot 3: 25 ceramic and 2 obsidian artifacts; no artifacts were found in lot 4.

***Pit 4-459***

To proceed with the observation of the alignment, we excavated Pit 4-459 in order to define whether this was the end of the canal, since this was not clear in the previous pit where the stones were very disordered. At a depth of 2.40 m the first stones of the canal were found, corresponding to the west wall of the alignment; this section was well preserved and the canal could be clearly observed. In lot 1 we found: 40 ceramic and 20 obsidian artifacts, as well as 17 taxcal samples; in lot 2: 23 ceramic and 4 obsidian artifacts; no artifacts were found in lot 3.

***Pit 4-469***

Pit 4-469 was excavated to uncover the east wall of this section of the canal. Only half of the pit could be excavated (due to the hindrance by dirt from other pits present on its surface). A large sherd consisting of a rim and body placed face down was found at a depth of 1.80 m on the northwest profile; it was drawn up and photographed before being removed. The east wall here was surrounded by dark brown earth, but when we cleared the stones to uncover its facade, we observed the change to light brown earth. No artifacts were recovered.

***Pit 4-460***

Continuing our investigation of the slope of the terrain we excavated Pit 4-460, and at a depth of 2.90 m we uncovered another section of the canal that was very poorly preserved, consisting of stones of different sizes, and in great disarray; only three of them could be interpreted as being part of the wall, while the others were considered to have had caved in. Unlike the stones in the previous pits, these stones rested on light brown earth with abundant taxcal. No artifacts were found.

***Pit 4-450***

We believed that the previous pit represented the end of the canal, and that this was the reason why it was so poorly preserved; to verify this fact Pit 4-450 was excavated, revealing the presence of new stones at a depth of 2.74 m; in this pit, the stones were surrounded by light brown earth with taxcal. Much to our surprise, this section of the canal was in perfect condition. There is a section in the southeast of the pit where no stones were found and therefore our efforts were intensified in that section, uncovering stones inside the canal, positioned as a floor. Initially we thought these were stones that had fallen down, but as the excavation proceeded inside the canal, we saw that those stones at the bottom were part of the construction system; therefore, it was decided to work inside the canal in every pit where it was possible. To uncover this “floor”, all pits of the southeast bifurcation were excavated, as well as those of the southwest bifurcation. As a result, we found that the entire southeast bifurcation presented bottom stones, and no slabs serving as lids; in contrast, the southwest bifurcation had no stones at the bottom (and no slabs on the surface). No artifacts were found in the six lots excavated.

### *Pit 4-631 and 4-641*

Pit 4-641 was excavated with the purpose of finding the continuation or a curve in the canal, but only one stone from the east wall of the canal was found; consequently, Pit 4-631 was initiated to search for the continuation of the alignment. We found the face of a female figurine, located face down at a depth of 2.90 m at the north of the pit [Fig. 7-11]. At a depth of 3.30 m both walls of the canal could be observed in a good state of preservation but with some collapsed stones, which made the canal look narrower. At this point we observed an additional curve along the route of the canal descending in a southward direction. Excavation proceeded inside the canal uncovering its base, which again rested on dark brown earth. An accumulation of sherds was found inside the canal at a depth of 3.82 m, at the south of the pit; drawings were made and the materials found were placed in a separate bag, in the belief that perhaps they could be a part of a same vessel. This was the last pit excavated to the south.

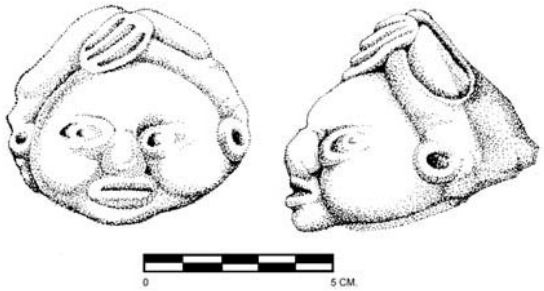


**Fig. 7-11. Female figurine found in lot 1 of pit 4-631 at a depth of 2.90 m below SD 2.**

### *Pit 4-17*

To conclude with the fieldwork of the 2004 season, it was decided to re-excavate Pit 4-17 (west of the previously described excavations, and close to the road cut in the mound), excavated during the first field season by CVL and FPU. This pit presented a well preserved section of the canal, with slabs serving as covers. The purpose was to elucidate the route of the canal, to further understand the nature of the ramifications located in the subsoil of Mound 15. We needed to understand whether it was connected to sections of the canal excavated in 2004, or whether it joined a different section of the canal excavated by DBL in 2003, located approximately 6 m south of Pit 4-17.

### *Pit 4-735*

After having located the already known portion of Pit 4-17, Pit 4-735 was excavated south of Pit 4-17 (according to the 2004 grid, Pit 4-17, from the 2003 season, would be Pit 4-745) [Fig. 7-12 a, b]

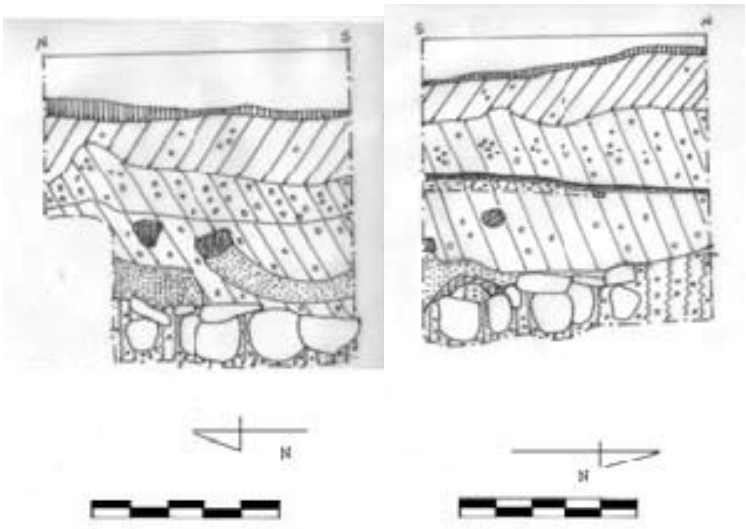

**Fig. 7-12 a, b: (a) East profile, Pit 4-735; (b) West profile.**

Taking Pit 4-17 as a reference, Pit 4-735 would have to be excavated to a depth of approximately 1.50-1.60 m to locate the stones that formed the canal. A floor was found consisting of a very compact layer of reddish brown mud at 0.90 m, it was 0.01 m thick, and placed on another sandy gray layer with pumice stone, that gave the sand a lighter coloration, which was 3 cm thick. Under this sand there was a layer of light brown, almost yellow earth, with abundant taxcal of all colors, it was still possible to define whether this was a filling or a part of the floor. This last layer was 5-10 cm thick. This floor was observed only on the west half of the pit. Upon examining the south profile of Pit 4-17 we found light brown earth with taxcal both on top and below the canal. The height of the floor in Pit 4-75 was measured with respect to the canal of Pit 4-17, and the result was that the floor appeared 0.62 m above the canal.

Excavation continued only in the east portion of the pit, where at a depth of 1.33 m a zoomorphic figurine was discovered, probably a whistle in the shape of a bird. Then, at a depth of 1.60 m, horizontal stones began to appear in the northeast; these stones were the lids of the canal but they were not slabs like those we had seen so far, they were instead, a different type of stone, thicker than the slab lids.

We initiated our work on the canal and observed that one part of it (in the southeast) had no lids like those present in the north. To find out whether they had collapsed into the canal, we excavated inside the canal down to the base of the lateral stones, verifying that there were no lids and no floor stones. Perhaps the absence of lids and a floor could be explained because this section was located “outdoors”, for daily use. This is a perfect example of the canal with and without lids. On the south profile we made a window 50 cm deep to locate the route of the canal, and observed that this section was connected with the section excavated by DBL in 2003 (pits 4-6 and 4-4).

In the ten excavated lots we found an abundance of taxcal in lot 4, probably a part of the floor; in lot 5 the zoomorphic figurine [Fig. 7-12 a, b], in lot 6 a large ceramic fragment, in lot 7 horizontal stones, and in lot 9 the base of the lateral stones.

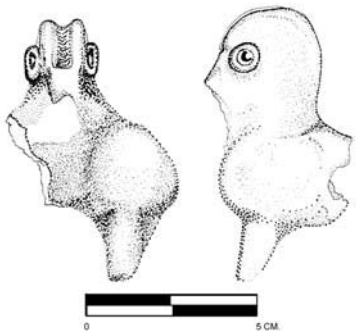

**Fig. 7-12 a, b. Zoomorphic figurine in the shape of a bird found in lot 5 of pit 4-735 at a depth of 1.33 m below SD 2.**

## Description of layers

The three upper layers (E-1, E-2 and E-3) were studied the most, due to their association with the traits uncovered, while those in the lower levels proved very difficult to analyze because they were very similar to each other, only differentiating themselves by the density of their component materials. In general, they visually presented an identical color, with a predominance of a light brown coloration, and a decrease in the amount of taxcal as depth increased.

*LAYER 1 (E-1)*

Humus. Very dark brown, it was moist at the time of description. Munsell color chart: 10 YR 2/2.

*LAYER 2 (E-2)*

Dark brown earth. Clayish, sandy soil of a granulous consistency, loose, abundant frequency of artifacts: sherds from 15 to 5 cm in length and obsidian. Munsell color chart: 7.5 YR 3/2.

*LAYER 3 (E-3)*

Light brown earth. About 50% of its composition consists of small, rounded and irregular gravel; it includes taxcal, gravel, green stone and pumice. Munsell color chart: 10 YR 3/4.

## Color of the layers as of samples of Pit 4-45

Samples were collected from Pit 4-45 (the main pit) at each change of layer or inclusion to facilitate our work. They were taken to the laboratory and placed on a wooden board for drying, to obtain a dry and different color of layer. Once the layers dried, we proceeded to define the colors with the help of the Munsell chart.

Then we prepared a layers color chart, painting the humid layer on a watercolor 207 GSM/”acid free” type paper. The color of the layer was applied on the sheet together

with the name and code corresponding to the Munsell chart, but much to our surprise, the same layer produced different color keys for the dry and water-colored sample. This has posed a problem which will eventually be solved.

From Pit 45 we took 12 samples of different layers or inclusions, including those previously described in this chapter; 1: humus; 2: dark brown earth; 3: light brown earth with inclusions of black stones, taxcal, mica, pumice, a very granulous layer; 4: light brown with no inclusion of stones, it looked clean, and had less mica; 5: yellowish, sand with mica. Seven additional samples were collected; 6: it corresponded to a yellowish brown patch, lighter than the previous samples, with inclusions of taxcal and mica; 7: an orange patch in the plan view, with taxcal; 8: one patch in the plan view, gray sand; 9: dark brown, granulous; and 10, 11 and 12, representing light brown colors that are difficult to define.

One very particular characteristic in two of the pits (4-26 and 4-36) was a layer of a very strong orange, almost red color, around the east of the canal, not found in the adjacent pits. This color was due to a large accumulation of red and orange taxcal. A sample was collected for laboratory analysis.

According to Cruz Salquin (excavator) the composition of the canal was well defined and could be observed in Pit 4-45. There was a border, where the canal ended and the surrounding earth was light brown, hard, compact, and more solid; this earth was located at the sides of the canal and the earth that surrounded this compacted earth changed to very loose light brown-yellowish sand. This indicated that earth of a very strong consistency, fit to support the weight of the canal stones, was used to build the canal.

**Description of artifacts and special traits**

Some figurines were found during the excavations, and as they were associated with the canal they may help us date its style; however, these artifacts were apparently found within the context of the filling and not as offerings. Also, two vessels, which possibly were offerings, were located close to or inside the canal. The descriptions presented below were prepared by FPU.

***Figurines***

*Pit 4-631-1 [Fig. 7-11**]***

FEMALE FIGURINE. It has a headdress and ear flares, fat face, almond-shaped eyes, headdress formed by band tied in a knot in the upper part of the head.

*Pit 4-631-2*

FRAGMENT OF FIGURINE'S HEADDRESS. It represents a topknot made with three horizontal bands with bundles at the tips.

*Pit 4-641-3*

FRAGMENT OF ANTHROPOMORPHIC FACE. The material is a red paste with mica, quartz, pumice and obsidian. It only presents the mouth and a few traits of the nose.

*Pit 4-735-5 [Fig. 7-12a, b]*

BIRD-LIKE FIGURINE. It was made with a coarse red paste with quartz and mica. It shows evidence of smoke and has very thin white paint.

*Pit 4-65-4 [Fig. 7-7]*

SEATED HEADLESS FIGURINE WITH CROSSED LIMBS. It is made of an orange paste with mica, pumice and quartz, shows evidence of smoke and has a thin, white paint. The feet seem to be appliqués.

*Pit 4-23-2/3 (the bench) [Fig. 7-5a, b]*

FRAGMENT OF FIGURINE. A male face with ear flares. Fragment of effigy from incense burner, coarse black paste, and hollow.

*Pit 4-450-5*

FRAGMENT OF FIGURINE. Face of a female figurine similar in style to 4-641-3, 4-631-1 and 4-456-3.

*Pit 4-456-3 [Fig. 7-10]*

FRAGMENT OF ANTHROPOMORPHIC FACE. It presents white paint around the mouth, inside the mouth and on the cheekbones and chin. It is made of a red paste with quartz.

***Vessels***

*Pit 4-6-3 [Fig. 7-6 a, b, c]*

MINIATURE PITCHER. It is made of a light brown paste, vertical handle on the rim, with signs of smoke on the outer surface.

*Pit 4-476-3 [Fig. 7-9 a, b, c]*

TRIPOD VASE. It has straight, cylindrical, hollow supports. Cream slip and designs painted in dark brown, with geometrical designs in its middle section framed by horizontal bands ornamented with motifs of inverted “Zs”. The style suggests it dates to the second half of the Early Classic period and the Tzakol phase of the Maya lowlands. It represents a phase of the Teotihuacan style.

***Traits***

*TRAIT 4-R-1, small canal*

This trait corresponds to the finding of a canal segment (pits 4-4, 4-5 and 4-14) that presented no continuation elsewhere. Only the two lateral walls were found at a depth of 1.50 m as of the datum. The canal segment is positioned in a northwest-southeast direction. A possible explanation for the existence of this segment is that it was a canal destroyed by natural causes, or that the stones were robbed for the construction of the long canal. Absolute dates could support the interpretation that they represented different construction phases of the water management system at Mound 15.

*TRAIT 4-R-2, small canal*

It corresponds to the stone slab and other stones located near Trait 4-R-1, but which was not aligned and showed no possible connection with the previous trait. The orientation of this small canal was taken at the center (taking as one single canal, traits 4-R-1 and 4-R-2), at 305º Az.

*TRAIT 4-R-9, long canal*

It constitutes the 18 m of the entire north-south alignment of the canal, including the portion that reaches Structure 15-1. The construction variants include sections with and without lids, while none of the sections presented a floor in the interior of the canal. The traits presented two classes among the bifurcations, categorized by the construction differences in each one of them and their orientation. The orientation is 356º Az following a straight line from Pit 4-6 to 4-36, and 340º Az in the curve from Pit 4-36 to Pit 4-64 [Fig. 7-13].

**Fig. 7-13. Section of the long canal.**

*TRAIT 4-R-13, southeast bifurcation of the long canal*

This section of the canal was categorized separately based on the fact that we did not know whether this bifurcation that heads southeast, was part of the same canal oriented from north to south. This bifurcation is 12 m long. It includes sections with no cover and with floor-type stones placed inside the canal. The orientation is 335º Az from Pit 4-631 to Pit 4-641, 317º Az from Pit 4-641 to Pit 4-459, and 305º Az from Pit 4-459 to 4-486 **[Fig. 7-14]**.

**Fig. 7-14. Bifurcation of the long canal.**

*TRAIT 4-R-35, southwest bifurcation of the long canal*

This bifurcation class was similar to that of Trait 4-R-13, consisting of the bifurcation that heads towards the southwest. Its construction system changes as it presents no lids and no floor-type stones inside the canal. The orientation is 37º Az from Pit 4-455 to Pit 4-465, and 20º Az from Pit 4-465 to Pit 4-486[2] **[Fig. 7-14]**.

*TRAIT 4-R-36, floor*

This is the floor located in Pit 4-735, made of 0.01 m thick, very compact reddish-brown mud, located on top of another gray sandy layer with pumice stone which gives sand a lighter coloration; this sandy layer was 3 cm thick. Under this sand, there was a light brown, almost yellow layer with abundant taxcal of different colors; at the moment we do not know whether this was a filling or part of the floor; its thickness varied between 5 and 10 cm. This floor was found only at the west side of the pit, at a depth of 0.90 m (measurement taken with respect to the datum) **[Fig. 7-15]**.

[2] Both orientations of the bifurcations were taken to the red stone located at the center of the branching.

**Fig. 7-15. Floor and canal at the west side of Pit 4-735.**

*TRAIT 4-R-37, section of the canal with covered and uncovered portions [Fig. 7-15a, b]*

This trait was found inside Pit 4-735, just like the previous one, but this section of the canal presented one covered and one uncovered segment, and continued in the same alignment as Pit 4-17 excavated in 2003. The orientation of the canal with respect to Pit 4-17 was 310º Az and with respect to Pit 4-735 was 330º Az [Fig. 7-16].

**Fig. 7-16. Sections of the canal with and without a cover: section of the canal discovered in the 2003 season, re-excavated in 2004.**

## Conclusions

### *Construction systems*[3]

When observing the entire exposed canal, we noted different construction systems; at this time we are unable to assert whether these were systems or construction manners typical of the canal, or whether the use of each one was determined by its convenience to the masons. Twelve construction modes were identified; they have been listed below together with the pit number of each example.

1. Two flat, elongated, vertically placed stones, with a small stone on top of them as a wedge and a horizontal lid [**Fig. 7-17**].


**Fig. 7-17. Construction systems: two flat, elongated, vertically placed stones, with a small stone on top of them as a wedge and a horizontal lid (west wall of Pit 4-6).**

2. Three stones horizontally placed on top of two vertical, flat stones [**Fig. 7-18**].

[3] Paredes Umaña et al, 2004.

**Fig. 7-18. Construction systems: three horizontally placed stones on top of two vertical, flat stones (west wall, Pit 4-476).**

3. One horizontal stone placed on top of a flat, vertical one [Fig. 7-19].

**Fig. 7-19. Construction systems: one horizontal stone placed on top of a flat, vertical one (Pit 4-45; another example of this is the east wall of Pit 4-476).**

4. Coarse elongated vertical stones [**Fig. 7-20**].

**Fig. 7-20. Construction systems: coarse, elongated vertical stones (east wall, Pit 4-466).**

5. Cover on top of vertical, coarse stone, placed on top of a horizontal one (east wall, Pit 4-36).

6. Two horizontal stones on top of a vertical one with floor-type stone inside of the canal (east wall, Pit 4-477).

7. One large, fat and coarse stone with stones inside the canal (south wall, Pit 4-477).

8. Edge-on stone with stones inside the canal (north wall, Pit 4-478; and west and east walls, Pit 4-5).

9. Large horizontal stone on top of a vertical one, with stone inside the canal [**Fig. 7-21**].

**Fig. 7-21. Construction systems: large horizontal stone on top of a vertical one, with stone inside the canal (east wall, Pit 4-641).**

10. Three small, coarse stones, supported at the back by a large, coarse stone (west wall, Pit 4-476).

11. One long horizontal stone on top of two stone columns made of two horizontally placed stones each (south wall, Pit 4-72).

12. One horizontal stone placed on top of two adjoining vertical stones (west wall, Pit 4-72).

The canal may present two, three, and even four stone courses one on top of the other on the sides, placed both horizontally or vertically. The use of lids and bases for the canal in the manner of floors is variable, and probably responds to specific needs derived from the topography of the site or from the practical uses of the fluid distribution system.

Among all the variants, those that always persisted inside the canal and in the construction system were the following: lateral walls with no lids and no horizontal stone in the inner surface, lateral walls with lids, and lateral walls with horizontal stones in the inner surface.

We have observed the presence of covered sections followed by uncovered sections as part of the construction system of this canal. The reason for such change probably originated in the fact that the canal also received rain waters along its route

that were stored at some given place; the uncovered spaces may also have been used for convenience, allowing people direct access to this resource.

The width of the canal changed along its route from 0.30 m to 0.60 m. The materials used in the construction varied between andesite stones and metamorphic rocks with a heavy concentration of iron, used as lateral walls. Some sections of the canal show slab-type carved lids. Additional constructive elements included small stones (0.05 to 0.15 m in diameter) and middle size stones (0.20 to 0.35 m in diameter), which served as wedges to reinforce the construction; the small ones were used to fill-in the holes, and the middle sized ones to adjust the level of the lateral walls in order to support the horizontal lids.

One significant characteristic of the materials used in the construction of the canal was the reuse of grinding stones. Two grinding stones were found (both in a fragmented condition) used on the lateral walls, one was found face down, while the other was standing.

### *General description of the canal*[4]

The canal extends in a north-south direction with bifurcations towards the southeast and southwest. A span of 34 m of the canal has been excavated and there are continuation traits towards the southeast that have not been investigated so far.

Of these 34 m, only 18 m run from north to south; 2 m run to the southwest, and the remaining 14 m run to the southeast, the two latter sections being the result of a bifurcation. The branching that headed southeast, in spite of being the longest, was sealed to avoid the passage of water. The southwest ramification is shorter, and its end is poorly preserved because of the presence of tree roots.

The entire southeast ramification presents horizontal stones on the inner surface which follow the slope of the ground. There are very abrupt steps with stones placed as landings in 90º angles, perhaps to diminish the impact of the descending water course, possibly to avoid erosion of the soil or to diminish its permeability.

At the point where the canal forks, there is a red, round stone, placed exactly to interrupt the water course that led to the southeast bifurcation; this is strange, because this is the longest bifurcation and one would expect it to have a free pass, while it would have been more reasonable to close the smaller bifurcation to the southwest.

Because of this, we expected to find traits of some kind of reservoir at the end of the southwest bifurcation, but this was not the case, making the interpretation of this trait even more difficult.

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[4] Ibid.

There is no doubt that the red stone was used as a closing of the water course, as it was placed at the same level than the lateral stones of the canal, but below this red stone there was a slab laterally placed (this slab was 25 cm long, from the base of the red stone to the floor of the canal), that definitely served the same purpose as the red stone; these two stones (the red stone and the slab) were very well coupled to the lateral stones, suggesting that this closure was built to prevent water from running below, on top, and at the sides of this bifurcation.

Another interesting piece of information regarding the construction of the canal was present in Pit 4-466, where the east wall was not at the same level of the west wall (there is a 20 cm difference in the height of both walls), which would have caused water to overflow, being the east wall at a lower level following the slope of the terrain.

The canal runs exactly under Structure 15-1. This is a rectangular structure with its major axis positioned in a north-south direction. By the middle of July, two sections of the canal had been located at a depth of 1.50 m under the construction of the structure. One section of the canal shows covers and follows the north-south alignment. An adjacent section shows no covers, in contrast to what we expected to find under a structure. This may suggest that Structure 15-1 and the canal were not contemporary.

### *Preliminary considerations on the evidence*[5]

1. The canal lies more than one meter below the structure, and has no relation to it. The structure is a later construction, placed above a canal that very probably was no longer in use or remained under the ground while being used from a different source. The more convincing evidence of this was the lack of covers for the section of the canal that extended under the house.
2. The canal presents two sections: one below the surface and another one on the surface, giving rise to uneven terrain that perhaps marked the structural bodies of Mound 15. To this date, the construction fillings of Chocolá show large amounts of taxcal and clays, but they do not evidence profiles with slopes consistent enough to substantiate the presence of the architectural bodies of the structure.
3. The bifurcations show differences in construction, and this may be a consequence of having been built at different times, or of the fact that the branching that heads southeast simply contained a new element of construction: horizontal stones in the inner surface to help water follow its route along the natural slope.
4. If Structure 15-1 and the canal were related, one of the functions of the canal may have been supplying water to the interior of the structure, or to an earlier version of it. Evidence of another stone course below the sloping wall in the

[5] Considerations 1 to 4 were taken from the paper “Un sistema de manejo de aguas en el grupo Norte de Chocolá”, presented at the XVII Symposium of Archeological Investigations in Guatemala, 2004.

west of Structure 15-1 possibly supports this hypothesis. In this case the function of the structure may have been residential, or a building for the management of this resource, as in its interior there is a box for redistribution of the flow along two different branchings.

5. Interestingly, in some parts of the southeast bifurcation, the canal was in very poor conditions, and following those sections, there were other ones in a very good state of preservation.
6. Perhaps the southwest bifurcation only evacuated water at a very short distance.
7. The red stone was definitely placed to obstruct the water course, and this notion is supported by the slab found below the red stone.
8. Initially, we believed that the canal had been introduced into the bedrock, but later this notion was disregarded when we observed that the filling found around the canal was very compact, but that the farther it was from the canal, the looser its consistency became.

***The investigations accomplished at Mound 15 in 2005, have led us to ask ourselves:***

1. Where and how was the water control system initiated in the north?
2. Is there additional evidence of this draining system outside the northeast corner of Structure 15-1?
3. Why was the longest canal closed?
4. Where does the southeast bifurcation end? Could it be a case similar to K'aminaljuyú, where initially it was believed that the canal followed the slope of the ground and later it was seen that it headed towards an agricultural field?
5. In other cases, was its function to evacuate and at the same time carry water to certain locations?
6. From which drain did the water carried by the canal originate?
7. Why is there a destroyed section of the canal (traits 4-R-1 and 4-R-2) not related with the canal that runs from north to south (trait 4-R-9)?

These and other questions may only be answered through additional investigations that will probably be undertaken in 2005, inside Mound 15, one of the mounds with canals.

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