

Palenque's Water Management

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Another aspect of the Palenque Mapping Project is the documentation of the numerous water features found within the site boundary. Palenque's water management differed from that of other lowland Maya sites due to its many perennial water sources. The Palenque Mapping Project has located twenty-six springs within site boundaries. Of those, thirteen are associated with architecture. Most of the sites in the lowlands dealt with the conservation and storage of water. Palenque had an abundance of water, which gave them an opportunity to devise new and inventive ways of controlling and moving the flow of water. This helps to explain the extreme diversity of Palenque's water management systems.



Figure 1 - The Otulum

The Otulum

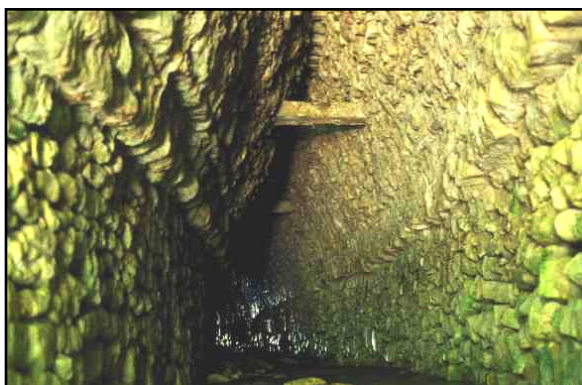


Figure 2 - Interior of the Otulum aqueduct

The Otulum is the stream that runs through Palenque's center. It begins high in the mountains about 325 meters due south of the Palace. The Otulum winds down the mountainside heading north. After the stream passes Temple XXII it enters its first water management feature. The stream becomes lined with walls of cut stones where the artificial channeling begins. The

channel is about 2 meters in depth and 1.5 meters in width (see Figure 1). The wall-lined channel continues for another 125 meters until it enters a beautifully preserved corbel arched underground aqueduct for 55 meters (see Figure 2). By building atop of the stream, the Maya created a land bridge. This aqueduct is Palenque's largest and is approximately 3 meters in height and includes a series of cut stone supporting beams in its ceiling. As the stream exits the aqueduct some collapse is evident. The Otulum then continues northward where it transforms into a series of magnificent waterfalls.

The Motiepa



Figure 3 - Motiepa's partial dam

The Motiepa is the next major stream to the west of the Otulum. The Motiepa's source is unknown because it begins outside of the site boundary. Much like the Otulum, the Motiepa begins at a high elevation in the mountains. This water source defines the western boundaries of the

Encantado Group and Group E, and the eastern boundaries of the Xinal Pa' and Moises Retreat. The most interesting water features on the Motiepa are a partial dam (see Figure 3) and a heavily calcified aqueduct (see Figure 4). This aqueduct is difficult to completely



Figure 4 - Motiepa's calcified aqueduct

identify due to the extreme amount of calcification. While standing atop of the feature

one can clearly hear the sound of water rushing inside. Without the excavation of this calcified aqueduct little can be known about it.

The Piedras Bolas



Figure 5 - Interior of Piedras Bolas aqueduct

The Piedras Bolas is similar to the Otulum and the Motiepa, in the sense that it starts at a high elevation in the mountains to the south of the site. Due to the close proximity of the two streams in the south, it is speculated that they share the same source that would

be located outside the site boundary. The Piedras Bolas defines the western boundaries of the Xinil Pa' and Moises Retreat. It also defines the eastern boundaries of the Piedras Bolas Group and the Lemon Group.

The first water feature that this stream enters is a fascinating aqueduct located near structure 30 of the Xinil Pa' Group. This particular aqueduct is partially collapsed at its southern end. At this location of the aqueduct the dimensions are approximately 50 cm



Figure 6 - The exit of Piedras Bolas aqueduct

in width and 70 cm in depth. As the aqueduct continues north 8 meters it becomes increasingly smaller in size (see Figure 5). When the water exits the aqueduct the

dimensions are approximately 25 cm x 25 cm (see Figure 6). Although water still flows through the aqueduct, it does so slowly due to the collapse. Because of this, the majority of the water now has been forced to flow to the west side of the aqueduct. Prior to the collapse, the majority, if not all, of the Piedras Bolas would have flowed through this system. Taking a large amount of flowing water and decreasing the size of its path creates pressure, thus the aqueduct would have created a large amount of water pressure.



Figure 7- Interior of Piedras Bolas aqueduct

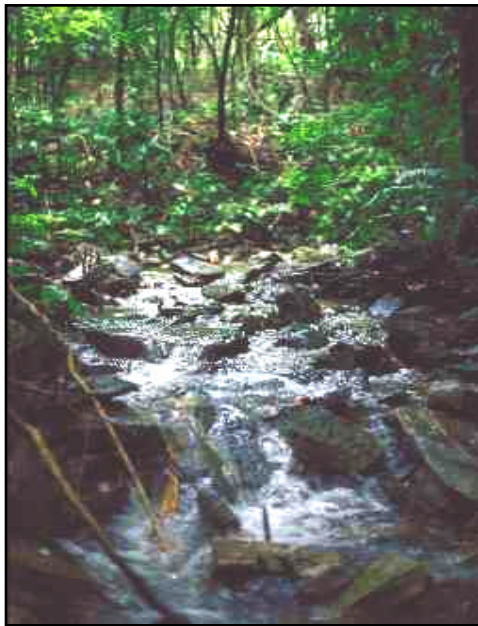


Figure 8 - High density of cut stones in the Piedras Bolas

The Piedras Bolas continues northward 85 meters and then enters another water feature. This feature is a complex drain and aqueduct combination. The drain begins at structure 13 of the Xinil Pa' Group and flows east-to-west toward the Piedras Bolas. This drain is non-functional. The aqueduct's beginning is unknown but is functional, flowing south to north (see Figure 7). It is possible that the aqueduct actually flows beneath the drain creating a crisscross effect. The water exits the aqueduct by flowing

into the Piedras Bolas.

As the water flows further north, the amount of cut stones within the stream becomes very dense (see Figure 8). The peculiarity of this is that there are few structures in this area that have been destroyed or are missing large amounts of stone. This high density of cut stone is unexplainable without further research.



Figure 9 - The entrance to the Picota aqueduct

The Piedras Bolas finally meets with the Picota stream, and together they cascade off of a series of cliffs outside of the site boundary.

The Picota



Figure 10 - The exit of the Picota aqueduct

Two major spring sources flow a short distance and join at the beautiful entrance of the Picota aqueduct (see Figure 9) to create the Picota stream. The stream then flows beneath a structure and continues underground for 50 meters forming a land bridge over the Picota. This land bridge is very similar in size and function to that of the Otulum. The stream then exits through a massively constructed archway (see Figure 10). After exiting the aqueduct the Picota continues north then east and northeast, forming the boundaries of Picota

Group, Escondido Group, Lemon Group, and Nauyaka Group. It is here between the Nauyaka Group and the Lemon Group an unidentified water feature appears. It seems to be a dam type structure used to slow the flow of water. It consists of a few extremely large cut stones, one being over 2 meters in length. This shortens the width of the Picota drastically. The Picota then immediately widens after passing this feature. It finally joins the Piedras Bolas and exits the site boundary through the same series of cascades.

Palenque's Pools

This season, the Palenque Mapping Project discovered two separate pool features within Palenque. The first pool is located in the Piedras Bolas Group and the other in the Picota Group. Both pools are very similar in construction and function. They are closely related in size, with the Picota Pool being only slightly larger. Each pool is rectangular in shape and is positioned on an east/west plane. The pools each contain a spring that is located in the southwestern corner. These pools do not appear to be for water storage. The springs feed the pools while a drain located on the east side transports the water to the nearest stream. The Piedras Bolas Pool feeds into the Piedras Bolas, and the Picota Pool feeds into the Picota aqueduct.