

***TAÍNO USE OF FLOODED CAVERNS IN THE
EAST NATIONAL PARK REGION, DOMINICAN REPUBLIC***

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The southeastern region of the Dominican Republic is characterized by karst topography with numerous caves and sinkholes. In 1492 this sector of the island of Hispaniola was occupied by the Taíno chiefdom of Higüey. The local Taíno population used subterranean chambers for a variety of purposes. Two such sites, the Padre Nuestro complex and the Manantial de la Aleta, provide insights into Taíno use of water-filled caverns. The Cueva de Chicho and other caves in the Padre Nuestro complex served as sources of water. In contrast, the Manantial de la Aleta sinkhole seems to have been a regional ritual center connected with ancestor worship.

Caves were important places in Taíno culture, and cave sites have been reported from various parts of the island of Hispaniola (e.g., Krieger 1929, 1931; López Belando 1997, 2002; Lovén 1935; Pagán Perdomo and Jiménez Lambertus 1983; Veloz Maggiolo et al. 1977, to name only a few of many possible references). Nonetheless, only a relatively few cave sites have been adequately documented, and even fewer have been scientifically reported in any detail. As a consequence, our current knowledge of the Taíno use of caves is incomplete and is largely

derived from ethnohistorical sources and dry cave sites containing rock art or burials.

Our goal here is to help increase understanding of the multiple roles of caves in the Taíno world by presenting some new evidence, particularly on the archaeology of caverns that are partially flooded because they are connected to subterranean aquifers. Our emphasis is on the southeastern tip of Hispaniola, particularly the zone occupied by the Dominican Republic's East National Park

(Parque Nacional del Este) and its immediate surroundings (Figure 1).

Background

The southeastern part of the Dominican Republic is a limestone peninsula of Pleistocene origin. From the air it appears as a low-lying coastal plain that drops off to the Caribbean by a series of marine terraces (Sauer 1966:45; Veloz Maggiolo 1972:36-37). The region has a humid tropical savanna climate (Veloz Maggiolo 1972:60), and today much of the local landscape consists of low-profile, clear-cut agricultural land. In contrast, the southeastern tip of the peninsula, the modern East National Park, is covered by a low-canopy tropical forest (Figure 2).

In 1492 southeastern Hispaniola was occupied by the aboriginal chiefdom of Higüey, one of the five principal *cacicazgos* of the island at the time of European contact (Las Casas 1967:I:22-26).¹ As Samuel Wilson (1990:108-111) argues, the boundaries of Hispaniola's late prehistoric *cacicazgos* fluctuated and are not really definable, but their core areas were more stable and are easier to demarcate. The East National Park and its environs were part of the core area of Higüey (Wilson 1990:14-15, Figure 2).²

A notable feature of the park region is its karst topography. The landscape contains hundreds of caves and sinkholes formed by fresh water that has percolated through the limestone bedrock. Some of these caverns are dry caves, while others are connected to underground aquifers and are filled with water to varying degrees. Many of the caves were used by local Taíno

groups and are now archaeological sites. Nonetheless, only a few of the known cave sites—for example, the Cueva de Berna (Veloz Maggiolo et al. 1977) and the Cueva María Sosá (Luna Calderón 1982)—have been documented in any detail, and it also seems safe to assume that many cave sites have yet to be discovered.

Since August 1996 we have been investigating sites in and around the East National Park as part of larger project involving collaboration between Dominican and North American scholars. In the course of this work we have conducted preliminary studies of several flooded caverns, most notably the Cueva de Chicho (at Padre Nuestro in Figure 1) and the Manantial de la Aleta. Our preliminary data indicate that these two sites served different purposes and had different meanings and significance for the Taíno population of the region.

Caves in Taíno Culture

Caves served a variety of purposes in Taíno culture (Lovén 1935:120-134). They were used as places for burials and for rock art, both petroglyphs and pictographs. Caves also served as temporary refuges (Las Casas 1985:II:267).



Figure 1. Map of the Caribbean Basin showing the locations of sites mentioned in the text. The Cueva de Chicho is part of the Padre Nuestro complex.



Figure 2. Typical vegetation and karst topography in the East National Park.

1999:18-21; Roe 1997:154-155; Siegel 1997; Stevens-Arroyo 1988:59-62).⁶ The Taínos conceived of a universe consisting of three layers united by a vertical *axis mundi* (Siegel 1997:108, Figure 1). The earth's surface lay in the middle, with the celestial vault above. The bottom layer was a watery underworld known as Coaybay, "the house and dwelling place of the dead" (Pané 1999:17-18).⁷ Access between the earth's surface and

There is no evidence that the Classic Taínos of the Greater Antilles lived in caves for extended periods, however, and they may have considered cave-dwelling to be a sign of savagery or subhumanity (Las Casas, cited in Lovén 1935:3, Sauer 1966:184; Martyr d'Anghiera 1989:366; Oviedo 1959:I:83).³

Caves figure prominently in Taíno mythology as it is known from the Catalan friar Ramon Pané's (1999) late fifteenth-century report. Pané's *Account of the Antiquities of the Indians* relates that the Taínos believed the first peoples of Hispaniola came from two caves in a mountain named Cauta. The ancestral Taínos emerged from one cave, Cacibajagua, while the ancestors of the non-Taíno peoples came out of another, Amayaúna. The first Taínos lived in Cacibajagua for some time before going forth to settle other parts of Hispaniola (Pané 1999:5-6).⁴ Likewise, Pané (1999:17) says that the Taínos believed the Sun and the Moon emerged from a cave called Iguanaboína.⁵

Caves were also intimately associated with the spirits of the ancestors, whose veneration was a central element of Taíno religion (Arrom 1975:108-109; Oliver 1997:148-150; Pané

the underworld was by way of sacred caves, which served as portals to Coaybay and the ancestors (Siegel 1997:108; Stevens-Arroyo 1988:185-186).

There is another connection between caves and the ancestors. Caves are homes to colonies of bats. The Taínos believed that the spirits of the dead, the *opías*, remained hidden during the day but came out at night to eat the fruits of the guava tree (*Psidium guajava*) (Pané 1999:18-19).⁸ To do this the spirits transformed themselves into bats, one of the most frequently depicted animals in Taíno art (García Arévalo 1984, 1997; Morbán Laucer 1988).

Some caves had other cosmological meanings and associations. Peter Martyr d'Anghiera wrote that the Taínos conceived of the island of Hispaniola itself as a monstrous living beast of the female sex (Martyr d'Anghiera 1989:629).⁹ Basing his interpretations on the description of the beast and data on water-filled sinkholes from Peter Martyr and Las Casas (1967:I:24; Martyr d'Anghiera 1989:366), Peter Harris argues convincingly that the head of this earth monster was at the eastern end of the island, in the chiefdom of Higüey.¹⁰ Furthermore, Harris

suggests, two specific sinkhole caverns in Higüey may have been seen as the beast's eyes (Harris 1994:10-11; see also Keegan et al. 1998:233-234, Figure 9.3).

Taino Cave Use in the East National Park Region

In view of the mythological importance of caves, it is not surprising that some caves in the East National Park contain evidence of Taíno ritual activities. Following Roy Rappaport, we define ritual as "*the performance of more or less invariant sequences of formal acts and utterances not entirely encoded by the performers*" (Rappaport 1999:24, emphasis in the original). Like Rappaport (1999:38-39), we do not make a distinction between "ritual" and

"ceremony," and we will treat the two terms as synonymous. In contrast, we note that "ritual" and "religion" are *not* synonymous: not all ritual is religious, nor is all religious behavior ritual (Rappaport 1999:24-25).

Insofar as caves are concerned, most of the archaeological remains that are usually interpreted as the results of ritual activities have been found in dry caverns. These remains take two forms, rock art and burials. Rock art consists of both petroglyphs and pictographs. Petroglyphs (Figure 3) typically occur in areas where sunlight is available, usually near cave entrances (e.g., in the Cueva de Chicho, Cueva de Berna, and Cueva Peñon Gordo). Pictographs are usually situated within the deeper confines of caves and are often more elaborate than petroglyphs. For example, the José María Cave in the East National Park contains over 1,200 pictographs (Figure 4) and is one of the most notable rock art caves ever documented in the Antilles (Conrad et al. 1997; López Belando 1997). None of the rock art in the East National Park has been dated directly, but parallels to myths recorded by Pané (1999) and a possible depiction of a Spanish ship in the José María Cave (López Belando 1997) make a Taíno attribution likely.



Figure 3. Anthropomorphic petroglyph in the Cueva Peñon Gordo (also known as the Cueva Panchito).

In addition to rock art, Taíno burials have also been found in a number of caves in the East National Park--for example, the Cueva María Sosá (Luna Calderón 1982). The dating of the burials is more secure than that of the rock art because of the artifacts directly associated with the former.

If the data from dry caves have limitations, Taíno use of water-filled caverns for subsistence and ceremonial activities has been even more obscure. Until recently there has been little investigation of this type of cave.¹¹ Yet these underwater sites have certain advantages. For one thing, they can sometimes provide better preservation than adjacent terrestrial sites. Also, they are often less accessible and have been subjected to less damage through development and looting. Our ongoing investigations of such sites are providing new insights into Taíno



Figure 4. Pictographs in the José María Cave.

culture and ritual behavior. Our data identify the Cueva de Chicho and other caverns in the Padre Nuestro complex as sources of water for drinking, cooking, and other mundane purposes. In contrast, at present the Manantial de la Aleta sinkhole appears to be a unique regional ritual center connected with ancestor worship.

The Padre Nuestro Complex

The Padre Nuestro complex is a series of water-containing sinkholes situated 3.4 km east of the coastal town of Bayahibe and 3.6 km northeast of the Club Viva Dominicus resort, near the East National Park but not inside its boundaries (Figure 1). The individual caverns in the complex include El Toro, Padre Nuestro, Cueva Brujo, and Cueva de Chicho. Today the primary use

of Padre Nuestro is to support tourism by supplying water to hotels in the Bayahibe-Dominicus area, which is undergoing rapid development. Likewise, in prehistoric times some of the caverns could have been sources of fresh water for nearby Taino settlements.

The most significant cave in the Padre Nuestro complex is the Cueva de Chicho. The entrance to Chicho is a steep slope that descends 25 m to a

freshwater pool in an underground chamber (Figures 5, 6). The chamber is 30 m wide and 20 m high, with some sunlight available through the cave mouth during the day. The underwater pool itself is 8 m wide by 20 m long and reaches depths of 8 m. On one side of the pool a prominent flat boulder lies horizontally along the water's surface, providing easy access to the



Figure 5. Entrance to the Cueva de Chicho.



Figure 6. Cross-section of the Cueva de Chicho.

water (Figure 7). Opposite the boulder is a water-filled passage or cave system that is said to reach depths of 10 m and connect to another subterranean cavern 100 m distant; at present we cannot confirm these reports, which are attributed to European divemasters formerly stationed at one of the nearby hotels.

The limnological features of Chicho are consistent with the expected properties of a cavern pool in the area. The cave has no measurable flow and little runoff into the pool. As a result, there is little sedimentation in the pool; the bottom consists of rock rubble fallen from the ceiling overhead. The temperature of the crystal-clear water column is a nearly constant 25° C, low levels of salinity qualify the pool as fresh water, and there is no anoxic, or oxygen-free, level (William Jones, personal

communication; see Figure 8).

For comparative purposes, artifacts were collected on several reconnaissance dives in Chicho, producing an assemblage of 30 ceramic pieces (29 sherds and one intact vessel). All of the ceramics belong to the Chican Ostionoid (Chicoid) subseries. No organic artifacts were noted, but the lack of an anoxic level makes water conditions in Chicho less conducive to organic preservation than conditions at La Aleta (see below).

All of the Chicho ceramics are from bottle forms. Taíno ceramic water bottles in the southeastern region of the Dominican Republic are typically heart-shaped and thick-walled, with bilateral zoomorphic or anthropomorphic heads attached as adornos (Fundación Centro Cultural



Figure 7. Flat boulder and edge of pool, Cueva de Chicho.

Altos de Chavón 1992:26, 65; Krieger 1931:89). Twenty-eight of the 30 ceramic specimens from Chicho are consistent with this bottle form, known locally as a *potiza*. The most diagnostic ceramics collected are pieces of restricted necks, several of which have symmetrical circular incisions, with adornos ("caritas," or "little faces") on opposite planes. The two non-*potiza* ceramics recovered were pieces of bottles with different forms, one with a double-bulbous profile and one with a modeled, figurine-like body.

The one intact *potiza* (PN-CHI-001; Figure 9) recovered from the cavern illustrates the typical Chicho vessel form. Lodged in a hole in the rocks and covered by

stones from above, the *potiza* was recovered at a depth of 3 m. The vessel measures 24 cm high by 18 cm wide. Its color is a reddish-brown, with fire clouds on the shoulders, and evidence of a red slip can be detected. While this specimen is relatively simple and can be called heart-shaped, more elaborate *potizas* in museum collections show that the two lobes actually represent female breasts (e.g., Fundación Centro Cultural Altos de Chavón 1992:26), and the shape is more

accurately termed mammiform. The vessel also has a flat base, an oblong profile, and a phallic neck with an opening 2 cm in diameter. A raised decorative band with incised and punctate design elements occurs around the neck. The

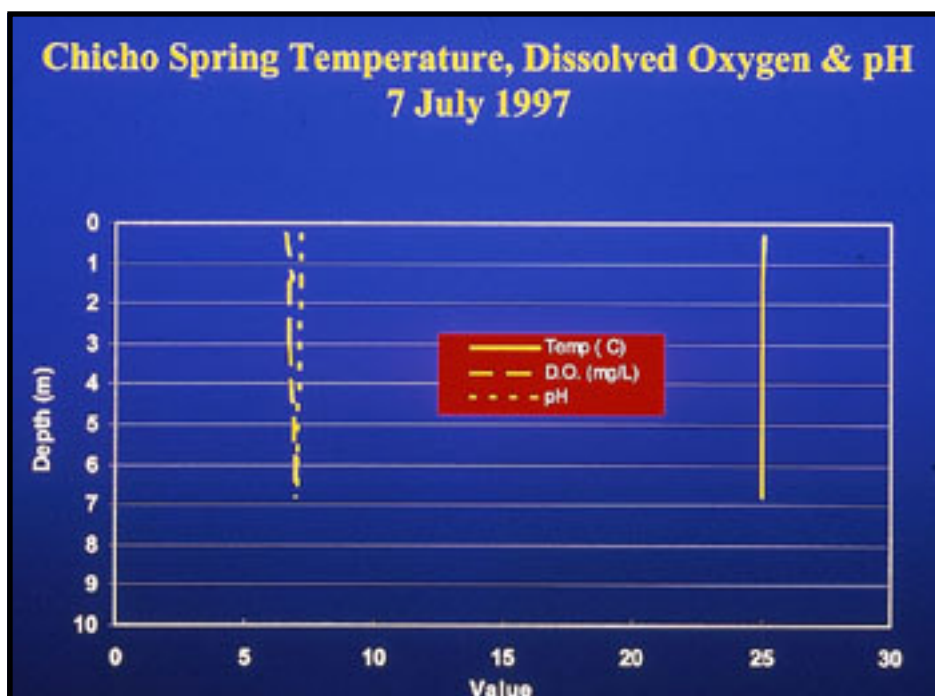


Figure 8. Limnological analysis of the water column, Cueva de Chicho.



Figure 9. Intact *potiza* bottle, Cueva de Chicho. Height 24 cm.

design, which is typical for this area, consists of two concentric circular incisions alternating with two pairs of oval incisions, and an appliqué band (Foster et al. 1997).

The preponderance of relatively simple *potizas* argues that the ceramics from Chicho were used for utilitarian water collecting. The ceramics themselves provide no evidence of ceremonial activities. The only evidence of possibly ritual behavior at Chicho is a small number of petroglyphs (López Belando 2002). We do not know whether the petroglyphs have anything to do with the presence of water in the cavern or whether they are of the same age as the ceramics.

The Manantial de la Aleta

Situated within the current boundaries of the East National Park, the Manantial de la Aleta ("Spring of the Fin") is 20 km from the Padre

Nuestro complex and 5 km inland from the closest shoreline (Figure 1). Accessible through several small holes in the ground surface, the subterranean chamber drops 16 m to the surface of the water, a roughly circular pool about 40 m in diameter (Figure 10). The submerged part of the cavern descends to a cap rock, the tip of a hill formed by rubble collapsed from the upper part of the sinkhole, at a depth of 34 m below the surface of the water. The slopes of this hill reach a maximum depth of 73 m below the surface. The upper water column is clear to a depth of 10 m, where there is a milky, sulfide-laden layer that blurs visibility until the water clears again at depths over 20 m (Conrad et al. 2001:2; Foster and Beeker 1997:27).

Limnological analyses of La Aleta indicate the sinkhole has no measurable flow and little runoff into the pool, and thus little sedimentation. The bottom consists of rock rubble fallen from the ceiling overhead and non-consolidated humus material. The temperature of the water column is a fairly constant 24.2° C, with organic preservation possible because of the lack of ambient light below the sulfur layer and an anoxic environment at depths greater

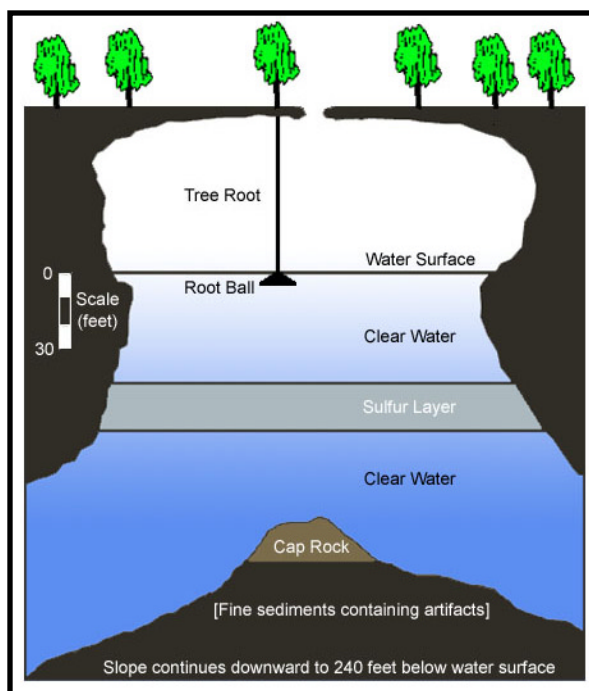


Figure 10. Cross-section of the Manantial de la Aleta.

then 11 m (Figure 11; see also Jones 1997:39).

Along the slopes of the underwater hill are numerous organic and inorganic Taíno artifacts, including wooden artifacts, gourds (*higüeros*), basketry, lithics, and ceramic vessels (Foster and Beeker 1997). To date, 245 artifacts have been recovered, primarily through controlled surface collecting along the slopes of the site at depths of 40 to 71 m. Although bottom composition, deposition, and artifact

density make stratigraphic analysis difficult, all artifacts were mapped in three dimensions before being brought to the surface and cataloged, providing an initial site plan for La Aleta (Conrad et al. 2001:4, Figure 3; Foster and Beeker 1997:29, Figure 3). A number of other artifacts, although not collected, were also documented and plotted.

The sample of artifacts reflects the diverse types of cultural materials present in La Aleta. Looting has occurred, and our sample may be biased in favor of simpler, less highly decorated objects. There are reports that looters have collected much more elaborate objects than those recovered during our investigations, including two examples of the ceremonial stools known as *duhos* and numerous intact, ornately decorated ceramic vessels (Conrad et al. 2001:15).

The Manantial de La Aleta was initially identified by José Guerrero (1981) during a brief 1981 survey sponsored by the Museo del Hombre Dominicano, which was directed by Bernardo Vega at that time. Guerrero (1981:14-

15) speculated that La Aleta may have been a site visited by the chronicler Bartolomé de las Casas during the conquest of the province of Higüey in 1503. Las Casas (1967:I:24) wrote:

From there we saw the spring, and arriving at the mouth, which was three or four *palmos* wide [25 to 33 inches], almost like a hatchway of a ship's hold...Looking through the mouth, it was so dark all the way down that it seemed bottomless...so that we were extremely uneasy. Diligently we looked for roots called *bejucos*, that served as cords, and with a clay pot we took out water, the most sweet, fresh and cold, and most delicious that could be found; this spring measured eight *brazas* from the opening to the surface of the water [or 44 feet, compared to the present-day measurement of La Aleta of approximately 50 feet]; and wanting to calculate the depth, we finally determined that the water was 40 *brazas* deep [220 feet], 32 *brazas* of which was salt water [176 feet], and 8 *brazas* of

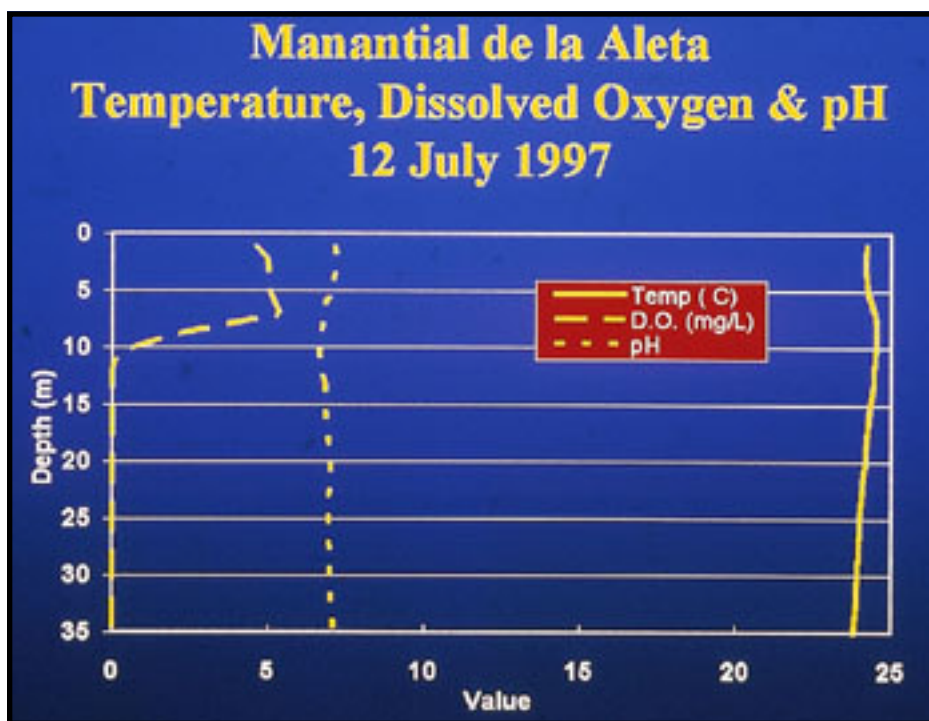


Figure 11. Limnological analysis of the water column, Manantial de la Aleta.

sweet water [44 feet], which because of its comparative lightness, as is natural, was on top (translation and interpolations by Robert M. Green).¹²

More recently, Gabriel Atilés and Elpidio Ortega (2001:33) have argued that this description is so specific as to leave no doubt Las Casas was referring to the Manantial de la Aleta.

As Las Casas's account implies, the Manantial de la Aleta could certainly have been used as a source of drinking water, like the Cueva de Chicho. There is evidence, however, to suggest that the Manantial also had other, less utilitarian functions. Recent investigations at La Aleta have documented a complex of four ceremonial plazas, or *bateyes*, only 75 m from the Manantial at the closest point (Atilés and Ortega 2001:37-38, 43-45; Conrad et al. 1997; Ortega 1997). Such plazas were used for public ceremonies, ritual dances, and ball games (Alegría 1983; Siegel 1999), and the presence of four--the largest number known from any site on Hispaniola (see Alegría 1983:33-58; Peguero Guzmán 2001:52-60)--marks La Aleta as a prominent place in the chiefdom of Higüey. The available evidence suggests La Aleta's importance was primarily religious and political, and at present the site is considered to have been a major Taíno ceremonial center with a relatively small number of permanent inhabitants, rather than a large town (Ortega 1997:9; see also Conrad et al. 2001:2).

Evidence that the Manantial itself was the focus of ceremonies is not limited to associated architectural remains. Both the organic artifacts and ceramics recovered during our investigations reflect ritual activities not seen in the ceramic assemblage from the Cueva de Chicho.

Organic Artifacts from the Manantial de la Aleta

Because of the anoxic environment at depths below 11 m, the Manantial de la Aleta offers exceptional conditions for preservation and

contains a unique assemblage of organic materials. Only a small sample of these organic objects has been recovered, with hundreds or thousands of objects still remaining *in situ*. The collected organic artifacts include 21 wooden objects, two gourd vessels, and a basket fragment. Among the additional objects not collected are woven baskets, numerous wooden artifacts, and worked gourds with twine lashings.

The 21 wooden objects include:

- 1 small intact *duho* stool
- 1 *duho* fragment
- 6 bowls
- 1 small vessel possibly used in the *cohoba* ceremony
- 3 large hafts, or helves
- 1 small haft
- 1 crocodilian figure
- 1 fragment of a canoe paddle
- 1 *macana* war club
- 1 vomiting spatula
- 4 small, unidentified fragments

Seven radiocarbon samples taken from the organic artifacts have yielded calibrated dates ranging from AD 1035 to AD 1420 (Conrad et al. 2001:14-15, Table 1).

With the exception of the most recent find, the vomiting spatula, all of these artifacts have been described elsewhere (Conrad et al. 2001), and we will not repeat that information here. Instead, we want to emphasize a few wooden objects that provide evidence of ritual activities.

The *duho* and *duho* fragment are examples of the ceremonial stools that figured prominently in the maintenance of Taíno political and ideological systems. Owned by high-ranking individuals, most notably chiefs (*caciques*), *duhos* were literally seats of power, prestige, and ritual (Ostapkowicz 1997, 1998). The intact *duho* from La Aleta (PNE-01-A-0228; Figure 12) is one of the smallest *duhos* known, measuring only 19 cm long by 9 cm high. Possibly it was intended to be the seat of



Figure 12. Wooden artifacts from the Manantial de la Aleta. Top left: *duho* (length 19 cm); top right: possible *cohoba* vessel (length 13 cm); bottom: *macana* (length 79 cm).

one of the Taíno religious figures known as *zemis*, rather than a stool for a human being (Ostapkowicz 1997:64, 1998:141, 274-275).

The crocodilian figure (PNE-01-A-225; Figure 13) is a small, hook-shaped piece of wood with carved snout, eyes, body, and tail. The carver took advantage of the natural form of the wood to create the crocodilian imagery (which is probably a representation of a cayman). This object is most reminiscent of a series of small wooden artifacts recently discovered at the Deadman's Reef site on Grand Bahama, which have been interpreted as *zemis* (Berman et al. 1999, 2000).



Figure 13. Crocodilian figure, Manantial de la Aleta. Scale in cm.

The *macana* (PNE-01-A-0202; Figure 12) is a war club, a type of artifact that may have had both mundane and ritual functions. Considered by early Spanish observers to be the Taínos' most effective and dangerous weapon, the *macana* was swung with both hands and was said to be capable of crushing a man's skull even if he was wearing a steel helmet (Las Casas 1985:I:304; Oviedo 1959:I:64; see also Lovén 1935:451-453).¹³ Joanna Ostapkowicz (1998:226) suggests that in addition to their utilitarian value as

weapons, *macanas* may have been prized symbolic artifacts that expressed the power and prestige of their owners.

Cohoba was a hallucinogenic snuff made of the seeds of *Anadananthera peregrina*; it gave its name to a ceremony through which the Taíno elite communicated with the spirit world (Pané

1999:21, 25-26).¹⁴ One small wooden vessel from La Aleta (PNE-01-A-0224; Figure 12) has been tentatively identified as a piece of paraphernalia used in the *cohoba* ceremony. This interpretation must remain speculative until a residue analysis can be undertaken. Nonetheless, the form of the bowl is similar to that of a number of small vessels from the Dominican Republic, Puerto Rico, and Cuba made of wood, cactus, manatee bone, and human bone (Bercht et al. 1997:142-143, Figures 112-113; García Arévalo and Chanlatte Baik 1978:51; Ostapkowicz 1998:109-111, 115-117, 566-568; Pendergast 1998:1; Veloz Maggiolo 1972:190, Plate 30E, 193, Plate 33A). Peter Roe (1997:146) identifies several of these vessels as bowls used to hold seeds or powder for the *cohoba* ceremony, and Ostapkowicz (1998:111) interprets two others as "personal ritual objects, containers of highly important substances such as cohoba..."

The wooden vomiting spatula (PNE-01-A-0245; Figure 14) is another piece of paraphernalia related to the *cohoba* ceremony and to ritual feasts. Participants in such ceremonies purified themselves by vomiting before communing with the *zemis*. Vomiting was induced with spatulas made specifically for this purpose (Martyr d'Anghiera 1989:643).¹⁵ Examples made of wood, shell, and bone are known. Many are elaborately carved and rank among the masterpieces of Taíno art; some even have handles that serve as rattles (García Arévalo 1997:114, 119, Figure 91; García Arévalo and Chanlatte Baik 1978; Lovén 1935:620-624; Ostapkowicz 1998:83-92). Discussing the



Figure 14. Vomiting spatula, Manantial de la Aleta. Scale in cm.

cohoba ceremony, Ostapkowicz (1998:92) writes:

Vomiting spatulas enhanced the ceremony itself (by representing a stage through which one had to pass successfully, and in which the appropriate paraphernalia was required) but also, through their size, quality of carving and style, they visually enhanced the prestige of the individual who used them.

The vomiting spatula from the Manantial de la Aleta, which has not been described previously, is 19.5 cm long and made of carved wood, with slight curve and a clearly demarcated handle and blade. Compared to other known spatulas, it is plain and lacks elaborately carved decorations. This relative simplicity is typical of the wooden artifacts from La Aleta and has been discussed in detail elsewhere (Conrad et al. 2001:15-17).

Ceramic Artifacts from the Manantial de la Aleta

To date 191 ceramic objects, 27 intact or only minimally damaged vessels and 164 sherds, have been collected from the Manantial de la Aleta. Nearly one-third (53) of the sherds are large, each representing more or less half of a vessel. Their size contrasts sharply with that of the small sherds found in excavations of terrestrial refuse deposits at the La Aleta site (Atilas and Ortega 2001; Ortega 1997). If these small sherds represent a typical pattern of

breakage during use and then discard, the large sherds from the Manantial may reflect post-depositional breakage of vessels that were intact when they entered the water.

Nearly all of the ceramics from the Manantial belong to the Chican Ostionoid

(Chicoid) subseries (Atilas and Ortega 2001:40) and bear incised, punctate, modeled, and appliqué decorations, including numerous examples of the typical *carita*-type adornos.¹⁶ All of these artifacts display a distinctive black staining from their deep-water immersion.

ceramics from the Manantial de la Aleta are more elaborate than those from Chicho. In particular, the phallic *potiza* necks from the

While bottles account for 100 per cent of the ceramics from the Cueva de Chicho, the Manantial de la Aleta assemblage shows a wider range of forms. Bowls, jars, bottles, platters, and burens (flat griddles for cooking bread) have all been recovered from the Manantial (Figures 15-17). Eighty of the 191 ceramic specimens can be identified as to form; Table 1 shows the breakdown.

The vessels from the Manantial de la Aleta have typical domestic and culinary forms, and special ceremonial forms are not distinguishable. The majority of the vessels, however, bear no evidence of hard use and little if any sooting, possible indications that they were made for ritual purposes (Krieger 1931:59). Furthermore, the decorations on

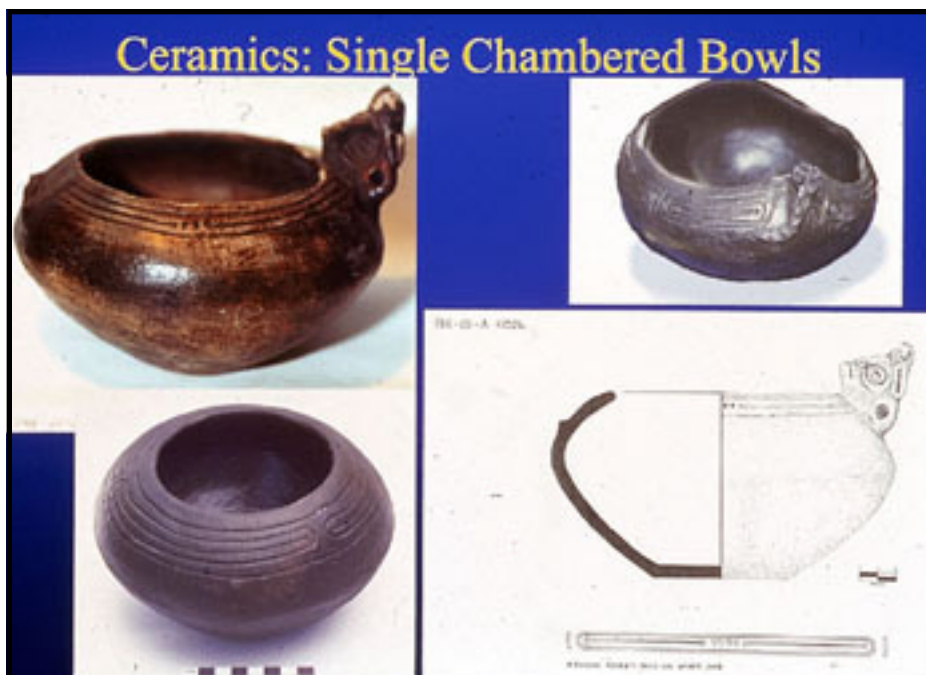


Figure 15. Ceramic bowls with simple (incurved) profiles, Manantial de la Aleta. Scales in cm.

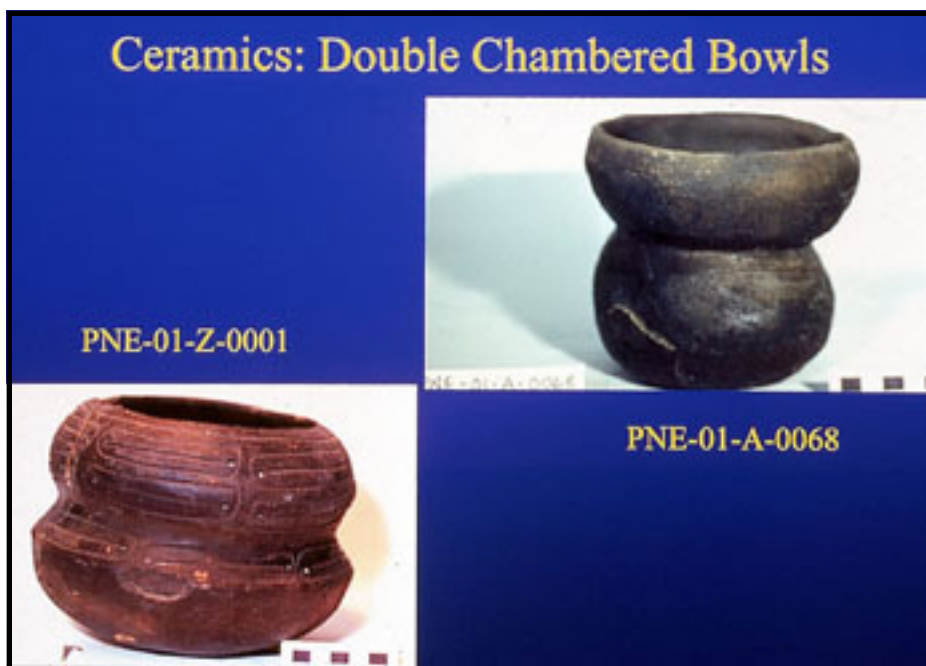


Figure 16. Ceramic bowls with composite (double-bulbous) profiles, Manantial de la Aleta. Scales in cm.



Figure 17. Ceramic jars, Manantial de la Aleta. Scales in cm.

could have been used in ceremonies. The vessels often have motifs that figure prominently in Taíno mythology as it is known from Pané's (1999) account. These designs may appear on the body of the vessel or as *carita* adornos on the rim. The iconography of the ceramic assemblage from the Manantial has been only minimally studied, and we expect that detailed analyses will provide a much greater number of examples than the few given below. Also, it seems likely that upon further

Manantial (e.g., Figure 18) are considerably more ornate than their counterparts from Chicho and are more directly comparable to elaborate *potizas* on display in the nearby Museo Arqueológico Regional Altos de Chavón (Bercht et al. 1997:47, Figure 29; Fundación Centro Cultural Altos de Chavón 1992:26).

examination, many of the vessels will exhibit the multiple imagery typical of Taíno art. In any case, the fact that the vessels' shapes and designs reflected Taíno religious beliefs would have made the ceramics suitable for use in religious rituals.

Furthermore, decorations provide evidence that the ceramics from the Manantial de la Aleta

One bowl (PNE-01-A-0128; Figure 19) has a modeled frog's head and forelegs on one side and the tail on the opposite side; the vessel itself forms the frog's body. Frogs are a common motif in Taíno art, and they were associated with water, rain, agricultural productivity, and female fertility (Arrom 1997:76-78; Stevens-Arroyo 1988:157-167). For these reasons frogs played an important role in Taíno creation mythology. Pané (1999:7-8) related that after the first Taínos left the origin-cave of Cacibajagua, the men and women separated from one another; children remained with the men.¹⁷

FORM	Subform	Number (Subform)	Number (Form)
BOWLS	Simple profile (incurved)	50	51
	Composite profile (double-bulbous)	1	
JARS			7
BOTTLES	<i>Potiza</i>	11	12
	Double-bulbous body	1	
PLATTERS			4
BURENS			6

Table 1. Ceramic Vessel Forms from the Manantial de la Aleta.



Figure 18. Phallic neck from a *potiza* bottle, Manantial de la Aleta. Scale in cm.

[the women] had left the small children next to a stream...the [male] parents could not succor the children, who were crying out from hunger to their mothers, saying "mama" in order to cry, but truly in order to ask for the teat. And thus crying and asking for the teat, saying "toa, toa" ...like one who asks for something with great desire and very softly, they were transformed into little animals like frogs...which are called *tona*...because of the way they were asking for the teat (Pané 1999:7-8; interpolations added).¹⁸

Peter Martyr's version of Pané's account adds that "The children were turned into frogs, and

from that time on the frog was held to be the voice of springtime" (Martyr d'Anghiera 1989:192; translation in Stevens-Arroyo 1988:157).¹⁹ Sebastián Robiou Lamarche (1983, 1984) has identified the children who were turned into frogs or frog-like creatures as the Pleiades, a constellation that would have been crucial to the Taíno agricultural calendar (Arrom 1997:76-78; Robiou Lamarche 1983, 1996:27).

A fragment of another bowl (PNE-01-A-0001; Figure 20) bears an adorno in the form of a turtle's head and fins. Turtles are another common motif in Taíno art (Arrom 1975:138-143; Bercht et al. 1997:70-72, Figures 50-53; Jiménez Lambertus 1978). Like frogs, the turtle also has an important role in Taíno mythology. Pané (1999:14-16) relates the story of the culture hero Deminán Caracaracol.²⁰ When Deminán asked his grandfather for bread, the latter spat a *cohoba*-laden wad of spittle on Deminán's back,

...which ached very badly. Then his brothers looked at his back and saw it was very swollen; and that swelling grew so much that he was about to die. Then they tried to cut it, and they could not; and taking a stone axe, they opened it up, and a live, female turtle emerged; and so they built their house and raised the turtle (Pané 1999:16).²¹

In Peter Martyr's version of Pané's account, a woman, rather than a turtle, emerges from the swelling; "all of the brothers used her in turn and from her their sons and daughters were born" (Martyr d'Anghiera 1989:194; translation in Stevens-Arroyo 1988:125).²²

José Juan Arrom (1975:138-139; see also Pané 1999:16-17, Note 73) believes that Peter Martyr erred in making the turtle a woman. Antonio Stevens-Arroyo (1988:125-126) argues that Peter Martyr's words should be retained at the end of the myth because the woman is a logical transformation of the turtle, which he calls a symbol of female immortality. This difference of opinion notwithstanding, both authors agree that the myth represents the



Figure 19. Zoomorphic bowl with frog imagery, Manantial de la Aleta. Scale in cm.



Figure 20. Zoomorphic bowl with turtle imagery, Manantial de la Aleta.

beginnings of culture--houses, farming, cooking, shamanism, and healing (Arrom 1997:68; Stevens-Arroyo 1988:124-131). Despite his skepticism about Peter Martyr's exact words, Arrom (1997:68) concludes that the turtle "takes on a human role and becomes the Taíno Eve."

Another bowl (PNE-01-A-0230) bears two opposed handles modeled in the form of bats, and there is a vessel neck (PNE-01-A-0217; Figure 21) decorated with depictions of the eyes and tail of an owl. We have already noted that among the Taínos bats were associated with death and the spirits of the ancestors. The same is true of owls (García Arévalo 1997).

One *carita* adorno (PNE-01-A-0070; Figure 22) appears to be the handle of a shallow platter; the handle is in the form of the head and upper torso of an elaborately garbed individual wearing a headdress and other adornments. In addition to depicting what appears to be a special-purpose costume, the handle



Figure 21. Zoomorphic vessel neck with owl imagery, Manantial de la Aleta. Scale in cm.



Figure 22. Vessel rim with rattle adorno in the form of an elaborately dressed figure, Manantial de la Aleta. Scale in cm.

serves as a rattle: it is hollow, with a slit at the end and a clay ball inside. Perhaps this rattle handle is analogous to those on some vomiting spatulas, where the rattle was used to summon the *zemis* to rituals (García Arévalo and Chanlatte Baik 1978; Stevens-Arroyo 1988:123).

Beyond these mythological themes, it is possible that some vessels from La Aleta may have had calendrical significance. Arrom (1997:76-78) argues that "the Taíno had developed a star calendar sophisticated enough to embark on long sea voyages and to guide the sowing and harvesting of crops" (see also Robiou Lamarche 1983). Calendrical information may be recorded on some of the specimens from the Manantial. For example, one bowl (PNE-01-A-0242; Figure 23) has 13 circles incised on its neck. Two of these circles, which are adjacent to one another, have a punctate dot in their centers. The design may represent a season, date, or event in a lunar calendar of 13 months of 28 days



Figure 23. Bowl decorated with 13 incised circles; the design may have calendrical significance. Maximum diameter 17 cm.

edible pulp, which can be mixed with water to make a refreshing drink. The sap is used as a cure for dysentery and for skin irritations caused by the poisonous *guao* tree (*Comocladia dentata*). The bark is used to combat pulmonary infections (Liogier 1995:147-148; Vega 1996:36-37, 212). Lee Newsom (1993:250, 255, 266-267, 271, 319, 367) reports the possible presence of *guácima* wood in terminal prehistoric/contact-period contexts at En Bas Saline, Haiti, the site of a large Taíno settlement and Columbus's La Navidad.

apiece (see López Belando 1997). This interpretation is preliminary and tentative at present.

To the best of our knowledge, however, the *guácima* seeds from La Aleta are the only ones

Even the contents of some vessels may provide evidence of the special nature of the ceramic assemblage. One bowl (PNE-01-A-0167; Figure 24) contained numerous seeds identified as *guácima* (*Guazuma ulmifolia* Lam.). This tree is found throughout Hispaniola and is common in scrubland and forest clearings. It bears fruit year-round and is a source of both food and medicine. The young fruit contains



Figure 24. Bowl and *guácima* (*Guazuma ulmifolia*) seeds, Manantial de la Aleta. Scales in cm.

from an archaeological context in the West Indies.²³

There is some artifactual evidence, still tentative, that La Aleta's importance may have extended beyond the vicinity of the East National Park, or at least that some of the ceramics found in the Manantial may not have been manufactured locally.²⁴ One jar (PNE-01-A-0188; Figure 25) has a distinctive, four-lobed body that is presently unmatched in the La Aleta assemblage. It is, however, very similar in both form and construction to a jar found in the Cueva de Roma on the north shore of Hispaniola in 1926 and described by Herbert Krieger (1931:93-94, Plate 43) five years later. At the time of its discovery the jar from the Cueva de Roma was "unusual in the extreme...no other vessel of this type being known in any collection of aboriginal pottery from Santo Domingo" (Krieger 1931:160).

Interpretations

There are clear and striking differences between the artifact assemblage from the Cueva de Chicho and the assemblage from the Manantial de la Aleta. For example, the

ceramics from the two sites can be contrasted in multiple ways. The Chicho assemblage contains only bottles, while a wider range of forms is present at La Aleta (where bottles, in fact, account for only 15 per cent of the vessels whose form can be identified; see Table 1). The Chicho ceramics bear relatively simple decorations, while the La Aleta specimens are more elaborate and often bear motifs that are important in Taíno mythology as we know it from Pané's (1999) account. In terms of vessel forms, there is no evidence of non-local ceramics at Chicho and some possible evidence of the long-distance movement of ceramics at La Aleta. Nearly all of the Chicho ceramics are sherds from broken vessels, suggesting routine wear and tear and eventual discard as refuse when the bottles fractured during use. In contrast, intact vessels are much more prominent in the La Aleta assemblage, and there is also evidence to suggest that a significant portion of breakage was post-depositional. At La Aleta many vessels seem to have been deposited carefully in the water, rather than simply discarded as trash.

All of these contrasts suggest that the two sites served different functions. The only activity obviously reflected in the Chicho ceramic assemblage is water collecting for purposes like drinking, cooking, washing, and bathing. The La Aleta assemblage, however, seems to reflect a greater range of activities and a more complex function, one with a more symbolic and ritual content than can be discerned at Chicho.

If there ever were any organic artifacts in the Cueva de Chicho, they have not been preserved and cannot be compared to their counterparts from La Aleta. It is possible to say, however, that the organic artifacts from La Aleta are consistent with the ceramics from that site. Like the pottery, a number of the wooden artifacts have symbolic and ritual associations.



Figure 25. Four-lobed jar from the Manantial de la Aleta (top left and right) compared with a similar vessel reported by Herbert Krieger (bottom). Scales in cm.

Some of the pieces, like the *duho*, are prestige-reinforcing objects that were probably closely identified with individual owners (Conrad et al. 2001:16-17; Ostapkowicz 1997:56, 1998:92, 111, 119, 226); others, like the vomiting spatula, are pieces of ritual paraphernalia.

There is no sharp distinction between these two categories. For example, status and status relations were crucial to the *cohoba* ceremony. Only nobles were allowed to take part; the *cacique* led the ceremony; and the participants were seated on *duhos* (Las Casas 1967:II:175-176; Martyr d'Anghiera 1989:197; Pané 1999:26).²⁵ Accordingly, artifacts like the *duhos* and vomiting spatula from La Aleta were both status symbols and items of ritual paraphernalia.

We have suggested elsewhere that the rituals carried out at the Manantial de la Aleta were connected with ancestor worship (Conrad et al. 2001:3). Our working hypothesis is that the Taíno population of the East National Park region saw the Manantial as a portal to Coaybay, the underworld dwelling-place of the dead. Central to this argument is the fact that from the surface of the water in the Manantial, one looks vertically upward through a small opening in the earth's surface to the sky. We have argued that to the Taínos of the region, this view upward was essentially a view along the vertical *axis mundi* that united the surface of the earth with the heavens and the underworld (Figure 26; compare Siegel 1997:108, Figure 1). If this interpretation is correct, the artifacts in the Manantial were probably placed there as offerings to the spirits of the ancestors in the underworld.

There is another possible interpretation of the Manantial de la Aleta, not necessarily inconsistent or mutually exclusive with the previous one. The Taínos viewed Hispaniola as a monstrous female beast with its head to the east, in the chiefdom of Higüey, and Peter Harris (1994:11) proposes that two sinkhole springs in Higüey were believed to be the eyes of the beast. It is possible that the Manantial de la Aleta was one of those sinkholes. If the Manantial was indeed seen as one of the beast's

eyes, it was an eye that could look simultaneously outward toward the heavens and inward toward the realm of the ancestral spirits.

Likewise, there is another possible interpretation of the differences between the Manantial de la Aleta and the Cueva de Chicho, suggested to us by Mary Jane Berman (personal communication, 2002). The two sites may have been used by people of different statuses. In this argument, the Manantial de la Aleta would have been used by people of elite status, perhaps drawn from a region considerably larger than the modern East National Park. In contrast, Chicho may have been used by a non-elite group, presumably drawn only from the local area. Again, this suggestion is not necessarily incompatible with other hypotheses about the special nature of La Aleta.

All of these possibilities remain to be evaluated in more detail through future research. In any case, the artifactual evidence argues that the Manantial de la Aleta was the setting for

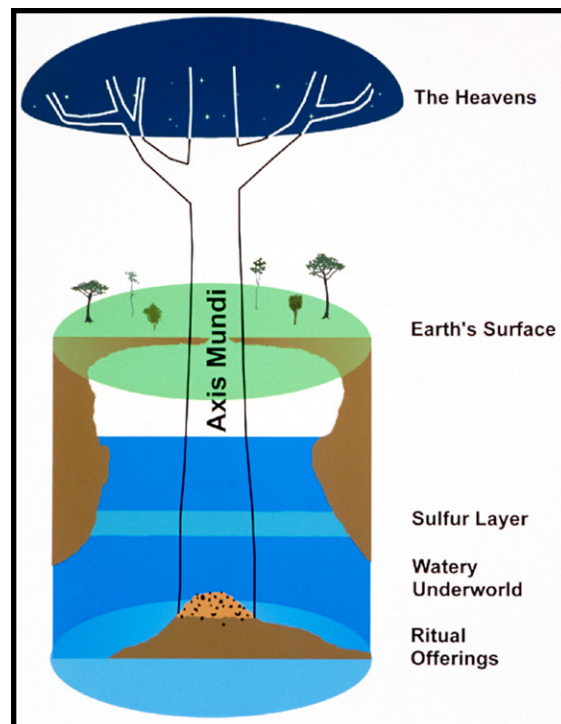


Figure 26. The Manantial de la Aleta as the *axis mundi* (modified from Siegel 1997:108, Figure 1).

rituals that were important throughout the East National Park region, and perhaps beyond. In contrast, the Cueva de Chicho was a largely mundane place, unimportant outside its immediate vicinity. We are left with the question of why. What characteristics made the Manantial de la Aleta such a special place?

We can point to three attributes that distinguish the Manantial from Chicho--and, in fact, from the other known caves in the East National Park region. The first is the fact that access from the surface of the ground to the Manantial follows a vertical path, not a horizontal or diagonal one. We believe the verticality of the Manantial was what allowed it to be identified with the *axis mundi*. The diagonal descent into Chicho did not favor such an association.

The second distinguishing attribute is the great depth of the Manantial. The bottom is far out of sight, and the water appears to extend below the earth's surface to mysterious depths. A strong argument that the Manantial de la Aleta is indeed the site described by Las Casas (1967:I:24) is his statement that the spring "seemed bottomless...so that we were extremely uneasy."²⁶ In contrast, the bottom of the pool in Chicho is easily visible from the surface, and the spring gives no impression of unfathomable depth.

The third special feature of the Manantial is the milky sulfur layer. Sinking objects disappear from view as they enter the sulfur layer, and the moment of their disappearance may have been seen as the precise moment of their transition into the underworld. Chicho, however, lacks any such obscuring layer. The pool is crystal-clear throughout its 8 m depth, and a sinking object of any size never disappears from view.

Conclusion

Both the Cueva de Chicho and the Manantial de la Aleta offer evidence of the Taíno use of water-filled caverns in the East National Park region. The features described above, however,

give the Manantial an aura of mystery that Chicho lacks. Chicho is an example of a common type of cave, and it seems that the local Taíno population treated it as a comparatively mundane place. In contrast, the Manantial de la Aleta was an unusual type of cave. Its unusualness was readily interpreted as sacredness, because its physical properties matched the Taínos' view of their universe. To the Taínos of the East National Park region, the Manantial offered a portal to the different levels of the universe and to different planes of reality. Through continued research we hope to reopen this portal and obtain new insights into the ceremonies and religious beliefs of "the people who greeted Columbus" (Rouse 1992).

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References Cited

Alegría, R. E.
1983 *Ball Courts and Ceremonial Plazas in the West Indies*. Yale University Publications in Anthropology 79.

Allaire, L.
1999 Archaeology of the Caribbean Region. In *South America*, edited by F. Salomon and S. B. Schwartz, pp. 668-733. The Cambridge History of the Native Peoples of the Americas 3(1). Cambridge University Press, Cambridge.

Arrom, J. J.
1975 *Mitología y Artes Prehispánicas de las Antillas*. Siglo Vientiuno Editores, Mexico, D.F.
1980 *Estudios de Lexicología Antillana*. Casa de las Américas, Havana.
1997 The Creation Myths of the Taíno. In *Taíno: Pre-Columbian Art and Culture from the Caribbean*, edited by F. Bercht, E. Brodsky, J. A. Farmer, and D. Taylor, pp. 68-79. The Monacelli Press and El Museo del Barrio, New York.

Atilés, J. G., and E. Ortega
2001 Un Sitio Llamado el Manantial de la Aleta. *Boletín del Museo del Hombre Dominicano* 30:33-54.

Bercht, F., E. Brodsky, J. A. Farmer, and D. Taylor (editors)
1997 *Taíno: Pre-Columbian Art and Culture from the Caribbean*. The Monacelli Press and El Museo del Barrio, New York.

Berman, M. J., P. L. Gnivecki, and G. Turner
1999 Wooden Artifacts from the Deadman's Reef Site, Grand Bahama. Paper presented at the 64th Annual Meeting of the Society for American Archaeology, Chicago.

Berman, M. J., D. M. Pearsall, and P. L. Gnivecki
2000 From Naturefact to Artifact: Wooden Objects from the Deadman's Reef Site, Grand Bahama. Paper presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia.

Conrad, G. W., J. W. Foster, and C. D. Beeker
2001 Organic Artifacts from the Manantial de la Aleta, Dominican Republic: Preliminary Observations and Interpretations. *Journal of Caribbean Archaeology* 2:1-20.
http://www.flmnh.ufl.edu/jca/Conrad_et_al.pdf

Conrad, G., J. Foster, C. Beeker, L. Uhls, M. Brauner, M. Veloz Maggiolo, and E. Ortega
1997 Images of Conquest. *Archaeology* 50(4):60-61.

De Booy, T.
1915 Pottery from Certain Caves in Eastern Santo Domingo, West Indies. *American Anthropologist* 17:69-97.

Foster, J. W., and C. D. Beeker
1997 The Conquest of a Sinkhole: Initial Archaeological Investigations at El Manantial de la Aleta, East National Park, Dominican Republic. *Underwater Archaeology* 1997:27-32.

Foster, J. W., C. D. Beeker, G. W. Conrad, L. Uhls, M. Brauner, R. Green, R. Raj, C. Trautman, C. Gonso, A.

- Jiménez Lambertus, and E. Ortega
1997 *The Discovery of a Small Potiza Ceramic Vessel from Chicho Cave, Province of La Altagracia, Dominican Republic: Preliminary Field Report*. Indiana University, Bloomington. <http://www.indiana.edu/~r317doc/dr/potiza.html>
- Fundación Centro Cultural Altos de Chavón
1992 *Museo Arqueológico Regional Altos de Chavón: Catálogo Quincentennial Commemorative Catalog*. Fundación Centro Cultural Altos de Chavón, La Romana, Dominican Republic.
- García Arévalo, M. A.
1984 El Murciélago en la Mitología y el Arte Taíno. *Boletín del Museo del Hombre Dominicano* 19:45-55.
1997 The Bat and the Owl: Nocturnal Images of Death. In *Taíno: Pre-Columbian Art and Culture from the Caribbean*, edited by F. Bercht, E. Brodsky, J. A. Farmer, and D. Taylor, pp. 112-123. The Monacelli Press and El Museo del Barrio, New York.
- García Arévalo, M. A., and L. Chanlatte Baik
1978 *Las Espátulas Vómicas Sonajeras de la Cultura Taína*. Museo del Hombre Dominicano and Fundación García Arévalo, Santo Domingo.
- Guerrero, J. G.
1981 Dos Plazas Indígenas y el Poblado de Cotubanamá, Parque Nacional del Este. *Boletín del Museo del Hombre Dominicano* 16:13-30.
- Harris, P. O'B.
1994 Nitaino and Indian: A Preliminary Ethnographic Outline of Contact Hispaniola. Unpublished M.A. paper, Departments of Anthropology and Art History, University of Florida.
- Jiménez Lambertus, A.
1978 Representación Simbólica de la Tortuga Mítica en el Arte Cerámico Taíno. *Boletín del Museo del Hombre Dominicano* 11:63-76.
- Jones, B.
1997 Exploring the Mysteries of the Manantial de la Aleta. *LakeLine* 17(4):12-13, 39-40.
- Keegan, W. F.
1992 *The People Who Discovered Columbus: The Prehistory of the Bahamas*. University Press of Florida, Gainesville.
- Keegan, W. F., M. Maclachlan, and B. Byrne
1998 Social Foundations of Taino Caciques. In *Chieftoms and Chieftaincy in the Americas*, edited by E. M. Redmond, pp. 217-244. University Press of Florida, Gainesville.
- Krieger, H. W.
1929 *Archaeological and Historical Investigations in Samaná, Dominican Republic*. United States National Museum Bulletin, Vol. 147. Smithsonian Institution, Washington, DC.
1931 *Aboriginal Indian Pottery of the Dominican Republic*. United States National Museum Bulletin, Vol. 156. Smithsonian Institution, Washington, DC.
- Las Casas, B. de
1967 *Apologética Historia Sumaria*. 2 vols. Instituto de Investigaciones Históricas, Universidad Nacional Autónoma de México, México.
1985 *Historia de las Indias*. 3 vols. Ediciones del Continente, Hollywood, FL.
- Liogier, A. H.
1995 *Arboles Dominicanos*. Impresora Soto Castillo, Santo Domingo.
- López Belando, A.
1997 *El Contacto de los Aborígenes Antillanos con los Colonizadores Españoles Documentados en las Pinturas de la Cueva de "José María"*. Indiana University, Bloomington. <http://www.indiana.edu/~r317doc/dr/adolfo/adolfo.html>
2002 *El Manantial de Chicho*. Parque Nacional del Este, Bayahibe, Dominican Republic. <http://parquenacionaldeleste.com/interfaz/articulo.asp?70>
- Lovén, S.
1935 *Origins of the Tainan Culture, West Indies*. Elanders Bokfryckeri Akfiebolog, Göteborg.
- Luna Calderón, F.
1982 Antropología y Paleopatología de Cueva María Sosá, Boca de Yuma, Prov. La Altagracia. *Boletín del Museo del Hombre Dominicano* 17:149-167.
- Martyr d'Anghiera, P.
1989 *Décadas del Nuevo Mundo*. 2 vols. Translated by A. Millares Carlo. Sociedad Dominicana de Bibilófilos, Santo Domingo.
- Morbán Laucer, F.
1988 El Murciélago: Sus Representaciones en el Arte y la Mitología Precolombina. *Boletín del Museo del Hombre Dominicano* 21:37-57.
- Newsom, L. A.
1993 Native West Indian Plant Use. Ph.D. dissertation, University of Florida, Gainesville. University Microfilms, Ann Arbor.
- Oliver, J. R.
1997 The Taino Cosmos. In *The Indigenous People*

- of the Caribbean, edited by S. M. Wilson, pp. 140-153. University Press of Florida, Gainesville.
- Ortega, E.
1997 Arqueología del Parque Nacional del Este. Submitted to the Patronato Rector, Parque Nacional del Este. Copies available from the author, Faro á Colón, Santo Domingo, Dominican Republic.
- Ostapkowicz, J. M.
1997 To Be Seated with "Great Courtesy and Veneration": Contextual Aspects of the Taíno Duho. In *Taíno: Pre-Columbian Art and Culture from the Caribbean*, edited by F. Bercht, E. Brodsky, J. A. Farmer, and D. Taylor, pp. 56-67. The Monacelli Press and El Museo del Barrio, New York.
1998 Taíno Wooden Sculpture: Duho, Rulership and the Visual Arts in the 12th-16th Century Caribbean. Unpublished Ph.D. dissertation, School of World Art Studies, University of East Anglia.
- Oviedo y Valdés, G. F. de
1959 *Historia General y Natural de las Indias*, edited by J. Pérez de Tudela Bueso. 5 vols. Biblioteca de Autores Españoles Desde la Formación del Lenguaje Hasta Nuestros Días, Vols. 117-121. Ediciones Atlas, Madrid.
- Pagán Perdomo, D., and A. Jiménez Lambertus
1983 Reconocimiento Arqueológico y Espeleológico de la Región de Samaná. *Boletín del Museo del Hombre Dominicano* 18:39-72.
- Pané, R.
1999 *An Account of the Antiquities of the Indians*, edited by J. J. Arrom and translated by S. C. Griswold. Duke University Press, Durham.
- Peguero Guzmán, L. A.
2001 Las Plazas Ceremoniales como Espacio Ritual de las Culturas Prehistóricas del Caribe: Su Posible Vinculación a Otros Contextos Culturales. *Boletín del Museo del Hombre Dominicano* 29:29-62.
- Pendergast, D. M.
1998 *The Royal Ontario Museum in Cuba*. Royal Ontario Museum, Toronto.
<http://www.rom.on.ca/digs/belize/cuba.html>
- Rappaport, R. A.
1999 *Ritual and Religion in the Making of Humanity*. Cambridge University Press, Cambridge.
- Robiou Lamarche, S.
1983 Del Mito al Tiempo Sagrado. Un Posible Calendario Agrícola-Ceremonial Taíno. *Boletín del Museo del Hombre Dominicano* 18:117-140.
1984 Astronomy in Taíno Mythology. *Archaeoastronomy* 7:110-115.
- 1996 *Encuentro con la Mitología Taína*. Editorial Punto y Coma, San Juan.
- Roe, P. G.
1997 Just Wasting Away: Taíno Shamanism and Concepts of Fertility. In *Taíno: Pre-Columbian Art and Culture from the Caribbean*, edited by F. Bercht, E. Brodsky, J. A. Farmer, and D. Taylor, pp. 124-157. The Monacelli Press and El Museo del Barrio, New York.
- Rouse, I.
1992 *The Tainos: Rise and Decline of the People Who Greeted Columbus*. Yale University Press, New Haven.
- Sauer, C. O.
1966 *The Early Spanish Main*. University of California Press, Berkeley.
- Siegel, P. E.
1996 Ideology and Culture Change in Prehistoric Puerto Rico: A View from the Community. *Journal of Field Archaeology* 23:313-333.
1997 Ancestor Worship and Cosmology among the Taíno. In *Taíno: Pre-Columbian Art and Culture from the Caribbean*, edited by F. Bercht, E. Brodsky, J. A. Farmer, and D. Taylor, pp. 106-111. The Monacelli Press and El Museo del Barrio, New York.
1999 Contested Places and Places of Contest: The Evolution of Social Power and Ceremonial Space in Prehistoric Puerto Rico. *Latin American Antiquity* 10:209-238.
- Stevens-Arroyo, A. M.
1988 *Cave of the Jagua: The Mythological World of the Taínos*. University of New Mexico Press, Albuquerque.
- Tavárez María, C.
1996 Límites Territoriales de los Aborígenes de la Isla de Haití a la Llegada de los Españoles. In *Ponencias del Primer Seminario de Arqueología del Caribe*, edited by M. Veloz Maggiolo and A. Caba Fuentes, pp. 34-47. Museo Arqueológico Regional Altos de Chavón and Organización de los Estados Americanos, La Romana, Dominican Republic.
- Vega, B.
1980 *Los Cacicazgos de la Hispaniola*. Museo del Hombre Dominicano, Santo Domingo.
1996 *Las Frutas de los Taínos*. Amigo del Hogar, Santo Domingo.
- Veloz Maggiolo, M.

- 1972 *Arqueología Prehistórica de Santo Domingo*. McGraw-Hill Far Eastern Publishers, Singapore.
- Veloz Maggiolo, M., E. Ortega, J. Nadal, F. Luna Calderón, and R. O. Rímoli
- 1977 *Arqueología de Cueva de Berna*. Universidad Central del Este, Serie Científica Vol. V. Ediciones de la UCE, San Pedro de Macorís, Dominican Republic.
- Wilson, S. M.
- 1990 *Hispaniola: Caribbean Chiefdoms in the Age of Columbus*. University of Alabama Press, Tuscaloosa.

Notes

- ¹ Las Casas, *Apologética Historia Sumaria*, Book I, Chapter 3. For the convenience of readers with different editions of the chronicles, we are including book and chapter references as notes.
- ² See Harris (1994), Keegan et al. (1998), Sauer (1966), Tavárez (1996), Vega (1980), and Wilson (1990) for discussions of the different ways the aboriginal chiefdoms of Hispaniola have been named and delimited.
- ³ For refuge in caves, see Las Casas, *Historia de las Indias*, Book II, Chapter 18 and Lovén (1935:121). For negative opinions of cave-dwellers, see Las Casas (cited in Lovén 1935:3; Sauer 1966:184); Oviedo, Book III, Chapter 12; Peter Martyr, Decade 3, Book VIII. The stigma attached to cave-dwelling may have been European, but Keegan (1992:4-8) implies that it may also have been a Taíno value judgment expressed in mythology.
- ⁴ Pané, Chapter 1. Pané apparently collected much of his information in the territory of the *cacique* Guarionex (Pané 1999:33-34; Chapter 25; see also Arrom's introduction, Pané 1999:xix-xxiv). While Pané's account is derived from a particular time, place, and sociopolitical setting, scholars have tended to treat it as being more generally applicable. This approach may be justified in a general sense--for example, all Classic Taínos may have believed that the first humans were created in two caves.
- There is no particular reason to think that all Classic Taíno groups believed humans were created in the *same* two caves, however. Given the propensity of traditional societies--including those of lowland South America and the West Indies (Siegel 1996, 1997, 1999)--to see themselves as occupying the center of the universe, it is possible that each cacicazgo believed the

- creation caves lay within its own territory.
- For the etymology of Cauta, Cacibajagua, and Amayaúna and the identification of Amayaúna as the source of the non-Taíno peoples, see Arrom's analysis of Pané's account (Arrom 1997:72; Pané 1999:5, Notes 9-11).
- ⁵ Pané, Chapter 11. For an argument that Pané's account is actually an amalgam of two myths that mixes sacred and earthly geography, see Arrom (1975:55-57). Places like Cauta, Cacibajagua, Amayaúna, and Iguanaboina were elements of sacred geography, and the Taínos would not necessarily have identified them with actual features of the landscape. Pané's account of Iguanaboina suggests that the Taínos *did* consider such identifications important, however.
- ⁶ Pané, Chapters 13-15.
- ⁷ Pané, Chapter 12.
- ⁸ Pané, Chapter 13. The most common bat species on Hispaniola is the fruit-eating bat *Artibeus jamaicensis*, which shows "a particular predilection for guavas" (García Arévalo 1997:115).
- ⁹ Peter Martyr, Decade 7, Book VIII.
- ¹⁰ Las Casas, *Apologética Historia Sumaria*, Book I, Chapter 3; Peter Martyr, Decade 3, Book VIII;
- The designation of southeastern Hispaniola as Higüey follows Las Casas (see Note 1). There is another early set of names for the Taíno provinces of Hispaniola, collected by Andrés Morales at the behest of Nicolás de Ovando, governor of the island from 1502 to 1509. Morales divided Hispaniola into five province groups. Peter Martyr recorded Morales's divisions, saying they had been "used by the Indians since time immemorial." In this scheme the southeastern part of the island is a province group called Caicimú or Caizimú. *Cimú* means "front" or "beginning" and Caicimú (Cay-cimú) "the beginning of the island" (Martyr d'Anghiera 1989:354-355; Decade 3, Book VII; see also Arrom 1980:100).
- ¹¹ Over 85 years ago Theodoor De Booy (1915:82-84) suggested that sherds found in several caves on Saona Island--today part of the East National Park--might have been "parts of vessels left in the caves to collect water from the drip of stalactites," although he admitted the drip was "negligible in quantity." De Booy (1915:87-88) did find the remains of Taíno water-collecting vessels in two caves with underground pools near El Salado, roughly 40 km north of the East National Park.
- ¹² Las Casas, *Apologética Historia Sumaria*, Book I, Chapter 3.
- ¹³ Las Casas, *Historia de las Indias*, Book I, Chapter 67;

Oviedo, Book III, Chapter 5.

¹⁴ Pané, Chapters 15, 19.

¹⁵ Peter Martyr, Decade 7, Book X.

¹⁶ Atilas and Ortega (2001:40) indicate that Luis Chanlatte Baik identified Huecoid (or Huecan Saladoid) characteristics in two vessels from the Manantial de la Aleta; the vessels in question are not illustrated in their report. The La Hueca style is controversial (Allaire 1999:705-706; Rouse 1992:85-89, 101-102, 106), but these ceramics could be evidence of an early occupation of La Aleta sometime between 300 BC and AD 400.

¹⁷ Pané, Chapters 3-4.

¹⁸ Pané, Chapter 4.

¹⁹ Peter Martyr, Decade 1, Book IX.

²⁰ Pané, Chapters 10-11.

²¹ Pané, Chapter 11.

²² Peter Martyr, Decade 1, Book IX.

²³ How the seeds came to be in this particular pot in the first place, and then remained there, is an interesting taphonomic question.

²⁴ In fact, there are no clay deposits in the vicinity of La Aleta (Robert M. Green, personal communication); the nearest known sources are 17-25 km from the site.

²⁵ Las Casas, *Apologética Historia Sumaria*, Book III, Chapter 166; Pané, Chapter 19; Peter Martyr, Decade 1, Book IX.

²⁶ Las Casas, *Apologética Historia Sumaria*, Book I, Chapter 3.