The Ball-court Petroglyph Boulders at Jacaná, South-central Puerto Rico

Johannes Loubser

Detailed information gleaned from the approximately 800-year-old proto-Taíno petroglyph boulders at the Jacaná ball-court in south-central Puerto Rico highlights their research potential, particularly when based on detailed field observations and placed within an ethno-historic context.

Background

Between 1990 and 2006 two elaborate petroglyph boulders were observed in separate locations on the surface of the prehistoric Jacaná (coded PO–29) site in south-central Puerto Rico (Oakley & Solís 1990; Espenshade *et al.* 2006), hinting that others might be buried somewhere else on the site. The full extent and complexity of the buried petroglyphs on the site far exceeded expectations, however, when extensive archaeological data recovery excavations were conducted at the site in 2006 and 2007. Excavations revealed a rectangular ball-court (40 × 50 m or 0.5 acres) bordered on four sides by a total of 284 aligned boulders, 26 of which bear petroglyphs (Fig. 1). Most petroglyphs came from the north wall (n = 13), followed by the west wall (n = 6) and south wall (n = 6). The iconography of the Jacaná ball-court petroglyphs is reminiscent of that found at Caguana in northwestern Puerto Rico and the nearby Tibes in the south-central portion of the island. Bearing in mind that the stylized execution of the petroglyphs from these sites is similar to that found in known Taíno art, it is proposed in this article that ethnographic accounts of Taíno art helps us interpret specific petroglyphs from Jacaná with more confidence.

The vehicle of this article is primarily cognitive; the underlying theory is informed by the interplay between relevant archaeological and ethnographic resemblances. To some archaeologists it might be prudent to ignore the thought-world and practices of the proto-Taíno people of old, but doing so not only misses the sophistication of their symbols and rituals but also denies the fact that their thought patterns and actions actually shaped the world in which they lived.

The late-fifteenth century accounts of Fray Ramón Pané (see both Alfonso de Ulloa's and Pietro Martire d'Anghiera's translated texts in Arrom & Griswold 1999) not only qualify as the earliest-known written ethnography of Native American Indians but also as the earliest mention of petroglyphs and pictographs in the New World. Together with the writings of Christopher Columbus and those of the sixteenth-century Fray Bartolomé de las Casas, Pané documented both the production and use of Taíno art. Viewed overall, the early Spanish accounts contain useful information on the acquisition of the imagery (the source of ideas/inspiration), the selection of raw material, the physical production of the art (unfortunately lacking details), and the interaction with the art.

It is worth mentioning that Pané apparently made the majority of his observations concerning Taíno religion among the Macorix, who did not speak the Taíno language, so we cannot assume that the religious beliefs he described can be applied indiscriminately to the entire Caribbean (Antonio Curet, personal communication). Nonetheless, having visited many islands across the length and breadth of the Caribbean in the early sixteenth-century, Fray Las Casas remarked that 'almost all those people had one kind of religion' (Arrom & Griswold 1999, 4). The virtually pan-Caribbean nature of Indian religion as documented by Pané and Las Casas — including among groups that may not have shared Taíno language or exact material culture — implies that it is valid to draw inferences from one area to another, bearing in mind regional idiosyncrasies. Until alternative interpretations can be forwarded that can account

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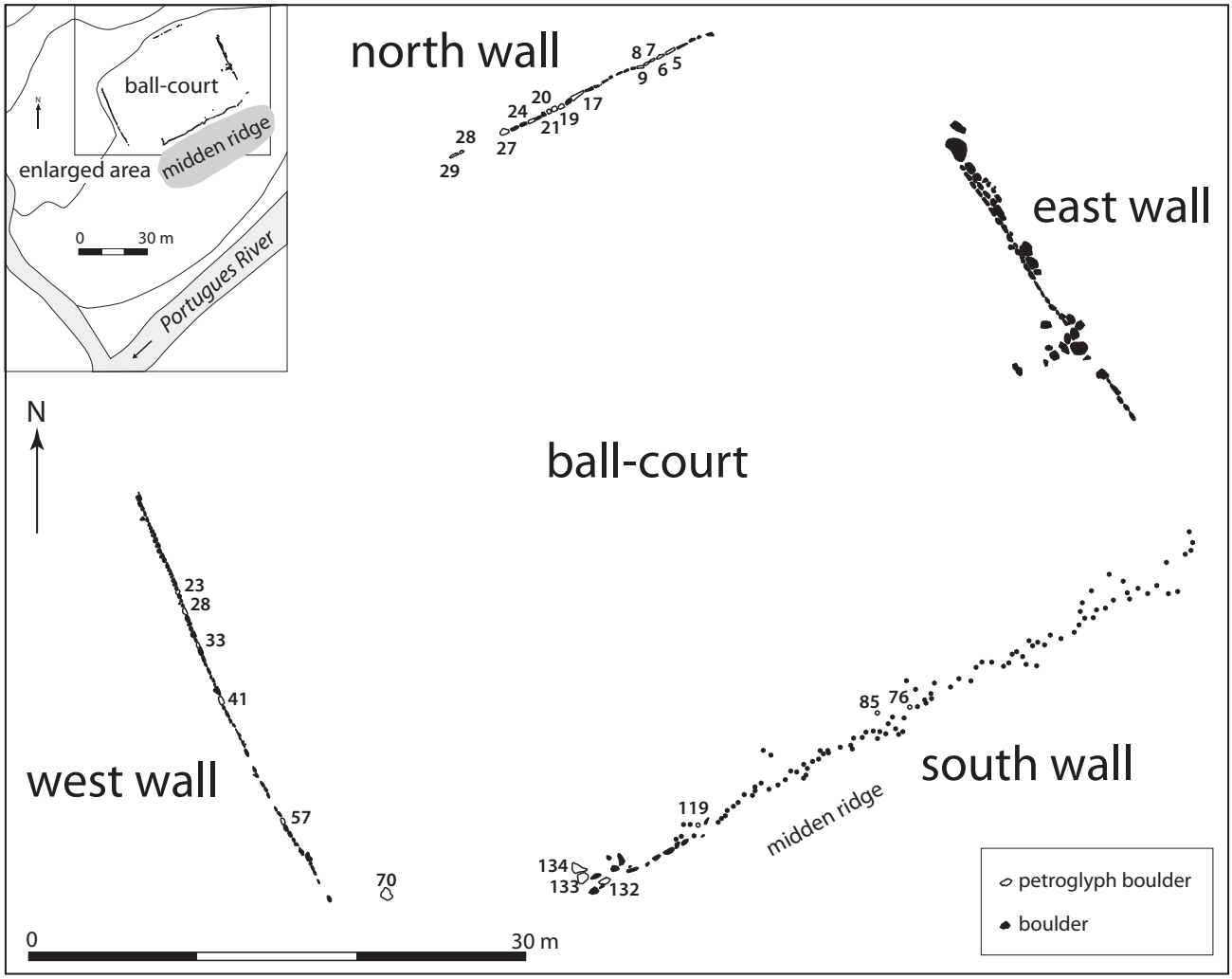

Figure 1. *Plan view of Jacaná ball-court, showing locations of petroglyph boulders mentioned in text.*

for the rock art information in a more thorough and convincing fashion, interpretation in this article is based primarily on the accounts of Pané.

Pané and other early Spanish chroniclers commonly refer to a Taíno ritual practitioner as a *behique* (Pané, in Arrom & Griswold 1999, 19; Las Casas, in Arrom & Griswold 1999, 57). The Taíno told Pané (in Arrom & Griswold 1999, 19) that the *behiques* 'speak with those [the dead] and know all their deeds and secrets'. These dead beings were actually known as *cemís* (Arrom & Griswold 1999, 21). *Behiques* could only effectively communicate with *cemís* after taking mind-altering substances, such as the powdered fruit of the *cohoba* tree (*Anadenanthera peregrina*), native wild tobacco (*Nicotiana rustica*) (Arrom & Griswold 1999, 15–16; Stevens-Arroyo 2006, 118), or highly processed bitter yucca (*Manihot esculenta)* (Arrom & Griswold 1999, 27; Stevens-Arroyo 2006, 43). The hydrocyanic acid that flows from bitter yucca when it has been peeled is poisonous; it is only after a complicated process of leaching that the Taínos could avoid the toxic effects of this alkaloid (e.g. Fewkes 1970, 53). It is instructive to know that the processed juice of yucca has a distinctively sweet aroma and has definite mind-altering properties (*Webster's Online Dictionary* 2006).

The influence that *behiques* had over ordinary Taínos can be seen when these Indians had encounters with rocks, plants or animals that behaved in a counter-intuitive fashion, as if these other-than-human things possessed human-like agency (see Barrett 2007 for comparative psychological results and Guthrie 1993 for comparative cross-cultural results showing how people around the globe communicate with other-than-human rocks, plants, and animals).

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For instance, Pané (in Arrom & Griswold 1999, 25) recounts that when an ordinary Taíno encountered 'a tree that is moving its roots, the man very fearfully stops and asks who it is'. Once a *behique* had been summoned by the fearful person, the *behique* went to the actual tree where he fasted and imbibed hallucinogenic *cohoba* powder through hollow tubes placed in his nostrils. In a state of trance the *behique* then conversed with the *cemí* within the tree. As he exited trance into a normal state of consciousness, the *behique* cut the tree 'and fashions it in the manner he has been ordered [by the *cemí*]' (Pané, in Arrom & Griswold 1999, 26). Once carved, the *cemí* was regularly given *cohoba* by the *behique*, as if the *cemí* was a living being in need to enter the altered state world of the spirits every now and then. Whereas *behiques* who were 'advised by nocturnal shadows among the trees, make them of wood … Others, if they found answers among the rocks, make them of stone' (Pané, in Arrom & Griswold 1999, 51). These eye-witness accounts importantly show how the altered state religious experiences of the *behiques* influenced their production of carved wood and rock effigies, most likely including petroglyphs.

Pané also reported the sculpting and engraving of actual rock art *cemís*. Two *cemís*, 'one of whom they call Bintaitel and the other Márohu', occurred at the entrance of Iounaboina, or Iguanaboina (probably referring to a brown serpent or an iguana-like lizard), cave in Hispaniola (Pané, in Arrom & Griswold 1999, 16, 50). According to Pané the Indians revered and venerated this cave 'more piously than the Greeks did Corinth'. Farther inside the cave were 'thousand kinds of paintings'. These paintings are actually pictographs drawn with charcoal pencils and more rarely with ochre crayons in the dark-zone caves of various Caribbean islands, whereas the semi-sculpted *cemís* are petroglyphs that can still be found in the light zone near cave entrances and along river courses (e.g. Dubelaar *et al.* 1999; Roe 2005).

Overall, the pictograph drawings differ from the petroglyph engravings; pictographs emphasize profile depictions of birds and stick-like human figures, whereas petroglyphs emphasize frontal depictions of owls and human faces. Furthermore, the significance of the two rock-art forms almost certainly differed somewhat; pictographs occurred in dark-zone caves without signs of substantial human occupation (e.g. Stevens-Arroyo 2006, 138), whereas petroglyphs for the most part were next-to or not too distant from human habitation (e.g. Loubser 2005). Tantalizingly, day-time bird species and animated human activities tend to be depicted within the dark-zone caves, whereas night-time species (owls) and skull-like faces tend to be depicted in open rock shelters. The depiction of diurnal activities in the dark and of nocturnal activities in the light inverts the world of everyday experience.

Using this brief ethno-historical background as a base-line, the article now describes the most elaborate and representative boulders at Jacaná and what they may signify in terms of Taíno beliefs.

Select petroglyph boulders from Jacaná

Recognizing that not all of the north and east walls were excavated at Jacaná, it nonetheless appears that within the current sample, albeit incomplete, certain petroglyph boulders can be paired in terms of physical resemblance. Although these pairs must remain tentative until the entire north and east walls are investigated, the pairing could be significant bearing in mind that petroglyphs at Cagauna appear to be paired as well (e.g. Oliver 2005, 277).

The following 12 petroglyph pairs were identified within the ball-court walls: two boulders with batrachian (i.e. frog-like) figures (North Walls 5 and 9); two boulders with faces on their edges (North Wall 19 and Roadside); two boulders with fine-line incised faces (North Walls 8 and 21); two boulders with faces attached directly to legs (North Walls 6 and 7); two boulders with wrapped bodies (West Walls 28 and 57); two boulders with dot-in-ring designs only (North Walls 24 and 29); two boulders that are pre-forms/utilized (North Wall 41 and South Wall 58); two boulders with multiple cupules (South Walls 119 and 132); two boulders with percussion marks only (North Wall 27 and South Wall 76); two facetted boulders with faces on opposing facets (West Wall 70 and South Wall 134); two boulders that naturally resemble faces (West Wall 23 and South Wall 78); and two boulders that naturally resemble owls (North Wall 2 and West Wall 20). In order to avoid repetition, only the seven most representative pairs are discussed (for a detailed description of all the petroglyphs exposed and recorded at Jacaná see Espenshade *et al.* 2009).

The batrachian (frog-like) pair

Within this pair, North Wall 5 is a big rectangular slab (96 cm high × 59 cm wide × 12 cm thick) of dark yellow reddish-brown calcareous sandstone with straight angular to slightly rounded edges (Fig. 2). An unusually straight natural joint, or bedding plane, divides the front and back portions of the slab into equal halves. A big fragment from the front upper left-hand corner of the slab has broken away some

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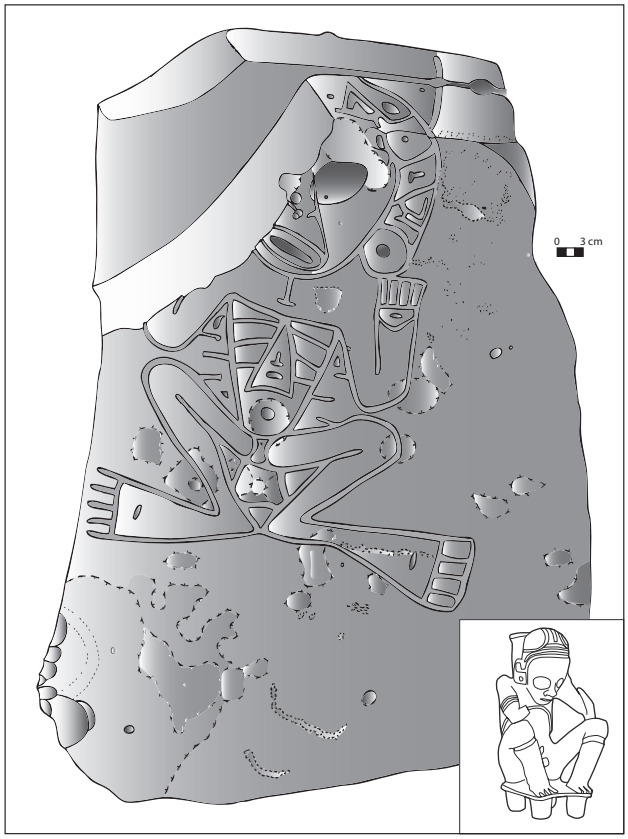

Figure 2. *Frontal view of Yaya motif on North Wall 5 with inset of ceramic effigy of cacique sitting on duoho, Dominican Republic.*

unknown time after the figure was pecked, but a long time before the slab was discovered in the archaeological excavation of 2007 (i.e. at the time of excavation the scarred rock surface was covered with a thin natural case-hardened layer, resembling stuck 'dirt' — an encrustation that does not form quickly). Flake scars along the edge immediately above the lower left-hand corner of the slab resemble the serrated edge of a lithic artefact. These scars were probably created when the rock inadvertently smashed against another rock during transportation or during insertion into the wall.

The left upper front side of the slab is covered by a symmetrical figure with carefully executed and well-defined lines. The lines have very finely pecked marks within (i.e. a small and sharp tool was likely used for pecking, most probably a hammer stone for indirect percussion). Careful incision and abrasion have smoothed out varying degrees of the peck marks within and along the edges of the lines. Two ostensibly incomplete sections of pecked lines are visible near the bottom left-hand side of the slab. Another incomplete pecked line occurs within the right web-like foot of the figure. Striated lines of scattered pecking occur near the upper right-hand corner of the slab too, one resembling an oval-shape. Taken together the incomplete pecked lines on the slab are probably indicative of work in progress that was never completed or has been interrupted.

A rayed arc-like 'head dress' or cap-like design that has been pecked above the figure's head extends over the top edge of the slab where it faces upwards. In this regard the North Wall 5 figure is similar to the placement of a similar design above the head of Petroglyph 9 at Caguana (Oliver 2005, 270). Such emanations above the skull are associated with chiefly figures (Pané, in Arrom & Griswold 1999, 28, 52). This identification, together with knowledge that the large circular ear spools that frame the head dress-like designs on North Walls 5, 9 and 21 at Jacaná and on Petroglyphs 9, 10, 18, and 22 at Caguana are leadership symbols (e.g. Oliver 2005, 270), suggest that these figures are associated with a *cacique*.

The rough natural surface of the lower half of the North Wall 5 slab brings to mind the rough skin associated with religious functionaries who have special abilities as seers (Pané, in Arrom & Griswold 1999, 12). The pecked dot within a natural circular-shaped depression in the lower abdomen of the figure resembles a navel. If it indeed represents a navel then the figure can be interpreted as being alive, considering that the so-called *operito*, or the dead, do not have any navels (Pané, in Arrom & Griswold 1999, 18). The incorporation of a natural protrusion from the rock surface as a penis also indicates that the figure is alive, as are the fleshy frog-like, or batrachian, legs and webbed feet of the figure. Interestingly, in a Taíno myth the abandoned children of a nocturnal *cacique* turned into little frog-like beings during the day (Pané, in Arrom & Griswold 1999, 8). Above the navel of the figure, parallel horizontal lines on its chest resemble rib bones of an aged, starving, or dead person. The one remaining eye (i.e. the one not destroyed by flaking) is slanting and without lids. In this regard the figure fits the description of Mácocael, or He-of-the-lidless-eyes (Arrom & Griswold 1999, 6). The lidless eyes together with the open nasal cavities and open mouth resemble a skull. These open nose and mouth are features that best fit the description of Maquetaurie Guayaba, or He-who-is-without-life (Stevens-Arroyo 2006, 228).

Overall then the human-like head and torso of the figure depict a dead or dying being, whereas its penis and fleshy frog-like legs and feet are those of a virile and living being (note that the toes of the left foot have not been enclosed with an outer line,

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suggesting that these could be exposed phalanges). The arms and hands, which closely resemble the human-like arms and hands of Panels 9 and 10 at Caguana (Oliver 2005, 270) seem to be fleshy and alive too (note the four finger and triangle design is also present on North Wall 9 at Jacaná and at Panels 9 and 10 at Caguana). Considering that the North Wall 5 figure has the lower body of a frog (*batrachian* in Greek) and the upper body of a human (*anthropos* in Greek), the Greek term batrachathrope is perhaps an apt designation for this frog/human fusion. Generally speaking, the live batrachian's lower body contrasts with the dead anthropos's upper body. The pecked adorned head of the male batrachathrope is that of a deceased political figure, whereas the natural rough rock surface of the lower rock is the skin of a living religious seer. All-in-all, the figure probably represents a deceased chief who continued to play an important spiritual role in the world of the living (see Oliver 2005, 270). It is even possible that the North Wall 5 rock is the supreme *cemí* known as Yaya, or apical ancestor. According to Arrom (1975) and Stevens-Arroyo (2006), this male batrachathrope 'was never transformed like the others [cemís]' (Pané, in Arrom & Griswold 1999, 48). Interestingly, the North Wall 5 figure appears to be the only full-figure petroglyph at Jacaná that does not change shape when flipped 180 degrees (i.e. like Yaya in Taíno theology, the male batrachathrope at Jacaná has no opposite) and so it could indeed be the primal *cemí* which include characteristics of all other *cemís* (such as characteristics of lesser *cemís*, notably Mácocael and Maquetaurie Guayaba).

With the North Wall 5 slab embedded roughly 28 cm into the ball-court sandy soil, the frog-like feet would have been above-ground surface. Apart from the depiction of the feet, legs, torso, arms, head and head dress closely resembling those of the North Wall 9 (see below) and the Caguana batrachathropes, similar stylistic elements are also shared between the two Jacaná batrachathropes and those from Caguana. Most notably, the two triangles formed between the torso and upturned arms are in-filled with curvilinear lined designs (could these be three-pointer *cemís*?). The triangle formed by the squatting legs and touching heels of the feet is in-filled too (by pecked lines and the natural penis-like protrusion at Jacaná and by a lined *duoho* depiction at Caguana — it is likely, due to reasons too lengthy for inclusion with this article, that reproductive organs and *duohos* were used interchangeably (Fig. 2)). The triangular sternum atop the circular navel is a common design element at both sites too. This design element, called the 'roundel and triangle' motif by Roe (2005, 310–311), has been found on Chican Ostionoid ceramics and so can be considered as an instance of cross-media isomorphism.

In terms of a Eurocentric aesthetic evaluation, an art critic might wonder why the symmetrical North Wall 5 batrachathrope motif was placed left of the slab's centre-line and so created an overall asymmetric effect (i.e. being squashed into the upper left-hand quadrant the figure leaves an empty space on the right-hand side of the slab). One answer to this question is that the vertical centre-line of the symmetrical figure runs through the natural depression that forms the navel and the natural protrusion that forms the penis/*duoho* (these two natural features are left of the slab's vertical centre line); as in the case of some other Taíno petroglyphs (e.g. North Wall 9), naturally occurring irregularities on a boulder's surface set the stage for the later placements of motifs.

The other slab-like boulder within the batrachian pair is North Wall 9. This is a big (108 cm high × 38 cm wide × 12 cm thick) sub-rectangular slab of yellow-brown quartz diorite with straight angular to slightly rounded edges (Fig. 3). In terms of effort spent during production and variety of techniques and subject matter, this is the most elaborate known petroglyph boulder at Jacaná.

A natural furrow with a 'U'-shaped cross-section runs diagonally from the middle of the boulder's right-hand edge down to the centre of the boulder's bottom third. This deep furrow, which has a hard and smooth siliceous-looking surface, was presumably formed when a natural vein weathered preferentially (a second vein runs diagonally through the first one near the right-hand mid-section of the boulder and lower down a third vein branches out horizontally to the left-hand side of the boulder).

The upper two-thirds of the boulder are covered by a symmetrical figure with carefully executed and well-defined lines. The top third of this figure has a head and head dress motif sculpted sideways into the rock. This head is the only motif at Jacaná known to be carved in relief (i.e. the rock surface surrounding the head has been chiselled and scraped away carefully, leaving the head and 'head dress' to stand proud from the surrounding rock). What appears as remnants of a possibly earlier 'head dress' are still visible both left and right and above the current one.

The current 'head dress' has been meticulously carved with a sharp instrument (a few remnant peck marks suggest that pecking preceded carving, but most signs of pecking must have been removed through very thorough follow-up incising). The rounded surface of the right-facing forehead has been meticulously scraped away and smoothed (in fact, the

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entire face was most probably initially scraped and sculpted into a low dome-shaped oval into which the oval eyes and mouth were then pecked and carved).

The meticulously carved symmetrical designs on the 'head dress' of the North Wall 9 figure are quite likely the most intricate yet recorded on Taíno petroglyphs, very likely underscoring the importance of this boulder. Portions of the 'head dress' design have been damaged or virtually destroyed through natural weathering and what appears to be physical battering (the observation that these scars are covered with thin case-hardened skins suggest that they have some antiquity).

The unusual sideways orientation, the orbital eyes, the prominent brow ridges, and the grimacing mouth with exposed upper incisors of the uppermost North Wall 9 head are all features resembling a human skull. Below this skull-like head is a meticulously and clearly incised (presumably involving some initial pecking too) body. Unlike the head, the body shows no obvious signs of sculpting, except for the upturned portion of the arm to the right of the figure. The outer edge of this arm wraps around the right-hand edge of the boulder and shows some signs of rock being sculpted away around its outermost edge. A groove that wraps around the rock accentuates the arm's outline even further. Rectangular finger and triangular palm motifs on both hands of the North Wall 9 figure are similar to those found on North Walls 5 and 21 at Jacaná and at Panels 9 and 10 at Caguana. Interestingly, each hand of these figures has only four fingers.

As in the case of the North Wall 5 figure, the North Wall 9 figure has stylized rib bones and a sternum that resemble those of a dead or starving person. The triangular sternum occurring vertically above the circular navel is a common design element, called the 'roundel and triangle' (Roe 2005, 310–11). Moreover, the two curvilinear in-filled triangles between the torso and upturned arms are virtually identical to those in the same position on the North Wall 5 figure (once again, these triangular shapes resemble three-pointer *cemís)*.

The pecked dot within a circle design in the lower abdomen of the figure resembles a navel. If it indeed represents a navel then the figure can be interpreted as being alive, considering that the so-called *operito*, or the dead, do not have any navels (Pané, in Arrom & Griswold 1999, 18). Diagonal abrasion marks on this dot-in-circle design are indicative of physical damage long prior to the recent excavations. Parallel diagonal lines also occur on the left leg of the figure, indicating that slashing actions continued farther downward. An inverted triangle framed by the touching heels of the webbed feet resembles a vulva.

The upturned fleshy legs are frog-like, or batrachian, and end in webbed feet. The right foot appears foreshortened, as it is squashed against the natural furrow mentioned above. A branch from this furrow demarcates the bottom of the right foot and passes below the vulva where it then ends in the heel of the left foot. The knee of the right leg terminates against the upper branch of the natural furrow. This latter branch also demarcates the stylized triangle to the right of the figure's chest. All-in-all then, the natural furrow and its two branches demarcate the lower right-side of the body and the right leg and foot. The incorporation of the furrow in the design of the body is yet another example of how Taíno fused cultural with natural (i.e. in Taíno belief the boundary between what was made by people and what was made by *cemí* spirits is blurred, both conceptually and physically).

At the very bottom of the boulder, at the time of excavation covered by the sandy soil of the ball-court fill, is an upside-down asymmetrical face (Fig. 3). The lightly and irregularly pecked lines that demarcate the face and its ears, together with the different shape and size of the ears and concentric ring eyes, are indicative of hurried and/or unskilled execution, especially when compared to the meticulously executed symmetrical figure above ground. The natural vein described above seems to terminate in the mouth and nose juncture of the face. However, this vein continues less visibly below the pecked nose only to become prominent again beyond the forehead outline. In its upside-down orientation it is difficult to interpret what the head signifies; one likely possibility is that it has birthed from the female figure (in this regard it is reminiscent of an upside-down figure attached with a line to a figure above in North Wall 21). As none of the sloppily pecked lines of the inverted head intersect the neatly incised lines of the figure higher up the boulder, it is not possible to determine a sequence of application or relative age of the two motifs. The least that can be said with some degree of certainty is that the relatively faint upside-down head was made by a different person or by the same person at a different time than the well-defined figure above. As will be shown below, North Wall 19 has a similar lightly pecked and irregular face than the one at the bottom of North Wall 9.

When the North Wall 9 boulder is hypothetically flipped 180 degrees, then a remarkable transformation occurs; the lightly pecked head becomes the head of a rotund body that sits on the sideways turned head at the bottom of the boulder (Fig. 3). The overturned sideways head, possibly signifying the head of a

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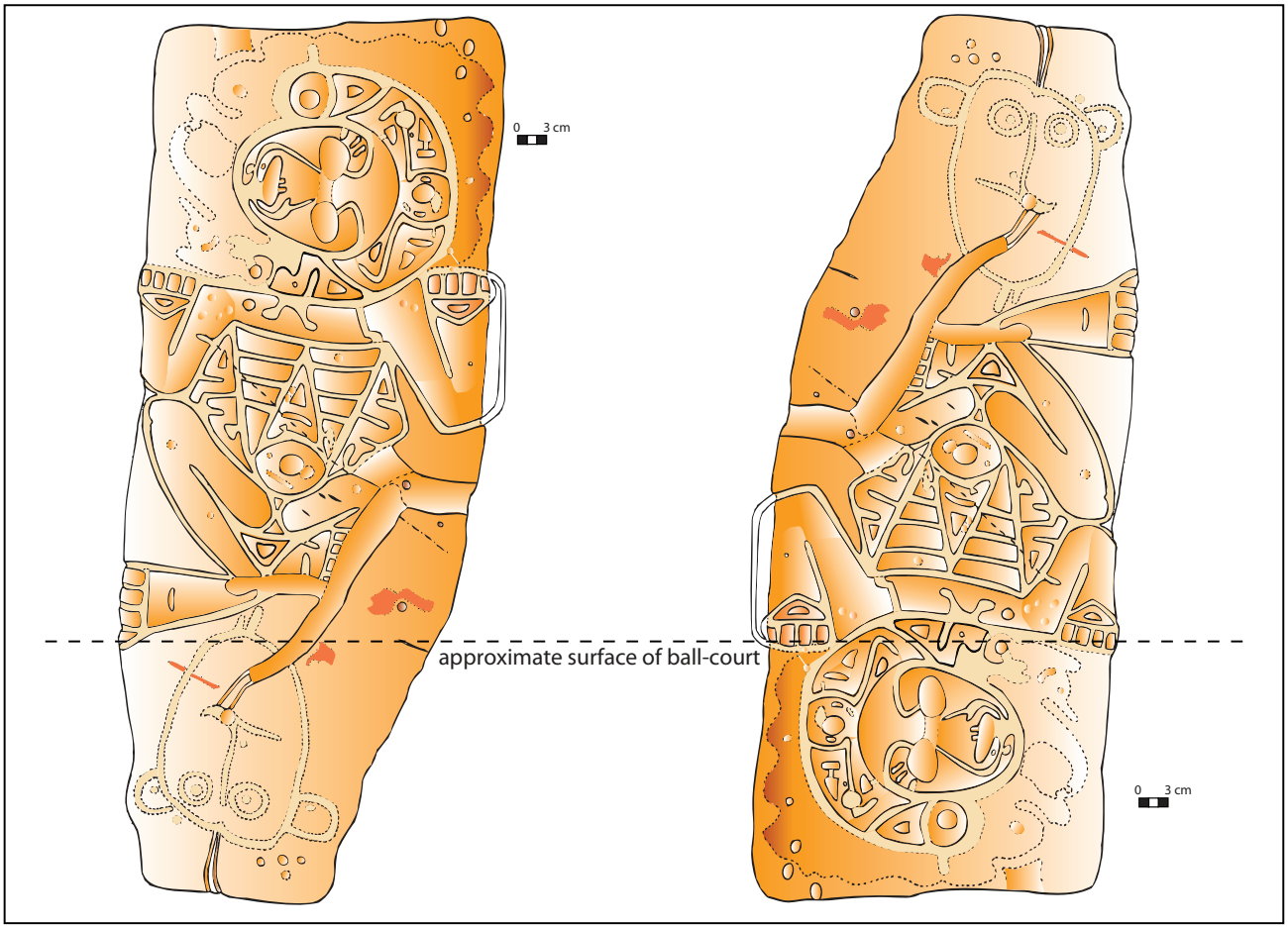

Figure 3. *Two frontal views of Attabeira motif on North Wall 9, showing its upright and inverted forms.*

duoho seat, is now buried within the 28 cm thick sandy soil layer of the ball-court (i.e. it has become part of the upside-down underground spirit world as recounted by Pané: Arrom & Griswold 1999, 26, 52). The formerly upturned arms of the emaciated figure have morphed into crouched legs of an obese figure, with knees pointing upwards. The triangular hands become paw-like feet. The right foot resembles an extended claw-like hand at the end of a long arm, whereas the natural furrow to the left becomes arm-like, with a terminal extension entering the oral and nasal cavities of the head. The vein extends above and beyond the forehead of this head, wrapping around the top of the boulder. Small cupules occur diagonally above the right-hand side of the head. The navel of the female figure becomes a pendant, or heart-like, object on the chest of the 'new' being (the interchangeability of vulva and heart in other religious traditions is a fascinating topic that is too lengthy for discussion in this report). Overall it can be postulated that a virtually dead batrachathrope has transformed into an animated mammal-like therianthrope (from the merger of the Greek word *therian* (animal) and *anthropos* (person)), perhaps a hutia (a cavy-like rodent that inhabits the Caribbean Islands) or a guinea pig. When overturned the head that has been given birth to by a dead or dying batrachathrope is now an adult being that appears to inhale *cohoba* powder through the natural vein in the rock.

Although it is not possible to know with any degree of certainty if the details of the above interpretation are correct, largely due to the stylized and hard-to-identify depictions, the inversion and transformative aspects of this and other boulders at Jacaná simply cannot be ignored or dismissed. Based on the work of Arrom (1975) and Stevens-Arroyo (2006), the female batrachathrope most closely resembles Attabeira, the alleged mother, or female side, of Yaya, the male batrachathrope. The well-known Petroglyph 9 Attabeira-like depiction at Caguana (e.g. Stevens-

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Arroyo 2006, 225) has many features in common with her counterpart on North Wall 9 at Jacaná. Tentatively judging from the North Wall 9 depiction, Attabeira, or 'Mother of Waters,' not only gave birth to a figure but also sustained it with *cohoba* powder after her death. A depiction of a female batrachathrope also occurs on a so-called elbow stone found in Puerto Rico (Walker 1997, 88). This instance of cross-media isomorphism shows that the depiction of a likely female-deity extends beyond big ball-court petroglyphs to smaller mobile art objects.

The stylistic similarity between this *cemíified cacica* (a deified deceased female chief) (see Oliver 2005, 269 for terminology) at the ball-courts of Caguana and Jacaná is remarkable and suggests a close connection of one kind or another between the two sites (the two alleged Yaya depictions at both sites are also remarkably similar). Nonetheless, interesting differences appear to exist between the Attabeira from Jacaná and the one from Caguana. In terms of available evidence, the Caguana Attabeira has no figure pecked or carved below her image. Moreover, whereas Attabeira occurs immediately left of Yaya at Caguana, three petroglyph boulders occur between these two apical *cemís* at Jacaná. Even though Attabeira is positioned left of Yaya at both sites, the site specific inter-petroglyph sequencing and unique intra-petroglyph depictions appear idiosyncratic.

The Guabancex pair

Within this pair, North Wall 21 is a big (122 cm high × 23 cm wide × 18 cm thick) but thin and narrow columnar-shaped boulder of dark grey packed biosparite with slightly rounded edges (Fig. 4). The elongated rectangular boulder has fairly parallel sides, a slanting top, and a flat bottom. Running vertically down a ridge-like protrusion on front side of this boulder is a complicated overlap of pecked, incised and thin-line incised motifs. These are discussed in the order of their application as can be inferred from the sequence of their overlap.

It is not certain if a ridge-like protrusion that extends vertically down, slightly left of the centre-line of the boulder's front, is natural or modified. If modified, the ridge would have been enhanced through pecking, scraping and generally sculpting the spine of the boulder. The first motifs placed on this protrusion include an abstract face-like design at the top end, a face with human body halfway down, and two circular to oval-shaped motifs in the bottom quarter (Fig. 4). Remnants of a pecked outline, mouth, and eyes of an upside-down face occur near the bottom of the boulder. The abstract face-like motif at the top

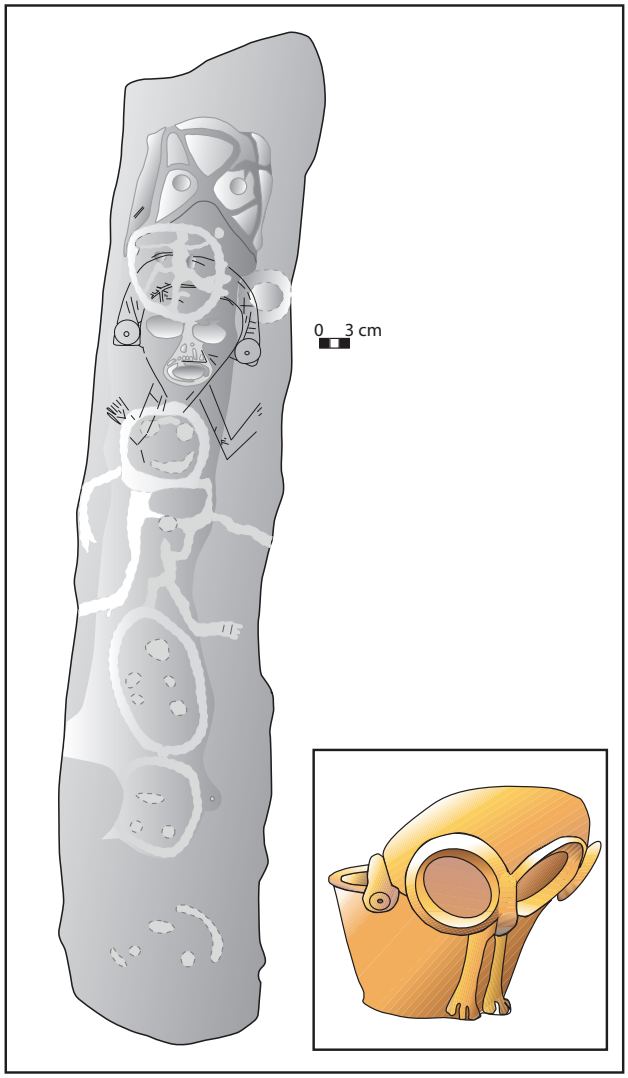

Figure 4. *Frontal view of overlapping motifs, including Cuabancex, on North Wall 21 with inset of ceramic effigy beaker of owl, Dominican Republic.*

has two eyes framed within cross-hatched curvilinear lines. The figure halfway down has a smiley face, arms extending to both sides of the boulder, and splayed legs. Attached to the lower abdomen of this figure is an oval-shape with an upside-down face at its bottom. The oval-shape appears to be the body of the upside-down face. If this is the case, then the line connecting the body with the lower abdomen of the upright figure above could represent an umbilical cord (another version of the possible birthing on North Wall 9 is again depicted here on North Wall 21). In addition to these designs, a circle has been pecked near the upper right-hand corner of the boulder.

Incised on top of this circle and the smiley face is

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another face with a 'head dress' and directly attached arms/legs (Fig. 4). The fine-lined incised motif includes a 'head dress', circular ear spools, the outline of a head and two arms emanating directly from both sides of the head's pointy chin. Pecked within the fine-lined outline are two oval eyes, nasal cavities, and an open oval mouth with exposed upper teeth.

Overall this face with its ear spools and skeletal-looking features is indicative of an important being that is deceased (see Oliver 2005, 270; Pané, in Arrom & Griswold 1999, 28, 52). The 'head dress', ear spools and upturned arms with triangular-fingered hands are reminiscent of the more prominently pecked and carved batrachathropes on North Walls 5 and 9 at Jacaná. However, the absence of a body from this fine-line incised head and arms motif on North Wall 21 is reminiscent of a convention found in various media across the Caribbean, ranging from owl head and leg petroglyphs in Jamaica (Loubser & Allsworth-Jones 2007) to owl head and leg embossed ceramics from the Dominican Republic (Bercht *et al.* 1997, 122) (Fig. 4). The fine-line incised head with its possibly flailing arms on North Wall 21 fits Arrom's (1975, 234) description of Guabancex, the body-less female *cemí*. It appears that in this instance the batrachathrope Guabancex is a scaled-down version of the full-bodied Attabeira on North Wall 9.

Pecked over the incised 'head dress' and the upper portions of the oval eyes of the possible Guabancex is an irregularly outlined circular face. This face has two round eyes and roughly pecked lines crossing within. Compared to the earlier motifs on the North Wall 21 boulder, the pecking of the final face is irregular and done rather sloppily.

To summarize, a sequence of at least the following three different application episodes can be discerned on the North Wall 21 boulder: 1) four pecked heads and a circle; 2) fine-line incised head with pecked eyes and a mouth; and 3) crudely pecked circular face. Repeated applications of motifs on this boulder, using different techniques of application, are indicative of continued interaction with the boulder, possibly by different individuals over an extended period of time. Interestingly, whereas the earliest pecked and engraved lines near the top of the boulder display care and skill, later applications of pecked motifs seem to progressively deteriorate in terms of execution (the fine-lined incised head and arm motif marks an interlude of improved care and skill).

If the boulder is hypothetically flipped 180 degrees, the two formerly inverted faces at the bottom of the boulder would become right-side up near the top. At the same time, two of the newly inverted faces will be covered by the sandy soil of the ball-court fill.

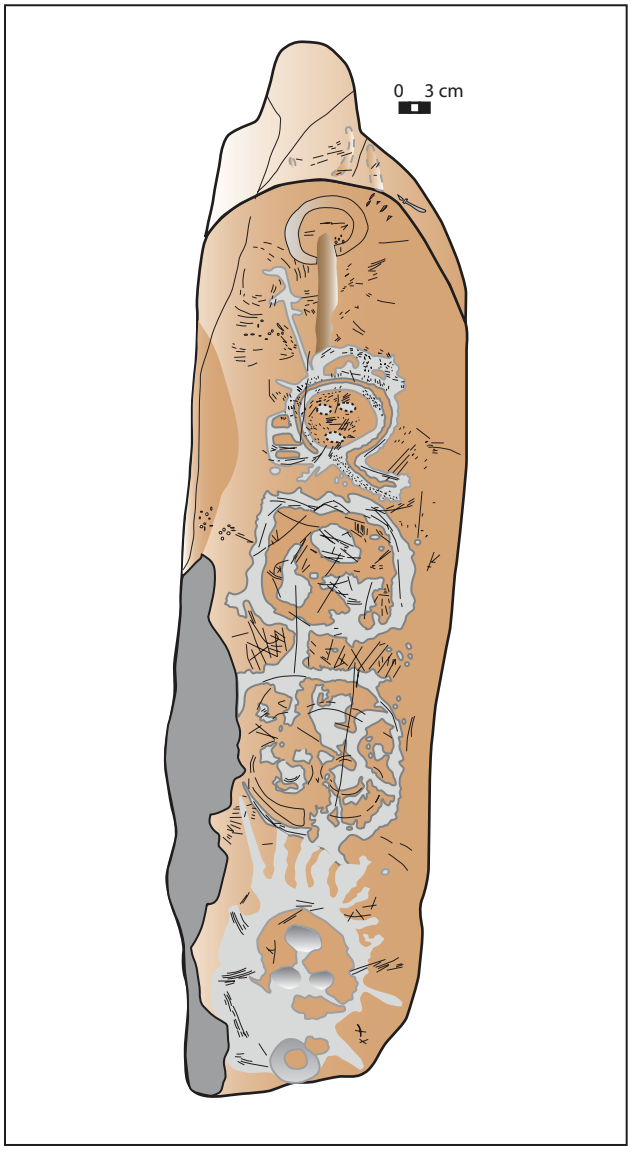

Figure 5. *Frontal view of overlapping motifs, including Caubancex, on North Wall 8.*

Oliver (2005, 255) convincingly uses the early Spanish chroniclers' accounts to propose that *caciques* gained prestige by acquiring *cemís* with a long history of use and abuse. The longer the string of prior human trustees, the more potency the *cemís* seem to have accrued from trustees physically interacting with them. By the same reasoning it can be proposed that signs of repeated interaction with the rock surface are physical testimonies of an eventful, and hence prestigious, life-history. It is accordingly proposed that the overlapping motifs found on North Wall 21 are not only indicative of prolonged use and interaction but

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possibly also suggestive of accrued spiritual potency and political importance.

The second boulder within the Guabancex pair is North Wall 8. This is a big (114 cm high × 29 cm wide × 12 cm thick) columnar-shaped boulder of very hard dark yellowish red-brown tuffaceous lithic sandstone with rounded edges (Fig. 5). The elongated rectangular boulder has fairly parallel sides, a pointed top and a flat bottom. Four faces can be discerned down the vertical centre line of North Wall 8. Due to the hardness of the rock, engraving, pecking, and incision have not penetrated the rock's surface deeply. The three lowermost faces have all been created by a sharp abrading tool removing the dark outermost patina-like crust. These faces can be seen by the fact that abrading has removed a very thin layer of the dark-coloured exterior crust and so exposed a slightly lighter-coloured layer in the crust (this lighter but deeper portion of the crust is directly on top of the very dark parent rock). Pecking, which mostly occurs in the lines that delineate the uppermost face closest to the boulder's apex, tends to be fine and done with a very sharp tool. This detailed pecking appears to have been done after the surface was abraded. Natural weathering has created broken and flaked edges that define the abraded faces.

Fine line incisions have been applied to the rock some time after the pecking and abrading were completed. Whereas these incisions seem to follow the outlines created by the earlier pecked and abraded surfaces in a few places, in most places the incised lines occur on separate surfaces from the earlier petroglyph motifs. Incised lines vary substantially in length, orientation and shape; towards the top of the boulder many are short dashes, halfway down the boulder they are cross-hatched, and near the bottom of the boulder they tend to be closely spaced parallel lines. Incised circular shapes and arcs appear to echo the edges of earlier abraded lines, but do not appear to be outlines of any new motifs. Overall, the incisions are indicative of 'random' physical interaction with the petroglyph surface some time *after* its initial abrading and pecking.

The top-most face with its directly attached appendages most closely fits Stevens-Arroyo's (2006, 234) description of Guabancex, the bodiless female *cemí* with flailing arms. The edges of the lower three faces are too weathered to make any identification. Sufficient details of their eyes exist, nonetheless, to suggest that they are upside-down in relation to the top-most face.

When the top-most face becomes the bottom-most face if the boulder is hypothetically flipped sideways 180 degrees, it is turned upside-down and points in the opposite direction of the other three faces. Bearing in mind that the oval eyes of the top and bottom-most faces are the most pronounced on North Wall 8, these would be the two motifs most immediately noticeable to viewers.

The Vaybrama pair

Within this pair North Wall 7 is a big (112 cm high × 55 cm wide × 10 cm thick) pencil-shaped boulder of very light reddish-grey packed biosparite with rounded edges (Fig. 6). The boulder has a comparatively broad base that tapers down to a thinner apex. Owing to the rough texture of the biosparite, which comprises tightly packed tiny fossils, any worked or flaked surfaces are hard to detect. Surprisingly, at least four face-like motifs are identifiable on the boulder. Signs of definite pecking and/or engraving are unfortunately not possible to see due to the rough rock texture. In terms of the world-wide rock-art record, it is unusual to find a petroglyph executed on such a roughly textured and uneven surface.

Seemingly natural protrusions on the rock surface of North Wall 7 have been creatively utilized to portray faces. The top-most face comprises two eyes, a mouth and a chin-line on a bulbous protrusion. Not far below this first face is another face on a slightly diagonal linear protrusion. This second face comprises two eyes and a mouth. Roughly halfway down the boulder is a third face. This one has a set of prominent round eyes, a 'crown' and directly attached legs. Legs emanating directly from a head appear to be a convention found in various media across the Caribbean (see Fig. 4). Each leg of the North Wall 7 central face ends in three digits. At the very bottom of the boulder, on a relatively wide and bulbous portion that was covered by the sandy ball-court soil, is the fourth face. The round eyes are the most prominent features in this face, whereas sections of the line encircling the face are difficult to detect. The placement of the eyes below the mouth in this lower-most of the four faces shows that it is actually upside-down.

If the boulder was to be flipped around, the fourth face would be right-side up and at the top of the boulder (Fig. 6). The overturned face appears to have two small ear-like protrusions at the top of its forehead. Two lines join an eye and the nose with the line that encircles the face. If turned around, the face halfway down the boulder has also changed; the 'crown' now resembles a beard and the legs become a tasselled hat-like motif. This face is a cogent example of 'perceptual dualism', or the 'Janus Mode', within a single motif. With the boulder being hypothetically

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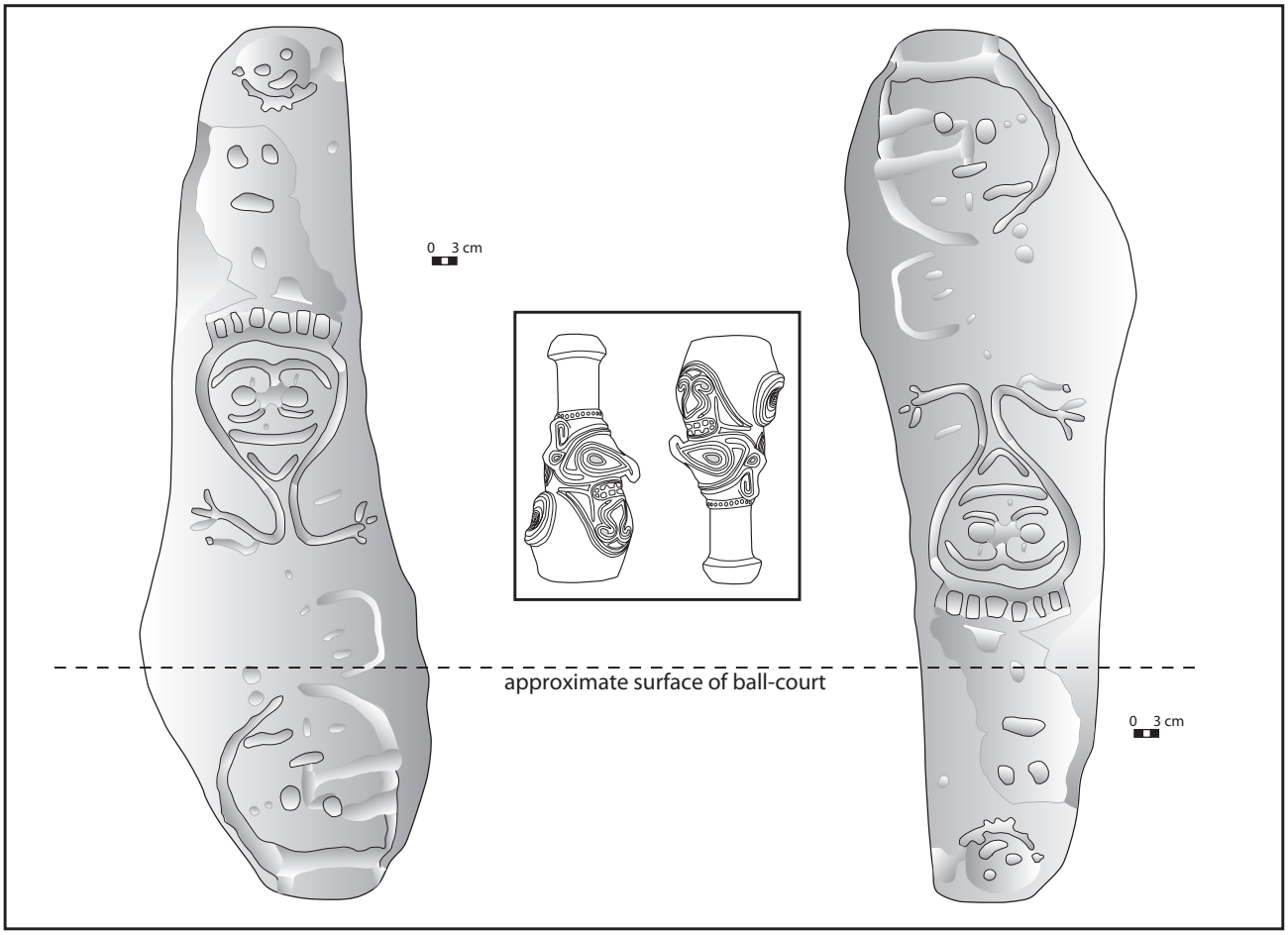

Figure 6. *Two frontal views of Vaybrama motif on North Wall 7, showing its upright and inverted forms with inset of ceramic effigy bottle of owl, Dominican Republic.*

overturned 180 degrees, the two faces on the natural protrusions near the top end would be upside-down and underground. The boulder is reminiscent of other Taíno art objects that require actual physical manipulation to be inverted. For instance, when drinking or pouring the contents of a decorated ceramic bottle from the Dominican Republic (García Arévalo 1997, 124), the owl face on the bottle changes to that of a grimacing human skull (Fig. 6).

Based on the closest fit with the early Spanish accounts, the central face on North Wall 7 most closely resembles Pané's description of the 'ugly' Vaybrama, the *cemí* that sprouted appendages like a yucca (e.g. Arrom & Griswold 1999, 27; Stevens-Arroyo 2006, 230).

The second petroglyph boulder within the Vaybrama pair is North Wall 6. This is a big (110 cm high × 58 cm wide × 12 cm thick) light yellow-grey limestone boulder with sub-angular to rounded edges and a pointy base (Fig. 7). Flake scars along the lower right-hand edge of the boulder could have resulted from when it inadvertently smashed against another rock during transportation or during insertion into the wall.

The middle upper portion of the boulder has a roughly pecked circular face-like motif. By-and-large the peck marks are comparatively big and shallow, although some are smaller and a few are deeper. Overall it can be said that the pecking is not regular and does not always occur within clearly demarcated edges.

More deeply pecked cup marks, or cupules, occur within and around the circular face. A big fragment from the upper right-hand corner of the boulder has broken some time after the pecking but a long time before the boulder was discovered in the archaeological excavation of 2007 (i.e. at the time of excavation the scarred rock surface was covered with a natural case-

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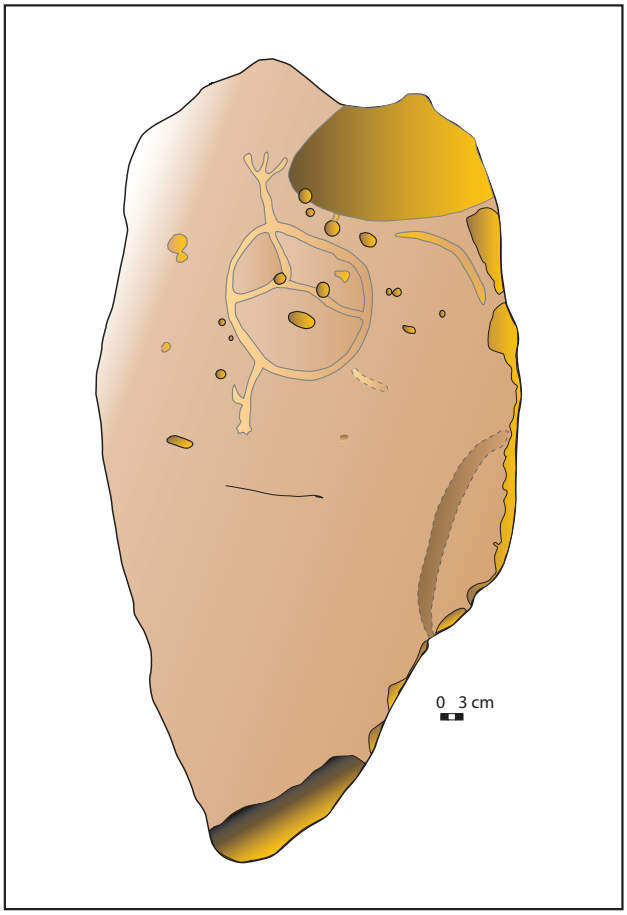

Figure 7. *Frontal view of Vaybrama motif on North Wall 6.*

hardened layer). To the right of the North Wall 6 scar is a scar within the North Wall 5 slab, suggesting that the two might be the result of the same damaging event. A deeply pecked arc on the right-hand edge of the North Wall 6 boulder could mark an aborted attempt to remove a chunk from this side. This attempted removal of the side from the boulder suggests that at least some boulders were sculpted. Some dressing and sculpting most probably occurred near the original source area, whereas additional sculpting continued through the life history of the petroglyph boulder, as suggested by the diagonal scar on the right side of North Wall 5.

The circular head has two relatively deeply pecked round eyes and a pecked oval mouth. Three shallowly pecked lines run through the head and another two pecked lines are appended to the head (the lines crossing the head resemble those on a head on North Wall 21 described above). The one appended line is above the left-hand side of the head and ends in a hand-like form with three digits. The other appended line is below the left-hand side of the head and has a spur-like attachment near the bottom. The faint outline of a second possible face is barely visible to the right of the main face. A faintly pecked arc defines the upper outline of the possible secondary face and a second faintly pecked arc defines the lower outline of the same face. Two small cupules could be the eyes while a third cupule lower down could be the mouth. These cupules are at least in part natural hollows in the limestone that have been slightly enhanced via pecking.

The branch-like appendages and eyes of the main face recall Taíno accounts of the yucca-like *cemí* known as Vaybrama. After he was saved from enemy hands and given hallucinogenic yucca juice, Vaybrama 'grew arms, and his eyes reappeared' and its face became 'fat' (Pané, in Arrom & Griswold 1999, 27; Las Casas, in Arrom & Griswold 1999, 64). Stevens-Arroyo (2006, 230) states that these accounts very likely refer to the spuds on a yucca, similar to the 'eyes' developing on a potato left too long in the dark. The possibly paired face to the immediate right of the main face, however, suggests that the twin *cemís*, Boinael and Márohu, are depicted instead (see Stevens-Arroyo 2006, 224, 227, 228). This alternative interpretation would be supported by the pecked lines that emanate diagonally from the main face's eyes, which are supposedly the tears, or rain, of Boinael. As North Wall 6 seems to represent a work in progress it could even be that its identity morphed from one *cemí* to another. But then again, bearing in mind that the individual identities of *cemís* are not thoroughly described by the Spanish chroniclers, it is difficult to make any definite identifications.

The wrapped-body pair

Both boulders within this pair are comparatively small and occur in the west wall. West Wall 57 is a small boulder (43 cm high × 37 cm wide × 6 cm thick) of pale brown packed biosparite with rounded edges (Fig. 8). The boulder has an uneven surface with a resistant seam of rough, dark brown crust-like material running diagonally through the biosparite matrix. At least three bedding planes can be seen running parallel to the resistant band.

Owing to the uneven surface and alternating linear texture of the boulder it is hard to detect any signs for pecking, incision or engraving. Surprisingly, at least two circle-like motifs can be detected on the front side of the boulder (Fig. 8), whereas a small face and armless body can be seen on the opposite side. Signs of definite pecking and/or engraving are unfortunately not possible to see due to the rough rock

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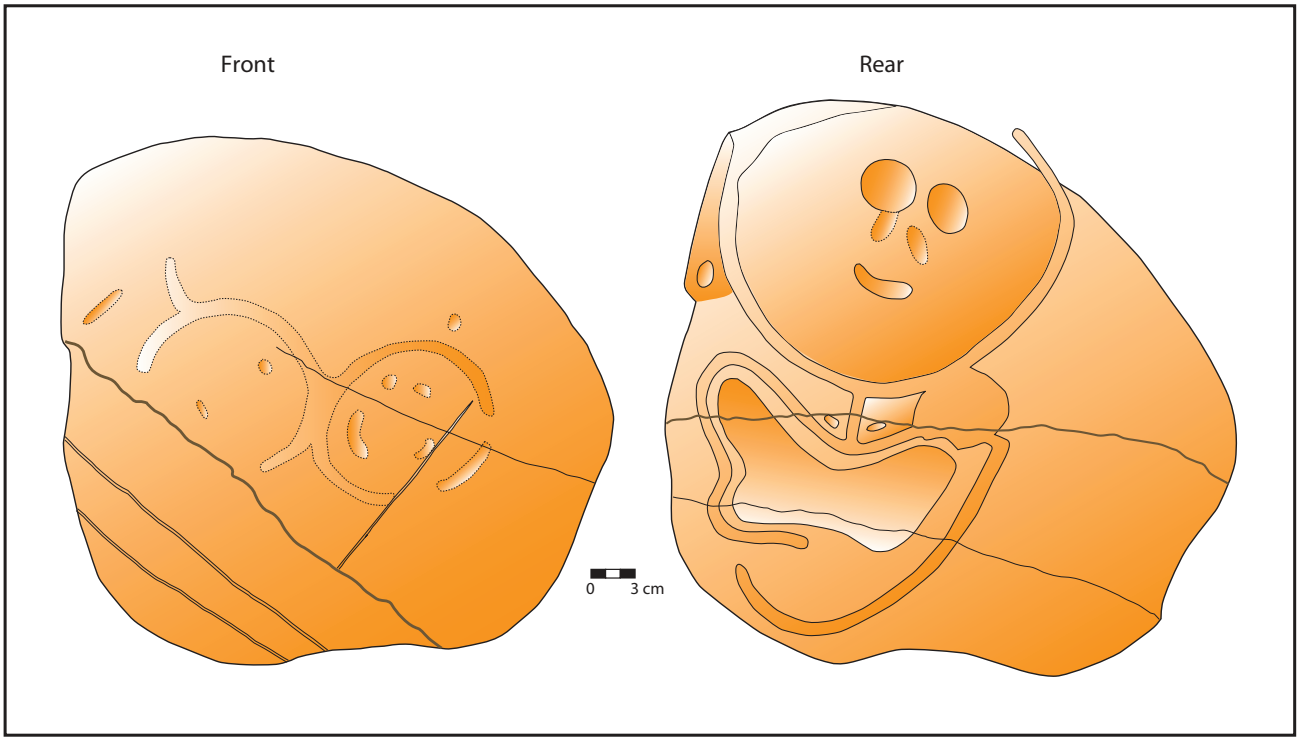

Figure 8. *Two frontal views of wrapped body motif on West Wall 57, showing the front and rear.*

texture. In terms of the world-wide rock-art record, it is unusual to find a petroglyph executed on such a roughly textured and uneven surface (as shown above, the roughly textured North Wall 7 unexpectedly contains imagery too).

The two conjoining circles on the centre of the front side of the boulder resemble the eyes of an owl (i.e. each circle actually includes remnants of a concentric ring within). Weathering of the rock surface together with the grainy rock texture makes it hard to determine if the motifs were pecked and/or incised. The original extent of the circles can not be ascertained owing to the rough surface. Viewed straight-on from the front, West Wall 57 resembles the head of an owl, but there is no definite way to demonstrate this resemblance.

When the boulder is turned around its vertical axis (like flipping a coin), traces of pecked lines and depressions can be seen on the reverse side. Raking sunlight, coming from directly above, remarkably highlights a bulbous face and recessed body (in normal scattered light these features are difficult to see). Two round eyes and an upturned mouth are pecked into a naturally bulbous surface in the rock surface to form a smiling face (Fig. 8). To the left of the face is an elongated ear with an ear spool, reminiscent of the ear on West Wall 28 discussed next. The body has a curiously hollow chest area that is surrounded by a heart-shaped pecked line. No signs of arms or legs are present. The emergence and disappearance of the figure, depending on the angle of light, succinctly expresses the Taíno view of *cemís* being hidden within rocks. The flickering light created by a burning torch carried at night would have animated the petroglyphs along the edge of the ball-court.

The absence of arms and legs on West Wall 57 resembles 'cocooned' petroglyphs in Puerto Rico, erroneously referred to as 'swaddled infants' (see for critique of 'swaddled infant' interpretation Oliver 2005, 272–3; Roe 1997, 155). Instead of infants, such armless and legless figures more likely refer to deceased *caciques* whom Spanish chroniclers witnessed as being wrapped in cotton bandages or hammocks for burial (e.g. Oliver 2005, 273; Oviedo, in Fernández Méndez 1972, 84; Roe 1997, 155). The ear spool on the West Wall 57 figure suggests that an important person of rank is being depicted.

Unlike the buried images on the north wall boulders that need to be flipped 180 degrees around a horizontal axis to be seen, the West Wall 57 buried image has to be turned 180 degrees around a vertical axis to be seen.

The second boulder in the wrapped-body pair

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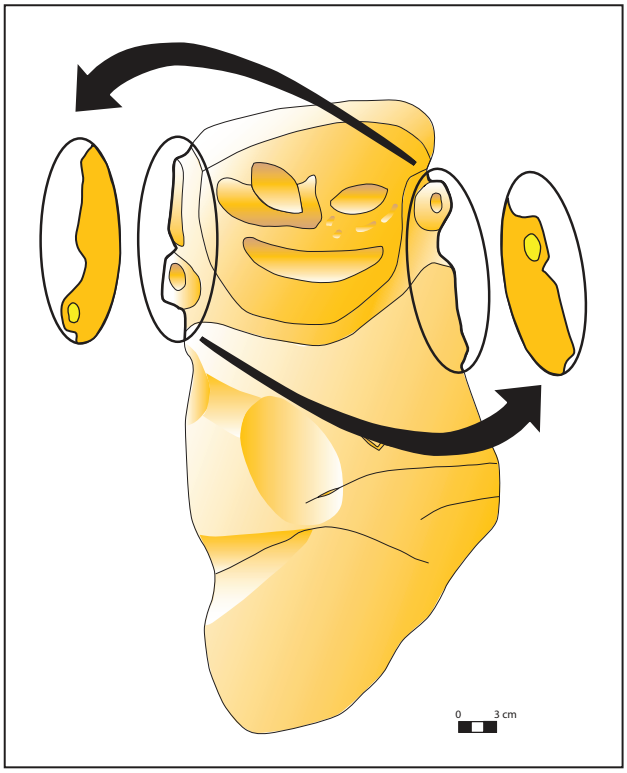

Figure 9. *Frontal view of wrapped body motif on West Wall 28, showing the two inverted sides of the head.*

is West Wall 28. Like West Wall 57, West Wall 28 is a small boulder (51 cm high × 24 cm wide × 14 cm thick) of grey-brown quartz diorite (Fig. 9). It has an elongated rectangular shape with a skew but pointed base and slightly rounded edges all around. The rock has a smooth surface texture and appears to be partly sculpted and grounded along its top edge and its upper side edges.

The bottom two-thirds of the small boulder do not show any signs of alteration. A few natural hair-line cracks run width-wise across the lower half of the boulder, and shallow basin-shape natural depressions are visible on the left half. The rear of the boulder also shows no signs of alteration. Viewed in its entirety, however, the natural elongated shape of the boulder with its rounded edges is suggestive of a small human-like being; all it needs are a few pecked lines and hollows to accentuate this resemblance. Pecked lines and hollows are limited to the upper two-thirds of West Wall 28 boulder. A deeply pecked line demarcates a face in this portion of the boulder. The top of the forehead has a carefully ground surface, whereas the face itself contains two elongated eyes, a slightly upturned mouth and what appear to be small round nasal cavities. The left eye is slanted and partly surrounded by a natural crust. In terms of shape, size, orientation and spatial relationship to one another, the West Wall 28 eyes are similar to the North Wall 17 eyes. These lidless eyes fit the description of Mácocael, or He-of-the-lidless-eyes (Arrom & Griswold 1999, 6).

As in the case of West Wall 57, the lack of arms and legs of the West Wall 28 effigy resembles 'cocooned' petroglyphs in Puerto Rico. Such armless and legless figurines most likely refer to deceased *caciques* whom Spanish chroniclers witnessed as being wrapped in cotton bandages or hammocks for burial (e.g. Oliver 2005, 273; Oviedo. in Fernández Méndez 1972, 84; Roe 1997, 155). The ear spools on the West Wall 28 effigy suggest that an important person of rank is being depicted.

Left of the effigy's face the ear spool occurs below the elongated ear (a similar ear and spool 'style' can be seen on the reverse end of West Wall 57), as to be expected from everyday experience. To the right of the face the ear appears to be absent. However, a close inspection of the effigy's outline shows that the 'shoulder' below the right-hand ear has a similar shape to the left-hand ear. Indeed, when each ear spool outline on either side of the face is inverted, it broadly matches the outline on the opposite side (Fig. 9). This could be a variant of the rotation principle, or pictorial dualism, found in Taíno art (Roe 1997, 127). Unlike other boulders at Jacaná, the West Wall 28 boulder needs no physical manipulation or inversion to make this transformation.

The multi-facetted end-stone pair

Of this pair West Wall 70 is a medium-sized to big (60 cm high × 67 cm wide × 25 cm thick) heart-shaped boulder that was found displaced from the southern terminal end of the wall during excavation. The greenish-grey-coloured volcanic breccia boulder has rounded edges and a comparatively smooth surface (Fig. 10). Owing to the displacement of West Wall 70, its orientation could not be assessed, but it most likely came from the southern end of the west wall.

Inspection of all the surfaces on West Wall 70 shows three faces, each occurring on a separate surface and oriented in a different direction. The surface of the boulder exhibits signs of erosion, as particularly evident by the faint and shallow peck marks that delineate the faces. The eroded faces could be best seen at night, when side-lit with a flashlight. Although most of the tracing of West Wall 70 was done during the day, details were checked and added at night with the aid of hand-held flashlights. Fine hair-line cracks are testimony of possible physical weakness within the rock.

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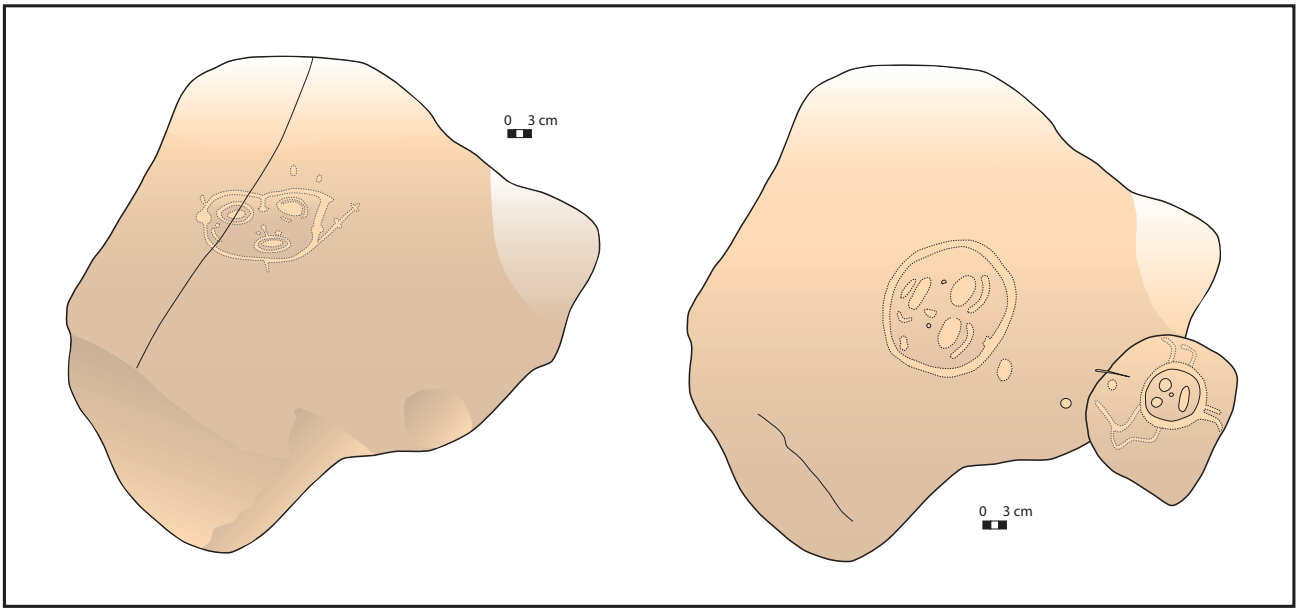

Figure 10. *Two frontal views of West Wall 70 end-stone, showing opposite sides.*

A hair-line crack runs diagonally through a faint heart-shaped face on the one side of West Wall 70 (Fig. 10). This face outline encloses two oval-shaped nested ring eyes and an oval-shaped nested ring mouth. Small dot-like holes could represent nasal cavities. The brow-ridges of the face form the outline of the forehead. A small ear-like appendage is pecked on each side of the forehead, while a straight stick-like arm extends out diagonally from the left lower side of the head. No signs of a body are present, taking cognizance of the remote possibility that these have been destroyed by erosion.

On the opposite side of the boulder is a circular face with oval eyes, an oval mouth and two nasal cavities (Fig. 10). This, the biggest of the three faces on the boulder has a beard-like appendage below its chin that trails off into what could be a remnant line that once delineated a body. This round face is oriented at an angle of 135 degrees from the heart-shaped face on the opposite side of the boulder.

A third face can be seen on a small surface that points away from the other two faces (Fig. 10). The third face is circular in outline and is the smallest of the three faces on the boulder. With two circular eyes, a circular nose cavity and an oval mouth, this small face has very faint rayed-arc appendages attached to its head and remnants of legs attached directly to its chin.

Small cupule-like hollows occur between the small and big faces. The smallest of the three faces is oriented 180 degrees away from the biggest face and 225 degrees in relation to the heart-shaped face on the opposite side of the boulder.

If the boulder stood against a soil embankment, such as the one behind the west wall, then only a single face would have been visible at any one time. This is due to the acute angles of the surfaces on which the faces were pecked; to be visible the right-side up face has to be supported by two inverted faces, at least one of which would be covered by soil. The upside-down underground faces recall the upside-down *cemí* spirits of the dead that seemingly support the world of the living (see Pané, in Arrom & Griswold 1999, 26, 52).

Similar to the multi-facetted South Wall 134 boulder described below, it is physically impossible for all the face motifs on West Wall 70 to be visible from above ground surface at the same time; at least one motif has to point down or sideways for the other to be in full view. The inverted images on the West Wall 70 and South Wall 134 boulders differ from those on the north wall boulders in that West Wall 70 and South Wall 134 have to be rolled over like a dice, whereas the north wall boulders simply have to be flipped sideways 180 degrees.

Conceptually related inverted pecked and carved images have been documented at ball-court sites elsewhere in Puerto Rico. For example, next to the court in the El Bronce site near Ponce, Robinson *et al.* (1985, appendix I, 2–3) found

> that four of the eleven petroglyph bearing stones … to be modified on two opposing sides … the most interesting thing about this stone [F889] is that the two petroglyphs are not similarly oriented so that,

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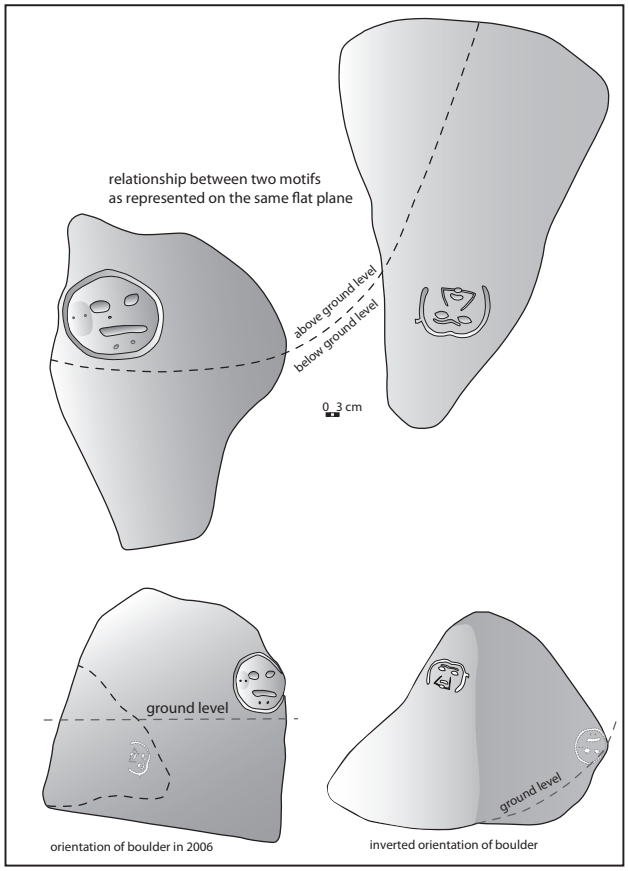

Figure 11. *Multiple views of South Wall 134 end-stone, showing opposing faces.*

> no matter how the stone might have been situated, a face on one side or the other would always have been oriented sideways.

Another pair of faces, one exposed and the other buried, has also been found at Batey Delfin de Yaguez in northwestern Puerto Rico (Rivera Fontán & Silva Pagan 2002, 80). As additional boulders with faces on different surfaces are discovered, it seems more likely that such paired faces were roughly coeval, rather than the result of reuse.

The second end-stone is South Wall 134. This is a big (72 cm high × 81 cm wide × 33 cm thick) triangular-shaped boulder of light grey quartz diorite and rounded edges (Fig. 11). At the time of its discovery in 2006, South Wall 134 was standing upright on a comparatively narrow edge, with its wide and flat side tilted slightly downwards in a northeasterly direction (i.e. an open looter's trench on this side of the boulder aggravated the tilting). The north-facing above-ground surface of South Wall 134 was covered by lichen at the time of discovery.

A circular face-like motif with oval eyes and an elongated mouth was visible on the northwestern end of South Wall 134's spine, immediately above ground level. On the left side of this face is a secondary bulbous protrusion in the rock with two eye-like pecked circles. Below the mouth are two more pecked circles. A solitary pecked hole between the mouth and the left eye resembles a nasal cavity. The incorporation of smaller faces within a bigger face has been observed at other sites in Puerto Rico, such as at Cueva la Mora (Roe 2005, 314).

It was only after the boulder rolled over and came to rest within the looter's trench east of the boulder, that a heart-shaped face was revealed. This heart-shaped face, with its lozenge-shaped eyes and partly framed mouth, was hidden below current ground level on the southern side of South Wall 134. The inverted images on the West Wall 70 and South Wall 134 boulders differ from those on the north wall boulders in that West Wall 70 and South Wall 134 have to be rolled over like a dice, whereas the north wall boulders simply have to be flipped sideways 180 degrees.

The stone-collar pair

Within this pair West Wall 41 is a small to medium-sized (47 cm high × 50 cm wide × 7 cm thick) roughly rectangular-shaped slab of greenish-grey quartz diorite with curvilinear edges (Fig. 12). Pecked into the centre of the boulder's frontal surface is an elongated oval-shaped depression. A secondary elongated oval-shaped depression is pecked into the lower edge of the main depression. Peck marks, of varying density, that continue beyond the heavily pecked edges of the main depression, indicate preliminary working of these surfaces too. The upper left-hand side of the boulder has been rounded by pecking. The overall impression of the incomplete pecking is of work-in-progress that has been abandoned.

During an on-site visit and close-up inspection of West Wall 41 in 2007, Yasha Rodriguez and Jeff Walker (pers. comm.) identified the pecked oval as the initial stage of hollowing out the stone slab to form a ring of a stone collar (see also Walker 1997, 89). Extant examples of collar stones in different stages of production clearly show that craftspeople hollowed out stone slabs, starting by pecking an oval-shape from the centre.

Once completed, stone collars are highly polished and ornate stone rings (Fig. 12), which many scholars suggest Taíno Indians wore around their waist during ball games or at least for public display. The withdrawal of a stone collar from an intricate and prolonged production process for the purposes of delineating a ball-court might contain some clues

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about the general significance of boulders that delineate the ball-court.

The selection, initial preparation and pecking, to the final shaping, grinding and engraving of stone collars almost certainly involved a great deal of time, labour and skill. Completed stone collars share many traits with other mobile art pieces among the Taíno Indians; notably signs of sculpting, symmetry, meticulous incision and engraving, surface polishing and lack of re-incisions or engravings. In contrast to these mobile art pieces, the ball-court boulders at Jacaná for the most part lack signs of sculpting, show symmetry in only a few instances, many surfaces are hurriedly incised and engraved, hardly any surfaces are polished and many boulders show signs of re-working. All-in-all, Taíno mobile art pieces are the completed products of highly skilled artisans, whereas Taíno ball-court boulders represent the work-in-progress of people with varying skills. Even though some ball-court boulders started off as the products of skilled artisans, once inserted into a wall the boulders were either left incomplete or were added to by people who appear to lack pecking and/or carving skill.

South Wall 85 is a possible pre-form of a stone collar too, although this fragment closely resembles pieces from a broken mortar. The south wall fragment does resemble stone-collar pre-forms, but is substantially thicker (i.e. 17 cm thick) than stone collars (i.e. 7 cm).

The cupule pair

Whereas cupules occur on many boulders along with iconographic motifs at Jacaná, the South Wall boulders 119 and 132 contain cupules only. South Wall 119 is a small oval-shaped boulder (22 cm high × 44 cm wide × 16 cm thick) of greenish-grey tuffaceous lithic sandstone. The boulder has a facetted dome-shape (Fig. 13). Fifteen pecked cupules and three sections of pecked lines can be seen on the upper convex surface of South Wall 119. Six cupules have diameters of roughly 3 cm whereas the remaining cupules are not wider than 1 cm each. None of the cupules on the small boulder are deeper than 0.25 cm.

The second boulder with cupules only is South Wall 132. This is a small (38 cm high × 47 cm wide × 16 cm thick) slab of light grey-brown basalt. It is important to note that South Walls 132, 133 and 134 are actually part of a sub-wall that extends out perpendicularly from the western terminus of the South Wall. South Wall 132 is near the southwestern side of this sub-wall, while South Wall 134 marks its northwestern terminal end. South Wall 132 is a roughly elongated oval-shaped slab with the laminar appearance of slate. Three pecked cupules can be seen closely juxtaposed on its outermost flat surface (Fig. 13). These cupules have diameters of roughly three centimetres each. None of these cupules are deeper than 0.5 cm.

Replication experiments have shown that cupules the size as those on Stone Walls 119 and 132 are easily made in rock by rhythmically pounding the same spot for between five and 15 minutes with a stone hammer producing about a tablespoon of powder (e.g. Callahan 2004; Keyser & Rabiega 1999). Cupules, or pecked hemispherical cup marks, are to be found around the globe, from Late Stone Age sites in South Africa to medieval period churches in Europe.

According to Rau (1881, 88–9), medieval period people living in France, Germany and Switzerland obtained rock powder by pecking cupules into the stone doorways and baptismal fonts of churches (e.g. Rau 1881, 88–9). The ingested powder was believed to cure diseases and/or aid in fertility. Among the Dakota Indians of the American Plains, the powder from cupule production was ingested by women in the belief that it made them more fertile. The production process for cupules was furthermore thought to release the underworld's spiritual power that resided in the rock (Callahan 2004).

The production of at least some cupules is related to a physiologically-based need, known as pica. Pica is the desire to ingest non-food substances, such as rock powder, by some humans, most commonly pregnant women, malnourished young and patients with chronic disease. A related practice is known as geophagy. This can be defined as a practice in pre-industrial or rural cultures of eating earthy substances to augment a scanty or mineral-deficient diet (e.g. Callahan 2004).

Cupule clusters on Puerto Rican boulders have also been interpreted as entoptics, phosphenes or form constants (e.g. Oliver 2005, 249). Such luminous shapes, which are produced in the visual cortex of the brain, typically during hallucinations and/or during flask-back episodes, have been observed in known shamanic art traditions in other parts of the world (e.g. Whitley 2005). The repeated percussion of rock can induce altered states, even in the absence of taking mind-altering substances such as *cohoba*; pecking the rock for medicinal powder does not necessarily exclude shifting consciousness.

Associated radiocarbon dates and implications

A 50 by 50 cm unit which abutted the ball-court-side of a plain North Wall slab yielded four charcoal samples that were submitted for radiocarbon assaying. The placement of the unit on the intact baulk directly

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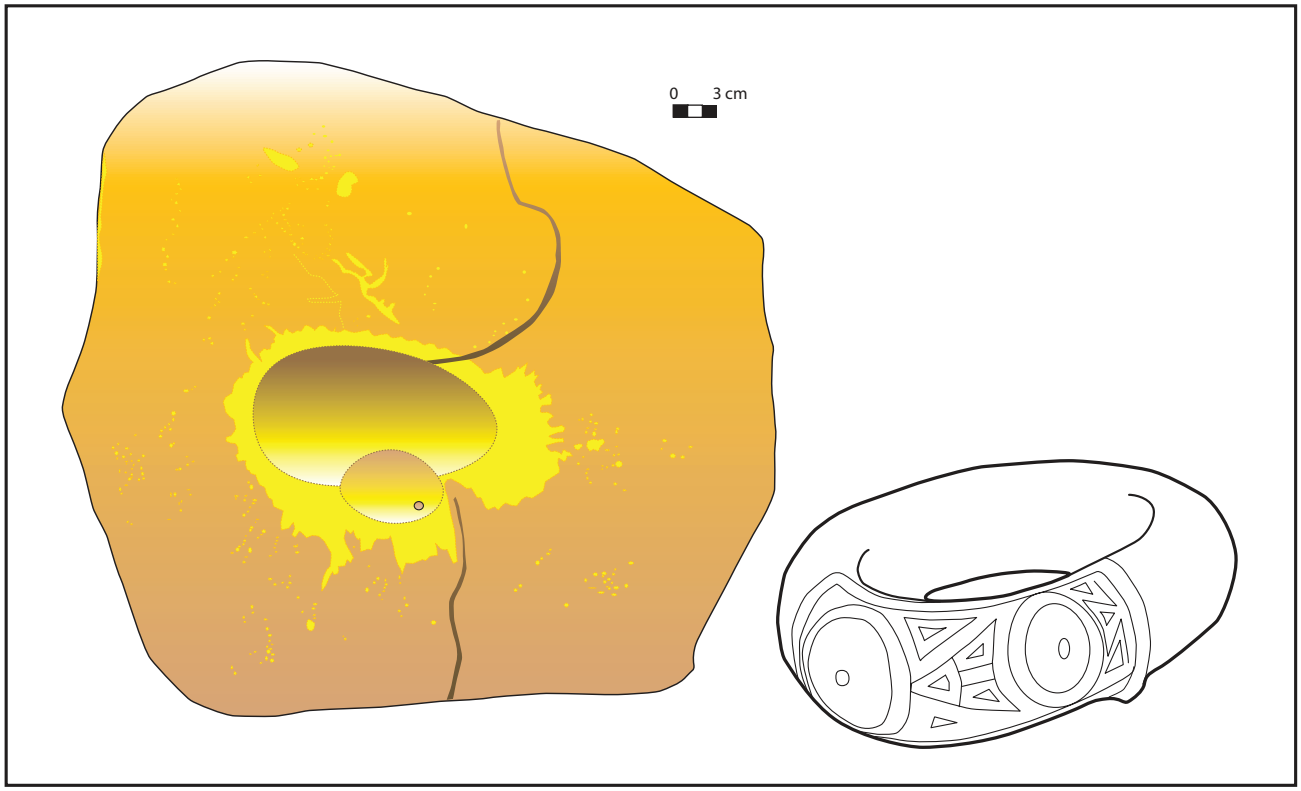

Figure 12. *Frontal view of West Wall 14 aborted stone-collar with inset of finished stone-collar, Puerto Rico.*

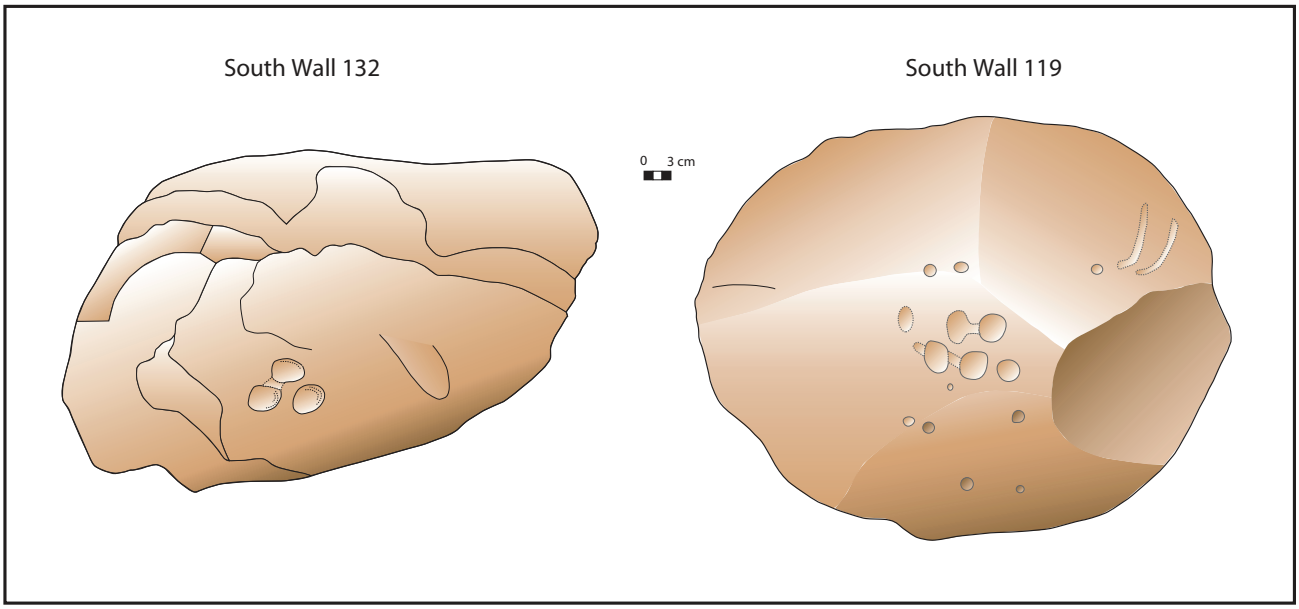

Figure 13. *Plan views of South Walls 119 and 132 with cupules.*

south of the North Wall slab guaranteed that three conditions for radiocarbon dating were met. First, the direct stratigraphic association between the assayed charcoal and the slab ensured a one-to-one context for inferring the age of the slab and by extension the age of the north wall and its petroglyphs. Secondly, assays

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of charcoal samples taken from increasing depths provided an internal check on their stratigraphic integrity, bearing in mind that intact horizontal profiles should not yield older dates above younger ones. Thirdly, by taking samples from below, at and above the base of the slab, the date of that slab's insertion can be bracketed.

The four dates summarized in Table 1 are calibrated from their 2-sigma counting error. The inverted dates from Levels 2 and 4 point to secondary contexts; earlier materials were deposited on top of later ones, most probably as a result of post-depositional slope wash. However, the charcoal date associated with the ball-court floor and the date from the slab-setting trench deeper down are contemporary and earlier than the two dates from the overlying disturbed contexts. The fact that the footer trench in which the slab was inserted is coeval with the ball-court floor layer supports an interpretation that both the ball-court and north wall were made and used in the eleventh and twelfth centuries AD.

Based on excavation results prior to 2005, conventional wisdom among archaeologists was that complicated petroglyphs, such as those on the west wall of the Caguana ball-court, date to between approximately AD 1300 and 1450 or 1460 [Period IV] (e.g. Oliver 2005, 240; Roe 2005, 292). If so, then similar complicated motifs along the north wall at Jacaná are at least a century older than those from Caguana, if not more. Nonetheless, Oliver (2005, 240) suggests that Cagauna's origin could be as early as AD 1000 [Period IIIb]. Based on more recent evidence, Siegel (pers. comm.) suggests that Caguana and Tibes were both occupied during Period IIIb. If significant occupation at Caguana extends farther back in time than originally thought, then perhaps its petroglyphs might not be that much younger than those from Jacaná.

Whatever the time differences between the complex petroglyphs from Caguana and Jacaná eventually might turn out to be, it is well known that beliefs and associated iconography can be very conservative in relation to changes in the surrounding culture, society and political-economy. A well-documented example of iconography's tenaciousness in the face of changes in the political-economy can be found in the Eastern Orthodox Christian Church. References to Christian icons date back to at least the fourth century AD. Despite the interruptions to the Eastern Orthodox iconic tradition during the iconoclastic period in the eighth and ninth centuries AD and artistic innovations during the Renaissance, not only are icons used today among Eastern Orthodox, Oriental Orthodox, Coptic and Eastern Catholic Churches, but the core symbolism has also survived, so it is still easy to identify the saints depicted, for instance (e.g. Lossky & Palmer 1982).

Table 1. *Calibrated ranges of four radiocarbon dates from next-to the north wall.*

Layer	Level	cm below datum	Calibrated AD
secondary wash	2	78–88	1310–1360, 1390–1440
bottom secondary wash	4	98–108	1400–1520, 1590–1620
ball-court floor	6	118–128	1020–1200
slab-setting trench	7	134	1020–1200

Overview

The dot-in-circle navel motif near the middle of four boulders along the North Wall at Jacaná (i.e. North Walls 5-Yaya, 9-Attabeira, 24-plain and 29-plain) marks the axis around which the boulders can be inverted. The navel is significant when viewed in terms of Taíno and closely related Amazonian beliefs. As mentioned above, the Taíno believed that souls of the dead, or *operito*, had no tangible navels (Pané, in Arrom & Griswold 1999, 18), at least not in the tactile world of everyday alert consciousness. Even though the navels of *operito* could be seen at night, the navels and associated *operito* disappeared as soon as they were touched by people being awake (suggesting that the *operitos* were apparitions mostly seen during visions and dreams).

The Tukano Indians of the northwest Amazon believe that their supreme deity (the equivalent of Yaya among the Taíno) kept hallucinogenic powders hidden in his navel. His female counterpart (the equivalent of Attabeira among the Taíno), however, scratched his navel and distributed the powder to human beings. By ingesting these powders, ritual specialists could put themselves in contact with souls of the dead and other higher order supernatural beings (to enter the world of the dead a hallucinating ritual specialist was believed to die, as stated, for instance, in the words of the Tukano 'to take *yajé* [hallucinogenic powder] is to die') (Reichel-Dolmatoff 1971, 77). Like the Amazonian *payés*, Taíno *caciques* and *behiques* taking hallucinogens could enter the world of the dead spirits; one which is dominated by the supreme deity. This deity was believed to be in a state of perpetual trance and able to see the earth and its inhabitants at all times and in all places (perhaps this accounts for the North Wall 5 Yaya-like figure lacking eye-lids and having no inverted opposite).

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The notion of transformation among both the Tukano and the Taino involved the concept of transmission of spiritual energy (*bogá* in the Amazon and *cemí* in the Caribean), through physical contact or smell. An embryo received transformative powers through its navel in a similar fashion as a *behique* received his patient's illness through his mouth (Pané, in Arrom & Griswold 1999, 21; Reichel-Dolmatoff 1971, 51). To urinate onto something was also considered to transmit *bogá* (Reichel-Dolmatoff 1971, 51–2). Among the Tukano, certain *cemí*-like spirit beings can transmit transformative potency to humans through their umbilical cords (Reichel-Dolmatoff 1971, 76). Viewed overall then, the navel (along with other orifices, such as the mouth and urethra) is implicated in various kinds of transformations, including physiological (mother to child in North Walls 9 and 21), spiritual (*cemí* to human in North Wall 7) and physical (amphibian to mammal on North Wall 9). The possibility of rotating a petroglyph boulder to transform the imagery has both cosmological and ritual implications; bearing in mind that in most religions people believe that it is only intentional transformations in the everyday physical world that can bring about transformations in the spirit world (e.g. Pyysiäinen 2004, 96–7).

Based on the available ethnographic evidence, the four walls that demarcate the Jacaná ball-court probably also demarcate the division between the physical and spirit worlds. Based on their distinctive make-ups, however, each of the four walls appears to symbolize this division in a distinctive way.

Dot-in-ring navel and ear spool motifs are limited to the north wall. Considering that this design is associated with head dresses (North Walls 5, 9, 17 and 21) and *caciques*, the north wall probably can reasonably be associated with the rulers at Jacaná. Of the four ball-court walls, the north wall not only has the most abundant (31 per cent of the excavated north wall boulder sample contains iconographic designs) and spectacular petroglyphs, but also the heaviest and biggest stelae-like boulders. It is, moreover, the only one which has boulders with opposing faces on opposite ends ($n = 5$ boulders). Identifiable *cemís* occur against seven of the north wall boulders, including a male and a female supreme deity. Such a deity could only be accessed and addressed by a charismatic and spiritually adept *cacique*. It is proposed here then that the north wall is the domain of *caciques* and their *cemís*. Not surprisingly, judging from early chronicler accounts, *caciques* were the only people who could have mustered sufficient labour needed to transport the boulders from the mountains/jungle/riverbed to the ball-court and then to manipulate these boulders once they have been pecked and carved.

The north wall has the only examples of pecking onto earlier motifs, notably on North Wall 21. The observation that pecked motifs appear to decrease in care and quality of execution through time suggests that those individuals who added to the boulders at a later date seemingly lacked the skills or patience of earlier individuals. The ethno-historical accounts show that at least by the end of the fifteenth-century *behiques* and *caciques* carved *cemís* onto unusual boulders or boulders out of place. Once the boulders were inserted into the ball-court wall, a *cacique* might re-apply certain motifs after the completion of a *cohoba*-induced revelatory trance. Such a *cacique* might have lacked the skill of his predecessors. Re-application of images on north wall boulders of Jacaná and signs of destruction suggest that this was a very busy wall throughout its life history.

In spite of the relative abundance of modified quartz diorite in all four of the Jacaná ball-court walls, the north wall also appears unique in terms of raw material selection. First, the worked limestone boulders in the north wall and the absence of limestone in the other three walls suggest deliberate choice. Secondly, packed biosparite, calcareous sandstone and basaltic andesite are comparatively well-represented within the north wall. The north wall boulders furthermore have a wider variety of colours than those in the other three walls, varying from a light grey through green grey to dark yellow red brown. On humid days and particularly after rainstorms, the colour differences of the boulders are accentuated, due to a thin layer of surface water refracting the incoming and reflected light. The rainbow-like colours of the stelae-like boulders in the north wall could be an expression of rainbows and associated snake symbolism found in ball games (Stevens-Arroyo 2006, 240).

Even though the north wall has the largest, most elaborate and varied boulders of the four walls at Jacaná, the north wall boulders nonetheless share certain characteristics with boulders in the western and southern walls. A notable example is that North Walls 5 and 17 have similar lid-less, lens-shaped and slanted eyes than the pair of eyes on the West Wall 28 effigy. Moreover, the same kind of scattered pecking occurs on North Wall 27 and South Wall 76. These shared traits that cross-cut walls are indicative of an overall unity between at least the north, west and south walls.

Following the north wall in recognizable petroglyph abundance is the west wall (4 per cent of the completely excavated west wall contains iconographic designs). Two wrapped body figures

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together with an aborted stone collar (deceased stone collar?) suggest that this wall deals with departed *opía*, or dead spirits (e.g. Pané, in Arrom & Griswold 1999, 19). Indeed, the land of the dead is believed to be in the west (Columbus, in Arrom & Griswold 1999, 45). At Jacaná, the skeletal remains of notable personages with luxurious grave-goods were exposed behind the west wall.

Whereas wrapped body depictions are limited to the west wall (i.e. West Walls 28 and 57), cupule clusters appear to be limited to the south wall (i.e. South Walls 119 and 132). The powder produced by the cupules could have had healing properties. If so, then the south wall stands in distinction to the north wall with its depiction of half-dead beings.

Only a small portion of the south wall has recognizable iconography (0.75 per cent of the completely excavated south wall). The south wall petroglyphs are moreover less spectacular than those in the west wall (although the west wall overall has the smallest and lightest boulders). The significance of south as a cardinal direction is at present not certain, but its simplicity and comparatively small stones are the opposite of the north wall.

Albeit incompletely excavated, the east wall in all probability has no petroglyphs. Even within the exposed portion of the east wall there is no physical reason why the generally big and smooth-surfaced boulders within should not contain any markings made by humans. Of all four walls, the boulders of the east wall are the most uniform in shape and colour; they generally have rounded edges and monotone grey surfaces. The significance of this cardinal direction is currently not clear either, but its barren and comparatively big boulders contrast with the west wall on the opposite side of the ball-court. The level surface of the comparatively wide east wall, with a square section near the centre actually extending into the ball-court, could very well have been used as a slightly elevated platform. Could this platform have served as an area from which ceremonies and games within the ball-court were initiated and controlled? If so, then the east wall could have represented life as opposed to the death symbolism of the west wall.

The seemingly mute and immobile petroglyphs that demarcate the Jacaná ball-court contain sufficient physical traces which hint that they played an active role in the theatrical politics of proto-Taíno ritual. Inverted images made statements about an ever-present, albeit reversed, spirit world mediated by powerful *caciques*. Old and weathered bash-marks on many of the more prominent boulders in the north wall, particularly on the Yaya and Attabeira motifs, are suggestive of some kind of iconoclastic behaviour and even of political discontent. Aborted collar stones inserted into the west and south walls speak of some possible form of tribute to the dead, whereas powder derived from rocks with cupules could have provided power to those who needed to be healed. Scattered peck marks on yet other boulders are indicative of rhythmic beating. Instead of being mere reflections of Taíno thought, speech and action, the petroglyph *cemís* of the Jacaná ball-court appeared to have been agents that helped shape and even contest Taíno religion and politics.

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Johannes Loubser
Stratum Unlimited, LLC
10011 Carrington Lane
Alpharetta, GA 30022
USA
Email: jloubser@stratumunlimited.com

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Rock Art Research Institute
University of the Witwatersrand
Private Bag 3, P.O. Wits 2050
Gauteng
South Africa

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Author biography

Johannes (Jannie) Loubser is an archaeologist and rock-art specialist at Stratum Unlimited, LLC, in Atlanta, Georgia, USA. He is also Honorary Research Associate at the Rock Art Research Institute at the University of the Witwatersrand in Johannesburg, South Africa. His academic interests include settlement layout, ceramics, rock art and rock-art conservation. His books include *Archaeology: the Comic* (AltaMira Press, 2003) and *The Ethnoarchaeology of Venda Speakers in Southern Africa* (Bloemfontein National Museum, 1991).