

Rock Art within the Indigenous Caribbean Physical and Cultural Landscape

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Abstract

Rock art played vital roles within Caribbean Indigenous cultures. Designs on rock surfaces would have been a critical element in the thought, practice and performance of the area's spiritual life, as well as underpinning interconnected

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activities with the sociopolitical and economic realms. Rock art executed at stationary locations enjoys a particular advantage as a topic of investigation since its permanence at the same location within the physical environment, offers a tangible link between its production and subsequent functions within Antillean societies. Research concerning the nature of the images and their societal implications is longstanding, covering a wide range of issues as the following discussion outlines. After key data such as the types and locations of rock art are presented, certain investigative topics are examined involving dating, thematic or area studies, rock art and sociopolitical development, and rock art as art produced by artists.

Key Words: rock art, dating, petroglyphs, pictographs, Indigenous, Caribbean

Resumen

El Arte Rupestre en el paisaje físico y cultural indígena del Caribe

El arte rupestre desempeñó funciones vitales dentro de las culturas indígenas del Caribe. Los diseños en las superficies rocosas habrían sido un elemento crítico en el pensamiento, la práctica y el desempeño de la vida espiritual de la zona, así como en la base de actividades interconectadas con los ámbitos sociopolítico y económico. El arte rupestre ejecutado en lugares estacionarios goza de una ventaja particular como tema de investigación, ya que su permanencia en el mismo lugar dentro del entorno físico, ofrece un vínculo tangible entre su producción y las funciones posteriores dentro de las sociedades antillanas. La investigación sobre la naturaleza de las imágenes y sus significados sociales es de larga data y cubre una amplia gama de temas, como se describe a continuación. Después de que se presenten datos clave como los tipos y ubicaciones del arte rupestre, se examinan ciertos temas de investigación que involucran estudios de datación, temáticos o de área, el arte rupestre y desarrollo sociopolítico, y el arte rupestre como arte producido por artistas.

Palabras clave: arte rupestre, datación, petroglifos, pictografías, Indígenas, Caribe

L'art rupestre dans le paysage physique et culturel autochtone des Caraïbes

L'art rupestre a joué rôles vitaux dans les cultures indigènes des Caraïbes. Les dessins sur les surfaces rocheuses auraient été un élément essentiel dans la pensée, la pratique et l'exécution de la vie spirituelle de la région, ainsi que la base d'activités interconnectées avec les domaines sociopolitique et économique. L'art rupestre exécuté dans des lieux fixes bénéficie d'un avantage particulier en tant que sujet d'investigation, puisqu'il s'agit d'une permanence

au même endroit dans l'environnement physique offre un lien tangible entre sa production et ses fonctions ultérieures au sein des sociétés antillaises. La recherche concernant la nature des images et leurs significations sociétales est ancienne et couvre un large éventail de questions, comme le décrit la discussion suivante. Après avoir présenté des données clés telles que les types et les emplacements de l'art rupestre, certains sujets d'investigation sont examinés impliquant des études de datation, thématiques ou de zone, l'art rupestre et le développement sociopolitique, et l'art rupestre en tant qu'art produits par des artistes.

Mots clés: art rupestre, datation, pétroglyphes, pictogrammes, Indigènes, Caraïbes

Arte Rupestre na Paisagem Física e Cultural do Caribe Indígena

A arte rupestre desempenhou papéis vitais dentro das culturas indígenas do Caribe. Desenhos em superfícies rochosas teriam sido um elemento crítico no pensamento, prática e desempenho da vida espiritual da área, bem como sustentando atividades interconectadas com os domínios sociopolítico e econômico. A arte rupestre executada em locais fixos goza de uma vantagem particular como tópico de investigação, já que é permanência no mesmo local dentro do ambiente físico, oferece uma ligação tangível entre sua produção e as funções subsequentes dentro das sociedades antilhanas. A pesquisa sobre a natureza das imagens e seus significados sociais é de longa data, abrangendo uma ampla gama de questões, como a discussão a seguir descreve. Após a apresentação de dados importantes, como os tipos e localizações da arte rupestre, certos temas investigativos são examinados envolvendo datação, estudos temáticos ou de área, a arte rupestre e desenvolvimento sociopolítico e a arte rupestre como arte produzidos por artistas.

Palavras-chave: arte rupestre, datação, petróglifos, pictogramas, Indígenas, Caribe

Introduction

Michele H. Hayward and Michael A. Cinquino

Rock art was central to the lives of Indigenous Caribbean societies, whose designs continue to serve as a subject of professional investigation and interest by the general public. The region contains hundreds of sites exhibiting thousands of carved and painted images on non-portable rock surfaces in addition to a number of portable sculpted objects. The petroglyphs, pictographs, and sculpted items serve as visual referents to a past world order both familiar and different from our modern one. Though fashioned from hard immovable material, perhaps to emphasize their value via relative

permanence, they were meant to engage individual to collective senses. Their transformation through engagement provided a feeling of wonder or otherworldliness in religious contexts and a consensus or reaffirmation of proper order in sociopolitical contexts.

This examination of Caribbean rock art follows the island arc from Trinidad off the northeast coast of South America through the numerous islands of the Lesser Antilles, the larger islands of the Greater Antilles –Cuba, Hispaniola, Puerto Rico, Jamaica—plus the Bahamian archipelago. Also covered are the near-South American continental fringe islands of Aruba, Bonaire, and Curaçao. Rock art research of the region is well-established involving investigators from the area, in addition to outside, namely the United States, France, The Netherlands, and United Kingdom. This spectrum of researchers has also yielded a corresponding range of approaches, topics and methodologies that is evident in the published literature.

The present article is divided into two sections. The first covers the rock art characteristics of definitions, survey and documentation status, image classification, type distributions, and data sources. The second involves in-depth discussions of certain research topics. Michele Hayward, Michael Cinquino and Donald Smith review and comment upon dating efforts; Fernández Ortega, Morales Valdés and Ramón Martínez report on rock art investigations in Cuba including enhanced documentation efforts and radiocarbon-dated pictographs; Peter Roe links rock art development to wider sociopolitical changes, while Lawrence Waldron brings an art history perspective to examining the region's rock art.

Section One: Rock Art Characterization

Michele H. Hayward and Michael A. Cinquino with Peter Roe for Data Sources

Definitions

Researchers within the region certainly possess an understanding of what sets Caribbean rock art apart from that of other world regions. Yet formal definitions of this understanding are nominal. Characterizations of single to multiple image assemblages at the subregional, inter-island and local surroundings are more readily available, as in Hayward et al.'s 2015 examination of the image traits from the Lesser Antilles and Versteeg and Kelly's 2019 presentation of the painted and carved figures from Aruba. Our research suggests the following attributes:

- A high frequency of anthropomorphic images involving primarily faces, full-body forms or human-animal permutations (human-frog and human-lizard)

- A high degree of variability in rock art numbers, design features, and composition among rock art sites
- Such characteristics point to a shared canon of design elements, motifs and layouts that image-makers employed to affect design sets for particular places, times and activities (Hayward et al. 2012).

Rock art production covers several thousands of years from the Archaic (ca. 5000-500 BC), through the Post-Archaic or the Ceramic Age's Saladoid (500 BC-AD 500/600 and Ostionoid divisions (First Phase AD 600-900, Second Phase AD 900-1200, Last Phase AD 1200-1500) and even into the Historic or Post AD 1500 period (updated traditional Rouse 1992: Figures 14, 15 chronological framework; Hayward et al. 2009: Figures 1.2 and 1.3; see also Wilson 2007 and Keegan and Hofman 2017 for Caribbean chronological divisions and cultural development). The majority of this production consists of pre-AD 1500 carved or painted designs on non-portable or largely immovable natural rock surfaces.

Petroglyphs (common terminology) were produced primarily with stone implements to carve, peck, or abrade images that ranged from fine-lined incisions to deeper grooved outlines (Figure 1.1a) to partially sculpted figures that López Belando (2019) has termed low-relief (Figure 1.1b). Projecting less than half of the sculpted volume from the rock surface or base, these largely human-like figures are found in Greater Antillean caves, particularly the Dominican Republic. A minor number of likely Indigenous petroglyphs have also been recorded with paint applied inside the grooves or fashioned over a pigmented surface, as in Figure 1.1c (López Belando 2009; 2019:194-201).



Figure 1.1 a) fine-lined incised face and facial-body petroglyphs, Cueva de La Tortuga, Parque Nacional Jaragua, Dominican Republic (left), b) low-relief sculpted anthropomorphic head, Manantial or Spring de la Jeringa, Parque Nacional del Este, Dominican Republic (center), c) mask-like design petroglyph over pigmented surface, Cueva de la Malagueta, San Rafael de Yuma, Dominican Republic (right) (López Belando 2019: Figure 195 bottom, Figure 197, Figure 199 upper left, respectively).

Pictographs (common terminology) refer to painted designs, executed most frequently in black and red with lesser instances of brown, white, sepia and gray colors, as seen in Figure 1.2a and 1.2b (see Gutiérrez Calvache et al. 2010; Gutiérrez Calvache 2014, López Belando 2019 and Versteeg and Kelly 2019 for color details from locations on Cuba, the Dominican Republic and Aruba, respectively). Although laboratory analyses of paint pigments remain minimal, two studies are of note. The first by Samson et al. 2017 employs a variety of techniques to identify pigment composition of samples from caves on Mona Island, off the west coast of Puerto Rico. The colors were mixed from phosphorites (mineralized cave guano), charcoal and ochre from the cave floors, as well as occasionally plant gums from outside cave sources. The second concerns multiple samples from Cuban cave locations, presented by Fernández Ortega et al. (this article), which again uses a range of analytical methods to identify such compounds as carbon, manganese dioxide, bat guano and hematite in paint recipes.



Figure 1.2 a) Geometric circle designs executed in black and red pigments, Cueva No. 1, Punta del Este, Isla de Pinos, Cuba, Archaic (left), b) white pigment rayed facial and face and body figures, Cueva de José María, Parque Nacional del Este, Dominican Republic, Ceramic Age (right) (López Belando 2019:Figure 53 upper, Figure138 upper left, respectively).

A variant of petroglyphs involves the production of carved designs using fingers or finger-sized tools (Figures 1.3a and 1.3b). Though finger-fluting is, at present, of minor regional occurrence, Samson and Cooper (2023) report on the extensive practice of removing the soft and pasty carbonate crusts from the cave walls of some 30 of the 70-odd caves explored on Mona Island (230+ total). The resulting forms are normally shallow and often complex, ranging from a few centimeters to dozens of meters. Curvilinear swirls and serpentine elements, along with figurative motifs, are an impressionistic feature of the cave's dark zones, filling the spaces and at times intersecting with pictographs. Daniel DuVall (2010) records comparable finger/finger tool-produced continuous or interconnected curving lines and possible anthropomorphs

on an anvil-shaped boulder from the Peñon Cave, Cumayasa region, of the Dominican Republic.



Figure 1.3 Mona Island finger-fluting examples: a) use of natural cupola in cave ceiling to frame the design, a weeping and rayed face (left), b) complex and large-scale finger-incised lineal designs (right) (Samson *et al.*, 2013: Figures 5 and 6, respectively).

Carved surfaces on portable stone material include small to large-scale three-pointed objects (triangular shapes in profile) or *cemís*, stone collars (large open circular carved elements), and small free-standing statues. The three-pointers and statues are often considered to represent *cemís* or spiritual beings or forces, in addition to embodying their essence or power. Sculpted details range from unadorned forms to elaborately detailed anthropomorphic and zoomorphic motifs as seen in Figure 1.4 a, b, c series. Historically, they have not been analyzed as rock art, but instead are considered with artifact classes of similar manufacture or function. For instance, three-pointers are examined along with those made of shell and coral (Hayward *et al.* 2009:2, 11). Their key to being incorporated into rock art discussions lies with their similarity either in form or motifs. Roe *et al.* (2018) link the three-pointer of the Saladoid, 500 BC-AD 600, with certain rock art forms—triangular outlines and teared eyes—of the later Ostionoid societies, AD 600-1500, that physically and visually project concerns with water control, especially with regard to crop fertility.

An under-examined category of rock art concerns other forms of worked rock surfaces. Such locations or workstones exhibit varying sizes, numbers and arrangements of stone mortars or cupules and polishers in the form of lineal grooves and flat or shallow ground surfaces (Figure 1.5). Surveys on Martinique and St. Lucia conducted by Dunshee in 2018 (data and figures, 2020; Siedlaczek *et al.* 2019), Hanna's investigations (2019a, 2019b) on Grenada and Bright (2011) for the southern Lesser Antillean Windward Islands provide details for further examination. Finally, no geoglyphs or large-scale rock arrangements have been reported from the pre-AD 1500 period (Hayward

et al. 2009:2), although structural features composed of earthen and stone arrangements comprise a common element of the altered landscape linked to sociopolitical developments of later Indigenous times (see below, Figure 1.9b).



Figure 1.4. Portable stone objects: a) small unsculpted three-pointer, Mount Irvine, Tobago, Saladoid, conglomerate stone, approximately 7 cm length, Tobago Museum (left) (Waldron 2019:Figure 5.19 top, page 243); b) large anthropomorphic sculpted three-pointer, Dominican Republic, Taíno, limestone, 17.1x9.5x18.4 cm, (center) (New York Metropolitan Museum of Art, Purchase, Oscar de la Renta Gift, 1997, 1997.35.2; Public Domain), c) anthropomorphic free-standing sculpture, Dominican Republic, Taíno, biocalcareneite or calcarenite, 61x18.4x22.5 cm, (right) (New York Metropolitan Museum of Art, The Michael C. Rockefeller Memorial Collection, Bequest of Nelson A. Rockefeller 1979, 1979.206.1209; Public Domain).



Figure 1.5. Grenada workstone with cupules and lineal grooved lines, St. John's River location after removal to public space (Hayward and Cinquino 2021:Figure 11, page 266).

Survey and Documentation Status

Characterizations of rock art forms remain ongoing since systematic site surveys and documentation efforts are incomplete. In the Greater Antilles, considerable areas of the larger islands have not been examined, while the survey status of Lesser Antillean islands varies substantially from island to island (Roe 2009, pp. 199-204). Notwithstanding this situation, several notable examples can be cited: López Belando's 2019 publication covering 247 rock art locations on the Dominican Republic brings together an array of high-quality photographs and other site/image data; a similar extensive array of photographs, drawings, site histories, and interpretations have been compiled by Versteeg and Kelly (2019) for the 458 mainly pictographs from 33 locations on Aruba; Hayward *et al.*, 2015 compilation of rock art locational and design element distribution patterns from the Lesser Antilles; and Dunshee's (2020; Siedlaczek *et al.* 2019) use of advanced photographic techniques and geospatial data (GPS points) to record all known sites on Martinique and St. Lucia in the Lesser Antilles. Although not specifically aimed at locating rock art sites, two settlement surveys covering the Lesser Antilles by Bright (2011) for the southern islands and Hanna (2019a, b) for Grenada, include both rock art and non-rock art site types, as well as providing valuable geographical and cultural developmental contexts.

Recording of site and image data varies from simple mention in the literature or institutional database to well-documented single and multiple-site locations. Government or cultural institutional site registries are generally available for each political division (for Cuba see Gutiérrez Calvache *et al.* 2010; Gutiérrez Calvache 2014), though a regional database still remains to be developed (Roe 2009, pp. 199-204). Hand sketches and low-level technological recording methods are being replaced with or complemented by advanced photographic, 3D laser scanning and geospatial techniques that provide for enhanced reproduction accuracy, computer-aided examinations and expanded data availability for researchers. In addition to the documentation effort by Fernández Ortega *et al.*, presented in Section 2, mention can be made of the use of GigaPan panorama technology (interactive zoom-in-and-out feature) to catalogue some 300 black-outlined pictographs within the dark zone of the off-noted Hoyo de Sanabe Cave, Sánchez Ramírez Province, in the Dominican Republic (National Geographic website, 2011).

Image Classification and Distributions

Image classification schemes usually follow variants of a fourfold typology—anthropomorphs, zoomorphs, geometric designs and abstract motifs. Petroglyphs and pictographs are normally grouped together for such considerations. The majority of anthropomorphs comprise simple to complex

faces with less frequent examples of facial-body forms. Closely spaced groupings of two to three pits or dashes are considered to represent human-like faces that can have no, partial or fully enclosed outlines, such as round, ovoid and heart-shaped. Complex faces entail the addition of varied internal and external design elements including eyebrows, noses, ears and rays above and below the face. Above the face motifs also include a range of headdresses from tabular, linear, encircling crown to projections. Double or multiple encircled facial designs are present, as are interconnected facial arrangements (Figure 1.6a). Attached body motifs involve upper body outlines and different forms (rectangular, ovoid) with diverse internal layouts or pits, dashes and lines (Figure 1.6b). Lineal or outlined arms, legs, hands and feet are infrequently added to anthropomorphs (Figure 1.6c), as are gender indications. Handprints, though executed, are rare, with examples from Cueva del Indio, Cuba presented by Fernández Ortega et al. in Section 2, Figure 3.1b (Hayward *et al.* 2009; López Belando 2019).



Figure 1.6. a) series of individual encircled faces with pitted or dashed eyes and mouths, petroglyphs, Cueva de Berna, Parque Nacional del Este, Dominican Republic (left), b) double-encircled faces with attached rectangular body shapes and internal curved line and pit design elements, petroglyphs, Stonefield Estate, Saint Lucia (center), c) anthropomorphic stick-figures (simple faces with linear bodies, arms, legs), petroglyphs, Cueva No. 1 de Borbón, Dominican Republic (right) (López Belando 2019:Figure 211, Figure 55 upper, Figure 46 upper, respectively).

Readily classifiable zoomorphs comprise diverse birds and fishes, along with turtles, bats, owls, and occasionally large marine animals like sharks (Figure 1.7a, b, c). The images are often rendered realistically allowing for probable taxa identifications. Spirals, singular to concentric circles, and crosses are among the geometric designs, while varied arrangements of curved and straight lines, pits, dashes and additional elements comprise motifs that are abstract or non-readily interpretable to present-day investigators (Figure 1.8a, b) (Hayward *et al.* 2009; López Belando 2019).

Non-portable rock art was produced at four primary locations in the Caribbean: (1) at the entrances and interiors of caves and rock shelters



Figure 1.7. a) two birds in profile, pictographs, Cueva Hoyo de Sanabe, Dominican Republic (left), b) turtle, pictograph, Mountain River Cave, Jamaica (center), c) shark, pictograph, Cueva de la Línea del Ferrocarril, Dominican Republic (right) (López Belando 2019:Figure 50 upper right, Figure 57 upper left row of entire photograph, Figure 124 center image of entire photograph, respectively).



Figure 1.8. a) outlined cross and regular-lined square and rectangular motifs, petroglyphs, Guacara de Sierra Prieta, Dominican Republic (left), b) red-colored irregular circle and lined designs, pictographs, Cueva de la Cañada de Los Huesos, Dominican Republic (right) (López Belando 2019:Figure 50 lower left, Figure 89 lower, respectively).

involving walls, ceilings, floors and speleothems; (2) boulders along waterways or at other types of water resources such as pools and springs; (3) rock formations at island interiors and coastal fringes, and (4) ball courts/plazas or enclosures (Figure 1.9a, b). Ball courts represent structural features readily visible across the landscape that are marked by wholly or in-part earthen/rock embankments or upright slab-lined level earthen surfaces. They are commonly interpreted as communal spaces for a range of intersecting activities from the sociopolitical, to grand theater to religious ritual. Enclosures appear to be exclusive to the Greater Antilles and are especially concentrated on Puerto Rico and Hispaniola. Image totals per site commonly vary from one to the low hundreds for petroglyphs with higher numbers for pictographs (Roe 2009, pp. 205, 207, 208-211).



Figure 1.9 a) carved anthropomorphic figures on a boulder along section Los Pasos of the Yuboa River, Dominican Republic (left) (López Belando 2019:Figure 305 upper), b) Batey del Cemí looking north, multi-court site of Tibes, Puerto Rico, (right) (Waldron 2019: Figure 4.18 left, page 169).

Rock art spatial distributions are uneven. Rock art sites are found on all the major Greater Antillean islands at most of the four locations. Their presence in the Lesser Antilles largely correlates with size—larger islands tend to have locations, while smaller ones do not—and are not associated with ball court locations since none have been reliably reported. Particular concentrations are observed for Puerto Rico and Hispaniola in the Greater Antilles and such islands as Aruba and Guadeloupe in the Lesser Antilles. Regarding the images, petroglyphs, pictographs and portable rock sculptures are again found on all the major islands of the Greater Antilles, along with select locations for finger-fluting and worked rock surfaces (see above discussion). Petroglyphs are restricted or nearly so to the Lesser Antilles, as well as the more northern Virgin Islands, with pictographs heavily predominating on Aruba, Bonaire and Curaçao (Roe 2009, pp. 204-214). Rock sculptures are present in the Lesser Antilles with a number of worked rock surfaces to consider.

Data Sources

Rock art represents a class of material culture that is considered to reference past emotional and functional intent. In order to ascertain those intents, at least as reasonably as possible, the region's researchers rely upon three classes of data: ethnohistoric accounts of Natives at European contact (particularly Taíno groups in the Greater Antilles), ethnographic analogies from culturally related lowland South American Amerindians, and conceptual and methodological tools from within archaeology, as well as relevant disciplines. The first two sources provide information for interpretive efforts based on analogous contexts (world comparative or direct historical), while the third provides evidence for rock art physical characteristics and distributional patterns from which meaning and purpose may be inferred.

The ethnohistorical or chronicle accounts have proven valuable on a number of levels as demonstrated in the literature and the essays presented here. While problems are apparent in utilizing their recorded observations, grounded as they are in pre-modern fifteenth- or sixteenth-century European mindsets initially conditioned by fervent religious beliefs and facing decidedly unfamiliar circumstances, these authors were, in fact, first-hand observers. They witnessed catastrophic culture changes (population decline and resettlement; societal breakdown and restructuring) before the virtual extinction (at least documentary) of the various Native populations most particularly in the Greater Antilles.

Among the first of these was Christopher Columbus whose recorded observations of Amerindians include his diary or log that was twice lost or went missing. He was an intelligent observer though consumed by the search for gold to recompense his royal patrons, in addition to augmenting his own wealth and rewarding his fractious crew. Fortunately, another recorder, the Dominican priest Bartolomé de Las Casas (1474-1556), abstracted material from Columbus' original that was included in his wider scope *Historia de las Indias* (first printed in 1875; 1951). While such issues as omissions from, and additions to, the original are evident, the text is nonetheless considered a reasonably faithful reproduction of the original (for an English version see Fuson 1987, as well as a history of the various reconstruction attempts; see also Griswold 1997: Appendices, p. 170). Columbus also wrote two letters to the Catholic monarchs and in 1994 a copybook of Columbus's was discovered in Spain which contains a letter in which he describes his second voyage—during which the Lesser Antilles and Puerto Rico were discovered—that serves as a check on some of his earlier observations (Alegría 1997, p. 13).

Perhaps the best chronicler source derives from the Hieronymite friar Ramón Pané who accompanied Columbus on his second voyage and drafted his own account of Native life in his slim *An Account of the Antiquities of the Indians* (1999). He arrived five years before Las Casas, on January 2, 1494, and stayed until the end of 1498. Pané was commissioned by Columbus to write his account and probably brought the manuscript back with him to Spain in 1500. Las Casas who wrote in his later *Apologética historia de las Indias* (1992) both at times corrects and augments the information he selected from Pané's work (Griswold 1997, p. 175). Despite this patronizing caveat, Pané's strength is that he admitted his occasional lack of understanding and did not seek to parade his own acumen. While viewing Taíno societies through the lens of devout Christian belief, he is nevertheless sympathetic to his informants and his record was based on a relatively long-term stay of two years among the Taíno of the Magua chiefdom. He attempted to accurately record what was related to him by Guarionex, the cacique (Native term recorded by the Spanish), or chief of Magua, primarily regarding religious beliefs (Lovén, 1935, p. 560).

His original account has also been lost and like Columbus' missing log has been abstracted in various states of completeness and accuracy in other early accounts. It was the philologist José Juan Arrom (Ed. 1974) who eventually undertook a meticulous attempt to reconstruct the original, evaluating the extant versions in addition to employing linguistic comparisons to produce a Spanish translation/paraphrase in 1974 (Stevens-Arroyo 1988, pp. 79-80). Griswold (Translator Pané, 1999) followed up with an English translation of Arrom's work in 1999, thus providing two easily accessible publications for study of this key ethnohistoric source.

The most noted chronicler is Fray Bartolomé de Las Casas who turned into a fierce advocate for New World Native populations after becoming dismayed by the brutality of the Spanish Conquest as especially related in his 1552 *The Devastation of the Indies: A Brief Account* (English Version 1992). We can add that he was dismayed as well by his own participation in it especially as a soldier during the subjugation of Amerindians on Cuba (Lovén, 1935, p. 658; Stevens-Arroyo, 1988, p. 82; Alegría, 1997, p. 15). During his stay in the Caribbean in the early 1500s, Las Casas spent most of his time in Hispaniola. Although he did not mention which particular areas he made observations in or collected records from, it is likely the locations were in the north of the island (Lovén, 1935, p. 658-659). His works (above citations plus *Historia de Las Indias* (1552-1561 [1951])) require a critical review for he arrived on Hispaniola in 1502 (Stevens-Arroyo, 1988, p. 82) when Native cultural systems were already beginning to feel the impact of violent changes to the social order. His advocacy for Indigenous populations also leaves him open to the charge of bias in his reporting. In addition, at times he exaggerated for effect, as in the case of affirming that the Indians did not practice idolatry in the face of abundant evidence to the contrary, including from his own account. Nevertheless, he

...is generally regarded as the chronicler most knowledgeable and sympathetic to the natives' ways of life and cultures; he was a firsthand participant and witness to many of the historic events in both Cuba and Hispaniola... Las Casas wrote *Historia*...when he was an elderly man, in his late seventies and early eighties, thus relying on documents and fading memories (Oliver, 2009, p. 32).

The Italian courtier Pedro Mártir de Anglería or anglicized Peter Martyr summarized, indirectly since he never actually visited the Antilles, Pané's original report: "From his writings I have proposed to collect these few details, omitting other more trivial items. Here you have them" (Mártir de Anglería, 1493-1525, *Décadas del Nuevo Mundo*, 1989; see Griswold, 1997, p. 172 for the quote and 171-175 for the English translation of Mártir's Pané section). In fact, he copied large segments from Pané's report, practically verbatim, not

just a few details, in his own work (as, indeed, did Las Casas). Peter Martyr had insatiable curiosity as well as a desire to ingratiate himself at court; yet he also had access to informally circulating information and thus is generally credible (Alegría, 1997, pp. 14-15; Griswold 1997, p. 172).

Francisco López de Gómara (1552 [1922]) represents a minor chronicler because he

...is a writer at second hand. From him we have, however, a brief description of the Lucayos [Natives from the Bahamas], probably dating from the time when they were deported by the Spaniards for the purpose of filling the gaps in the gold-washing work left by the more and more dwindling Tainos in Española (Lovén, 1935, p. 660).

The last major chronicler covered here is both the most comprehensive, yet the most problematic of the early sources. He is Gonzalo Fernández de Oviedo y Valdés.

A nobleman who had been raised in the court and was very close to the Spanish kings (first Ferdinand and later Charles V), Oviedo came to America in 1514 as a government official... when he arrived, some of the aboriginal populations had already disappeared and their remaining societies were already disintegrating. Nonetheless, Oviedo's work is extremely valuable. Indeed his *Historia Natural y General de las Indias* [1535, 1959] is one of the most important of all books on the West Indies... a chapter of the *Historia* is devoted to [Puerto Rico]... Irritated by inaccuracies in this work, and especially by the disparagement of Indians, Father Las Casas responded to Oviedo in his own later books (Alegría 1997, p. 17).

While he is a generally reliable recorder on technology and subsistence (although some of his drawings depict post-European introductions or changes), his attitude toward the Taíno reflected both his noble Old World background and his racial prejudices: "Others (e.g., Gonzalo Fernández de Oviedo y Valdés) took the perspective that the Indians were little more than a curious feature of the natural environment" (Wilson, 1990, p. 5; see also Oliver 2009, pp. 32-33). Nevertheless, he is often and profitably cited.

The second set of analogous contexts extends forward four centuries (16th-20th), and thus introduces both a diachronic and a cultural-geographical shift. It is ethnographic analogy with lowland (tropical forest) Amerindians, the parent populations of the post-Archaic Saladoid (500 BC-AD 500/600) populations that subsequently entered and differentiated within the Antilles. Since they came from the Guianas and northern South America (in particular what is now northeastern Venezuela), that region is the primary focus of comparison. Because they were Arawak speakers the immediate group to compare them with is the now-aculturated Lokono or coastal Arawaks, what the early

writers called the “True Arawaks” (see Im Thurn, 1883; Roth, 2011; Lovén, 1935). Because the Arawaks interacted (both via trade and war) with the Caribs over several centuries the latter have come to share many ancient Arawak characteristics (e.g., tropical forest society, the manioc complex, the shamanic complex, settlement patterns, and similarities in mythology). The Caribs tend to survive relatively unacculturated because of their interior (Alto Essequibo) and upriver (alto-Orinoco) locations. Thus, groups like the Trío (Rivière, 1984), Waiwai (Fock, 1963), and Ye’cuana (Guss, 1989) are the next best analogs to the Lokono in looking for similarities with especially Taíno societies. The detailed similarity of these cultures’ beliefs with the ethnohistorically recorded religion and mythology of Taíno groups has been repeatedly emphasized by various Puerto Rican scholars (López Baralt, 1976-1977; Stevens-Arroyo, 1988), as well as Roe (2011).

Slightly further afield, but still relatively nearby, are the Desana (Tukano) of the Northwest Amazon (Reichel-Dolmatoff, 1971) and, below the Amazon, the riverine Shipibo of the Peruvian highlands (Roe, 1992), whose territory embraces interaction with the interfluvial Arawaks (e.g., Amuesha, Campa), the putative descendants of the formative Tutishcainyo culture, a southern affiliated member of the Saladoid tradition. While the ancient Taíno were not modern Guianan-Amazonian Indians, they were ancestral to them in the same sense that North Americans are not Europeans, but until recent 1960s immigration changes, were mainly descendants from them.

The third set of data sources concerns methodological and conceptual tools. Documentation methods in the early literature include hand sketches (not necessarily to scale), direct 1:1 tracings, field-use-quality to existing topographic maps, and low-level photographic techniques largely resulting in two-dimensional representations of uneven quality or dependent on the ability of the individual documenter. These techniques are being replaced with or complemented by advanced photographic imagery, 3D laser scanning and geospatial techniques such as GPS (Global Positioning System) and GIS (Geographic Information System). Their incorporation testifies to the realization that sound inferences depend upon the most accurate image reproductions, a desire to respect the physical integrity of the designs, the benefit of cataloging the entire assemblage, and the advantage of recording precise locations within, and without the surrounding environment.

Conceptual approaches are varied, ranging from the established structural/functional frameworks to newer perspectives involving cognitive archaeology, symbolic analysis and ontological considerations. They collectively can be characterized as attempts to expand our understanding of the role of rock art in past societies by considering them as a complex set of relationships among humans, plants, animals, non-human spirits, as well as the surroundings which these animate beings occupied, and how these

relationships yielded functioning or dynamic worldviews that we witness through their rock art.

Section 2: Investigative Topics

Interpretive Efforts

Low-level simple assertions (these facial features represent past humans, perhaps ancestors) to well-reasoned understandings of particular to collective images (representations of specific myths and rituals or as symbols used to enhance sociopolitical status) can be found in the literature. Rock art is frequently viewed as functioning primarily in the religious realm. A more expansive role can be advanced where the images serve as prominent and emotive symbols, referents or objects that can be manipulated for various ends (personal or corporate material, spiritual, or prestige gain) in solely religious or intersecting sociopolitical, economic and religious contexts (Hayward *et al.*, 2013a, p. 495).

Further, Caribbean rock art research, as in other world regions, possesses a distinct historical background and investigative structure. For instance, the multi-national colonial experience continues to influence the character and pace of inquiry on particular islands, as well as the chosen attendant theoretical and methodological approaches. An underappreciated aspect of the investigative structure concerns its “flavor”. There is a specific vocabulary, cadence, and personality to the researchers and their research. We have chosen to highlight this aspect by presenting individual-authored essays rather than, say, review their or others’ viewpoints and results.

Additionally, the essays also represent certain regional research subjects or traditions. The first examines dates for, or the lack thereof, as well as formal chronological frameworks for the rock art in the Greater and Lesser Antilles. This is a perennial issue that various investigators have grappled with, albeit with limited success. Yet, as the following authors Hayward, Cinquino and Smith point out, a considerable number of recently directly dated pictographs have come to transform the limits of date-deprived interpretation.

Dating

Michele H. Hayward, Michael A. Cinquino, and Donald A. Smith

Introduction

The dating of Antillean rock art has almost exclusively relied upon indirect methods to frame chronological sequences of the region’s carved and painted images. These include contextual analysis or associating undated rock art sites with proximally dated non-rock art sites and materials, as well as general

to detailed stylistic comparisons again linking reasonably dated images to undated ones. Until the last few years, a very limited number of directly dated images—largely from pictographic charcoal or from archaeological remains clearly in association with the rock art—have been available. This situation has changed dramatically with the addition of a significant number of newly dated pictographs, which are reviewed here.

Despite uncertainties with indirect methods and the few direct dates, developmental sequences have been proposed at the sub-regional to regional levels. Two well-established sequences are those by Jönsson Marquet (2002, 2009) for the Lesser Antilles and the other by Roe (Roe and Rivera Meléndez, 1995; Roe, 2005) for the Greater Antilles. Waldron’s 2019 observations on the region’s rock art execution patterns, as well as Rodríguez Ramos *et al.*’s ,2021 classification for Puerto Rican pictographs based on direct radiocarbon dating, are also reviewed.

Directly Dated Rock Art Survey

A survey of the published literature regarding directly dated rock art is presented in tabular, graphic and mapped formats. Table 1 contains the following columns: the location or site of the dated sample; the laboratory performing the analysis; the sample’s source material; dating details involving sample identification, BP date, the corresponding calendric age range calibrated to 2-sigmas along with the mean or intercept point; comments on the dating results by the study’s authors and their or our descriptions of the images, and finally citations for the table’s entries. Notes on the table’s content are provided at the end of the table. Figure 2.1 graphs the BC/AD calibrated to 2 sigma ranges, while Figure 2.2 displays the locations, numbers of dates and their general archaeological period by island for the region.

Table 1. Directly Dated Caribbean Rock Art

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Greater Antilles					
Puerto Rico					
Cueva del Abono or de Mujeres	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30024 FP7 2-320±30 3-AD 1480-1650 4-Mean AD 1565	Early Historic; lineal lizard-like	Rodríguez Ramos 2017: Table 1, pp. 5, 17 Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date</i>	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva del Abono or de Mujeres	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30025 FP8 2-280±30 3-AD 1510-1660 4-Mean AD1585	Early Historic; one horizontal line with series of linked straight lines below, abstract	Rodríguez Ramos, 2017: Table 1, pp. 5, 17; Rodríguez Ramos <i>et al.</i> , 2021: Table 1 p. 13, Figure 2, p. 11
Cueva Gemelos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30026 FP9 2-1230±65 3-AD 660-960 4-Mean AD 810	First Phase Late Ceramic or Ostionoid; simple face with irregular oval shaped head and sub-medial lineal projections	Rodríguez Ramos, 2017: Table 1, pp. 5, 20; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Gemelos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30027 FP10 2-410±40 3-AD 1430-1630 4-Mean AD 1530	Late Phase Late ceramic; possible dragon-fly-like insect with pronounced eyes and lineal body with paired lines at right angles	Rodríguez Ramos, 2017: Table 1, pp. 5, 21-22; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Gemelos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30028 FP12 2-870±40 3-AD 1040-1230 4-Mean AD 1135	Middle Phase Late Ceramic; irregular linear segmented crown encircling a simple face, so called "sun" image in the literature	Rodríguez Ramos, 2017: Table 1, pp. 5, 20; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46762 CT2 2-1140±30 3-AD 780-990 4-Mean AD 885	First Phase Late Ceramic; irregular lined enclosed triangular shaped face	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46763 CT3 2-1770±35 3-AD 220-380 4-Mean AD 300	Early Ceramic; simple triangular shaped face with dashed eyes and mouth	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46764 CT4 2-490±25 3-AD 1410-1450 4-Mean AD 1430	Late Phase Late Ceramic; set of two irregular parallel crossed lines	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46765 CT5 2-590±30 3-AD 1300-1420 4-Mean AD 1360	Late Phase Late Ceramic; outlined body, tail and head with lineal square angled arms/legs/digits, lizard-like	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46766 CT6 2-970±20 3-AD 1020-1160 4-Mean AD 1090	Middle Phase Late Ceramic; filled-in winged zoomorph	Rodríguez Ramos <i>et al.</i> , 2021: Table 1 p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46767 CT7 2-930±20 3-AD 1040-1160 4-Mean AD 1100	Middle Phase Late Ceramic; filled in rectangular with curved lined top projection; abstract	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46768 CT8 2-850±30 3-AD 1050-1270 4-Mean AD 1160	Middle Phase Late Ceramic; filled-in elongated body with fish-like tail and lineal leg-like lines with digits underneath	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46769 CT9 2-600±20 3-AD 1310-1400 4-Mean AD 1335	Late Phase Late Ceramic; abstract filled-in center rectangular with top and bottom right-angled extensions	Rodríguez Ramos <i>et al.</i> , 2021: Table 1 p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46770 CT10 2-640±30 3-AD 1290-1400 4-Mean AD 1345	Late Phase Late Ceramic; irregular filled-in lined motif	Rodríguez Ramos <i>et al.</i> , 2021: Table 1 p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46771 CT11 2-1060±30 3-AD 900-1030 4-Mean AD 965	Middle Phase Late ceramic; complex circular face with eyes, mouth and possible cheek and hairline design elements	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46772 CT12 2-920±25 3-AD 1030-1200 4-Mean AD 1115	Middle Phase Late Ceramic; complex circular face with diamond-shaped pitted eyes, toothed mouth, nose, hairline elements and sub-medial rays	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46773 CT13 2-1010±20 3-AD 990-1120 4-Mean AD 1055	Middle Phase Late ceramic; complex circular face with eyes, mouth, nose, hairline and cheek elements with both supra- and sub-medial rays	Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Pita	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46774 CT14 2-960±20 3-AD 1030-1160 4-Mean AD 1095	Middle Phase Late Ceramic; concentric circles with occasional aligned pits	Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva LJ22	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46761 CT1 2-530±30 3-AD 1330-1440 4-Mean AD 1385	Late Phase Late Ceramic; ovoid head minus internal facial elements with two ears, top-hat element and sub-medial rays	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46777 CT17 2-180±20 3-AD 1660-1950 4-Mean AD 1805	Historic; largely enclosed lineal oval with irregular internal at-different-angled lines; abstract	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 5, p. 19
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46779 CT20 2-500±20 3-AD 1410-140 4-Mean AD 1425	Historic; circular face with eyes and mouth and above and below triangular-shaped projections	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46781 CT23 2-490±20 3-AD 1410-1440 4-Mean AD 1425	Historic; abstract rectangle with complex regular straight and curved internal design	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46782 CT24 2-190±30 3-AD 1650-1950 4-Mean AD 1800	Historic; simple face with eyes and mouth; irregular shaped no-internal-elements headdress and minimal upper body outline	Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 5, p. 19

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30042 FP27 2-3140±40 3-1500-1310 BC 4-Mean 1405 BC	Unclear; Gallery D; Archaic date needs to be confirmed; complex face, possibly masked with African-like features	Rodríguez Ramos 2017: Table 1, pp. 5, 32-33; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30045 FP30 2-730±35 3-AD 1220-1380 4-Mean AD 1300	Late Phase Late Ceramic; Gallery D; lizard-like oval filled-in and lineal body with head/tail and flexed arms/legs/digits	Rodríguez Ramos, 2017: Table 1, pp. 5, 30-31; Rodríguez Ramos <i>et al.</i> ; 2021: Table 1, p. 13, Figure 2, p. 11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30039 FP24 2-630±20 3-AD 1270-1390 4-Mean AD 1330	Late Phase Late Ceramic; Gallery C; filled-in turtle	Rodríguez Ramos, 2017: Table 1 pp. 5, 29-30 Rodríguez Ramos <i>et al.</i> 2021: Table 1 p13, Figure 2 p11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30043 FP28 2-630±50 3-AD 1280-1380 4-Mean AD 1330	Late Phase Late Ceramic; Gallery D; stick figure anthropomorph with complex crowned head and right-angled arms/legs/digits	Rodríguez Ramos 2017: Table 1 pp. 5, 31 Rodríguez Ramos <i>et al.</i> 2021: Table 1 p13, Figure 2 p11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30049 FP34 2-400±35 3-AD 1435-1630 4-Mean AD 1532.5	Gallery D; late Indigenous to early Historic; concentric circles with radial projection	Rodríguez Ramos 2017: Table 1 pp. 5, 31-32 Rodríguez Ramos <i>et al.</i> 2021: Table 1 p14, Figure 2 p11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30050 FP35 2-380±30 3-AD 1450-1630 4-Mean AD 1540	Gallery D; late Indigenous to early Historic; solid curved "I", seen in Early Ceramic Hacienda Grande style ceramics with markings above	Rodríguez Ramos, 2017: Table 1, pp. 5, 31-32; Rodríguez Ramos <i>et al.</i> 2021: Table 1 p14, Figure 2 p11
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30048 FP33 2-310±35 3-AD 1480-1650 4-Mean AD 1565	Gallery D; late Indigenous to early Historic; snake-like zig-zag	Rodríguez Ramos 2017: Table 1 pp. 5, 31-32 Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30040 FP25 2-220±30 3-AD 1640-1950 4-Mean AD 1795	Historic; Gallery C; filled-in bird in profile	Rodríguez Ramos, 2017: Table 1, pp. 5, 29-30
Cueva Lucero	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30041 FP26 2-110±30 3-AD 1680-1950 4-Mean AD 1815	Historic; Gallery D; simple face with sub-medial rays	Rodríguez Ramos, 2017: Table 1, pp. 5, 32
Cueva Mason	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-60771 CM1 2-2370±190 3-900 BC-AD 10	Early Ceramic	Rodríguez Ramos, 2022: Table 1
Cueva Mason	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-60770 CM2 2-1150±70 3-AD 710-1020	First Phase Late ceramic; partial head with encircled pitted eyes with lenticulate ears projecting from the top of the head; zoomorph or anthropomorph	Rodríguez Ramos 2022:Table 1
Cueva Matos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30019 FP2 2-640±45 3-AD 1280-1400 4-Mean AD 1340	Late Phase Late Ceramic; zoomorph, bird-like, frontal view	Rodríguez Ramos 2017:Table 1, pp. 5, 12-14 Rodríguez Ramos et al. 2021:Table 1 p14, Figure 2 p11
Cueva Matos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30021 FP4 2-580±40 3-AD 1300-1420 4-Mean AD 1360	Late Phase Late Ceramic; oval solid body with linear arms/legs in flexed positions, possible lizard-like zoomorph	Rodríguez Ramos 2017:Table 1, pp. 5,14 Rodríguez Ramos et al. 2021:Table 1 p14, Figure 2 p11
Cueva Matos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30018 FP1 2-410±25 3-AD 1440-1616 4-Mean AD 1528	Early Historic; elongated oval solid body/head/ tail with linear arms/legs/digits in flexed positions, possible lizard-like zoomorph	Rodríguez Ramos, 2017: Table 1, pp. 5, 14; Rodríguez Ramos, et al.; 2021: Table 1, p. 14, Figure 2, p. 11

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva Matos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30020 FP3 2-330±30 3-AD 1480-1640 4-Mean AD 1560	Early Historic; historic ship with sail and three masts in profile	Rodríguez Ramos, 2017: Table 1, pp. 5; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 14, Figure 2, p. 11
Cueva Matos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-60772 CMatos 1 2-850±60 3-AD 1040-1280	Middle Phase Late Ceramic	Rodríguez Ramos, 2022, Table 1
Cueva Paloma	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46783 CT25 2-780±25 3-AD 1220-1280 4-Mean AD 1250	Late Phase Late Ceramic; abstract motif of a circle, dot and lines	Rodríguez Ramos, <i>et al.</i> , 2021: Table 1 p. 14, Figure 2, p. 11
Cueva Soto	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30031 FP16 2-2910±50 3-1270-940 BC 4-Mean 1105 BC	Unclear; from a series of individual linear motifs, possible writing; BC date needs confirmation	Rodríguez Ramos, 2017: Table 1, pp. 5, 26-27; Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 14
Cueva Soto	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30023 FP6 2-1030±20 3-AD 910-1030 4-Mean AD 970	Late Phase Late Ceramic; associated with initial Capá or last phase of Indigenous ceramics; eye-like with encircled dot	Rodríguez Ramos, 2017: Table 1 pp. 5, 25-26; Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 14
Cueva Soto	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30022 FP5 2-480±30 3-AD 1410-1450 4-Mean AD 1430	Late Phase Late Ceramic; simple face	Rodríguez Ramos, 2017: Table 1, pp. 5, 26; Rodríguez Ramos <i>et al.</i> 2021: Table 1, p. 14
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30033 FP18 2-2390±35 3-730-390 BC 4-Mean 560 BC	Archaic; 3-Cave complex with rock art: Superior, Intermedia, Inferior; irregular intersecting lines; Superior has Archaic deposit 2490-950 BC cal. 2 sigma	Rodríguez Ramos, 2017: Table 1, pp. 5, 7; Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 14, Figure 2, p. 11

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30034 FP19 2-1050±30 3-AD 900-1030 4-Mean AD 965	First Phase Late Ceramic; tabular design elements encircling a face with body; so-called "sun figures" in the literature	Rodríguez Ramos, 2017: Table 1, pp. 5, 9-10; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 14, Figure 2, p. 11
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30036 FP21 2-1050±80 3-AD 780-1160 4-Mean AD 970	First Phase Late Ceramic; enclosed or wrapped body, simple face with internal horizontal lined body	Rodríguez Ramos, 2017: Table 1, pp. 5, 9-10; Rodríguez Ramos <i>et al.</i> ; 2021: Table 1, p. 14, Figure 2, p.11
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30037 FP22 2-690±30 3-AD 1270-1390 4-Mean AD 1330	Late Phase Late Ceramic; heart-shaped face; similar to those at other Caribbean sites; corresponds to similar images at multi-ball court Caguana, Puerto Rico, dated to last Indigenous phase	Rodríguez Ramos, 2017: Table 1, pp. 6, 9-10; Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 14, Figure 2, p. 11
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30035 FP20 2-400±30 3-AD 1440-1630 4-Mean AD 1535	Historic; linear zoomorph	Rodríguez Ramos 2017: Table 1, pp. 6, 9-10; Rodríguez Ramos <i>et al.</i> 2021: Table 1, p. 14, Figure 2, p. 11
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30032 FP17 2-300±20 3-AD 1500-1650 4-Mean AD 1575	Early Historic; possibly by African or African descent; linear segmented crown encircling a simple face	Rodríguez Ramos, 2017: Table 1, pp. 6, 10-11; Rodríguez Ramos <i>et al.</i> 2021: Table 1, p. 14, Figure 2, p. 11
Cueva Ventana Intermedia	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30038 FP23 2-190±30 3-AD 1650-1950 4-Mean AD 1800	Historic; linear zoomorph, lizard	Rodríguez Ramos, 2017: Table 1 pp. 6, 11; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 14, Figure 5, p. 19

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cueva de los Largartos	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-30029 FP14 2-610±40 3-AD 1290-1410 4-Mean AD 1350	Late Phase Late Ceramic; stick figure anthropomorph with simple face, middle body opposing lines possible representing skeletal ribs and downturned/upturned arms/legs/digits	Rodríguez Ramos, 2017: Table 1, pp. 6, 21-22; Rodríguez Ramos <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Cueva la Catedral		Charcoal from associated hearth	2-550±70 BP 3-AD 1330-1470	Late Phase Late Ceramic; date is for the assemblage as a whole	Roe, 2009: 222
Cueva la Catedral	Center for Applied Isotope Studies, University of Georgia	Paint sample; AMS method	1-46785 CT28 2-380±35 3-AD 1450-1630 4-Mean AD 1540	Historic; complex face with sub-medial rays	Rodríguez Ramos, <i>et al.</i> , 2021: Table 1, p. 13, Figure 2, p. 11
Mona Island Cave 8	British Museum Department of Scientific Research	Paint sample; standard C14 dating	1-128/ OxA31348 Calibrated 2 sigma 3-1302-1413 CE	Late Indigenous	Samson <i>et al.</i> , 2017, pp. 32-33
Cave 6	British Museum Department of Scientific Research	Paint sample; standard C14 dating	1-134/ OxA31199 Calibrated 2 sigma 3-1478-1637 CE	Late Indigenous to early Historic	Samson <i>et al.</i> , 2017, pp. 32-33
Cave 2	British Geologic Survey	Calcite accretion over image; U-Th Uranium-Thorium dating	3-Calibrated 2 sigma 1244 CE ±8	Finger fluted motif beneath sample; youngest possible date; late Indigenous	Samson <i>et al.</i> , 2017, p. 32-33
Cave 8	British Geologic Survey	Calcite accretion over image; U-Th Uranium-Thorium dating	3-Calibrated 2 sigma 1088 CE ±18	Finger fluted motif beneath sample; youngest possible date; late Indigenous	Samson <i>et al.</i> , 2017, p. 32-33

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cave 3	British Geologic Survey	Calcite accretion over image; U-Th Uranium-Thorium dating	3-Calibrated 2 sigma 1703 CE ±4	Finger fluted motif beneath sample; youngest possible date; on or before 1700s	Samson <i>et al.</i> , 2017, pp. 32-33
<i>Dominican Republic and Cuba</i>					
Dominican Republic Cueva de Berna		Associated materials	3-1890-1255 BC	Archaic Period	Veloz Maggiolo, <i>et al.</i> , 1977: 22 as cited in Foster <i>et al.</i> , 2011, p. 5
Dominican Republic José María Cave	Lawrence Livermore	Pigment sample	1-CMAS 122461 2-4100±35 3-2498-2865 BC 4-Intercept 2667 BC	Archaic date needs confirmation; abstract or "boat-like" motif	Foster <i>et al.</i> , 2011, p. 3, 6
Dominican Republic José María Cave	Lawrence Livermore	Pigment sample	1-CMAS 122462 2-2700±35 3-802-909 BC 4-Intercept 852 BC	Archaic date needs confirmation; facial image with solid "beard-like" sub-medial projection	Foster <i>et al.</i> , 2011, pp. 3, 6
Dominican Republic Cueva del Puente	Beta Analytic	Paint sample; AMS method	1-Beta 281909 2-1660±40 3-AD 260-520 4-Intercept AD 400	Indicates Early Ceramic or Saladoid; caution in interpreting dating results; abstract regular lined rectangle	Foster <i>et al.</i> , 2011, pp. 5-6
Dominican Republic Cueva del Puente	Beta Analytic	Paint sample; AMS method	1-Beta 281910 2-1560±40 3-AD 410-590 4-Intercept AD 540	Indicates Early Ceramic or Saladoid; caution in interpreting dating results; simple face	Foster <i>et al.</i> , 2011, pp. 5-6
Dominican Republic Cueva del Puente	Beta Analytic	Paint sample; AMS method	1-Beta 281911 2-890±40 3-AD 1030-1230 4-Intercept AD 1160	Late Taíno; caution in interpreting dating results; abstract linear motif	Foster <i>et al.</i> , 2011, pp. 5-6
Dominican Republic Cueva Borbón No. 1	Beta Analytic	Charcoal sample; AMS method	1-BOR-1.1 and 1.2 2-890±30 3-AD 1045-1223	Middle Phase Late Ceramic; bird in profile	García Díez <i>et al.</i> , 2022

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Cuba El Fustete 02 Cave	Institute for Environmental Research of Australian Government ANSTOC	Carbon Sample under image; AMS method	2-3865±40 3-2465-2269 BC	Archaic; from a mural with abstract designs	Fernández Ortega <i>et al.</i> , this article
Cuba Cueva de los Muertos	Armitage Laboratory, Eastern Michigan University	Paint pigment; AMS method	2-1920±140	Archaic/Early Saladoid; anthropomorph	Fernández Ortega <i>et al.</i> , this article
Cuba Cueva de los Muertos	Armitage Laboratory, Eastern Michigan University	Paint pigment; AMS method	2-1810±60	Archaic/Early Saladoid; possible bat motif	Fernández Ortega <i>et al.</i> , this article
<i>Aruba, Bonaire, Curaçao</i>					
Aruba Fontein or Manzanilla -7 caves	Central Research Laboratory Amsterdam 1990	Paint sample; AMS method	AD 1000	Transition from Archaic 2500 BC/AD 1000 to Ceramic AD 1000-1515	Kelly, 2009, pp. 176-177; Versteeg and Kelly, 2019, p. 415
Aruba Arikok seven boulder cavities	University of Oxford Laboratory, Radiocarbon Accelerator Unit Results 1998	paint sample; AMS method	1-OxA-7754 2-1115±55 3-AD 776-1018 (95.4 % probability)	Small sample for secure dating; Archaic, Ceramic period or both possible; from cluster/boulder A7 of eight images, seven are white abstract and one red anthropomorph; text only notes a white paint sample taken from the cluster	Versteeg and Kelly, 2019, pp. 345-349, Figure 33.7, pp. 349, 415-417
Aruba Ayo two boulder cavities	University of Oxford Laboratory, Radiocarbon Accelerator Unit Results 1998	paint sample; AMS method	1-OxA-7755 2-840±55 3-AD 1043-1275 (95.4 % probability)	Small sample for secure dating; Archaic, Ceramic period or both possible; abstract motif, with three parallel straight lines, the outer two lines have curved line finales at both ends	Versteeg and Kelly, 2019, pp. 250-253; Figure 26.13, 14, 15, 16, pp. 256-257, 415-417

<i>Location</i>	<i>Laboratory Notations</i>	<i>Source Material</i>	<i>Dating</i> 1-Sample ID 2-BP date 3-calibrated 2 sigma date 4-Mean or intercept date	<i>Dating Comments with image descriptions</i>	<i>Source</i>
Curaçao Savonet rock shelter	University of Pittsburg sample taken 1990	marine shell; standard radiocarbon process	1-PITT-1183 2-3355±25 BP uncalibrated 3-1405 BC	Small sample for secure dating; date and artifacts suggest Archaic period	Haviser, 1995, pp. 575-576

Author's Tabulation

Number	72
Archaic	8
Archaic/Ceramic	3
Early Ceramic	4
Late Ceramic	36
Late Ceramic to Early Historic	4
Historic	15
Unclear	2

- Note: Natural Environment Research Council Isotope Geosciences Laboratory (NIGL).
- Note: calibration program of the Center for Applied Isotope Studies of the University of Georgia: CALIB 7.04 that includes INTCAL13 for land-based samples and Marine13 for marine samples.
- Note: calibration program of Oxford University Laboratory: OxCal 4.2 program, curve IntCall3.
- Note: source described pictographs or supplemented by present authors; descriptions and dates also edited to conform with text's descriptive and chronological terminologies.
- Note: for Rodríguez Ramos 2017 certain minor discrepancies between Table 1, pp. 5-6 dates and those presented in text; also, certain minor discrepancies between dates in 2017 and *et al.*, 2021, sources.
- Note: Rodríguez Ramos, 2022 repeats rock art information from Rodríguez Ramos, 2017; Rodríguez Ramos *et al.*, 2021; included and specifically cited for Table 1 are additional dates: two from Cueva Mason and one from Cueva Matos.

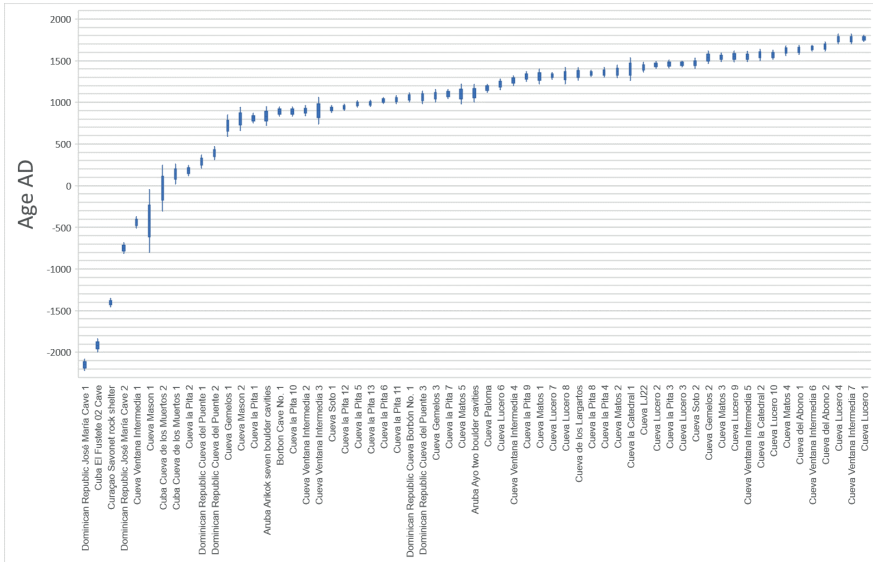


Figure 2.1. Graph of Caribbean area directly dated pictographs (taken from Table 1 excluding those locations without a BP date and two samples classified as unclear; location numbers follow the order of presentation in the table; sorted by means in the chart) (compiled by Donald Smith of Chronicle Heritage).

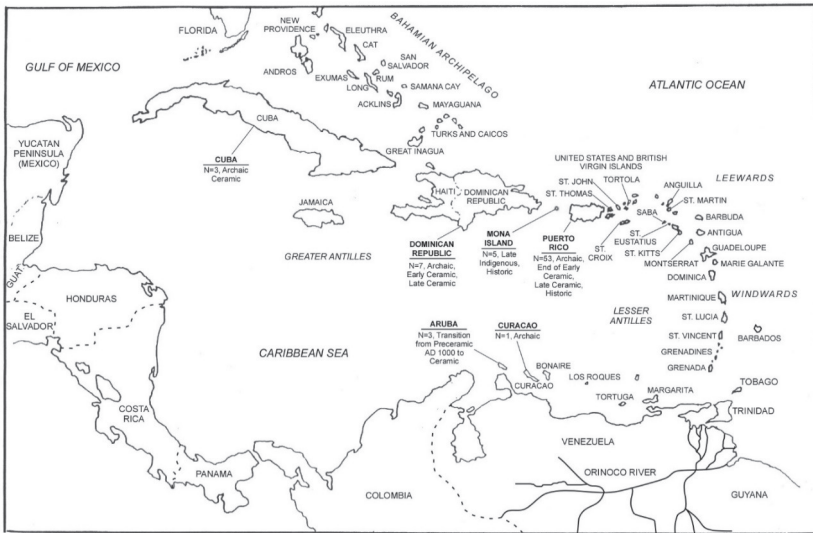


Figure 2.2. Location, Number and Archaeological Period for Directly Dated Images within the Caribbean (taken from Table 1) (map revised from Hayward et al. 2009: Figure 1.1).

Observations on the presented data include the following:

- A distinct uneven distribution of locations and sample numbers across the region is apparent, where the total of 72 dates (explicitly discussed in the sources; others merely presented) are drawn from just six islands: Puerto Rico, the Dominican Republic, Mona, Cuba, Aruba and Curaçao with corresponding sample numbers of 53, 7, 5, 3, 3, and 1. The dates for Puerto Rico are almost exclusively derived from efforts by Reniel Rodríguez Ramos (2017, 2022; Rodríguez Ramos *et al.*, 2021).
- The samples are nearly always organic remains from painted images; however, three are from contexts in direct association (charcoal from a hearth at Cueva la Cathedral in Puerto Rico; materials from the Dominican Republic's Cueva de Berna; and marine shell from the rock shelter on Curaçao), while an additional three samples represent calcite accretions over the images from Caves 2, 3, and 8 on Mona Island.
- AMS radiocarbon dating is the predominant procedure supplemented by Uranium-Thorium protocols for the three calcite accretion samples, all processed by reputable laboratories such as Beta Analytic and the Isotope Geosciences Laboratory of the British Geologic Survey.
- The selected pictographs are from cave or cave-like settings (rock shelters, rock hollows) which in part explains the complete lack of dates from the Lesser Antilles; the other salient factor being that the sub-region counts near-exclusive petroglyph assemblages (refer to above rock art attribute section).
- The selected pictographs represent a range of image types: simple to complex faces, face and body motifs, zoomorphs and geometric/abstract figures; in so doing any conspicuous biases may have been avoided.
- A distinct uneven distribution of the dates is also evident. A majority of 36 date to the Late Ceramic, and those mostly toward the end of the period followed by eight for the Archaic, four for the Early Ceramic, and 15 for the Historic Period. The remaining dates either incorporate two currently defined periods—four span the late Indigenous to Early Historic periods (Sample Numbers FP33, FP34, FP35 Cueva Lucero, Puerto Rico; Cave 6, Mona Island) and three lie at the preceramic/ceramic divide (the three samples from Aruba)—or are debatable (two: Sample Numbers FP27 Cueva Lucero, Puerto Rico, F16 Cueva Soto, Puerto Rico).
- Two of eight Archaic results are well-known in the literature: the uncalibrated 1405 BC for pictographs from Curaçao and 1890-1255 BC for the rock art from the Berna cave in the Dominican Republic. Four other results are newer: an irregular crossing-lines motif at Cueva Ventana Intermedia in Puerto Rico with a Mean of 560 BC. the Cuban El Fustete cave mural with abstract designs from 2465-2269 BC and two dates from

anthropomorphic and possible bat motifs at the Cuban Cueva de los Muertos, presented in this article by Fernández Ortega et al. (see below) near the BC/AD divide (Archaic cultural patterns may well have continued, at least in some areas of Cuba, well into the Late Ceramic). Also included are two dates of 2498-2865 and 802-909 BC from abstract and facial images respectively, of the Dominican Republic's José María Cave, although the dates have been questioned by Foster et al. 2011. The three dates from Aruba which bridge the Archaic/Ceramic periods may also be considered. While the execution of rock art during the Archaic is recognized from different lines of argument, it is certainly welcome to note that these newer dates expand the chronological and geographical presence of this period's rock art (see Roe, 2009: Table 15.6, pp. 215-217).

- The four Early Ceramic dates also extend the region's rock art ranges: sample number CT3 a simple triangular face from Cueva Pita, Puerto Rico with a Mean of AD 300; CM1 from the Puerto Rican Cueva Mason with a date range of 900 BC-AD 10, and sample numbers Beta 281909, 281910 representing an abstract lined design and a simple face from Cueva del Puente in the Dominican Republic with Intercepts of AD 400 and 540, respectively. These late Early Ceramic dates feed into the issue of this period's rock art presence, or lack thereof, a topic examined further in the next section.
- The majority of the Late Ceramic dates reinforce the current understanding that the region's rock art development reached its greatest degree of expression in terms of such factors as numbers, compositional complexity and locations during this period. The large number of dates from Puerto Rico critically provide the data to investigate this elaboration in greater detail, an effort Rodríguez Ramos (2022; *et al.*, 2021) has already begun, which is also outlined in the next section.
- Somewhat surprisingly, but not illogically, are the several dates that point to continued production or use of Indigenous rock art into the Historic period (see also Rodríguez Ramos, 2017, p. 36 and 2022 for a similar observation). For example, two images—a lizard-like zoomorph and an abstract lineal design (Sample Numbers FP7 and FP8)—from Cueva del Abono in Puerto Rico have Mean dates of AD 1585, with another lizard motif (Sample Number FP23) from Cueva Ventana Intermedia, again in Puerto Rico, dating to later in the Historic period with a Mean of AD 1800. Post AD 1500 Native and Colonial use of rock art spaces has also been detailed by Samson *et al.* (2016) for Cave 18 on Mona Island.
- Another logical, but rarely collaborated aspect of rock art in the region (for an example see Roe *et al.*, 1999) concerns multiple-period use of rock art sites documented here by several cases including: the late Early Ceramic throughout the Late Ceramic phases at Cueva la Pita; the Late

Ceramic phases to mid-Historic at Cueva Lucero, and the Archaic, Late Ceramic and Post AD 1500 time periods at Cueva Ventana Intermedia, all on Puerto Rico.

Rock Art Developmental Sequences

Despite the relative lack of directly dated images, various researchers employing indirect dating methods and settlement/artifact/stylistic associations have modeled the region’s rock art changes through time (for additional discussion see Roe 2009, pp. 214-220). Details on the four frameworks reviewed here are outlined in Table 2. Table 2 presents the initial proposal date, rock art type and locational coverage and methodology, in addition to dating/framework characteristics by major archaeological time period for each of the four sequences. Figures 2.3 through 2.6 depict selective aspects of the same four rock art trajectories.

Table 2. Elements of Caribbean Rock Art Developmental Sequences by Jönsson Marquet, Roe, Waldron and Rodríguez Ramos

	<i>Sofia Jönsson Marquet</i>	<i>Peter Roe and Rivera Meléndez; Roe</i>	<i>Lawrence Waldron</i>	<i>Reniel Rodríguez Ramos et al.</i>
Initial Proposal Date	2002, 2009	1995, 2005	2019	2021; see also 2022
Coverage Rock Art Type	Petroglyphs	Petroglyphs	Petroglyphs Pictographs	Pictographs
Coverage Geographical Location	Lesser Antilles Five Windward Islands	Puerto Rico	Region-wide	Puerto Rico
Method	Contextual Analysis	Seriation	Logic and Cross-media Comparative Design Elements Arguments	Radiocarbon Dating
Archaic	Not Addressed	Not Addressed	Follows current characterization: -petroglyphs much less frequent -emphasis on pictographs and within this class emphasis on geometric designs -some zoomorphic and anthropomorphic motifs	-One intersecting lined image from Cueva Ventana Intermedia FP18 Late Archaic cal. 740-400 BC -consistent with expected emphasis on geometric designs

Continued Table 2

	<i>Sofia Jönsson Marquet</i>	<i>Peter Roe and Rivera Meléndez; Roe</i>	<i>Lawrence Waldron</i>	<i>Reniel Rodríguez Ramos et al.</i>
Early Ceramic	Characteristics: Tradition A: Simple and Geometrical Designs AD 200-300 -simple geometric and anthropomorphic designs almost never in association with each other -are unelaborated -geometric designs often circular -pecking primary production technique -all located on south coast or near-coastal settings -no compositional rules to arrange multiple images evident -individual figures cover the entire rock surfaces of whatever size -unclear if particular rock surfaces chosen for certain designs or vice versa	Apparent Lack of Production	Characteristics: Pictographs -complex interplay of painted and unpainted areas -may precede petroglyphs -three pictograph examples: fish motif from Cuevas de Borbón and two masked images from Hoyo de Sanabe, all in Dominican Republic Petroglyphs -example of developed triangular-shaped motif from Layou, St. Vincent -example of frog labyrinth design Balenbouche, St. Lucia	Example: -one triangular-shaped head with eyes and mouth from Cueva la Pita CT3 Later Early Ceramic caL. AD 220-380 -hiatus in production caL. AD 400-700

Continued Table 2

	<i>Sofia Jönsson, Marquet</i>	<i>Peter Roe and Rivera Meléndez; Roe</i>	<i>Lawrence Waldron</i>	<i>Reniel Rodríguez Ramos et al.</i>
Late Ceramic	<p>Characteristics: Tradition B: Elaborated and Enclosed AD 500 -enclosed facial/body figures -made via incision, abrading, carving and fine pecking -lines are either fine or broad and exhibit little variation -faces often lack internal design elements -faces attached to non-outlined appendages -bodies possess varying arrangements of straight and curved lines with and without circles -images located on single vertical surfaces and tend to be found forests or close to the coast</p> <p>Tradition C: Variation and Elaboration AD 400-500 -facial and full-body images that exhibit a high degree of variability -figurative geometrical designs -anthropomorphic and geometric designs occur together</p>	<p>Common or Diagnostic Traits: Phase A: 800-1000 AD -simple and enclosed faces -circular heads -pitted eyes -pitted mouths -elongated/dashed mouths -hemispherical ears -vertical nose -rays below face -feather-like headdresses -rectangular torso -stick legs -possible ear spools present</p> <p>Phase B: 1000-1200 AD -circular heads continue -elaborated eye shapes (enclosed, surrounded, round or elongated, connected encircled, horizontal hourglass) -circular nose -rayed face, above and below or continuous design element encirclement; also termed "solar" face/head -crowns or diadems -ear spools</p>		<p>Phases: AD 800 two faces; one with rays below face in line with Roe's scheme; the other continuance of triangular head shape and possible Saladoid <u>Saladoid influence</u> AD 900 -after this date marked increase in the quality and diversity of figures -panels of diverse images produced at same time -enclosed or wrapped facial/body figures appear -so-called solar images noted (continuous crowned elements) AD 1000 -positive painted figures with total or partial in-filling -zoomorph and concentric circle noted in sample AD 1100 -increase in zoomorphs <u>zoomorphs</u> especially marine and birds -continued production of solar images AD 1200 -one abstract lined-circle-dot figure AD 1300 -significant increase in pictograph production after this date</p>

Continued Table 2

<i>Sofia Jönsson Marquet</i>	<i>Peter Roe and Rivera Meléndez; Roe</i>	<i>Lawrence Waldron</i>	<i>Reniel Rodríguez Ramos et al.</i>
<p>-some evidence for rock surfaces being chosen to accentuate certain design features such as making of asymmetrical figures</p> <p>-images found on boulders and panels produced via a combination of fine and gross pecking</p> <p>-geographical settings variable</p> <p>-at one location Mount Rich in Grenada</p> <p>evidence of extended production</p> <p>-cross media parallel design elements evident between petroglyphs and modeled <i>adornos</i> with such attributes as concentric circles for the eyes and open mouths on <i>Saladoid</i>-<i>Barrancoid</i> vessels</p> <p>Tradition D: Late Developments AD 985-1400</p> <p>-increase in figure size</p> <p>-high degree of variability continues</p> <p>-tendency to coarse rather than finely executed images</p>	<p>Phase C: 1200-1400 AD</p> <p>-heart shaped heads</p> <p>-increasingly present elongated closed or dead goggle shaped eyes</p> <p>-increasing facial elaboration with addition of nostrils and lip-lines = complex winged nose, cheek and chin elements and V-shaped hair line</p> <p>-developed crowns</p> <p>-elaborated ear spoofs</p>		<p>-panels or sections with coherent scenes evident</p> <p>-anthropomorphs and zoomorphs with flexed or upright arms/legs/digits</p> <p>-continued production of zoomorphs, especially marine animals like turtles</p> <p>-increase in reptile forms either linear or filled-in</p> <p>-some reptile forms also have additional body parts indicated like a rounded thorax</p> <p>-similarities between pictographic and petroglyphic anthropomorphs across site locations</p>

Continued Table 2

Sofia Jönsson Marquet	Peter Roe and Rivera Meléndez; Roe	Lawrence Waldron	Reniel Rodríguez Ramos et al.
-faces range from single to complex -zoomorphs present -geometric designs -pecked and carved images -new design elements introduced alongside older ones -design layouts evident as in larger centrally placed figures surrounded by smaller facial images -cross media isomorphisms between large triangular heads and large carved three-pointers -a sense of heightened emotional impact and/or social importance evident due to rock art's prominent displays and developed themes			

- Note: The four Tradition characterizations for Jönsson Marquet are taken from the 2009; pp. 151-160 source.
- Note: Roe and Rivera Meléndez's 1995 three phase traits (discussed, but lacking the figure or graphic depiction in this source) are also found in Roe, 2005. Figure 8.5, p. 292 and pp. 289, 291, 302-310.
- Note: Waldron's rock art observations are found in Chapter 4, pp. 121-208 of his 2019 publication; see especially pp. 121-156 for developmental characterizations

The initial proposal dates for the Jönsson Marquet (2002, 2009) and Roe (Roe and Rivera Meléndez 1995; Roe 2005) frameworks are from the 2000s separated by a considerable number of years from those of Waldron's 2019 and Rodríguez Ramos *et al.*'s 2021 efforts. Jönsson Marquet's evolution of southern Lesser Antillean petroglyphs-only rests on contextual analysis or relating undated rock art sites with nearby dated non-rock art sites; Roe's categorization of Puerto Rican petroglyphs derives from seriation whereby selected design elements are ordered according to linked rock art assemblages and securely known non-rock sites; Waldron's (2019) effort concerns both painted and carved images within the region based on what can be termed logical and cross-media stylistic comparison arguments, while Rodríguez Ramos *et al.* (2021) relies on radiocarbon dates to classify, in this case, Puerto Rican pictographs.

Jönsson Marquet's (2009) chronological framework covers five Windward Islands—Martinique, St. Lucia, St. Vincent, the Grenadines, and Grenada—involving twenty-seven rock art locations. The sequence (Figure 2.3) begins with petroglyph production towards the end of the Early Ceramic or Saladoid cultural Period, AD 200-300 divided into four Traditions. The first, Tradition A, encompasses simple geometric and anthropomorphic designs that are normally not reproduced together with circles as frequent geometric designs and lack of obvious-to-modern-society compositional rules. Traditions B and C overlap in terms of their initial production times, dating to around AD 500 transitioning from the very end of the Early Ceramic into the Late Ceramic. Tradition B is characterized by elaborate enclosed head and body motifs, while C is typified by variable facial and full-body images, in addition to diverse geometrical or abstract designs. The last Native Tradition D (AD 985-1400) sees an overall increase in the size of motifs; a high degree of variability within a corpus of simple to complex faces, zoomorphs, and geometric designs. Ordered compositions are apparent, featuring larger centrally placed figures amid smaller facial images. Execution during the Archaic and Post AD 1500 periods is not addressed by Jönsson Marquet; not, it is suggested, because she discounted the possibility of production during these periods, but because at the time of her study there was a lack of applicable data. For instance, there were no reported Archaic sites for these islands which continues to be the case.

Roe's (Roe and Rivera Meléndez, 1995; Roe, 2005) seriation of twenty anthropomorphic individual design elements and related motifs yielded a three-phase sequence anchored by the type sites or representative petroglyph assemblages of Maisabel (large village site), El Bronce and Caguana (ball courts or enclosures) (Figure 2.4). They were chosen for their close association with dated sites and chronological span. The series begins and ends with the Late Ceramic or Ostionoid cultural period, leaving out the entire Saladoid, as well as not specifically addressing any Post AD 1500 occurrences. Roe does, however, discuss Archaic rock art features in other publications (for instance, Roe 2009, 218; Roe *et al.*, 2018), just not for this model.

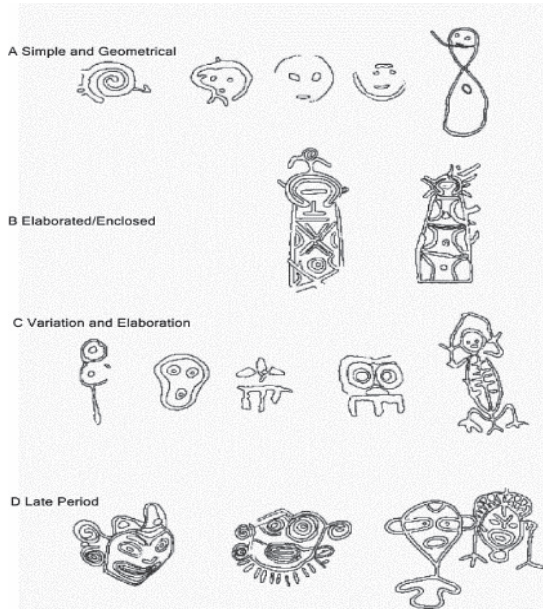


Figure 2.3. Representative Images of Petroglyph Traditions from the Lesser Antillean Windward Islands (Jönsson Marquet, 2009: Figure 11.2, p. 153).

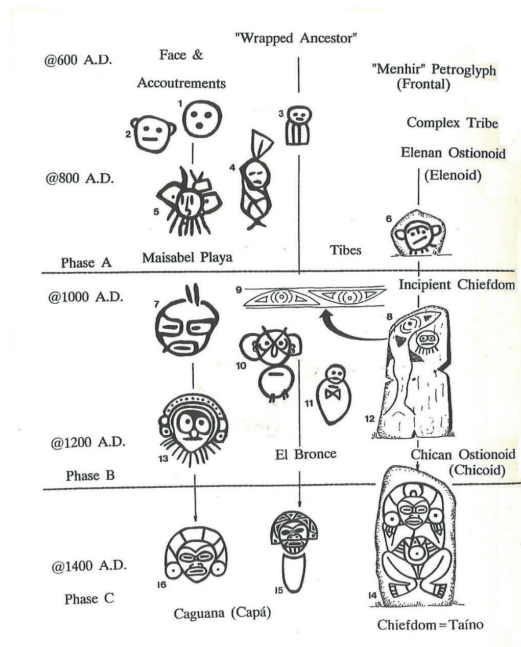


Figure 2.4. Roe's three-phase chronological model for Puerto Rican Petroglyphs (Roe, 2005: Figure 8.5, p. 292).

A number of time-sensitive design elements and motifs in the sample assemblages were noted involving the predominance of simple round faces, a vertical nose element, the presence of faces with rays below the face and depictions of enclosed or wrapped bodies with simple faces for Phase A (AD 600 to 800). In Phase B (AD 1000 to 1200), round faces continue but with additions such as enclosed eyes, rays above and below the face, a nose and more complex crowns or headgear. Phase C (by AD 1400) represents the highest degree of facial and body elaboration, in addition to unique design elements involving nostrils, V-shaped hairlines and heart-shaped faces.

Roe (2009, pp. 219-220) attributes the hiatus in rock art production from the Archaic to the Late Ceramic to culture lag or the tendency for different cultural institutions, in spite of their mutual interaction, to change at different rates. In the case of Saladoid people's movement from a South American continental homeland into a new island setting, the conservative aspects of religion and visual expression transformed more slowly than the environmental adaptive aspects of technology and social relations. Their conceptual outlook continued to reflect their continental origins focusing on, in the material culture realm, the production of individual, societal subgroup and status-related personal presentation objects. For example, the manufacture of complex vessel shapes with plastic and painted designs, in addition to finely-worked beads and stone pendants. Visual representations also retained South American linkages with tapirs and monkeys commonly modeled onto ceramic vessels. Roe considers that these same mental constraints may have postponed rock art production, despite the fact that the islands offered abundant rock surfaces for such representations. By around AD 600, a shift from continental to island mindset is evident: island fauna are depicted on pottery and stonework, while carved and painted images appear in caves, along waterways and prominently at ball courts.

Waldron (2019:141-156) picks up on the possible Early Ceramic hiatus in rock art production—and Roe's explanation for it—by arguing the opposite: the lack may be more apparent than real. He posits that rather than a lengthy settling-in period, the Saladoid entrance into the Eastern Caribbean more immediately reflected a physiological or conceptual need to visually mark their new island home as they would have undoubtedly been doing with language. Pictograph production could have begun early in the period, with the images not surviving because they may have been executed with semipermanent pigments or made to be ephemeral. Acknowledging that the Lesser Antilles offers significantly fewer protected rock locations, he suggests that the larger islands of Puerto Rico and Hispaniola offer more opportunities to discover Early Ceramic pictograph examples. Waldron follows his own advice by identifying certain pictographs from Cuevas de Borbón and Hoyo de Sanabe in the Dominican Republic as possibly Saladoid by comparing their representational style with Saladoid ceramic conventions.

White-on-Red or WOR Saladoid ceramic conventions involve bold bichrome designs and certain visual plays that Waldron identifies in three rock art examples illustrated in Figure 2.5. A fish painted in black on the contrasting white limestone cave surface at Cuevas de Borbón exhibits Saladoid style traits of multiple line and drop-out dot, swirl and bar motifs (Figure 2.5a), while two masked images from Hoyo de Sanabe repeat the striking black paint on white surface along with a complex interplay of painted and unpainted design elements, just like the fish motif (Figure 2.5b).



Figure 2.5. a) black/white fish, Cuevas de Borbón (left), b) black/white facial designs, Hoyo de Sanabe, both from the Dominican Republic (right) (López Belando, 2019: Figure on page 412, lower right column and cover page, respectively).

As for petroglyphs, they could also have been produced in the Early Ceramic. Waldron notes one particular carved image from Layou on St. Vincent that shares Saladoid design elements with one of the masked motifs from Hoyo de Sanabe. The image on the right side of Figure 2.5b and the petroglyph of Figure 2.5c appear to be representations of anthropomorphized three-pointers, of particular note in the Late Ceramic, although these sculptural forms were present in the Early Ceramic. Leaving aside the issue of the equivalence of the two disparate time periods, both possible three-pointers are frontal images that exhibit circular eyes and gnashed teeth. In the petroglyph (see Figure 2.5c) the circular eyes are joined by an arching unibrow in the style of Barrancoid and Cedrosan Saladoid ceramics from the general Windward Islands area. The depiction of the stylized, flaplike ears in the pictograph employing painted and dropped-out geometric areas and for the petroglyph the prominent use of the Saladoid drop-out hourglass motif and joined eyes raise the possibility of Early Ceramic rock art production for Waldron. Additional Saladoid ceramic designs appearing in rock art of the Lesser Antilles include the frog labyrinth as observed on a river boulder at Balenbouche, St. Lucia in Figure 2.5d. Indeed, the frog symbol represents a common motif in diverse media from the Early into the Late Ceramic.



Figure 2.5. c) triangular bodied petroglyph, Layou, St. Vincent (cropped from Dubelaar 1995: Figure 101, page 106), d) frog labyrinth petroglyph, Balenbouche, St. Lucia (courtesy of Lawrence Waldron).

Waldron's work could be characterized as less a formal developmental model and more a wide-ranging essay, in resourceful almost poetic language, on the nature of Caribbean rock art. Linked to his suggestion for Saladoid-period produced rock art, is the realization that this premise would need further investigation, in particular dating of any suspected examples like the fish motif in Cuevas de Borbón. He goes on to offer a number of interpretations of individual images and assemblage locations, as well as a series of rock art features during the entire Native period detailed in Table 2. For example, he views a concern with concealment and revelation as typifying Late Ceramic figures where certain images that are buried, difficult to view or obscured in caves reveal a partially obscurantist aesthetic with rock art being visionary and not merely for viewing.

Rodríguez Ramos *et al.*'s (2021) model relies, as noted above, on a significant number of directly dated pictographs from various caves on Puerto Rico to sequence the images. His method focuses on motifs, similar to Jönsson Marquet's and Waldron's approaches, but differs from Roe's attempt to identify time-sensitive individual design elements to structure a developmental framework (Roe and Rivera Meléndez, 1995; Roe, 2005). Such a method presents opportunities for finer-grained categorizing of the pictographs as observed in Table 2 and illustrated in Figure 2.6.

Two aspects of the model are especially noteworthy: the extension of production at the beginning and end of the sequence for the island. At the beginning are three images: one dates to the later Archaic period cal. 730-390 BC, a second occupies the Archaic and Early Ceramic cal. 900 BC-AD 10, while the third dates towards the end of the Early Ceramic cal. AD 220-380. The Archaic intersecting lined design (FP18) comes from Cueva Ventana Intermedia; the Archaic/Early Ceramic image CM1 from Cueva Mason, and a triangular-shaped head with eyes and mouth (CT3) is located in Cueva la Pita. Rodríguez Ramos *et al.* (2021, pp. 15-16) adds that the lined design is

consistent with the expected emphasis on geometric figures in the Archaic period for the region (see Hayward *et al.*, 2009; Roe *et al.*, 2018). He further adds (2021, p. 16; 2022) that the triangular-shaped head is near another similar pictograph and both display stylistic similarities with Saladoid ceramic island adornos as in the lenticulate eyes and triangular-shaped head and therefore likely made by Saladoid artists.

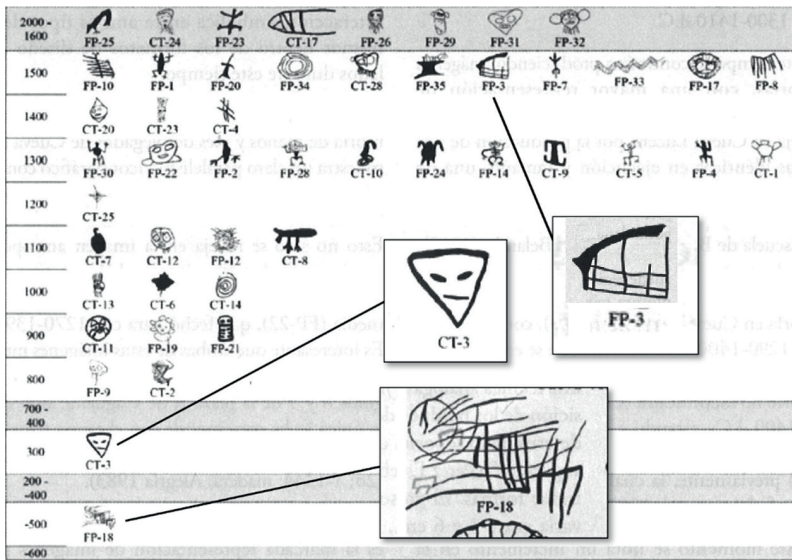


Figure 2.6. Rodríguez Ramos Chronological Phases for Puerto Rican Pictographs (modified with the addition of three enlarged motifs from Rodríguez Ramos *et al.*, 2021: Figures 2 and 5).

As he points out, a sizable number of the island’s pictographs are from the very late Indigenous period and well into Post AD 1500 times. Indigenous style elements that bridge the Native and European cultural divide include carbon-outlined anthropomorphs, reptile forms and abstract designs. New images are also created including a ship with sails—FP3 from Cueva Matos, that he also notes (2021, p. 21; 2022) are found, along with horse representations elsewhere on Puerto Rico and the region. A possible African-descendant-produced encircled face FP17 from Cueva Ventana Intermedia cannot be discounted (2021, pp. 21-22).

Commentary on Developmental Sequences:

Methods:

- Three of the present authors (Hayward et al. 2019) evaluated Jönsson Marquet’s (2002, 2009) framework by comparing these authors’ updated

rock art site data (new total of 35 locations and adding the islands of Barbados and Dominica) against a comprehensive settlement survey for the same islands by Bright in 2011. Our review resulted in limited success primarily because Jönsson Marquet classified all available rock art sites at the time, while Bright did not consider any dating, or separate examination, of these site types. Nonetheless, it appears that Jönsson Marquet employed reasonable rock art-to-non-rock art site chronological associations for the beginning and ending phases of her sequence leaving a mixed or unclear middle period.

- Two of the present authors (Hayward *et al.*, 2013b) also examined Roe's seriated sequence. Developing a statistical protocol to arrange similar-to-Roe's petroglyph design elements from several sites, the attempt was made to create a simple measure to order unknown or weakly dated rock art sites according to Roe's three-phases. The attempt met with limited success; the results were not straightforward and instead indicated multifaceted production relationships. The authors concluded that if a rock art assemblage possesses a high number of developed images, then the rock art likely dates to the end of the Late Ceramic. If an assemblage possesses a high percentage of less elaborate designs, then it may or may not date to earlier in the Late Ceramic. Additional supportive data such as any well-grounded site/artifact associations should be employed in considering a rock art assemblage's chronological placement.
- Waldron's interrelated logical argument that rock art may have been executed during the Saladoid rests on assuming that pictographs were made to be ephemeral or have since weathered away prompted by a conceptual need to mark their new territory/special places from the beginning of their entry into the region. The first part is hard to accept, while the second part is a reasonable expectation. Absent other relevant data, if Roe can argue that peoples entering into a new environment different from their homeland inhibited rock art production, then Waldron can argue that rather than inhibiting execution groups took advantage of a new medium to express their new and continued occupation of the island area.
- Waldron's considerations invite further examination of the interplay among ceramic and other media design elements, the visual conventions in rock art, and estimating its chronological production. Specific cross-media correspondences for any rock art examples might be evident, in addition to complex contexts of use of old, new and revived motifs and compositions. Roe and Ortíz Montañez (2011), among others, have noted a conservative/innovative phenomenon in Late Ceramic pottery, that also appears in the region's rock art tradition where, for instance, simple faces remain a common motif throughout Indigenous production

- Rodríguez Ramos's (2017; Rodríguez Ramos et al. 2021) use of directly dated pictographs to classify the images underscores two key aspects of any dating project: the need to include a large-as-possible total sample from diverse locations, as well as multiple samples from different locations and image types within the same locations.

Results:

- The models incorporate or contain complex, as well as simple motifs, compositional arrangements and ideological or symbolic messaging. Such a situation may reflect that image makers could draw upon a deep historical canon of designs to execute rock art conditioned by such factors as the artist's talents, geographic location (cave, enclosure, waterway, open air), individual/collective purposes, sociopolitical influence and religious or worldview principles.
- The evidence from directly-dated pictographs, still meager at only four cases—two from Puerto Rico and two from the Dominican Republic—nonetheless strengthens these developmental framework and other researcher (for example, Keegan and Hofman 2017, pp. 80-81) inferences for Saladoid rock art production. Roe for one is now open to the possibility of Saladoid pictographs and, at least by the end of the Early Ceramic, petroglyphs (personal communication, 2023).
- In concert with the directly-dated sequence of pictographs, the models consider the Late Ceramic to have been the primary period of image-making on a variety of rock art surfaces that continues at least in some form well into Post Indigenous times.
- The frameworks offer models and avenues for further investigations. As just outlined, a research design for pictograph dating by Rodríguez Ramos and the various observations by Waldron that open up our understanding of rock art as having emotional, in addition to active spiritual and social contexts, involving their production and roles (see Waldron essay below).

Area Studies

The essay under the heading of Area Studies involves those investigations that are concerned with small-scale or relatively limited objectives, like explanations of particular image classes, the documentation of one location or the maintenance of a rock art site registry. In this case from Cuba, Fernández Ortega, Morales Valdéz and Ramón Martínez stress the importance for review of even previous reports with more advanced procedures that can be employed to improve the accuracy of recorded new or prior figures. Their use of photogrammetry and 3D laser scanner procedures yielded corrected images,

in addition to 3D mapping of cave interiors and the virtual replacement of displaced carved figures. Their report also presents results from a physical-chemical analysis of paint pigments, in addition to three new 14C (AMS) dates from a charcoal sample under a pictographic mural and the first directly dated Cuban pictographs.

Status of Rock Art Investigations in Cuba

Fernández Ortega, Morales Valdés and Ramón Martínez

In recent years, surveys for new Cuban rock art locations have added 17 sites to the national inventory involving nine of the country's 15 provinces (Chirino et al. 2021:29-39; Gutiérrez et al. 2021:5-28). Re-examination of previous rock art reports has also been a focus of investigation: first, to obtain fresh images with today's advanced photographic techniques, and second, to verify the accuracy of the recorded information.

Del Indio Cave

One particular interest is del Indio cave site, Caibarién municipality, that was discovered in 2017 by the members of the Candil group of the Cuban Speleological Society. A pictographic mural has been executed on one of the walls comprising six diverse geometric designs, including concentric circles, zigzags and parallel lines (Figure 3.1a). Not far from the mural to its left side, is an opening that blocks the natural light so that this section of the cave remains in darkness heightening the pictographs' visual impact (Rodríguez *et al.*, 2019, p. 278).

The conservation status of the images is good, in part because human activity in this section of the cave is low. However, a surface layer of calcium carbonate covers the mural leaving a thin calcite stratum that has affected the images' pigmentation, probably the result of forest conditions outside the cave (Rodríguez *et al.*, 2019, p. 279).

Las Manos Rojas rockshelter

The rockshelter is located in the Caguanes National Park, Yaguajay, Sancti Spíritus province. The Caguanes Park speleological group found this assemblage of red-painted handprints and fingers in 2016 (Figure 3.1b). Occupying the center and extreme left of the small overhang are two handprints (from which the site derives its name), in addition to five distinct finger-design groupings. It is worth noting that black abstract lines and groups of dots have been placed atop three of the red-finger designs, as well as next to the shelter's walls. Further, one of the black dot motifs has red markings over part of its design (Chirino *et al.*, 2021, p. 35).

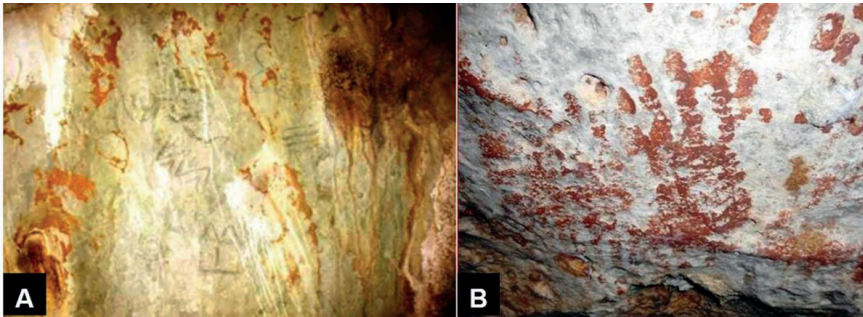


Figure 3.1. a) Pictographic mural, del Indio cave, Caibarién municipality, Villa Clara (courtesy of Lorenzo Morales Santos), b) red-hand and finger motifs, Las Manos Rojas rock shelter, Caguanes National Park; note the striking contrast between the snow-white color of the shelter’s roof and the red pictographs (courtesy of José Chirino Camacho).

Additional recent tasks involved visits to cave and non-cave sites to re-photograph and re-examine the rock art reported in previous decades, verify their conservation status, and identify past recording errors due to inadequate tracing practices and lighting conditions. Such re-recordings successfully resulted in more faithful identifications of the pictographic and petroglyphic image features (Fernández *et al.*, 2022:27), as well as rediscovering a motif that had not been seen for more than 92 years (Grau *et al.*, 2021:442).

La Virgen Cave

La Virgen cave lies on marine terraces that rise 30 meters above the Habana-Matanzas elevation in the Habana del Este municipality. This cave was recorded as a prehistoric archaeological site at the beginning of the twentieth century by Fernando García Grave de Peralta, a member of the Junta Nacional de Arqueología y Etnología. It was not until the 1960s that the cave was also reported to have a rock art assemblage by Antonio Núñez Jiménez.

In Núñez Jiménez’s book, *Cuba: Dibujos rupestres*, which constitutes a classic of the island’s rock art literature, he describes one of the pictographs in the following quote:

La pictografía número 8 está dibujada en rojo, con tierra roja oscura, en la pared, a 5 centímetros sobre el suelo de una baja y estrecha ramificación que marca uno de los más recónditos rincones de la Cueva de la Virgen. Está formada por varias gruesas líneas pintadas con los dedos casi unidos de las manos del primitivo artista. En total son cinco líneas, de las cuales cuatro tienen un punto común de unión, formando una figura groseramente estrellada (Núñez Jiménez 1975, p. 115) (Figure 2.2a).

(English translation) “Pictograph number 8 is executed in red, with dark red earth, on the wall, 5 centimeters above the ground of a low and narrow extension that marks one of the most hidden corners of the Cueva de la Virgen. It is made up from several thick lines painted with fingers that almost form the hands of the early artist. There are five lines in total, four of which have a single point in common, forming a very thick star motif.

A detailed reexamination yielded a different conclusion, at least regarding this particular pictograph. Both simple and under magnification visual inspection of the image at the cave, along with subsequent digital processing using Adobe Photoshop CS5 extended version 12.0 of the photographs published by Antonio Núñez Jiménez (1975, p. 375), plus those obtained during the revisits of 2006 and 2014, pointed instead to a modern origin of the image. It can be observed in Figure 3B that the fifth thick line, from left to right, is drawn over modern letters or writing.

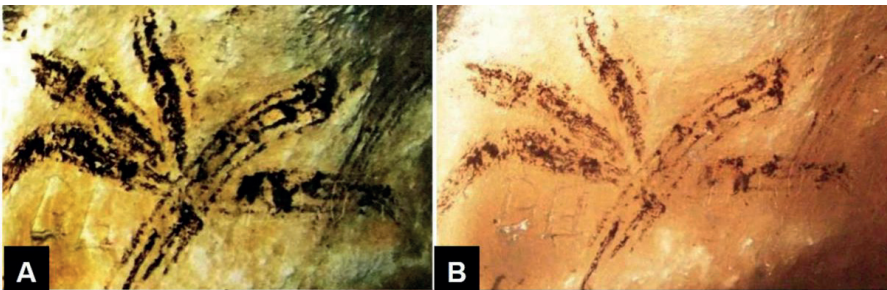


Figure 3.2. a) Pictograph number 8, La Virgen Cave, from Núñez Jiménez’s 1975 book *Cuba: Dibujos rupestres* page 375 and b) the same pictograph after enhancement, in both pictures, where the thick branch at the extreme right overlies modern design elements.

Indio rock shelter

A similar false prehistoric identification can also be demonstrated for the pictograph assemblage from the Indio rock shelter. The shelter is located in the Camajuani municipality on a small hill between the boundaries of the Corralillo and Caibarién Coastal Plains, north of the Villa Clara province (Gutiérrez Calvache *et al.*, 2021, p. 14).

According to the recorders’ examination of the shelter’s images:

on the wall of the shelter a grouping of black-colored geometric designs were identified, some lines and one of these, elaborated via the technique termed ‘completely filled-in’ ... that due to its composition, brings to mind a

certain well-known pictograph from the Oscura Cave, in Baracoa, Guantánamo province”(Gutiérrez Calvache et al., 2021. p 14).

Yet if the published photograph is examined via digital processing with the software packages of DStretch ImageJ and Adobe Photoshop CS5 extended version 12.0, a practice that has been common and frequent for more than a decade in the registration and documentation of the island’s rock art, a distinctly different impression is observed (Figures 3.3a, 3.3b). In the center of the motif, modern writing can be observed indicating the name of the visitor who left his identifying mark for posterity on the cave’s wall. The graffiti artist’s name is outlined by a rectangular with nine triangles attached at their bases. The remaining pictographs’ analogous characteristics call into question their assignment to the precontact period by the same investigators.

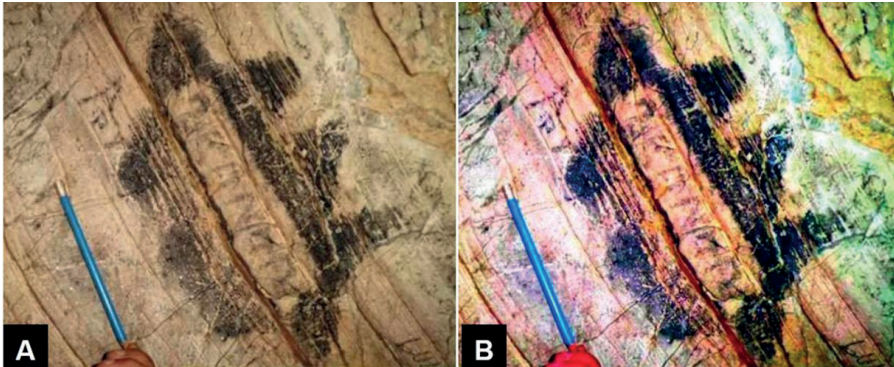


Figure 3.3. a) Pictograph from the Indio rock shelter by original recorders (courtesy of Marcial García García) and b) the same image processed via software packages DStretch ImageJ and Adobe Photoshop CS5 extended version 12.0. In both pictures, modern lettering (GERMAN) is observed within the center of the pictograph.

The application of new digital technologies, improvements in the sensitivity of photographic equipment and the availability of more effective lighting systems have given present researchers the ability to correct recording errors of earlier investigators. Nonetheless, they should be acknowledged as founders of Cuba’s rock art studies that paved the way for continuing improvements in the study and understanding of this form of past cultural expression. These new investigative techniques outlined here demonstrate their effectiveness to produce more faithfully reproduced images.

Photogrammetry

Photogrammetry has proven of utility in the region not only in the virtual reconstruction of rock art images (Grau González-Quevedo *et al.*, 2021, p. 441) but also in the digitization of cave interior features. For example, the authors collaborated with investigators from the Academia de Ciencias of the Dominican Republic in a project that yielded a 3D model of the José María cave, measuring 348 meters long by a maximum depth of 15 meters with more than 1,200 pictographs (Grau González-Quevedo *et al.*, 2020, pp. 31-55).

Photogrammetry is a remote and non-destructive documentation technique, of wide use in various disciplines, including rock art studies, that provides for precise and accurate measurements that can be converted into 3D models. These models facilitate conservation and restoration works, as well as cultural heritage preservation efforts and the dissemination of rock art information and its importance to the general public.

Los Cayucos cave

Los Cayucos cave is located at the easternmost part of Cuba, between the first and second emergent marine terraces in Maisí. The area is part of the Maisí-Caleta Reserva Ecológica. The cave dimensions run 30 meters long by an average depth of 4.5 meters. The system is divided into two sections near the center by a stalagmite flow and columns where the majority of petroglyphs are found.

Between 1915 and 1919, the American archaeologist Mark R. Harrington explored the Maisí area including the cave, deciding to remove one of eventually five missing or removed petroglyphs to the United States. His publications made no mention of the cave or its rock art. In 2012, the Cuban archaeologist Daniel Torres, located a petroglyph cataloged as “Los Cayucos cave in the town of Maisí, Cuba” in the Harrington collection of the Cultural Resources Center of the National Museum of the American Indian, Smithsonian Institution, Maryland, United States (Grau González-Quevedo *et al.*, 2021, p. 441).

In 2017, a cave was relocated that contains seven petroglyphs of anthropomorphic facial and zoomorphic figures (Figure 3.4). The photogrammetric documentation of the cave included the use of a Canon EOS 70D camera with a 24-mm lens. The complete modeling project involved a total of 18,000 images converted to JPG format at 8 mpx and RAW at 20 mpx. The cave was illuminated with two Flash YONGNUO SPEEDLITE YN-560 III instruments, side by side with the camera, synchronized by the control system YONGNUO model rd-603c with a frequency of 2.4 Hz. Such an operation produced a homogeneous light throughout the area of study (Grau González-Quevedo *et al.*, 2020; p. 45).

To generate the 3D models, the *Agisoft Metashape* software (latest version 1.6.3) was employed, linking together the images to cover 70 percent of the

whole cavern, prioritizing the ceilings and walls of the two galleries with the rock art. While 80 to 90 percent coverage was achieved for the walls with petroglyphs, a lower percentage was obtained for the floors of the central gallery where less detailed imagery was recorded.

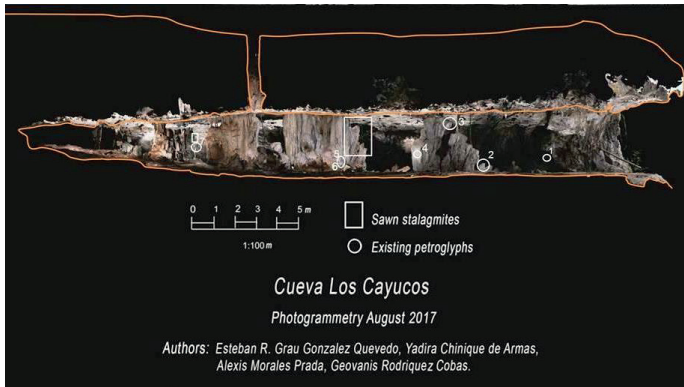


Figure 3.4. 3D photogrammetric-derived model of Los Cayucos cave with the petroglyph locations indicated (modified from Grau *et al.*, 2021, p. 444).

With the 3D photogrammetric-derived model of the cave, in addition to the digitally scanned stalagmite with its carved image from the Smithsonian, it then became possible to virtually reposition the missing rock art (Figures 3.5a, 3.5b) (Grau González-Quevedo *et al.*, 2021, p. 445).

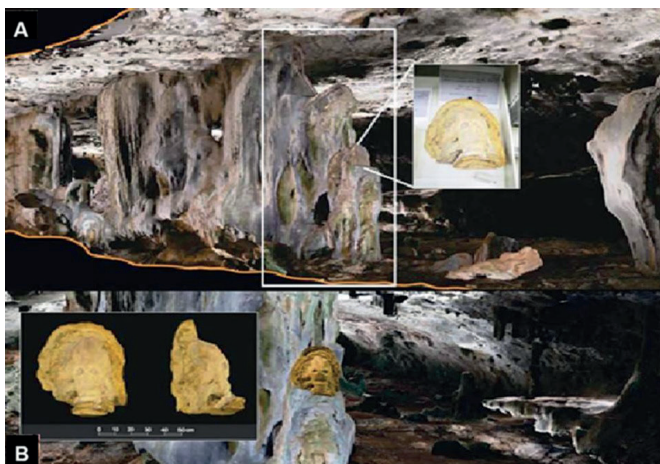


Figure 3.5 a) 3D models of the Los Cayucos cave and a removed petroglyph, currently at the Smithsonian Institution, United States, b) has been virtually replaced in its original position within the cave (modified from Grau González-Quevedo *et al.*, 2021, p. 445).

3D Laser Scanner Studies

Various examples of 3D laser scanning projects are discussed next, unfortunately made necessary due to the removal of certain petroglyphs from their original locations in the 1940s and 1950s (Fernández *et al.*, 2009, p. 124-135 and Hernández Casal 2017, pp. 3-74).

These efforts came about as the result of the academic thesis entitled “Aplicación de la *Tecnología Scanner Laser 3D* al Registro Gráfico de Petroglifos”. The thesis was submitted by Luis Hernández Casal in partial fulfillment for the degree of Licenciado en Preservación y Gestión del Patrimonio Histórico-Cultural of the Colegio Universitario San Gerónimo de La Habana.

For his thesis, Hernández Casal used the land-based laser scanner Z+F IMAGER 5010C manufactured by the German company Zoller+Fröhlich in 2013. This scanner is capable of registering 1,016,000 pixels per second. The computers employed to process the scanned images relied on the software packages of Z+E Imager and JRC Reconstructor 2 that employ a designated processor 15 or 16Gb of RAM memory. An additional software package *Geomagic Design X 64* was utilized that possesses a Core 2 Quad processor, 6Gb of RAM memory and a video card with 1Gb of RAM memory (Hernández Casal, 2017, p. 37).

The use of the software Z+E Imager is critical to the entire process as it manages the data collected by the scanner for computerized manipulation (note this software varies according to the particular manufactured scanner; thus, other attempts may not produce the same results as presented here). The JRC Reconstructor 2 package operates in conjunction with the laser scanner and can read and edit the point cloud files generated by the Z+F IMAGER. The program *Geomagic Design X 64* produces the 3D models (Hernández Casal 2017, p. 37).

Examples from the eastern region of the country included a 0.94-meter-high petroglyph that was cut from a stalactite within the Waldo Mesa cave in Banes, Holguín province (Figure 3.6). The remaining petroglyphs elaborated on different underground cave or rockshelter rock forms that were from the Maya River canyon, Maisí municipality, Guantánamo province.

Excellent scanning results were also obtained for three petroglyphs in private or institutional collections that were, after 1959, integrated into the holdings of the Instituto Cubano de Antropología.

Reproduction at half the actual size of the petroglyphs has proved ideal for conservation, registration and documentation of the rock art. Further, it serves to facilitate the dissemination and exhibition of the pieces for individuals with low or no vision.



Figure 3.6. a) Removed petroglyph from the Waldo Mesa cave, Banés, eastern Cuba (Hernández, 2017) and b) same figure as a laser scanned 3D image (by authors).

Physical-chemical characterization of pictographs

For decades, Cuban researchers have considered that precontact image-makers used manganese dioxide, iron oxide, turgite, magnetite, limonite and asphalt in the production of paint pigments (Dacal and Rivero de la Calle, 1996; Moreira de Lima, 1999; Linville, 2005; Romero Emperador, 2006), without any physical-chemical studies to confirm such compounds. More recent investigations have been carried out to identify pigment compositions involving 15 locations from seven provinces. Naturally-derived mineral elements, in addition to possible organic binders have been identified that further suggest specific methods of preparation (Arrazcaeta and García, 1994, pp. 22-31; Fernández *et al.*, 2018, pp. 289-305; Gutiérrez Calvache and González, 2018, pp. 176-178; Armitage *et al.*, 2020, pp. 878-892; Fernández and Morales, 2022, pp. 3-13).

Procedures including Scanning Electron Microscopy, X-ray Energy Dispersive Microanalysis (SEM-EDX), Raman Microspectroscopy, Mass Spectrometer for Pyrolysis by Injection (Pyr-CG-MS) and Gas Chromatography coupled with Mass Spectrometry (GC-MS), among others, have provided concrete element descriptions. Researchers are now better able to interpret the use of natural resources and sources of raw materials, the technical steps

or *chaîne opératoire*, as well as the outlines of economic production practices of the island's precontact groups in general.

Key study results presented in Figure 3.7 demonstrate the use as a binder of substances (ellagic acid) of vegetable origin obtained from trees in the surrounding environment, the collection of bat guano from inside the cave as a color additive, and the use of egg and milk (La Espiral cave) or the presence of fatty acids from plant species (García Robiou cave) in the pigments. Additional studies are expected to expand the listing and interpretive results (Fernandez *et al.*, 2018; Fernandez and Morales, 2022; Fernandez *et al.*, 2022; Fernandez *et al.*, 2023).

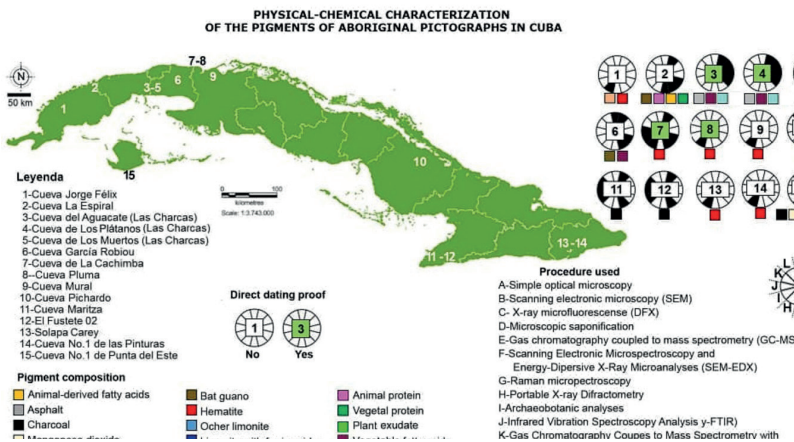


Figure 3.7. Map of the rock art locations in Cuba with physical-chemical characterization studies of paint pigments and dating of pictographs (updated and translated from Fernández and Morales, 2022).

The results from the most recent and increased sample locations lay out the recipe ingredients for the pigments used from the La Espiral cave in Artemisa. Substances of plant origin (ellagic acid) obtained from local trees such as *Juglans jamaicensis* C. DC were used as a binder (local walnut). Tryptophan amino acid residues were also located in milk and egg, at 1312 cm^{-1} , which could correspond to amide III groups with alpha-helix structure in milk globulins, at 1450 cm^{-1} CH₂ groups, residues of egg albumin and milk globulins and also possible carbonyl groups (C=O) of fatty acids at 1728 cm^{-1} . Additionally, the collection, in the cave itself, of bat guano accounted for the color the preparation (Fernandez *et al.*, 2018).

In the García Robiou cave in Catalina de Güines, Mayabeque, the presence of binders based on fatty acids of plant origin was detected; however, the results are preliminary pending confirmation by subsequent studies (Fernandez *et al.*, 2023, in preparation). For its part, the results obtained from

the analysis of a sample of the pictographs of the Los Platanos (El Toro) and El Aguacate grottos from the Las Charcas area in the aforementioned province of Mayabeque, indicate the presence of vegetable fatty acids such as palmitic, stearic, oleic and resin acids characteristic of oxidized pine resin.

It should be noted that the Las Charcas area is approximately 100 km from regions in the west of the country—Sierra del Rosario, San Cristobal and Los Palacios, in the province of Artemisa—in which the native and endemic species *Pinus caribaea* Morelet “male pine” and *Pinus tropicalis* Morelet “female pine” were abundant. The so-called “male” is recognized for its usable wood, aromatic and medicinal properties; which suggests that the resin or the fresh branches of the plant were transported with the express objective of preparing the paint, although other purposes are not ruled out.

The aboriginal groups primarily relied upon the use of various vegetable fatty acids for the preparation of paintings, as evidenced by the three examples exhibited from the western territory. One could speculate that different groups might be identified based on their particular rock art traditions of pictographic paint preparation and production.

Direct Dating of Pictographs

In the El Fustete 02 cave in Niquero, Granma, charcoal samples were recovered under a pictographic mural with irregular or abstract designs; SEM-EDX studies confirmed the vegetal nature of the samples and their correspondence with angiosperm, dicotyledonous plants. An Acceleration Mass Spectrometry (AMS ^{14}C) analysis at the Institute for Environmental Research of Australian Government (ANSTOC) reported a conventional dating of 3865 \pm 40 BP and 4415 – 4 219 Cal BP (OZR174) (Fernandez et al. 2019).

For direct dating purposes, the caves La Pluma and La Cachimba in Matanzas; El Aguacate, Los Platanos (El Toro) and Los Muertos in the Las Charcas area in Mayabeque, were reviewed for possible sample collection. The Los Muertos cave ultimately yielded appropriate samples for processing via the oxidation method with low temperature chemical plasma, as well as that of AMS (Fernandez 2014) (Figure 2.7). The Armitage Lab of Eastern Michigan University undertook the analysis of the samples producing the first direct dating of Cuban pictographs: 1810 \pm 60 Cal BP and 1920 \pm 140 Cal BP (Armitage *et al.*, 2020, p. 888).

The date 1810 \pm 60 Cal BP was obtained from the sample designated S2, taken from an enigmatic image similar to a bat; while sample S3 was collected in the left section of the main mural of the cave, which is the largest in the Las Charcas area, approximately 1 m high and 1.3 m wide. This second sample was from an anthropomorphic design that is crossed, in the trunk portion, by three horizontal lines (Armitage *et al.*, 2020, p. 880).

Rock Art within the wider Caribbean Cultural Context

Rock art, though a distinct component of past cultural expression, nonetheless developed within and was influenced by the wider cultural context. The intersection of rock art characteristics and development have been explored by a number of investigators over the years, most notably the interplay between the execution of images and their role within sociopolitical systems. Roe in this next essay accounts for the strongly anthropomorphic focus of Antillean rock art by linking changes in design forms to sociopolitical shifts from the considered Early Ceramic Saladoid egalitarian to Late Ceramic Ostionoid ranked societies. The essay also displays the effective use of ethnohistoric sources and ethnographic analogy in rock art interpretation, a prominent feature of the region's investigative structure.

The Human-Centric Imagery of Petroglyphs

Peter G. Roe

The preponderance of anthropomorphic petroglyphic imagery in both the Lesser and Greater Antilles certainly invites possible explanations (Figure 4.1). This pattern is more prominent in the Caribbean than in the surrounding areas save, tellingly, for the Temehri type from the Guianas (Im Thurn, 1883: Figure 35, pp. 394-395; see reference to Guianas as ancestral to post-Archaic Saladoid groups under Data Sources). The first explanation is a simple one derived from these islands' impoverished faunal assemblages. Aside from the small surviving Caribbean cayman of the Greater Antilles (now restricted to Cuba), there were no large and impressive or dangerous terrestrial species in the Antilles. This may explain the prominence of the humble tree frog, as well as the bat, in the iconography (Petitjean Roget, 1997, p. 105), a case of local "iconic substitution" for the larger mainland fauna. Perhaps the low percentage of non-human faunal images in the Antillean petroglyphs is just the obvious result of the lack of suitable faunal icons like jaguars, black caymans-anacondas, and harpy eagles, linked species of mainland South Amerindian cosmology and mythology (Roe, 1982, 1992). It may also reflect the presence of numerous human inhabitants, particularly in the later Ostionoid (AD 600-1500) phases (Oliver, 2009, p. 163). This would certainly explain the petroglyphs of Guadeloupe (Richard, 2009: Figures 10.1-10.4), and the smaller islands of the Lesser Antilles such as St. Kitts or St. Vincent (Fewkes, 1907 [1970]: Plate XII, upper and lower) in the Windwards (Jönsson Marquet, 2009, Figure 11.2), where there is no, or minimal, archaeological evidence of supra-tribal social organization.

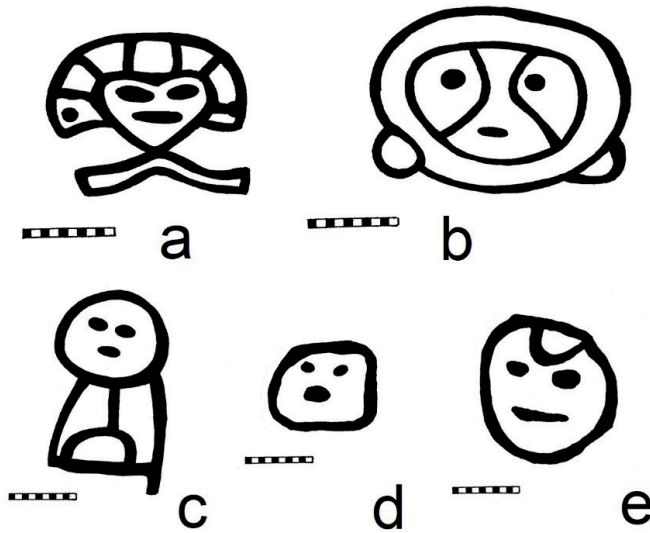


Figure 4.1. Anthropomorphic Images a) crowned heart-shaped head with upper body outline b) double encircled face with eye and mouth internal elements and external ears; c) enclosed or wrapped body with simple circular-shaped head, d) simple squared-shaped face with pitted eyes and mouth, and e) simple face with pitted eyes, dashed mouth and hairline. Petroglyphs, Cueva de Mora (Roe *et al.*, 1999: Figures 10a, b and 7a, c, d, respectively).

The other explanation rests on changes linked to socio-cultural evolution in the Greater Antilles—chiefly Puerto Rico, Hispaniola, Jamaica and eastern Cuba. In this central area there is evidence of a progression from the egalitarian tribal societies of the founding Cedrosan Saladoid immigrants (500 BC-AD 600) to a transition to Proto-Chiefdoms of the intermediate Elenan-Ostionan/Ostionan-Ostionoid period (AD 600-1200), culminating in the complex chiefdoms of the proto-historic Chican Ostionoid Taíno, AD 1200-1550 (Rouse, 1992; Wilson, 1990; Keegan and Hofman, 2017). Here Roe does not consider the largely geometric pictographs of the various Archaic (5000-500 BC) Indigenous inhabitants of these islands, which may reflect a more egalitarian lifeway, although not without evidence of some status differentiation (Roe, 2011, p. 520).

The human-centric nature of the iconography at the Elenan Tibes multi-court site on the south coast (Curet and Stringer 2010; González Colón 2021) and other locations may reflect Greater Antillean societies shifting away from the “lateral-view” of animistic tribal society (looking to the world of nature bracketing human society) to the “vertical-view” of stratified chiefdom societies where it is people, other higher-ranking humans, not non-human

animals, that determines one's existence (Figure 4.2). Images of people filled the rock art as society complexified.



Figure 4.2. Photograph of stone pavement along the principal plaza at Tibes, a multi-court site from Early Ceramic, Puerto Rico, with two simple facial motifs, one with large detailed ears (possible frog or lizard face) (at left) and one with ears (at right) (courtesy of Peter Roe).

When the post-Archaic horticultural-ceramicist immigrants, the Cedrosan Saladoids, arrived on Puerto Rico and proximate eastern islands (Vieques-Martinique), most likely directly from the lowlands of northern South America (Urbanus, 2021, p. 22), around 500 BC, indications are that they were on a tribal egalitarian level. If their late surviving seventh to ninth century AD village of Golden Rock on St. Eustatius in the Lesser Antilles (Versteeg and Schinkel, 1992) is any indication, their circular villages were composed of round and oblong malocas, or conical-thatched communal huts, remarkably like the Guianan circular villages such as Shefarimo (“Big Dog Village”) on the Upper Essequibo inhabited by egalitarian Waiwai (Roe, 1987).

Even earlier Saladoid villages on larger islands, like Maisabel on the north-central coast of Puerto Rico, have a similar circular configuration (Siegel and Roe 1991; Siegel 1989). Moreover, the visually impressive and technically masterful polychrome and incised Cedrosan Saladoid pottery (Roe, 1989; Rodríguez López, 1997, p. 84) is typical of a “personal presentation” material culture (Roe 1995, pp. 155-156), like that of the tribal Shipibo of the Ucayali River in eastern Peru, whom Roe has studied ethnographically (Roe, 2022, pp. 411-412). These individuals express, and assert, their own persona in intimate interactions (intra-village and inter-village host/guest feasting contexts)

through complex and beautiful individual body art (face and body painting, jewelry and dress), in addition to idiosyncratic, and finely-crafted, small objects like pottery. The latter requires direct physical handling and close visual appreciation.

On a spiritual level, Cedrosan Saladoid ceramic adornos, along with hollow ceramic figurines, also continued to depict mainland fauna in hyper-realistic fashion, illustrating their animistic/egalitarian “lateral view” to the forest world, and its plethora of animal spirits (Roe, 2011, p. 526) (Figure 4.3). Their pottery reflects this tribal-level equivalence with, and transformation from, kindred animals and birds, mediated by the visionary ingestion of hallucinogenic substances. Stylistic devices like “pictorial dualism” (Roe, 2004, Fig. 7.4) reflect this “real/unreal” set of cultural categories (Kensinger, 1995, pp. 83-85).

Many adornos not only depict people or animals as singular subjects but also combine these figures in a variety of ways. Figures are seen stacked, one atop the other...; spliced together while sharing a common feature...; emerging out of the head of another in the manner of an alter ego or spirit guide...; or appearing only when the adorno is turned or inverted... These varied modes of visual hybridity suggest a Saladoid interest in multiple and liminal existences, and in transformational states between corporeal, spiritual, and cultural categories (Waldron 2011, p. 3).

This “anotropic organization” (inversion) persists into Elenan Ostionoid ceramics (Roe, 2004: Fig. 7.8c-h) and petroglyphs (Roe, 2005: Fig. 8.11b) and continues through late Indigenous Taíno non-elite earthenware production (Roe, 2004: Fig. 7.9).

Waldron (2019) has suggested, via iconographic analysis, that certain complex Puerto Rican and Dominican pictographs were produced by Saladoid artisans (see discussion under Dating entry). This situation is understandable since pictographs are common in the lowlands of South America and at a very early date. They do not require work in stone, an unfamiliar material for dwellers of water and mud like the Cedrosans, at home along the meandering rivers of the Amazon and Orinoco. Concerning later petroglyphs, Roe has seriated the transition between Cedrosan material culture and Cedrosan-descendant (Elenan-Chican Ostionoid) rock art (see Dating entry for his developmental model). He noted a “diachronic cross-over in art media” (Roe 1995: Figure 2.6) whereby the emphasis on the elaboration of polychrome ceramics characteristic of the Saladoid (500 BC-AD 600) shifted to the relatively plain (incision, modeling and slip only) Elenan pottery (AD 600-1200) and, ultimately, the purely modeled-incised Chican (AD 1200-1500 AD) ceramics of the last Indigenous phase.

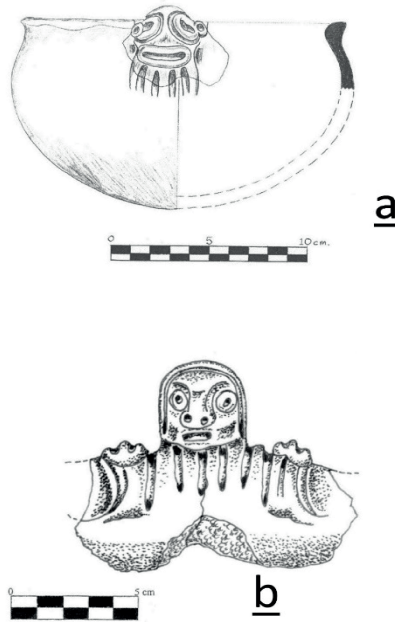


Figure 4.3. a) modeled-incised adorno or handle on vessel rim, human-like face with ear spools and vertical rays below face, Early Ceramic AD 800-1200, Jardines de Loiza, Puerto Rico (Roe, 2004: Figure 7.8a, p. 107), 4.3b similar modeled-incised adorno projecting from vessel rim, also Early Ceramic, Punta Mameyes, Puerto Rico (Roe, Ortíz Montáñez, and Roe, 2011: Figure 4.e, p. 313).

Simultaneously, in the Puerto Rican Pre-Taíno (Elenan) complex tribes or incipient chiefdoms, the lapidary arts saw a concomitant shift from Saladoid small items of jewelry and decorative accoutrements (Roe, 1995: Figure 2.6d) to large-scale architectural and sculpted works. The first appearance of stone/earthen-lined enclosures (2.6f), initially accompanied by simple petroglyphs and layouts (2.6e) is observed. The prime example being the multi-court site of Tibes on the south coast of Puerto Rico dominated by small facial petroglyphs carved into boulders along the boundaries of the main plaza (2-6f) (see Figure 4.2). Even larger and more elaborate stone architecture and portable art (compare Figures 1.4a,b above; see also the evolution of three-pointers in Roe, 2011: Figure 33.3) characterized Chican Ostionoid lithic production. Such displacement of emphasis between media has occurred in other Amerindian material cultures as their societies developed, as Silverman and Proulx (2002, p. 246) noted for the shift from elaborate Paracas textiles in egalitarian tombs to complex Nasca 3 polychrome pottery coincident with the development of the Cahuachi ceremonial center on the south coast of prehistoric Peru.

Around the end of the thirteenth century AD a complex facial petroglyph from the Elenan El Bronce enclosure signals a further elaboration in Native sociopolitical organization. The image is one of several occupying 30 percent of the stones aligning the plaza consisting of a crown and rayed face with enclosed eyes, nose and dashed mouth (Robinson 1985). Such elaboration, as well as the detail of earplugs, suggests an élite personage who perhaps oversaw the various activities proposed for enclosures including ceremonial dances and public political affirmations.



Figure 4.4. a) crowned, ear-spool and rayed face, indicating elite/chiefly status, El Bronce enclosure, AD 1300 (Roe 1991:Figure 14a, page 359), b) with accompanying photograph of the motif on enclosure boulder, Puerto Rico (courtesy of Peter Roe).

This shift from the common physiography of a human face (see 4.1 examples), which everybody shares, to the accoutrements of status appended to that face with crowns, earplugs and pendant necklaces, indicates a shift from an animistic egalitarian status to a human-centric focus on higher-ranked personages (the caciques, or chiefs) in non-equalitarian societies like chiefdoms (Wason 1994, pp. 43, 53).

By around AD 1300 this transfer from personal assertion to public power reached a climax in the elaborate chiefdoms of the succeeding multiple

hegemonic, competing and intermarrying Taíno chiefdoms (Wilson, 1990). They reached their apogee within the eastern Hispaniolan and western Puerto Rican interaction zone (later expanding to Jamaica and eastern Cuba).

Taíno society was ... hierarchical. It was divided into three social strata. At the head of these were the *nitaino* (good or noble people), members of chiefly families or lineages, who were considered to have 'better blood' and constituted the ruling class ([Las] Casas 1527 [1992], 3: 1280). Under the *nitaino* were 'the common people,' free people of Taíno descent, but who did not belong to prestigious lineages. The Native term for these commoners is not known; in colonial times they were referred to...as *indios de servicio*. Finally, there were the *naboría* who, according to Spanish sources, had a servile status (Santos-Granero, 2011, p. 337).

"This *cacique* decided all juridicial controversies and his judgment was absolute [LAS CASAS] (Lovén, 1935, p. 501-emphasis, Roe's). "These rulers did not really talk to the people, but made known their orders with a sign of the hand, understood as a marvel [NAVARRETE] (Lovén 1935:501). They controlled production, assigned individual and collective tasks [LAS CASAS] (Lovén, 1935, p. 501; Veloz Maggiolo, 1997, p. 37), and received tribute. Indeed, a *cacique* could ultimately determine the life or death of any commoner or *naboría* servant (F. Columbus 1496 in Griswold, 1997, p. 171). All eyes and deference were upon this exalted *cacique*, who added authority to his power by acting as a priestly intermediary to his people, his residence, the *caney*, becoming a temple (Lovén, 1935, p. 505-506).

These *cacicazgos* had definite borders, often in dispute with neighboring, contending and similarly-organized polities (Oliver, 2009, pp. 158-159). This introduces another function of petroglyphs, ethnic and/or political signaling, something also noted for petroglyphs in Colombia. For example, the *menhir* petroglyphs lining the plaza of the Salt River village site in St. Croix, Virgin Islands, was

...the easternmost established Tainan ball court...an outpost of the Classic Taino interaction sphere.... The recent discovery of Tainan culture on the island of Saba, the first of the Leeward Islands east of St. Croix, suggests an ongoing process of Taino expansion. The Salt River area, with its ideally located and protected harbor, could have been a gateway community (Morse, 1997, p. 45).

Indeed, petroglyphs guarded the "gate".

In such thoroughly humanized contexts, a further baroque stage in the evolution of anthropomorphic petroglyphs occurred (see also pictographic

discussion in next essay). A male and female pair, illustrated in Figure 4.6 a, b, stand right next to each other, incised on two of the alignment menhirs overlooking the central plaza, A, at Caguana in Utuado, Puerto Rican highlands (Oliver, 2005: Figure 7.20). They present as full-figured, frontal menhir petroglyphs, the male situated to the right (viewer perspective) of the female on the left (their respective positions are sexually so-coded for lowland South Amerindians). These hybrid personages are complete with élite accoutrements like large ear-spools and complex semi-circular headdresses. Roe, following Rouse (1992, p. 119), has suggested a supernatural aspect to this petroglyphic scene.

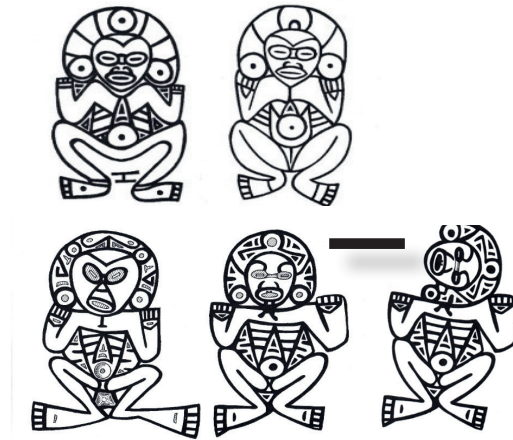


Figure 4.5. Elaborately detailed figures from Late Ceramic Caguana and Jácana enclosures, Puerto Rico, a) full-body frog-like petroglyph from main plaza at Caguana, may represent the male supreme deity Yucahú, b) adjacent full-body frog-like petroglyph, possibly the supreme female deity Atabey (Roe and Roe 2015:Figure 13a,b, page 185 bottom row), c) and d/e) more elaborate versions of same figures from later-in-date Jácana (e represents original positioning with decapitated head, and repositioned for comparative purposes in d) (Roe and Roe 2015:Figures 12a,b, page 185 bottom row and Figure 9a, page 184, respectively).

The famous female figure may represent *Atabey* (*Atabeira*), the supreme female deity, and one to whom women prayed for successful childbirth. Atabey was also the goddess of rain, rivers and lakes (Arrom, 1989, p. 17-36), hence soil and crop fertility. Stevens-Arroyo (1988, Figure 12), identifies her portrayal at Caguana as “bactrianthropic”, with a “froglike posture” (Stevens-Arroyo, 1988, p. 226). This quasi-anuran depiction reinforces her association with freshwater as the frog is a freshwater amphibian. “Certainly, rainwater is necessary for the maturation of yuca [manioc, the staple] and yuca was planted during the rainy season” (Stevens-Arroyo, 1988, pp. 223, 226). Her probable origin was

as the South Amerindian (Guianan) frog-woman seductress (Roe, 1992, 1993, 2005, 2011). She is also described as the mother of Yucahú in the Pané source (Arrom, 1974, p. 21; [Pané, 1999, pp. 3-4), the supreme male deity, possibly the figure to her right. He was the Lord of yuca (manioc, the staple), and master of the sea.

Due to the tuber's elongated, pointy shape it is ethnographically linked in the lowlands with the phallus so it makes sense that *Yucahú* was identified as male. We know that the curious Taíno three-pointer stones, pointed objects being male associated in lowland ethnotaxonomy, were buried in the conucos (horticultural fields) as "manioc stones," echoing the Guianan magical yuca increase practice. We also know that the Taíno considered the earth as their mother (Lovén, 1935, p. 564, ref. the Admiral and Las Casas), thus the insertion of the three-pointers into the earth was tantamount to a symbolic act of intercourse, with the resultant tubers being their offspring. Because Attabeira's fresh water is essential for making the earth fertile Roe believes that *Attabeira* was also an Earth Goddess.

He further differs from the chroniclers by regarding her as the wife of Yucahú, not his mother. It is possible that the chroniclers or, perhaps, a converted informant, identified *Attabeira* with the Virgin Mary, the "Mother" of God, and thereby conflated her with the mother of the god *Yucahú*. The complementary relations of these deities are more indicative of consorts than mother/son relations. In addition, Amerindian gods are always provided with goddesses as spouses. *Yucahú's* salt water (the sea) contrasts with *Attabeira's* freshwater (rain, rivers, lakes). Moreover, men supplied the essential protein, fish (land mammal hunting was less significant) from the sea, whereas women provided the carbohydrate (bitter manioc in the form of unleavened cakes, *cassava*), derived from their land-based horticultural work in the *conucos* (raised fields); both together, like husband and wife, contributed to the aboriginal "sandwich" of Antillean subsistence.

In contrast to this deistic interpretation of the primordial pair of consorts at Caguana and Jácana (Roe and Roe, 2015), Oliver (2005, p. 269-270, Figure 7.20, page 270; and see Figure 5.6 below) has argued for a political reason behind this pair's representations. He interprets this petroglyphic scene as an act of status aggrandizement, the male being the ancestral cacique, while the female (petroglyph designations in the following discussion are those of Oliver, 2005; petroglyph 10; see Figure 4.6b) mother/consort, was the ancestral cacica (female cacique). He places the living cacique (petroglyph 11), who actually presided over plaza performances, next to the ancestral male (petroglyph 9, see Figure 4.6a), complete with his élite accoutrement, the guaíza or high-status-indicating mask pectoral. Yet if just a human cacique and female associate, why the exaggerated anuran, or frog-like, posture and the amphibian-like feet of 10 and 11? Those elongated feet are even further

exaggerated, in unambiguous froglike-form as Oliver (2009, p. 136) points out, on the slightly later, and even more baroque, menhir petroglyphs at Jácana, as seen in Figure 4.6 c, d, e (Roe and Roe, 2015). There the female associate/consort is “beheaded,” with her head lying on its side above the torso (Oliver, 2009: Figure 9), perhaps referencing a myth like the Aztec dismembered and decapitated female goddess, Coyolxauhqui. Since these images are composite anuran-anthropomorphs, a supernatural aspect is likely because it is common for spirits/deities to be human-animal composites among Amerindians. That mythic narrative is further strengthened by the appearance of the “Magical Twins,” typical Amerindian heroes (Roe, 1982, p. pp. 146-147, 154-156, etc.), next to the cacique (menhir petroglyphs 12 and 13). The appearance of the giant blue heron (petroglyph 7) to the left of the female is also a possible mythic reference (Roe, 1993).

Perhaps both a political and a mythic function may have applied to these famous images. Maybe the cacique and cacica, who already possessed supernatural roles as prognosticators of visions, were further assimilating the role of deities. After all, this was common practice among Mesoamerican (Alex, 2022, pp. 50, 55 on the Maya; Nicholas and Feinman 2022, p. 130 [5], 12, for Zapotec Monte Alban) and South American rulers (Davies, 1995, p. 62 for the Inca).

By assuming a quasi-god-like aspect the cacique/cacica wielded religious authority, reinforcing their secular power by employing the sacred deceptions common among behiques, or shamans. We have testimony from Columbus (quoted by his son Fernando [a.k.a. “Hernando”] Columbus, 1571) that a cacique continued to use deception while transforming his role into that of a priest attending a sacred idol (a carved wooden statue?), housed in his large canopy, which thus became a thatched temple. Upon entering one such temple Columbus discovered the ruse of a speaking tube being used to emulate the voice of the idol; the cacique made the ruse clear by pleading with the Spaniards to not reveal his stratagem since that was how he maintained his control over the populace (Griswold, 1997, p. 170-171). This instance was but a Hispaniolan version of the classic “Priest-Temple-Idol” complex of the Intermediate Area (from Nicaragua to the Atlantic Watershed of Costa Rica, thence to Panama, Venezuela and Ecuador), that is considered part of this culture-geographic area.

In short, both the style cycle and the iconography of Antillean petroglyphs illustrate the diachronic evolution of human-centric, chiefly Taíno authority and power, out of ancestral animistic Saladoid tribal egalitarian culture. They also signal the importance of searching for narratives in these images. These lithic stories appear in both cosmological recapitulation, as argued for the assemblage from Cueva de Mora Puerto Rico (Roe, 2005), as well as diurnal/nocturnal cyclical ethnoastronomical modeling at Mural de Zamas, also from

Puerto Rico (Hernández Llanes, Roe, Driver, 2017). Such petroglyphic narratives elicit myths recorded by the Spaniards, like the paired, yet dyadically-opposed, “sweating” = “rainy/dry” Iguanaboína cave guardian petroglyphs (the cemí “Magical Twins” of Boínayel, fertilizing rain from gray clouds, versus Márohu, for no clouds, a dry, sunny day, Pané (1999, p. 17). They also record myths ultimately derived from the lowlands of South America, as in the Caguana-Jácana female being both Atabey the Earth and Rain Goddess while probably developing from the lowland South Amerindian “frog woman” seductress (Roe, 1993).

Rupestrian Images as Art

Waldron brings an underutilized art historical perspective to the study of Caribbean rock art. His assessment ranges from the macro region-wide to micro scales of image groupings and individual motifs. He interjects the fact that image-makers were artists who executed designs in a variety of forms on a variety of surfaces that reflect the everyday, narrative and conceptual thought processes of Native Antillean societies. Waldron draws upon physical location and design element details across rock art and other media, complemented by ethnohistoric and ethnographic sources to offer both intriguing new, in addition to more traditional approaches to interpretation. He also raises questions for investigation that deserve more consideration, including identifying who the artists were and the ritual or ceremonial contexts associated with rock art.

The last essay also serves as a summation for the entire article by covering in large part the status of rock art investigations: successes, limits, and a plea for increased integrative research among those involved in visual cultural analysis: art historians archaeologists and cultural anthropologists.

Ritual and Folkloric Contexts of Antillean Rupestrian Art

Lawrence Waldron

The rupestrian art of Indigenous Antilleans gives us a glimpse into their empirical, narrative, and conceptual thinking. In fact, these images are the material remains of several ethnic and eval worldviews modifying the natural environment—from the painted caves of Archaic western Cuba to the hypergraphical cave walls and river boulders of the Taino-era Greater Antilles and neighboring islands to the clustered and singular petroglyphic landmarks of the Lesser Antilles. Petroglyphs were also engraved on the cultural environment, most notably on the lines of monoliths edging the sacred precincts of ceremonial centers in the Greater Antilles and Virgin Islands.

Indigenous Antillean rupestrian artists employed a broad range of techniques to modify the stone surface. Archaic artists showed the most

interest in painted images, usually in red or black on pale limestone, creating hundreds of individual motifs and dozens of murals in caves in Cuba and Hispaniola. Their Ceramic-age neighbors of the Taíno era (circa AD 1200-1500) preferred to draw pictographs in charcoal (Figure 5.1) but made painted ones as well, usually in jagua (*Genipa americana*) black and, far less commonly, with red from ochres and roucou (*Bixa orellana*). A pictographic motif could be scrawled with nervous lines by a non-specialist or it could be rendered by a confident hand well-practiced in drawing, painting, or design. We do not know if this indicates that pictographic artists were ritual specialists of varying skill or mostly artists who were sometimes joined by ritual specialists out of necessity.



Figure 5.1. Great mural with linear and silhouette figural motifs including scenes from Taíno-era traditional narratives (e.g., top center), Hoyo de Sanabe, Dominican Republic, presumably Taíno. Carbon-based pigment on limestone, anthropomorphic figures approx. 20-30 cm height (courtesy of Daniel DuVall).

Petroglyphic artists, however, all required a base level of technical skill to peck and carve their images on obdurate materials such as limestone and granite. Both Archaic and Ceramic Age rock artists produced petroglyphs but this artform was far more heavily favored by the latter, especially in the Taíno era. Petroglyphs of uncertain antiquity, some possibly dating back to the later part of the Saladoid era (circa 500 BC-AD 700) (see above dating section) and Early Ceramic Troumassoid (circa AD 750-1200), also appear throughout

the Lesser Antilles, sharing much of the iconography though not always the same style traits of those in the Taíno west (Figure 5.2). Modified stalactites, stalagmites, pillars, and flowstones are more common in the karstic regions of Puerto Rico, Hispaniola, and Cuba than in the Lesser Antilles but have been found as far east as Barbados.



Figure 5.2. Anthropomorphized bat (left) and frog (right) motifs. Early Ceramic Troumassoid. Pecked and incised stone (modern pigment added). Engraved stone, larger figure 81 x 61 cm (courtesy of Jacqueline O'Connor).

Across media, ancient Antillean arts display a wide range of representational modes. These include (1) the idealized naturalism of some ceramic adornos and shell sculptures in which the usually zoomorphic subject is portrayed to look as it might in the flesh but slightly edited to eliminate irregularities; (2) the stylization that we see in most art made by post-Archaic groups from the Saladoid to the Taíno era in which the forms of nature are turned into deliberately designed motifs, patterns, and other visual schemes so that design and depiction are near equal partners in representing the anthropomorphic or zoomorphic subject; (3) the abstraction of some Saladoid and Taíno motifs so that design outweighs depiction. The ubiquitous motif coined as “the frog labyrinth” by Henry Petitjean Roget (1975) is the consummate example of this level of abstraction. In it, the image of the frog seen from above is turned into a quincunx with a circular body at the center and the four legs meandering out from it tightly folded back upon themselves. Without being told this represents a frog, the viewer might miss the flexed legs for the meanders (Figure 5.3).



Figure 5.3. The frog labyrinth motif: a) Late Saladoid WOR (white-on-red) seed pot with incised and white slip-filled flexed frog design on red-slipped bowl, Canas, Puerto Rico, 16 cm diameter (left); b) linear rendering of the frog labyrinth motif (center); c) petroglyph on boulder at Balenbouche, St. Lucia, late Saladoid or early Ceramic Age Troumassoid (right) (a, Waldron, 2016, Figure 7.31 color photograph plate and non-color image page 188; b, Waldron, 2019: Figure 2.12 center, p. 6; c, courtesy of Lawrence Waldron).

While stylization is the preferred idiom across the arts of the Antillean Ceramic Age, their rupestrian artists were decidedly abstract in their chosen mode of representation. This was not a pure abstraction concerned with design principles and aesthetic concepts independent of any pictorialism (as we see in Islamic tilework or some abstract expressionist paintings) but a representational abstraction employing learned visual conventions that were intended to communicate established symbolic categories. This is not to say that rupestrian images served as some kind of glyphic “writing” but that the communicative, indeed didactic intent behind motifs is usually evident in their occurrence and recurrence in recognizable scenes, sequences, and locations (see discussion below).

The locations of rupestrian images helped determine their significance just as they, in turn, gave dimension to the places they inscribed. The three most likely places to encounter Caribbean rock art is in caves and rock shelters especially in the Greater Antilles, on riverside boulders across the island chain, and in the Taíno-era ceremonial centers.

Today, painted and drawn images are usually encountered in rock shelters and the dark zones of caves, along the walls, including high up beyond the normal human reach where climbing, hanging or boosting must have aided the artist. Some caves also bear pictographs on their ceilings. In these sheltered locations, the pigments of the works have been well preserved. Caves in Taíno-era lore at least were the origin places of both major celestial bodies and the human race. In one of only two references to rock art found in Fray Ramón Pané’s (1999) Contact-era account of Antillean customs, the sun and moon first emerged from a painted cave called Iguanaboína and Pané

notes that people returned to this cave to make offerings and pray for rain (Pané, 1999, p. 17). Both archaeological and ethnographic evidence establish that caves were also seen as passages to the underworld throughout much of the tropical Americas, making them occasional burial places and shrines in which icons were worshipped and offerings were deposited (Oliver, 2009, pp. 143-144; Oliver, 2005, p. 231-241; Waldron, 2019, p. 121-165). Caves, then, were other-worldly wombs and tombs, temples, and chambers from which the weather could be mitigated or even controlled. In storms, of course, caves could also be reliable shelters and thus torchlit theaters for the instruction of captive audiences. The visual content of cave art testifies to all these functions (further discussion below).



Figure 5.4. a) Anthropomorphic, owl and bat petroglyphs at the mouth of Warminster Cave, Jamaica, Taíno. Engraved limestone, triple dot faces near bottom approx. 8-10 cm width (left) (courtesy of Reinaldo Morales, Jr.), b) drawing of the petroglyphs (right) (Waldron, 2019: Figure 4.2 right, p. 124).

By contrast, rupestrian artists pecked their petroglyphs outside, at the mouths of caves where oblique sunbeams painted their raised and sunken contours with alternating highlight and shadows, which could change the image as the light source moved throughout the day (Figure 5.4a). Considering the role of polysemy and other forms of multivalence in Ceramic Age Antillean modeled and painted ceramics, this transformational quality of cave-mouth petroglyphs seems to have been deliberate. The same is true of the modified speleothems that can be found in similar locations but also in cave interiors

where their forms might change in faint or indirect light, the dancing flame of a moving torch, or a single, seasonal sunbeam. Indeed, speleothems were often modified in response to some serendipitous or even uncanny resemblance they already bore to important characters in ethnohistorically recorded folklore (Morales and Quesenberry, 2005, pp. 44-47; Waldron, 2019, pp. 163-164). More easily found than the shapeshifting, serendipitous speleothems in cave entrances and interiors are the Caribbean's many petroglyphs on boulders alongside water courses and inland bodies of water (Figure 5.5). Their iconography seems deliberately related to these fertility-giving, sometimes drought-affected locations (further discussion below).

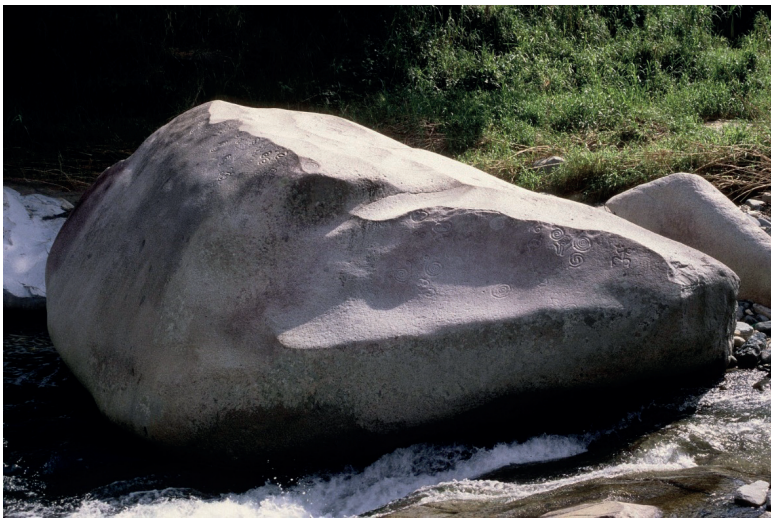


Figure 5.5. Piedra Escrita, Jayuya, Puerto Rico, Taíno. Engraved granite boulder, approx. 7 m height (courtesy of Reinaldo Morales Jr.).

In the late first millennium, some Saladoid and post-Saladoid villages in the Virgin Islands and Puerto Rico began to transform their central thoroughfares/plazas into more formal ritual spaces and by proto-Taíno times (circa AD 1000-1200), these spaces had developed into full-fledged ceremonial centers, with tamped earth precincts enclosed by cobblestone pavements and lines of inscribed monoliths (Curet and Stringer, 2009; Wilson, 2007, pp. 111-126). These ceremonial centers with their accompanying bateys (ballcourts) and other ritual sport pitches, along with cobblestone ramps up from nearby rivers, received pilgrims and embassies from neighboring communities and perhaps distant islands as well. The visitors participated in areytos (festivals), treaties, religious rites and rites of passage, which promoted regional cohesion, and competed in intramural ceremonial contests in the

Amazonian fashion perhaps to resolve political tensions (Waldron, 2019, pp. 110-111). The petroglyphs (Figure 5.6) that grace the monoliths lining these ceremonial precincts usually reference deities, traditional narratives, ancestors of the elites who had directed the construction and transformation of these spaces, and perhaps zoomorphized and anthropomorphized celestial bodies and constellations (Curet and Stringer, 2009; Loubser, 2010; Oliver, 2009; Waldron, 2019, p. 198).



Figure 5.6. Major figures of the western monolithic line representing a wading bird, crowned and frog-posed deities (presumably earth/freshwater goddess Atabeyra at center and agro-god Yucahu at center right) among various ancestral figures and faces, main plaza at multi-enclosure Caguana, Puerto Rico, Taíno. Pecked and incised stone, approx. 1-1.5-m height (black-and-white version in Waldron, 2019: Figure 4.24 upper, p. 192).

Petroglyphic crowned and rayed anthropomorphic faces as well as visages with large earspools (often also crowned or rayed) likely represent Taíno-era leaders and deities in macaw feather headgear. By comparison, sculptors and ceramicists usually omitted the rayed image of the feather crown (to prevent breakage of those more attenuated parts of the work) abbreviating the regalia to the woven headband. Thus, “crowned face” petroglyphs provide visual confirmation of the conical style of Antillean feather crowns that the other arts do not (Figure 5.6). Faces featuring the rays on the bottom of the face, resembling a beard, may represent rayed conch-, stone-pendants, animal tooth pectorals, or feather collars. Simple encircled faces with only three dots for eyes and a mouth are quite common on boulders and at cave mouths and are far more ambiguous in their meaning. In their lack of social signifiers, it is possible that they served a standardized, votive purpose (as Westerners use memorial ribbons or Remembrance poppy brooches) upon the loss of an affine or group of them. At Reef Bay in St. John, U.S. Virgin Islands (Figure 5.7), these simplified faces are refined yet further, losing their outlines, and forming a

line of abstract triple-dots along the bottom of the petroglyphic mural, which coincides with the current water line. Disembodied pairs of eyes may be an even more simplified version of these apparent memorial faces or might reference yet other beings, perhaps less benevolent or not human.



Figure 5.7. Waterside petroglyphs: triple-dot, guaíza, owl face, bat wing, rayed and visor-eyed face, and rectilinear motif reflected in water, Reef Bay Pool, St. John, U.S. Virgin Islands, presumably Taíno. Pecked and incised basalt, approx. 2.5 meters width (courtesy National Park Service).

Divided petroglyphic faces—bisected by a central horizontal or vertical line, trisected by an inverted Y or quartered by an X—are often rayed and, while they appear anthropomorphic, may not represent historical people or deities but personified celestial bodies. Wrapped anthropomorphic figures appear in petroglyphs across the Greater Antilles and as far east as St. Lucia and St. Vincent where they might be pre-Taíno (Figure 5.8). They are often represented with crowned faces and Peter Roe’s proposal that they represent revered departed ancestors and leaders wrapped in their hammocks at burial is widely accepted (Hayward et al. 2009:122-124; Roe 1991).

Petroglyphs are the most widespread form of rupestrian art in the Antilles and among those, figural motifs preponderate. However, spirals, S-curves, and meanders are fairly common on river boulders as at Piedra Escrita in Jayuya, Puerto Rico (see Figure 5.5), where they seem to represent the action of water. Spirals in particular may also represent time, as first proposed for this region by art historian Dicey Taylor (2003), and meanders can double as reptile/amphibian symbols (i.e., snakes and frogs) which themselves connote the flow

and dripping/precipitation of freshwater respectively (Waldron, 2016, pp. 174-175; Waldron, 2019, pp. 62-63, 245).



Figure 5.8. Wrapped figures: a) crowned faces with central crowned and wrapped figure, Parc Archéologique des Roches Gravées, Trois-Rivières, Guadeloupe, dates unknown (possibly Ceramic Age Saladoid or Post-Saladoid Troumassoid), heads approx. 25-30 cm width each (left); b) wrapped figure with tall headgear, visor-patterned eyes, and pronounced weave-pattern on wrapping, Cueva del Indio, Puerto Rico, date unknown (probably Taíno), circular face approx. 28-30 cm height (right). Pecked and incised stone (a, black-and-white versions Waldron, 2019: Figure 4.15, p. 161 and b, Figure 4.13 right, p. 156).

Some waterside petroglyphic motifs also occur in pictographic art. Faces with weeping eyes, sometimes gnashing their teeth, are rendered in both petroglyphic and pictographic techniques. Across the Taíno arts, this was the established iconography of shamans wracked by discomforts of the cohoba ritual and of deities associated with rain, most notably Boinayel (Son of the Grey Serpent) the bringer of beneficial rains (Pané 1999:17). These weeping images can be found in the engraved lacustrine tufa at Las Caritas near Lake Enriquillo (Figure 5.9) and at Los Haitises, both in the Dominican Republic. At the ever-fluctuating Lake Enriquillo, located below sea-level and salty like an inland sea, the tension between rain and drought may have been a topic of pointed concern inspiring the multiple petroglyphs of Boinayel at Las Caritas, including a twin-motif of him and his brother Marohu, the god of drought.

Intimately related to water, the deftly abstracted frog petroglyphs of the Greater Antilles such as the Jayuya frog (which is emblemized in Puerto Rico's popular arts today) has painted analogues in Hispaniola at sites such as Cueva de las Maravillas (Figure 5.10). Despite their execution in different materials and techniques, they are stylistically similar in how they abbreviate the frog,

ubiquitous herald of the rainy season and symbol of the agricultural and human fertility that was expected to follow that season (Petitjean Roget 1975; Waldron 2016:183-193).



Figure 5.9. Petroglyphs (bottom right) representing twins (perhaps [rayed] Boinayel and [runged] Marohu) and Boinayel as personified cloud (upper right), Las Caritas, near Lake Enriquillo, Dominican Republic, Taíno. Incised lacustrine tufa (or petrified coral), rayed faces at center approx. 24-26 cm width (courtesy of Daniel DuVall).



Figure 5.10 Batrachian figures: a) from Piedra Escrita (pecked and incised) (top); and b) from Cueva de las Maravillas (drawn with carbon, bottom) (Waldron, 2019: Figure 4.14h, p. 157).

This stylistic similarity usually does not occur between petroglyphic and pictographic bat motifs. The scroll or volute is the pan-Antillean bat symbol, evoking the curled wings of the animal in down-flapping motion. It is ubiquitous throughout the Antillean arts from painted Saladoid ceramics to Taíno stone effigy belts and other sculpture (Waldron, 2016, p. 98-111). Bats in the Taíno Greater Antilles were related to Maquetaure Guayaba, the Lord of the Dead, whose subjects sometimes flew out of Coaybay on the island of the dead in the form of fruit bats to visit the islands of the living. There, they could once again enjoy the pleasures of the flesh, including feeding on the succulent fruit (guayaba/guava) that is their ruler's namesake (Pané, 1999 pp. 17-18). There was considerable variation in the familiar bat-scroll motif, so the petroglyphic volute could be flat across the top in the manner of an Ionic capital (see Figure 5.7) whereas, in pictographic art it often took the form of a V-shape with curled arms. Close inspection of Figures 5.1 and 5.5, however, reveals that the V-shaped bat scroll was executed in both techniques.

Bat faces without bodies are primarily a petroglyphic tradition, rare in pictographs. Petroglyphic bat faces are distinguishable by their erect ears above otherwise anthropomorphic looking features. Sometimes they are given hairlines that create a kind of visor effect around their eyes, a convention borrowed from ceramics. In some cases, the visored eyes are featured alone as a shorthand for the creature.

At Wingfield Estate in St. Kitts (see Figure 5.2), two figures, one representing a bat and the other a frog are featured side by side as a couple. Petitjean Roget has argued (2015, pp. 306-307) that these petroglyphs are a gendered pair, a Primordial Couple. The fertile, terrestrial frog (anthropomorphized by its face and laterally located ears) is a female aquatic symbol and the eschatological, aerial bat (distinguishable by the batwing scrolls used to render its protruding ears) is male and associated with caves/stone. Of course, the corporeal bat is also a dropper of seeds, and the frog is the harbinger of the rains that make seeds grow. These complementary relations between the bat and frog mirror those between the realm of the ancestors and descendants seen across Taíno-era arts. In sculptures, for example, cadaverous-looking shamans are depicted with stout erections. Likewise, the junctures between the mammiform double chambers and phallic spouts of Taíno ceramic potizas are usually augmented by a bat or owl adornment, uniting their symbolism of sexual fertility with that of death and ancestry.

Close associates of bats, Antillean owls, and the owl-like oilbirds of Trinidad and Venezuela (who actually live in caves, echo-locate, and eat fruit as bats do) have been folkloric messengers from the spirit world, bringing tidings of births and deaths depending on their variable night cries (Waldron, 2016, p. 122). The oculate heart-shaped or oval faces of owls appear throughout Saladoid and Taíno ceramics and are also well-preserved in Taíno

wood sculpture (Waldron, 2016, pp. 113-125). Abstract versions of these motifs as well as full figures of perched owls (also seen in Taíno wood sculpture) appear on petroglyphic boulders (see Figure 5.7) and at the mouths of caves (see Figure 5.4) where they presage the entrance into the underworld. Oculate faces, presumably those of owls, appear less frequently in pictographs where some might actually be anthropomorphs.

Most common among drawn and painted motifs (i.e., pictographs) are silhouette or linear anthropomorphic figures either with filled-in dot heads or drawn faces and animal figures, especially aquatic birds, turtles, and frogs some of them anthropomorphized (see Figure 5.1). Occasionally dogs and fish make appearances. Anthropomorphic and zoomorphic silhouette pictographs were made so by selectively thickening their torsos/thoraxes but often leaving their limbs linear. Some silhouette anthropomorphs are thickened in their calves as well to imply the cotton string ligatures worn by Antilleans (a detail often also depicted in sculpture), and some are given full faces with headgear and large flange-like ears.

Faces rendered with lines were sometimes colored in with charcoal in some sections. Rarely, elaborately designed *guaízas* (*cemí* faces/masks) and zoomorphs were drawn or painted with sophisticated interplays of pigmented and exposed limestone (refer to Figure 2.5a). While the silhouette figures were often singular, serving a more emblematic/thematic function, the abbreviated form of the more linear “stick figures” allowed them to be arranged in groups, sometimes representing well-known scenes from traditional narratives. All these types of figural representations are present at Hoyo de Sanabe (see Figure 5.1). Their diversity in style raises questions about their ages, especially since the positive-negative/figure-ground reversals in some of the more complex motifs here and at Cueva de Borbón/Cuevas del Pomier (see Figure 2.5b) on the same island make them very similar to the decorative schemes on Saladoid white-on-red pottery of three or four centuries before the presumably Taíno-era stick and silhouette figures (see discussion under Dating essay above).

At Hoyo de Sanabe (see Figure 5.1), if read in a counterclockwise spiral, the pictographic subgroup high up on the cave’s great mural tells the story of shaman Bayamanaco snorting cohoba (at far right), irritably chasing after *Deminán* Caracaracol (presumably spitting cohoba-laced mucous on his back, at far left), after which a swelling develops on *Deminán*’s back (second from far left), which one of his brothers is depicted prying open (second from far right) to reveal the turtle near the top of the pictographic subgroup. For some reason, a V-shaped bat pictograph hovers beside the scene, perhaps a lost thread from the version of the narrative related by Pané (1999).

All the common pictographic animals have definite symbolic value, some supported by the surviving traditional narratives and others by their presence

in other Taíno artworks with known ceremonial function. A petroglyphic wading bird on a monolith at Caguana (see Figure 5.6) is virtually identical in proportions and abstract elaboration to the sculptural one in a Taíno-era cohoba pedestal from Jamaica. But then the sculpture links the wading bird (likely a heron) to a turtle or tortoise with which it touches mouths in some sort of vital exchange, and the two zoomorphs are together related to the narcotic shamanic ritual. The narrative tradition that pairs these two zoomorphs, perhaps by shared, mind-altering mucous, is now lost. But from the Taíno-era narrative of the turtle (or Turtle Woman) who is born from the aching back of the founder/culture hero Deminán Caracaracol only to become his wife and that of his three brothers the turtle is established as the symbolic mother of the Antilleans (Pané, 1999, pp. 13-14; Waldron, 2016, pp. 66-67, 218).

A wading bird standing on a turtle's/tortoise's back, *tete-à-tete*, may relate to this iconology in some way and, in turn, to the cohoba ritual. Disturbingly then, a large pictograph at Cueva del Chorro in the Dominican Republic representing an enormous wading bird grasping a tiny turtle in its 17-centimeter-long beak (see DuVall, 2010, p. 21) raises some questions. While no Taíno narratives of the heron have survived intact, potentially analogous traditions from Warao, Arawakan, and Cariban lore in South America, and the Kalinago of the contemporaneous Lesser Antilles relate wading birds to the long-distance first acquisition of tobacco seeds and the mitigation of storms and drought (Roth, 2011, pp. 342-344; Waldron, 2016, p. 154).

The images of dogs and fish in Greater Antillean pictographs are more difficult to interpret. There are no persisting narratives of fish and while there is a mythic thread linking dog iconography to the god Opiyelguobiran, an underworld guide described as dog-like by Pané's brief account, the images of dogs and fish are usually so isolated that their meaning cannot be determined by context. An image at Cueva de Borbón of two dogs mating might reference a lost thread of Antillean lore, a constellation in Antillean ethno-astronomy, or merely a quotidian vignette. Fish pictographs represent a range of shark-like predators but also reef fish (e.g., Figure 2.5a).

The rupestrian art of the Ceramic Age had distinctly narratological, thematic, and socio-political functions. But in some ways, the oldest rupestrian art in the Antilles, that of Archaic societies in the Western Greater Antilles, had, from our modern viewpoint, the most practical function. With its concentric and labyrinthine crosses seeming to reference stars and other celestial bodies and its concentric, sometimes superimposed circles evoking the celestial clockwork, the painted pictographs of Archaic groups on Cuba and Hispaniola appear concerned with the science of the heavens and time itself (Figure 5.11).

For example, at Cueva 1 in Punta del Este on Isla de la Juventud (off the southwest coast of Cuba), the cave entrance presents a broad, east-facing

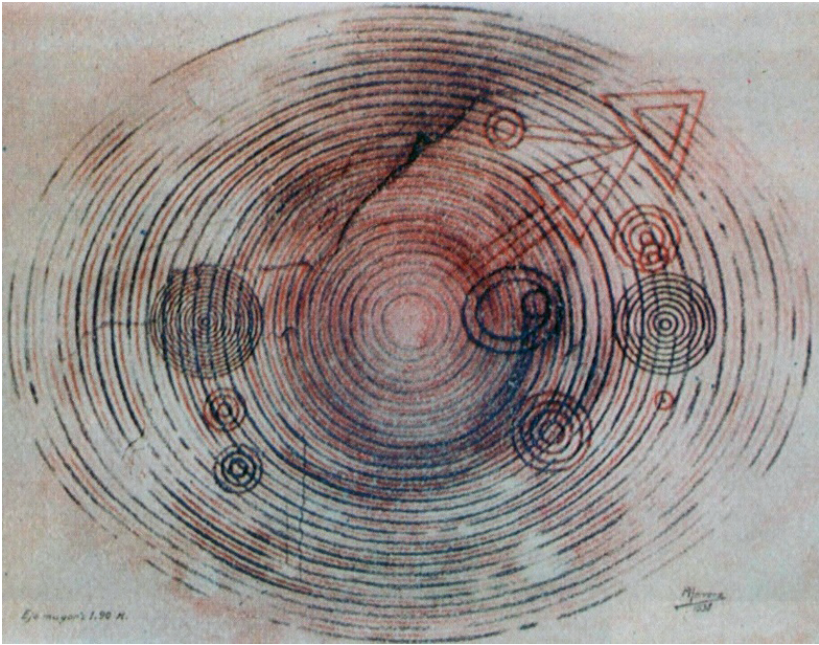


Figure 5.11. Facsimile of drawing by René Herrera Fritot (1938) of the Central Motif at Cueva 1 featuring secondary and superimposed motifs (including “arrows” and internally tangent circles), Isla de la Juventud, Cuba, Archaic. Original red and black pigments painted on white limestone, 1.9 m at widest diameter (Public Domain).

panorama from which the sun can be observed from solstice to solstice. The cave’s interior possesses not only seven skylight portals in the limestone ceiling ideal for spying particular stars and letting in light but a painted mural comprising several sets of overlapping concentric circles. One of these, the Central Motif reproduced in Figure 5.11, was first observed by Cuban scholar René Herrera Fritot in the 1930s to comprise fifty-six concentric rings, twenty-eight black and twenty-eight red against the white limestone (Herrera Fritot 1942). The rings thus seem to denote the days and nights of a month (Fernando Ortiz 2008; Nuñez Jiménez 1991). Superimposed upon them are several geometric motifs, including a smaller circle containing yet another which is half its diameter and internally tangent (i.e., with the smaller circle’s circumference touching the larger’s). These smaller circles may account for the moon and its synchronous rotation and revolution around the earth (Waldron, 2019, pp. 133-134). Cueva 1, therefore seems to have been an observatory and its rupestrian art its astronomical charts.

Observing the heavens helped ancient people to predict the flowering and fruiting of vegetation, movement of animals, and a host of other natural

phenomena. Travel, planting, harvests, and pregnancies could all be planned according to the celestial movements tracked in these concentric murals. But since we know little of their ceremonial practices, it is unclear how else these Archaic societies used these complex diagrams to order their lives. While the great mural at Cueva 1 and murals like it throughout Cuba were made by Archaic groups, we do not know when the majority of these concentric motifs were made. There has been no widespread scientific testing of their constituent materials. The Archaic populations persisted alongside their Ceramic Age neighbors who interacted with them for almost two millennia across a westward moving frontier. They may have made some of these murals even after the arrival of their new neighbors/trading partners and likely passed on their knowledge of the Antillean skies to the latter. Although post-Archaic groups did not adopt their visual conventions for tracking the heavens, occasionally one encounters highly abstract, cryptic pictographs in the caves of the Greater Antilles (e.g., the irregular meanders at Cueva de Borbón or the dotted stalactites in nearby Sistema del Peñón) that may describe celestial operations.

Our interpretations of the narrative, thematic, and symbolic content of rupestrian works made by the Antilleans is well in line with those of the ethnographically analogous peoples of South America. In Amazonia and Orinochia, painted, drawn, pecked and incised images can mark not only territorial boundaries but major mythologized landmarks where culture heroes and gods once walked, sat, fought, or rested in their primordial adventures and individual motifs are sometimes understood to be or represent characters and tools belonging to those characters (Pereira, 2001; Santos-Granero, 1998, 2004; Schaan, 2012, pp. 12-13, 79). Antillean rock art confirms this connection between rupestrian imagery and regional lore.

Exactly what ceremonies were involved in the making of these images and how people interacted with them once they were made remains unclear. This is because, unfortunately, the study of South American rock art is no more advanced than it is in the Caribbean. Both fields have lingered in an extended, centuries-long infancy and as yet are starved of sufficient radiocarbon data (though see Dating essay above) and systematically compiled and collated, region-wide databases of motifs (Hayward et al. 2009). Addressing these lacunae and integrating rupestrian motifs in a cross-media study of Indigenous Antillean visual culture requires a veritable army of dedicated visual specialists, social anthropologists, and field archaeologists. Until more scholars are attracted to the field, we cannot provide much deeper insight into the age, iconography, or ritual contexts of the rupestrian art surveyed thus far and the art yet to be uncovered.

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