KEYWORDS: ***Amerindian rock art – Pictogram – Rockshelter – Petroglyph – Venezuela***

NEW ROCK ART SITE COMPLEX IN THE ARAUÁK RIVER VALLEY, SOUTHEASTERN VENEZUELA

José Miguel Pérez–Gómez and Roger Swidorowicz

Abstract. This paper examines Amerindian rock art recovered on an isolated boulder located near the Upuigma Tepui in the Arauák River Valley in Bolívar State, southeastern Venezuela. We explore some ideas about the possible use of this boulder by the indigenous hunter-gatherers, both as a shelter and as a place for enacting ritual activities, in the broader context of the cultural landscape. Preliminary stylistic analysis suggests possible regional interrelationships of the pictograms with other rock art sites. Evidence also suggests the source of the red ochre used for the paintings, which might have come from a mineral anomaly close to the site. In addition, we briefly present some petroglyphs found within the same regional context. We stress the necessity of further systematic research into this phenomenon given the potential for encountering more pictograms and petroglyphs as well as other valuable data which would contribute to a better understanding of the chronology and sociocultural context of the long-past humans in this remote area of northern South America. Finally, we call for the protection of these pictograms as valuable heritage sites.

Introduction

The Guiana Highlands region of southeastern Venezuela is characterised by flat-topped mountains, or *tepuis*, rising thousands of metres into the clouds while remaining geographically inseparable from the rainforest and savannahs below. The remarkable geographical characteristics of these mountains are likely to have had a significant phenomenological impact on the cultural perception and environmental interpretation of the nearby human groups. Rock art found in these magnificent landscapes can be appreciated on isolated rocks in river valleys as well as on large boulders strewn across the savannas.

Although there is a wealth of information on petroglyph and pictogram sites in the databases of Guyana, Suriname and French Guiana (Dubelaar 1986a; Mazière 1997; Gassies 2006), the upper Caroni River region in Venezuela, which is equivalent in terms of geographical location, lacks substantial or any documented knowledge about rock art. For this reason, few comparative studies have been carried out (Dubelaar 1986a). Authors such as D. Williams, whose research is principally based in Guyana, propose that rock art in the northern Amazonia-Guiana area is internally homogenous enough to be considered a single analytical unit: the Guiana Shield Complex (Williams 1985).

While studying the current pictograms, we discovered several new archaeological sites containing pictograms and petroglyphs in the same regional area of La Gran Sabana, some near the Canaima village. Also, we found lithic artefacts associated with some of the rock art sites. Although we are still in the process of studying these new rock art sites, it is clear that the styles observed at these places are quite similar to others in the Bolivar state region (Padilla 1956; Arroyo 1970; de Valencia et al. 1987; Gassón 2002; Sujo Volsky 2007), and to other rock art sites in the same broader regional context, including Brazil and the Guianas (Braunholtz 1955; Homet 1963; Dubelaar 1986a; Mazière 1997; Gassies 2006; Prous and Ribeiro 2006). No studies on dating have been carried out yet for these pictograms; nonetheless, according to Greer (2001), studies on chronological ordering indicate that pictograms in Venezuela and other sites in the region extend back well into the Archaic period, at least some 5000 BP. Others in Brazil, for example, have revealed rock art sites dating back approximately 13 500 to 10 000 years BP (Michab et al. 1998).

Location of the pictograms

The Upuigma Rockshelter featuring the parietal art is located on the slopes of Upuigma Tepui in the Arauák River Valley. The Arauák, a tributary of the Karuay River in Bolívar State, Venezuela, runs northeast of Chimantá Tepui (Fig. 1). This table-top mountain rises 860 metres above sea level (masl) and consists of a sandstone rock from the Roraima group, which in turn belongs to the Guiana Shield. Both the

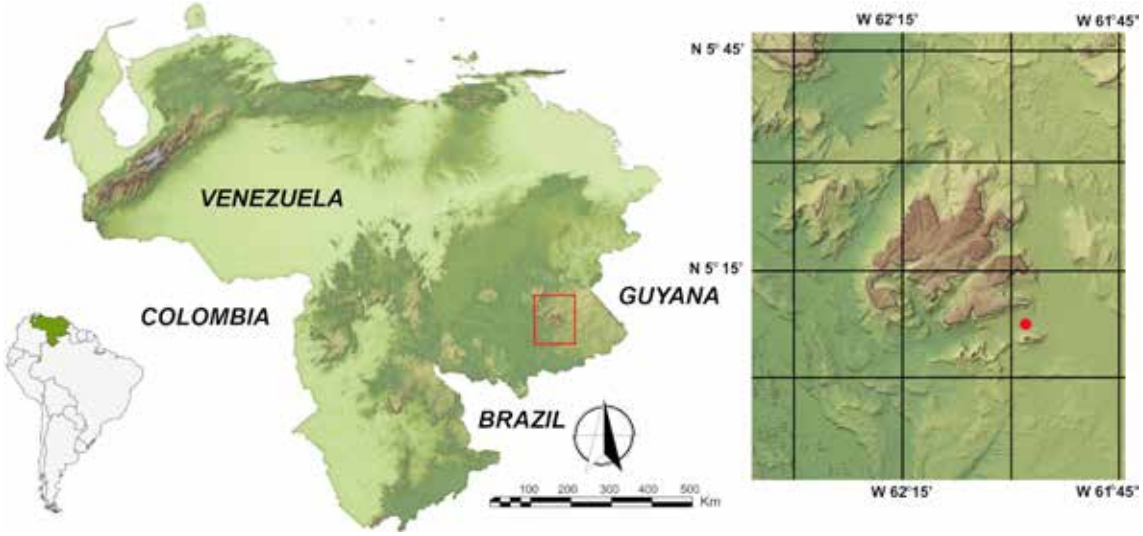


Figure 1. *Location of the rockshelter in southern Venezuela, between the Chimantá and the Upuigma Tepuis. Image Map ©USSGS/UCV, with additions.*

Figure 2. *Arauák River valley with the Upuigma Tepui at the back, and the savanna where the boulder is located. All images ©José Miguel Perez-Gomez unless indicated otherwise.*

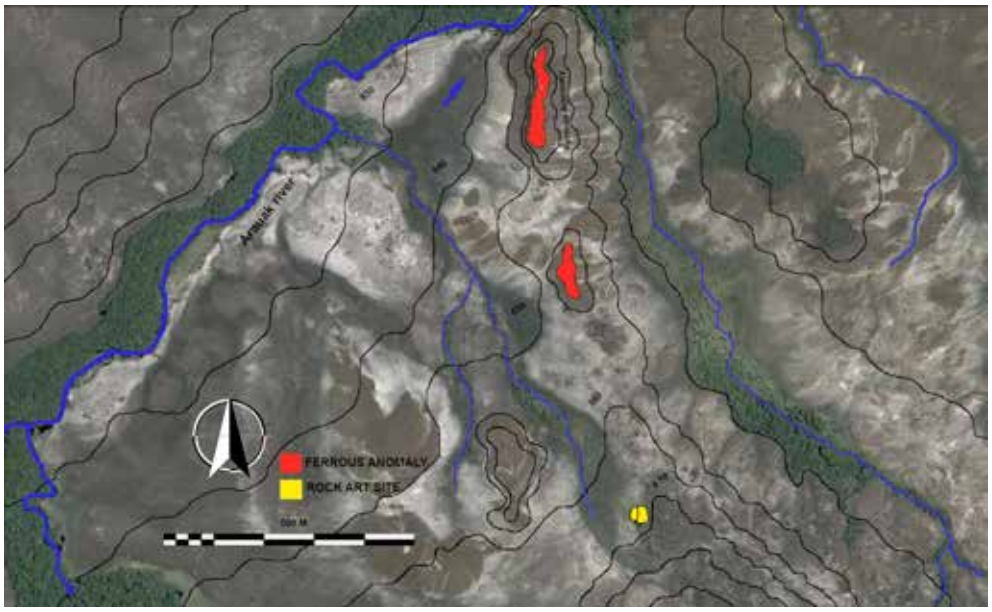


Figure 3. *Site map within the Arauák River valley. The ferrous anomaly possibly supplied the ochre.*

Guiana and the Brazilian Shield conform to the Precambrian core of the South American continent (Briceño and Schubert 1992). The local area has a tropical climate with an isothermal regime and temperatures averaging 23.4°C. This corresponds to savannah areas within the Caroni River pluviometry system which averages 2.5 mm of yearly rainfall (Galán 1992).

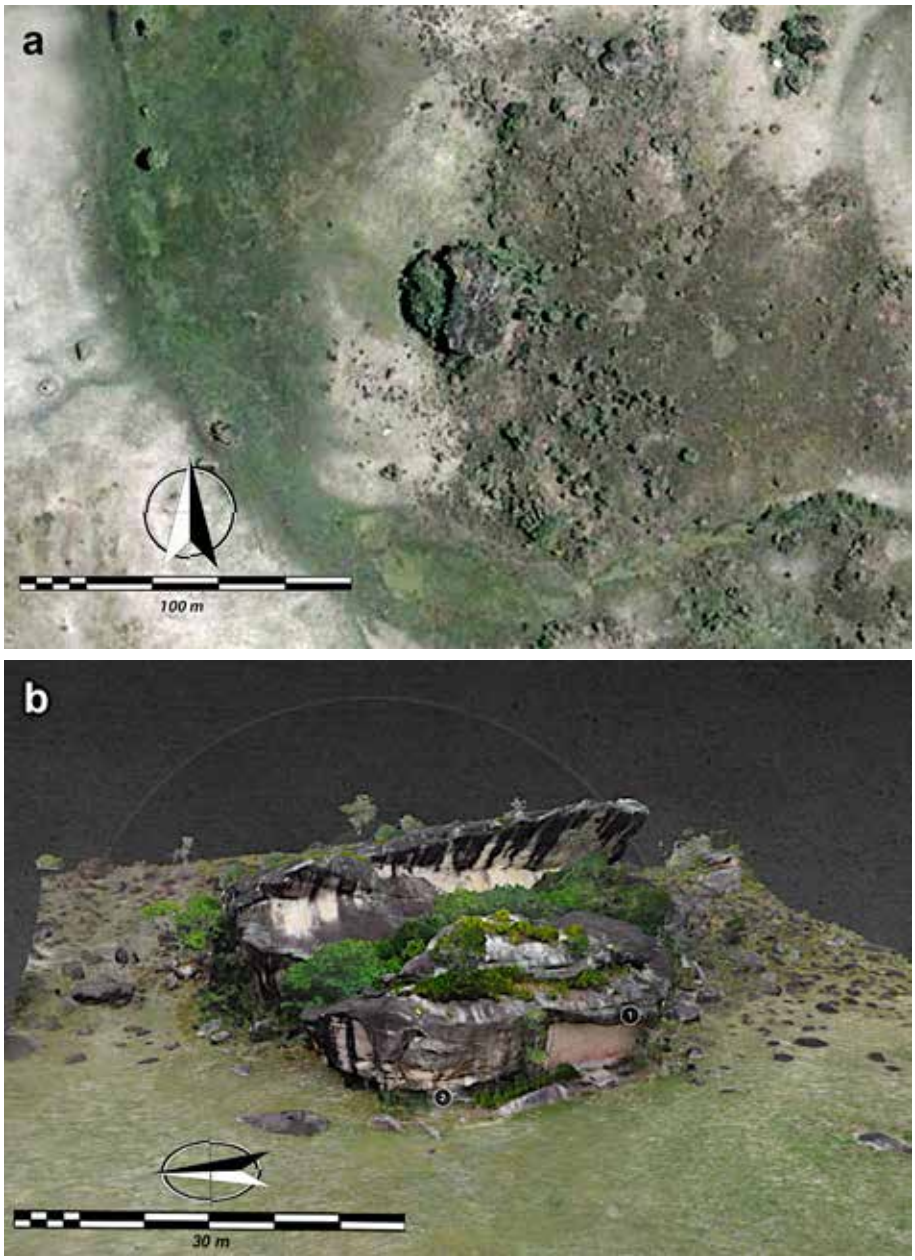
Landscape survey

A walking survey performed in the surroundings indicated that the boulder, which stands isolated in a savannah area (Fig. 2), is flanked by two small ravines running northwest. A small fresh-water spring was detected on the northern side of the boulder. The site features several points of access, mainly controlled by the Arauák River Valley. A large ferrous outcrop with a high iron oxide content was found between 600 and 1000 m west of the boulder (Fig. 3). We propose this as a possible source of the ochre used in the rock paintings. Smaller boulders were observed nearby (Fig. 4). The initial walking survey showed that the boulder in question featured a privileged position over the landscape, affording generous access from and

magnificent views over the savannah while at the same time highlighting impressive mountain views of Akopan Tepui to the west as well as of the Upuigma and Angasima Tepuis to the east and southeast respectively. A 3D photogrammetric image was obtained using a drone and a digital camera with a helicopter for a better understanding of the boulder shape and its position on the landscape (Fig. 4a).

The vegetation surrounding the boulder mainly comprises small grasses and bushes characteristic of medium-height savannahs between 800 and 1500 masl (Huber 1995). In some places, vegetation is almost nonexistent. Algae, lichen and moss cover most of the boulder walls. A few bushes plus small vegetation grow around and on it. The boulder is round, averaging 40 m in diameter, with an elevation above ground level ranging from 8 to 12 m. It features a distinctive crack of about half a metre, running north, which splits the structure in two (Fig. 4).

There are several overhangs on the boulder, most containing pictograms, in addition to a small cave towards the southeast side that apparently contains no rock paint residues (Fig. 5). A particular area on the south of the structure suggests a comfortable shelter space. It offers the boulder's best protection from all weather conditions. This space averages eight m long, four m wide and six m high. It has an opening on each side, the larger one facing southwest. The wall overhanging this space displays not only a large number of pictograms but also traces of soot, perhaps a result of successive campfires. The soil on the surface of this shelter area is composed of fine sand. No animal distur-



Figures 4. *(a) Satellite image showing boulder's circular shape; (b) a photogrammetric 3D representation (see Fundacion Manoa 2023); numbers 1 and 2 indicate the 'principal' and the 'yellow panels' respectively. Image ©Digital Globe with additions. Image ©Fundacion Manoa/Sketchfab.*

Figure 5. *Boulder seen from the west, showing the 'principal panel'. A distinctive sharp rock feature can be appreciated at the top right corner of the boulder.*

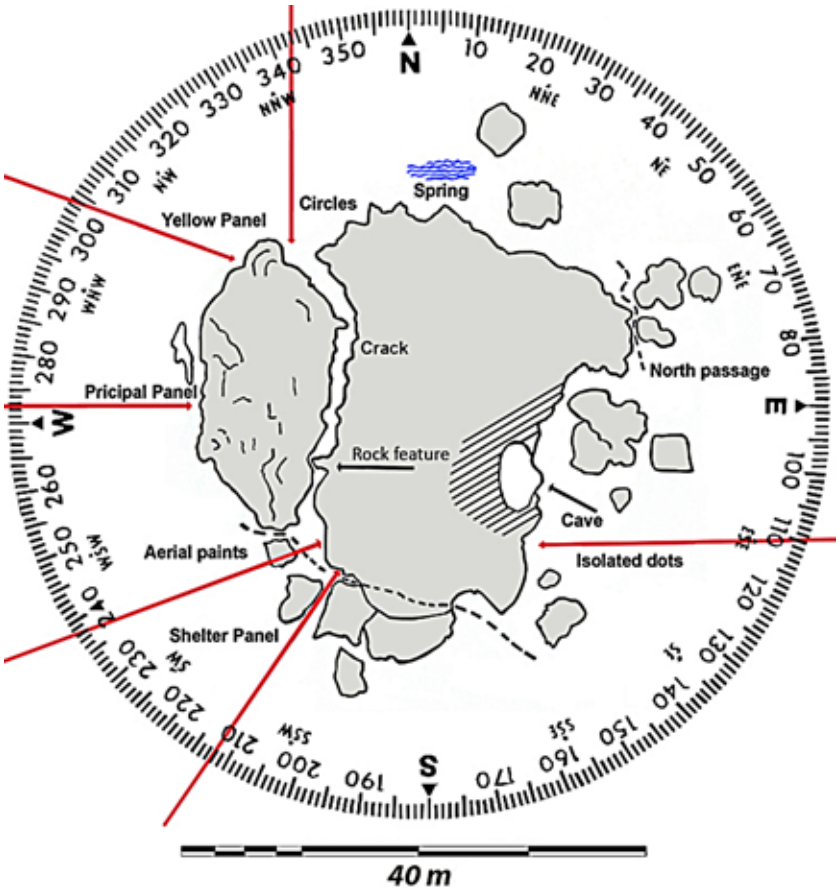


Figure 6. *Boulder plan circumscribed in a wind-rose showing the panels' locations and their geographic orientations.*

bances were observed.

Interestingly, the boulder serves as a watershed. It lies between the Arauák and Aparuren Rivers, which flow in opposite directions. The latter is a tributary of the Tirica River which in turn drains into the Caroní River. This fact positions the boulder at the centre of a natural walkthrough in this valley for game migration. Further studies might link this archaeological site to others still to be found within the same landscape area.

Boulder panels

The initial survey of the boulder panels showed that most of the pictograms in evidence are located close to the ground, principally towards the west side. Nonetheless, others are isolated and found in smaller numbers in other places, including high, unreachable areas. The condition of the boulder surface on the assorted panels varies. Some panels evidence smooth and dry surfaces while others evince a slightly rough condition. In a few places, lichen, algae and moss grow on the panels. Wasp nests and termite galleries appear in various places, some partly covering paintings. No evidence of surface preparation before the application of the rock art has been observed. Nevertheless, some mineral accretion deposits over the pictograms exist, and various of these could be useful for minimum dating (Bednarik 2002, 2007). In general, the walls present very stable rock with good rock art preservation. For graphic documentation, panel reference and orientation, a zenith view of the boulder from a satellite image was delineated and circled within a compass rose (Fig. 6).

The 'principal panel'

This horizontal panel, facing 273° W, is found beneath an overhang extending out about 1 m and an average of 10 m lengthwise. It rises 4.5 m above ground (Fig. 7). The surface presents no major fractures. A small crack in the rock marks the sandstone on the left side. Although the rock is fractured in a few other places, it is otherwise smooth and dry. The pictograms are mostly located in the lower half of the

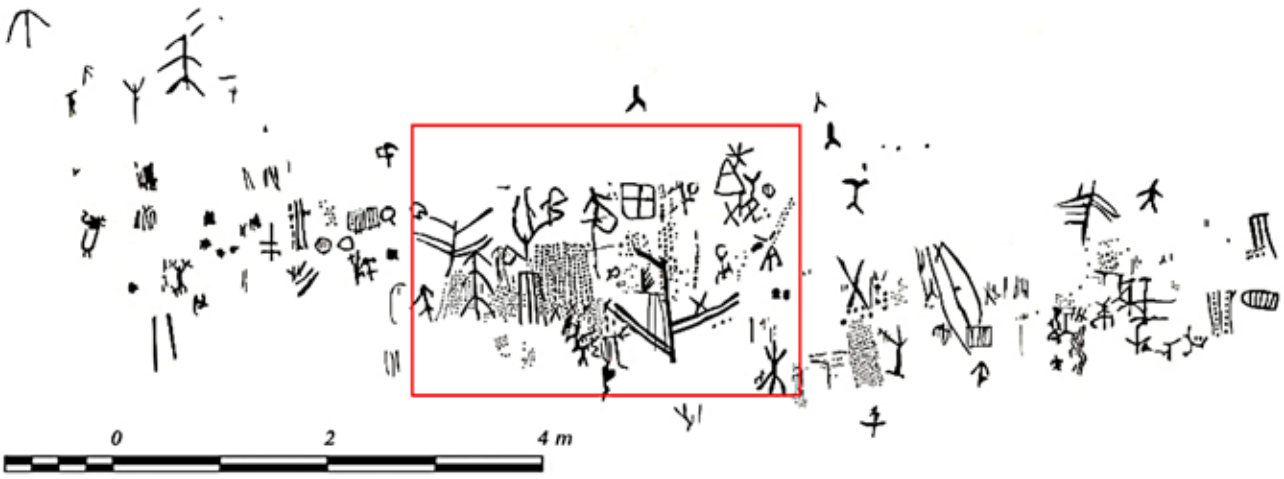


Figure 7. *Main panel showing digitally traced motifs obtained by using Photoshop; the red rectangle is shown in the following image.*

panel. Nonetheless, a few isolated motifs are located as high as 3 m. (During the most recent trip, in February 2023, an animal not yet identified was found to have excavated a large hole at the 'principal panel's' base, showing no pictograms buried beneath the sediment.)

The initial survey indicated that most of these pictograms are likely finger-marked (Fig. 8). In some places, the amount of ochre applied would suggest the use of the entire hand. Most of the traces exhibit varying levels of saturation and intensity. However, according to the Munsell colour system, these traces belong to the red-orange range, with a lightness value between 1–7 and a hue between 7.5R and 10R, indicating a predominantly red colour with a slight orange hue. There is no current evidence suggesting the use of the pictogram painting technique on this or other panels on the boulder, although some discontinuous lines were observed. While the more common wet-applied technique results in continuous and even paint application on rough rock surfaces, handheld dry pigment pieces applied to rock surfaces (like a crayon) have also been used to create motifs. When examined with a hand lens, dry-applied drawings may appear discontinuous (Whitley 2005; Bednarik 2007).

In addition, many motifs are superimposed. The panel, very well preserved, displays a few anthropomorphs. Instead, non-figurative motifs such as dot patterns, penniforms, tectiforms, cruciforms, claviforms, pectiforms, scalariforms and geometric motifs representing quadrangles and triangles dominate. Graphic documentation of the panel was accomplished by combining photographic imaging and computer enhancement. Tracing was digitally performed using Photoshop and DStretch. The results max-

Figure 8. *(a) Main panel detail selected from Fig. 7; (b) DStretch enhancement (RGB) showing superimposition of motifs.*

Figure 9. *'Yellow panel' image.*

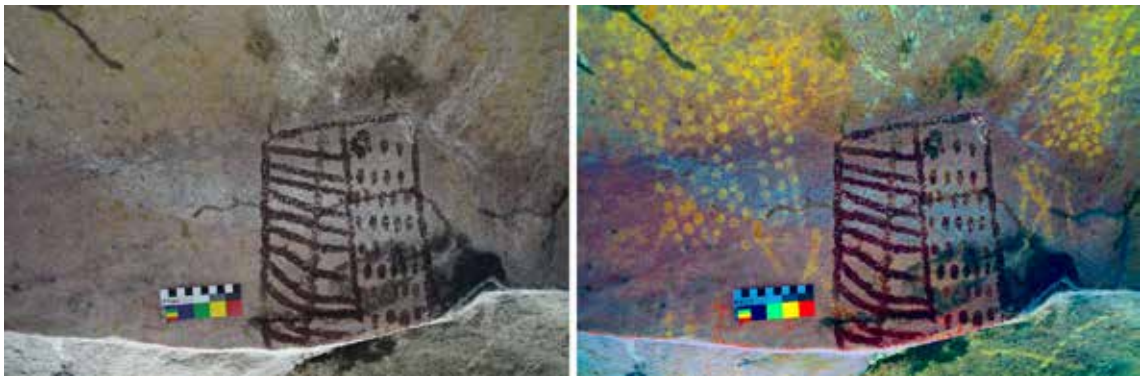


Figure 10. *'Yellow panel' detail of the roof shows a geometric figure processed with DStretch showing barely visible pictograms, which might suggest ochre decay and production sequence over time.*

Figure 11. *'Yellow panel', showing some of the digitally traced motifs extracted with Photoshop.*

imised the visibility of many motifs hidden from the naked eye. Most figures were extracted digitally for preliminary typological classification using Photoshop and DStretch analysis (Fig. 8b).

The 'yellow panel'

This panel lies on a small overhang resembling half a tube. It is on average 1.3 m high, 5 m long, facing 304° NW, a few metres away from the principal panel. Both panels belong to the same large rock that broke off the boulder, splitting it into two pieces. The 'yellow panel' offers a small shelter from the rain for a few seated people (Fig. 9). The rock surface is slightly rough but dry with a distinctive yellowish colour, perhaps derived from mineral accretions on its surface. Based on the preliminary survey, it has been observed that the techniques used in this section are comparable to those employed in the main panel, including the use of finger-marking. Notably, certain colour marks on this particular section are significantly darker than those found on the main panel. These marks fall within the red-orange range according to the Munsell chart. Some variations may be due to the decomposition or fading of the ochre, as evidenced by our use of DStretch (Fig. 10). In addition, our use of this technique has revealed the presence of superimposed patterns on this and other panels, indicating the use of graphics and a sequence of production over time (Keyser 2001). This suggests that the shelter may have been inhabited at different times.

The figures include dot patterns, tectiforms, penniforms, pectiforms, claviforms, scalariforms, zig-zag and geometric motifs such as quadrangles, open-angles and lines. A particular geometric figure with pattern lines and dots inside, resembling a labyrinth, stands above the rest (Fig. 11). It bends over the head when one stands inside this small shelter. Although the panel has organic disturbances in several places, such as roots or wasp nests, it is very well preserved overall. Graphic documentation of signs was accomplished by, once again, combining photographic imaging and computer enhancement, with digital tracing added via DStretch and Photoshop. Most visible motifs at this panel were extracted digitally for preliminary typological classification.

The 'shelter panel'

This panel, on average 5 m high by 3 m wide, is located in the shelter area previously described. Facing 212° SW, the rock face stands at the entrance of the overhanging roof, which makes this area perhaps one of the best spaces for habitation (Fig. 12). The surface is relatively smooth and dry, perhaps more so than any other panel. The preliminary survey indicated that the drawings here are also likely finger-marked with no continuous traces. Large ochre spreads suggest the use of the hands. Superimposition of images is evident, allowing detection and contrast of the more recent and previous motifs (Bednarik 2007). Colours are similar to those on the 'principal panel' in the red-orange range. A closer look during the most recent site visit failed to establish whether there are earlier motifs or patterning deriving from natural rock markings. A more detailed study is needed.

Mineral accretions are present, some covering the pictograms. Wasp nests were also found on the panel. The colour is terracotta red, similar to the colour appearing in the main panel. Some of the motifs on this panel are positioned in high places, suggesting the use of ladders or ropes. The motifs include a few anthropomorphs, dot patterns, serpentiforms, claviforms, cruciforms, tectiforms, pectiforms and 'Y' forms. An isolated motif with a therianthrope characteristic (Ryan 1999; Chippindale and Taçon 2004; Whitley 2005) was also discovered on the left side of the panel. The presence of soot in some places suggests the occurrence of hearths or the use of torches during site occupations, whether these were as brief hunting camps, use for ritual purposes during the painting events, or to serve for longer stays. In general, this panel is very well preserved. Most visible motifs were traced digitally for preliminary typological classification (Fig. 13).

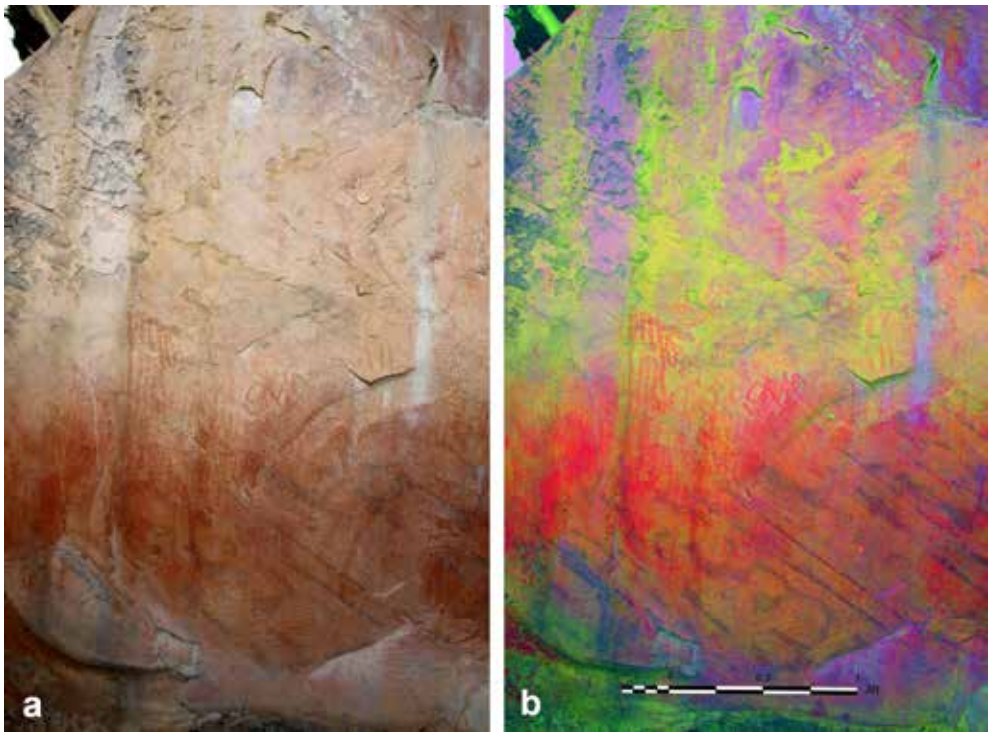
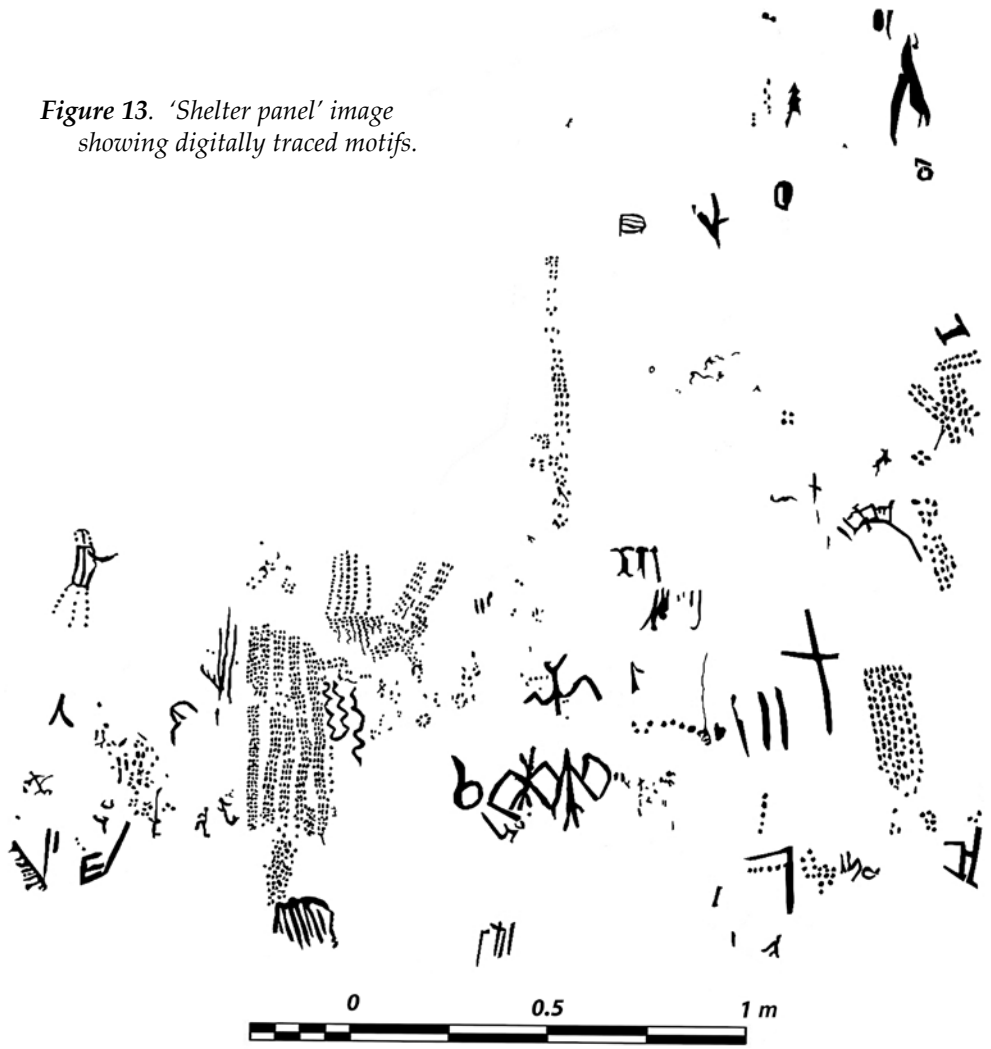


Figure 12. *(a) 'Shelter panel' image, (b) analysed with DStretch showing superimposed motifs.*

Figure 13. *'Shelter panel' image showing digitally traced motifs.*



'Aerial panel'

This small panel is located close to the shelter area previously described. Its average dimensions are 1 m high by 1 m long, facing 238° SW; it stands at about 7 m off the ground and is only accessible by climbing. The rock surface features what seems to be an accretionary layer, seemingly a silica skin

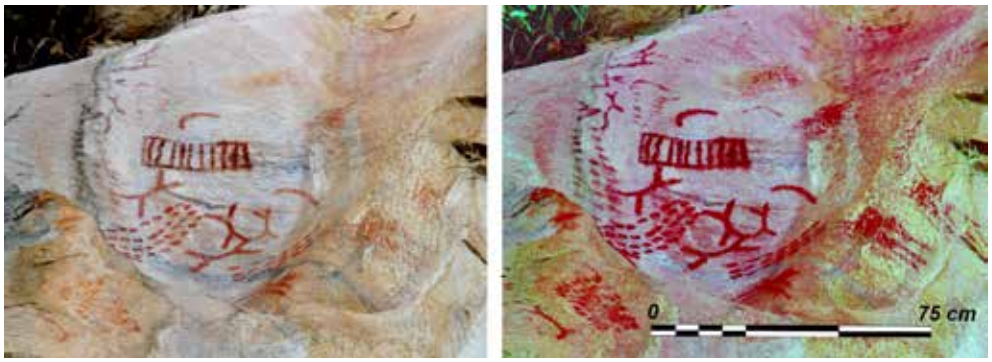


Figure 14. *'Aerial panel' image processed with DStretch.*

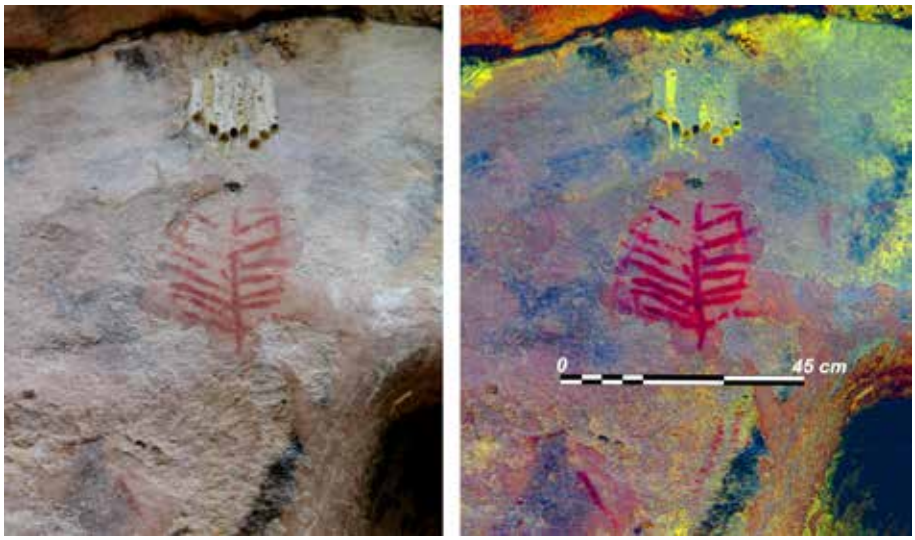


Figure 15. *The 'leaf' motif.*

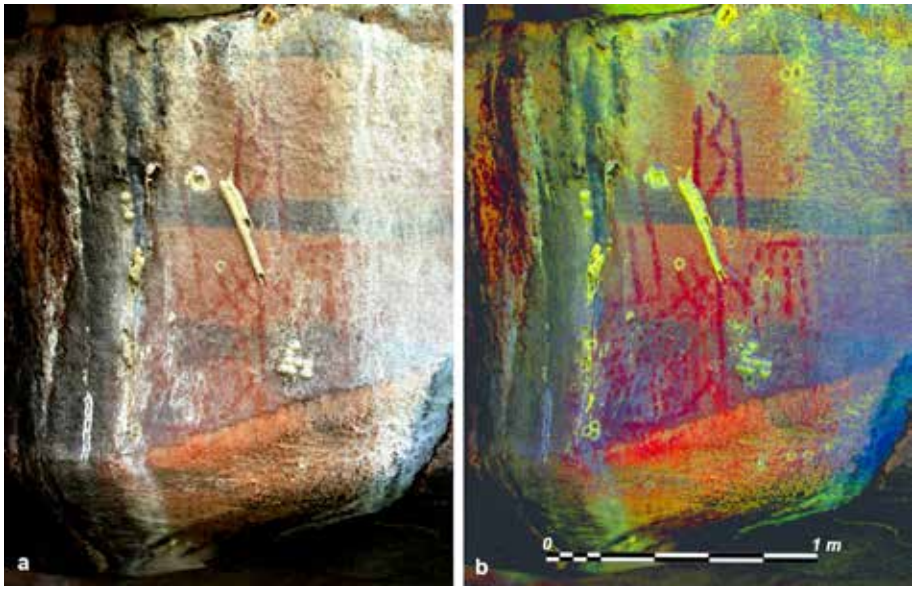


Figure 16. *'Mineral accretion panel' shown with DStretch.*

coating, with paintings both underneath and superimposing it. This could conceivably provide an element for chronological sequencing (Bednarik 2007). Typology, application technique and colours are similar to motifs previously described in other panels. Few superimposed images were evidenced, nor were disturbances present such as wasp nests. The motifs on this panel include dot patterns, scalariforms, tectiforms, half circles, penniforms and cruciforms (Fig. 14).

The excellent preservation of this small panel may be due to two factors: first, its protection from the elements by a rock roof, and second, its location at a height that makes it quite challenging to reach.

The 'leaf'

This distinctive motif, which is located near the aerial panel and may represent a plant, feather, leaf or a combination of parallel lines (Ritter 1994), appears to be somewhat separate from other features. The sign, a phytomorph motif, is located on a boulder at a high point about 6 m above ground level. It faces 238° SW and measures approximately 30 cm in height by 25 cm in width. Accessing the sign requires climbing, as it is not easily reachable. The sign is situated on a clean oval-shaped rock space, which may have inspired the artist to create this particular design (Fig. 15).

The style is similar to the signs previously described, and the colour belongs to the Munsell red-orange range, similar to those found on the 'principal' and 'shelter panels'. When analysed by DStretch, no superimposed images are present. Nonetheless, other motifs resembling claviforms and some faded figures below the motif and surrounding it become evident. It has various wasp nests overlying it, and its preservation is very good, similar to the 'aerial panel', perhaps due to its roof protection and inaccessible location.

'Mineral accretion panel'

These paints are located on the outside portion of

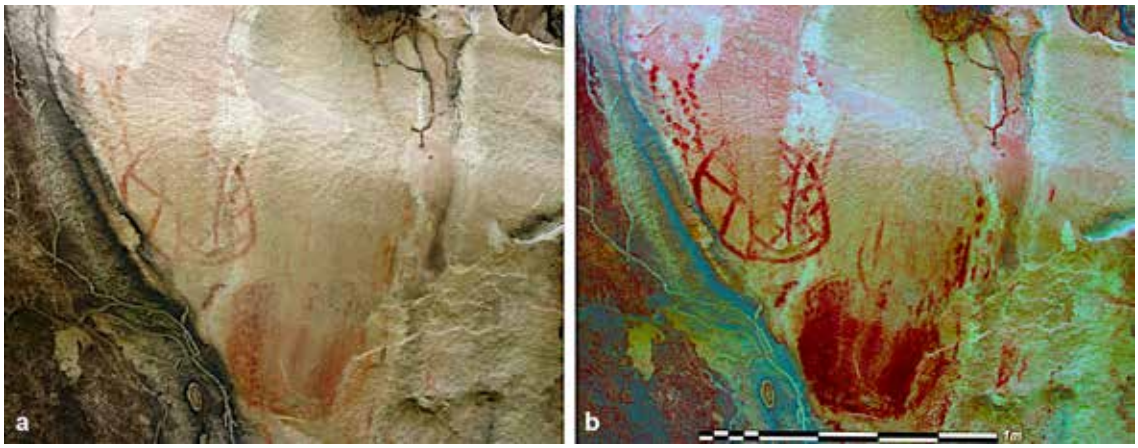


Figure 17. *(a) The 'circles panel', (b) analysed with DStretch.*

the 'yellow panel' facing 304° NW. The panel measures about 1.3 m in height by 1 m in width. As can be appreciated in the images, the panel is covered entirely by mineral accretions drained perhaps from a crack above them (Fig. 16). Also, wasp nests are placed over the pictograms. The pictograms in this panel can barely be seen.

Nonetheless, by using DStretch, most become visible (Fig. 16b). This panel may be useful in future research to help date these pictograms. One method of determining the age of rock art is by radiocarbon dating mineral accretions found on the same panel. Calcite and oxalate-rich mineral accretions, commonly found in rockshelters worldwide, can be dated using this method. However, it is important to note that relying solely on radiocarbon dating may not produce an accurate outcome, and it is recommended to test results by using multiple dating methods (Bednarik 2007).

The 'circles'

This pictogram group next to the 'yellow panel' faces 344° NW. It is 1.4 m high and 1.5 m wide. Circles, dot patterns and 'plant' motifs comprise the repertoire of this panel (Fig. 17). These figures and their style are similar to others on the boulder. The ochre here is fading away at some places but corresponds to the red-orange Munsell chromatic range. The lower circle motif has been executed by using a circular depression on the rock surface, similar to the 'leaf panel'. Mineral accretion is seen over the panel. The analysis with DStretch indicates that superimposed images are present (Fig. 17b). Although there are some organic disturbances this panel is well preserved.

Recent graffito

One historic graffito, made with charcoal, can barely be seen and is dated 1947. It was found on the main panel, thanks to Photoshop image enhancement. This graffito apparently was made by Capt. Felix Cardona Puig, who explored this area around 1946 (Huber 1995). Up to February 2023, no graffiti are evident on the shelter panels.

Typology and interpretation

The Upuigma Rockshelter panels feature a range of non-figurative motifs that dominate the typological classification, many of which are similar to those found in some other parts of Venezuela and northern South America (Padilla 1956; Dubelaar 1986a; de Valencia et al. 1987; Antczak and Antczak 2007; Sujo Volsky 2007). These signs comprise a wide range of motifs, from simple dots and lines to complex constructions, and are repeated in multiple places on the panels. While the precise meanings of these signs are not understood, they seem to offer insight into the cognitive abilities and beliefs of the Indigenous People of Northern South America.

In this preliminary study, we present the typology and distribution of the signs found on the boulder panels in Figure 18. This serves as an initial step towards future investigations that will delve into their origins and interpretation. Based on our stylistic analysis, the most prominent signs observed on the boulder panels include claviforms (30.96%), dot patterns (17.8%), penniforms (8.02%), 'Y' signs (6.7%) and tectiforms (5.96%). While these shapes may represent schematised objects or abstract concepts, it is currently challenging for us to determine which pictograms correspond to real objects. To address this, we need to establish a suitable theoretical and methodological framework to guide our examination of their origin and interpretation.

Within a specific cultural and temporal context, such as the Northern South American rock art tradition, there may be evidence of a shared understanding of certain symbols or patterns. However, it is speculative to assume a universal or timeless meaning beyond this context. As a result, it is evident that the signs in rock art have an intentional and implicit significance. However, at the same time, it is necessary to consider the cultural history and diversity of Native American groups when interpreting rock art and to approach these interpretations as hypotheses rather than de-

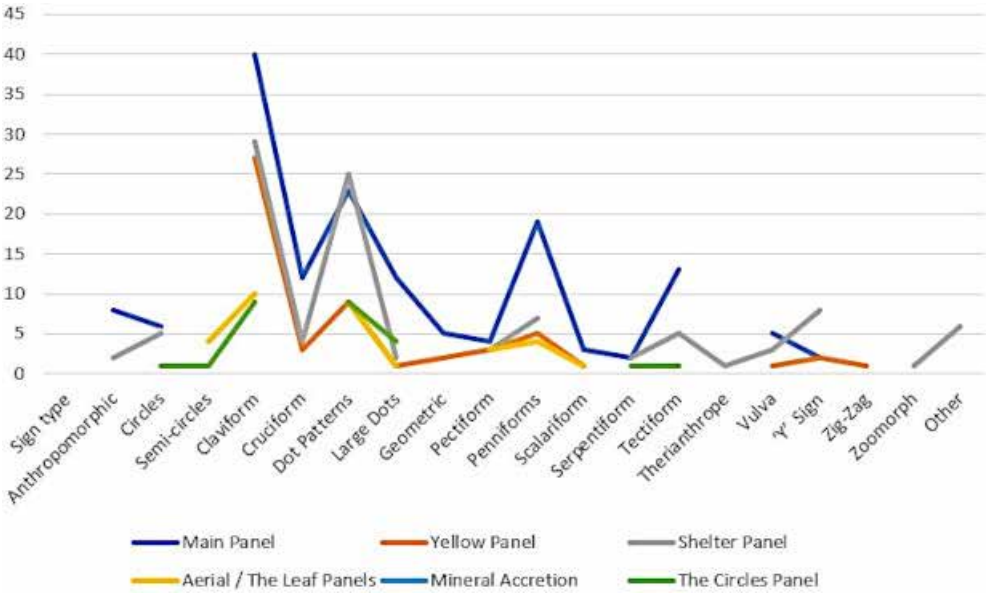


Figure 18. *Relational data from types of signs found within the various boulder panels, mostly according to von Petzinger (2017).*

finitive conclusions.

In the field of rock art interpretation, various approaches are employed to understand and analyse the beliefs, customs and social practices of the individuals responsible for its creation. It is worth noting that certain signs depicted in rock art may not fully represent specific objects but can simultaneously convey abstract concepts (Bahn and Vertut 1998). Despite the inherent ambiguity, recurring signs and patterns suggest a shared meaning or comprehension among the creators (Dibble 1989). Nevertheless, it is crucial to acknowledge the potential for multiple interpretations and consider the influence of cultural, chronological and environmental factors when deciphering these symbolic representations.

Upon examining contemporary San hunter-gatherer communities through ethnographic comparison, it has been proposed that certain animal figures depicted in rock art may represent species of significant importance in the San diet, such as the eland (Lewis-Williams and Dowson 1990). Similarly, studies conducted on Australian Aboriginal art reveal that many symbols found in their rock art convey representations of natural elements, including water sources and geographic landmarks (Morphy 1998). Unfortunately, in the context of our research in southern Venezuela, we have not encountered any evidence indicating that local communities in this region currently produce rock art as a cultural expression (Sujo Volsky 2007). Furthermore, our preliminary investigations into Canaima, Kamarata, Campo Grande and Yunek communities have yet to yield any indications of their association with this particular rock art site, with several community members expressing unfamiliarity with its existence.

Bednarik (2007) presents several approaches for interpreting rock art, encompassing iconographic, ethnographic and scientific perspectives. Additionally, he explores the use of universal motifs in palaeoart, which involves comparing and establishing connections between rock art from diverse continents and periods, even when there is no apparent cultural relationship. This approach is rooted in the human brain, visual system, neural processes, and motor actions, representing humanity's endeavour to create realities through artistic expression. It highlights the interconnectedness of fertility, hunting magic, healing and body decoration signs through specific forms of graphic universals. Notably, the inclusion of phosphene motifs is significant, as they originate from an autogenous and involuntary phenomenon of the visual system (Reichel-Dolmatoff 1978; Bednarik 1987, 2007; Ryan 1999; Lewis-Williams 2002; Nicholson and Firnhaber 2004).

Gell (1998) presents an intriguing perspective that suggests treating works of art, images and icons as entities with person-like qualities and social agency. This viewpoint emphasises the profound and inseparable connection between art and religion. Similarly, Reichel-Dolmatoff (1975, 1978) argues against viewing rock art merely as a form of decoration or communication. Instead, he highlights its close association with shamanic practices and beliefs. Examining the cultural and spiritual contexts surrounding rock art not only contributes to the field of anthropology of religion but also unveils significant links between art and religion within the indigenous cultures of Northern South America. This perspective sheds light on rock art's profound spiritual significance and integral role in these cultural and religious systems.

The interpretation of rock art poses a complex challenge that necessitates a multidisciplinary approach, taking into account visual, cultural and pre-Historical contexts. To address this complexity, our study draws upon the works of several authors, including Reichel-Dolmatoff (1975, 1978), Gell (1998), Bahn and Vertut (1998), Clottes and Lewis-Williams (1998), Ryan (1999), Lewis-Williams (2002), Bednarik (2007) and Clottes (2008). Additionally, we engage with the ongoing debates surrounding Lewis-Williams and Dowson's (1990) seminal work on entoptic phenomena in Upper Palaeolithic art. By closely examining

the distinctive styles of the pictograms on the boulder and employing various interpretative methods, we aim to contribute with further works to a more comprehensive understanding of the chronology, meaning, and contextual significance of these rock art representations.

Other rock art sites within the same geographical context

The first mention of the existence of petroglyphs in the Guyana region was made by the Dutchman Adriaan Van Berkel around 1695 (Dubelaar 1986a). However, the first explorer who reported seeing them with his own eyes was the German Nikolas Horstman, according to an account made by Alexander Von Humboldt on this fact (Schomburgk 1841). Both explorers Humboldt and Robert Schomburgk also referred in their narrations to the petroglyphs they sighted on their explorations through southern Venezuela (Humboldt 1826; Schomburgk 1923). However, it was the Venezuelan author Arístides Rojas who made the first study on petroglyphs in Venezuela (Rojas 1878). Later the English botanist and explorer Im Thurn classified the petroglyphs in the Guyana area, describing the depth of the incision, types of figures and manner of execution, also highlighting that the groups of petroglyphs observed were made probably by two well-defined cultures, separated both geographically and chronologically (Im Thurn 1883; Sujo Volsky 2007).

Our study has also identified several other significant rock art sites in the Canaima region, including new pictograms and petroglyphs (Figs. 19 and 20). While conducting a review of the available literature, including Im Thurn (1883), Koch-Grünberg (1907), Tavera-Acosta (1956), Padilla (1956), Dubelaar (1986a), de Valencia et al. (1987) and Sujo Volsky (2007), we found no mention of these same petroglyphs in previous studies of the southern Venezuelan region. Rock art in Venezuela is linked with that of the Caribbean, with similarities in design and technique, both in petroglyphs and paintings (Dubelaar 1986a, 1986b; Rivas 1993; Haviser 2000). In particular, the Middle Orinoco has been considered the springboard for several cultural and linguistic traditions that reached the Caribbean via the Lesser Antilles and the islands of Curaçao, Aruba and Bonaire. Nonetheless, the Caroni River basin rock art is still little known. As a result, studying these rock art sites will contribute to a more comprehensive understanding of the indigenous peoples of Northern South America and their cultural manifestations.

Of all the questions raised by South American rock art, perhaps those related to petroglyphs are the most difficult to solve. In Venezuela, the fact that they are distributed throughout the country, especially in highly inaccessible places, poses numerous challenges for researchers trying to comprehend their cultural origins, antiquity or possible significance. However, the evidence that is available up to now shows that there is a relationship between most of them, which supposes a common origin, perhaps responding to identical purposes, and whose design variants could be the result of the personal style of each artist and not because of distinct cultural interests (Arroyo 1970). For decades, the explanation of petroglyphs has haunted the minds of numerous archaeologists, anthropologists, naturalists and art historians. However,

Figure 19. *New petroglyphs on the shores of the Caroni River, previously unknown to rock art databases in southern Venezuela.*

Figure 20. *Incised grooves found close to the petroglyphs in Figure 19.*

despite the dramatic development of interpretive and technical models over the last 25 years, their function and meaning still need to be discovered (Antczak and Antczak 2007).

Conclusion

Rock art, in various forms, can be found in Venezuela and throughout the northern part of South America, including landscapes such as the savannah areas surrounding the *tepui* zones. The boulder's presence in the landscape may suggest sheltering, hunter-gathering and ritual activities. The geographical survey shows that this boulder with its pictograms stands in the middle of an awe-inspiring landscape. It must have served as a geographical reference point to those approaching from multiple directions. The boulder's morphology provides an area large enough to be used as a shelter, perhaps for a group of 15 to 20 individuals. The presence of walls and a ceiling blackened by fire serve to confirm its use for temporary habitation. Its elevated position in the middle of the valley also suggests its usefulness for watching game. The rupture of the boulder into two pieces, evidenced by a large north-south crack, indicates that there was a much larger overhang at the main and at the 'yellow panel' areas before some point in time.

A preliminary study of the pictograms indicates that no preparation of the panels preceded the application of the paints. We propose that the source of red ochre for the paints might be a sizeable ferrous anomaly detected between 500 and 1000 m away. Although some motifs appear isolated from the rest, many are superimposed. The large number of non-figurative motifs, similar to others found in the region, and their repeated appearance on the boulder panels suggest perhaps their origin in ritualistic activities. We researched the sign styles and compared them with others in Venezuela and the Guyana regions (Padilla 1956; Tavera-Acosta 1956; Cruxent 1960; Dubelaar 1986a; Scaramelli and Scaramelli 2009), and we found some similarities with both the pictograms and the petroglyphs. The geographical context of this rock art is an impressive landscape that might have powerfully impacted the artists. The number of motifs associated with ritualistic meanings suggests that this boulder could also have performed an important function related to the supernatural world. Thus, we glimpse cultural manifestations connecting the artists' societies with their landscape through their boulder paintings. This is the first time these pictograms have been preliminarily researched and contextualised in this remote place. Our initial results indicate that we stand before a relevant archaeological site. As a result, we underline not only the need to continue research there but also to continue exploring for similar rock art sites in the geographical context.

During the final stages of preparing this article for publication, we made an exciting discovery of several previously unknown archaeological sites in the La Gran Sabana region containing rock art located in close proximity to the Canaima village. These newly found sites contain additional pictograms and petroglyphs that exhibit striking similarities to the rock art styles discussed in this paper. This intriguing observation

suggests a possible connection between these newly discovered sites and the documented rock art sites in the Guianas, potentially indicating the presence of ancient trading routes (Braunholtz 1955; Homet 1958; Dubelaar 1986a). Given the significance of these new findings, we intend to publish a follow-up article in the near future to delve deeper into this exciting research.

Despite our unsuccessful efforts to locate traditional custodians of the discovered sites, we were granted access to these rock art sites through permits from the main regional Kamaracoto Indian authority. However, finding no evidence of recent use caused by local indigenous communities was surprising. Subsequent inquiries with people in various local communities confirmed their lack of awareness about these sites. In light of this, we propose introducing these rock art manifestations to the local communities through a community engagement project that includes establishing a local museum. This initiative would not only raise awareness about these significant archaeological sites but also contribute to their protection as valuable heritage sites. Furthermore, it would have the added benefit of stimulating the indigenous local economy.

Acknowledgments

We want to express our heartfelt gratitude to the numerous individuals and Pemón communities who have played a vital role in supporting our research in the Gran Sabana area. First, we sincerely thank Captain General Domingo Castro, Legitimate Sectorial Authority of the Pemón Kamarakoto People, for his invaluable assistance and collaboration throughout our study. We are also profoundly grateful to Mr Roberto Simon, Captain of the Canaima community, and Mr Jose Garcia 'Muerte', the Shaman of Canaima, for generously sharing their insights and profound knowledge of the Pemón culture.

Our appreciation extends to Mr Luis Montes from the Venezuelan Park's Institute (IMPARQUES) at Canaima village, whose support and guidance greatly facilitated our field research activities. We would also like to thank Mr Freddy Jimenez, Mrs Luisa Cabrera and Mr Miguel Cabrera for their unwavering assistance and warm hospitality during our time in the field. Special thanks are also due to Mr Antonio Hitcher, Ines Garcia and Ms Mary Garcia for their valuable contributions and kind support. Furthermore, we would like to extend our most profound appreciation to the Pemón communities of Canaima, Campo Grande, Kamarata and Yunek, particularly to Mr Arturo Berti, Mr Julio Moreno and Mr Daniel Fernandez, for their active involvement and cooperation in our research efforts. Their collaboration has been indispensable to the successful outcome of our study.

Finally, we would like to acknowledge Mr Renzo Rosso, from Only the Brave Foundation, for his kind support of the development of the research. In addition, special thanks to Professors Andrzej and Marlena Antczak from the Unidad de Estudios Arqueologicos de la Universidad Simon Bolivar and the Koninklijk Instituut voor Taal Land en Volkenkunde (KITLV), Royal Netherlands Institute of Southeast Asian and Caribbean Studies at Leiden University for their valuable support and guidance during all these years of research. We are also immensely grateful to the referees of *Rock Art Research* for their patience and helpful feedback, as their input has significantly enhanced the quality of our research. This research would not have been possible without the contributions of all these individuals, communities and institutions.

José Miguel Pérez–Gómez[1,2,*]
Roger Swidorowicz[3]
[1]Unidad de Estudios Arqueológicos, Universidad Simón Bolívar, Caracas, Venezuela
[2]Fundación Museo del Mar, Nueva Esparta, Venezuela
[3] Fundacion Manoa, Miami, U.S.A.
*Corresponding author: *fundacionmanoa@gmail.com*

REFERENCES

Antczak, M. M. and A. T. Antczak 2007. *Los mensajes confiados a la roca*. Universidad Simón Bolívar, Editorial Equinoccio, Caracas.

Arroyo, M. 1970. *Petroglifos del Guri*. Catálogo Nº 11, Junio. Museo de Bellas Artes, Cromotip, Caracas.

Bahn, P. and J. Vertut 1998. *Images of the Ice Age*. Facts on File, New York.

Bednarik, R. G. 1987. Engramme und Phosphene. *Zeitschrift für Ethnologie* 112(2): 223–235.

Bednarik, R. G. 2002. The dating of rock art: a critique. *Journal of Archaeological Science* 29(11): 1213–1233.

Bednarik, R. G. 2007. *Rock art science: the scientific study of palaeoart*. Aryan Books International, New Delhi.

Braunholtz, H. J. 1955. *Rock paintings in British Guiana*. Separata anais do XXXI Internacional de Americanistas, Sao Paulo.

Briceño, H. and C. Schubert 1992. Geologia. In O. Hubber (ed.), *Chimanta, Escudo de Guayana, Venezuela: Un ensayo Ecologico Tepuiano*, pp. 53–60. Oscar Todmann Editores C.A., Caracas.

Chippindale, C. and P. Taçon (eds) 2004. *The archaeology of rock art.* Cambridge University Press, Cambridge.

Clottes, J. 2008. *Cave art*. Phaidon Press Limited, London.

Clottes, J. and D. Lewis-Williams 1998. *The shamans of prehistory: trance and magic in the painted caves*. Harry Abrams, New York.

Cruxent, J. M. 1960. Pinturas rupestres del Cerro Papelón, Territorio Federal de Amazonas. *Boletín Informativo del Departamento de Antropología* 1: 22–25.

de Valencia, R., J. Sujo Volsky, R. Lairet and P. Alimaña 1987. *El diseño de los petroglifos venezolanos* (Meter Jenny, trad.). Fundación Pampero, Caracas.

Dibble, H. L. 1989. On depiction and language. Comment on 'The archaeology of perception: traces of depiction and language', by I. Davidson and W. Noble. *Current Anthropology* 30(3): 330–331.

Dubelaar, C. N. 1986a. *The petroglyphs in the Guianas and adjacent areas of Brazil and Venezuela; with a comprehensive bibliography of South American and Antillean petroglyphs*. The Institute of Archaeology, The University of California, Los Angeles.

Dubelaar, C. N. 1986b. *South American and Caribbean petroglyphs*. Foris Publications, Providence.

Fundacion Manoa 2023. Upuigma Rockshelter photogrammetric 3D model by J. M. Perez-Gomez and R. Swidorowicz. *https://sketchfab.com/3d-models/upuigma-rock-shelter-perez-gomez-swidorowicz-dc5eaaffe9ac47d3a5ecd5d0477191c0* (accessed 24 June 2023).

Galán, C. 1992. *El Clima*. In Hubber, O. (ed.), *Chimanta, escudo de Guayana, Venezuela: un ensayo ecologico tepuiano*, pp. 37–52. Oscar Todmann Editores C.A, Caracas.

Gassies, E. 2006. ***Éléments** sur l'art rupestre de la Guyane française.* In N. Sanz (ed.), *World Heritage Papers*, pp. 241–246. ICOMOS, Paris.

Gassón, R. 2002. Orinoquia: the archaeology of the Orinoco Basin. *Journal of World Prehistory* 16(3): 237–311.

Gell 1998. *Art and agenccy*. University Press, Oxford.

Greer, J. 2001. *Lowland South America*. In D. Whitley, D. (ed.), *Handbook of rock art research*, pp 665–706. Altamira Press, Walnut Creek.

Haviser, J. B. 2000. Archaeological excavations at the Savonet Rock Painting Site, Curaçao. *Boletín de la Sociedad Venezolana de Espeleología* 34: 1–5.

Homet, M. 1963. *The sons of the Sun*. Neville Spearman, London.

Huber, O. 1995. Geographical and physical features. In P. E. Berry, B. K. Holst and K. Yatskievych (eds.), *Flora of the Venezuelan Guayana* 1, Introduction, pp. 1–61. Missouri Botanical Garden Press, St. Louis.

Humboldt, A. 1826. *Viaje a las regiones equinocciales del nuevo continente*. Hecho en 1799 hasta 1804, por AL. De Humboldt y A. Bompland, redactado por Alejandro de Humboldt. Casa de Rosa, Paris.

Im Thurn, E. F. 1883. *Among the Indians of Guiana: being sketches chiefly anthropologic from the interior of British Guiana*. Kegan Paul, Trench & Co., London.

Keyser, J. 2001. Relative dating methods. In D. Whitley (ed.), *Handbook of rock art research*, pp 116–138. Altamira Press, Walnut Creek.

Koch-Grünberg, T. 1907. *Südamerikanische Felszeichnungen*. E. Wasmuth A.-G., Berlin.

Lewis-Williams, J. D. 2002. *A cosmos in stone: interpreting religion and society through rock art*. Altamira Press, Walnut Creek.

Lewis-Williams, J. D. and T. Dowson 1990. Through the veil: San rock Paintings and the rock face. *The South African Archaeological Society Bulletin* 45(151): 5–16.

Mazière, M. 1997. L'art rupestre amérindien de Guyane. In *L'archéologie en Guyane*, pp. 99–130. Edition APPAAG, Association pour la Protection du Patrimoine Archéologique et Architectural de la Guyane.

Michab, M., J. Feathers, L. Joron, N. Mercier, M. Selo and H. Valladas 1998. Luminescence dates for the Paleoindian site of Pedra Pintada, Brazil. *Quaternary Geochronology* 17: 1041–1046.

Morphy, H. 1998. *Aboriginal art*. Phaidon Press, London.

Nicholson, P. T. and R. P. Firnhaber 2004. Autohypnotic induction of sleep rhythms generates visions of light with form-constant patterns. In P. Firnhaber and A. Leete (eds), *Shamans in the interdisciplinary contex*t, pp. 56–83. Brown Walker Press, Boca Raton.

Padilla, S. 1956. *Pictografías indígenas de Venezuela*. Grabados Nacionales C.A., Caracas.

Prous, A. and L. Ribeiro 2006. Zone 3: Brésil (État du Piaui et sertão de serido exceptés). In *Rock art of Latin America & The Caribbean, Thematic study*, pp. 108–121. ICOMOS, Paris.

Reichel-Dolmatoff, G. 1975. *The shaman and the jaguar. A study of narcotic drugs among the Indians of Columbia*. Temple University Press, Philadelphia.

Reichel-Dolmatoff, G. 1978. Drug induced optical sensations and their relationship to applied art among some Colombian Indians. In M. Greenhalgh and V. Megaw (eds), *Art and society*, pp. 289–304. Duckworth, London.

Ritter, E. 1994. Scratched rock art complexes in the desert west: symbols for socio-religious communication. In D. S. Whitley and L. L. Loendorf (eds), *New light on old art: recent advances in hunter-gatherer rock art research*, pp. 51–66. Monograph 36, Institute of Archaeology, University of California, Los Angeles.

Rivas, P. 1993. Estudio preliminar de los petroglifos de Punta Cedeño, Caicara del Orinoco, estado Bolívar. In F. J. Fernández and R. Gassón (eds), *Contribuciones a la arqueología regional de Venezuela*, pp. 165–197. Fondo Editorial Acta Científica Venezolana, Caracas.

Rojas, A. 1878. *Estudios indígenas: contribuciones a la historia antigua de Venezuela*. Imprenta Nacional, Caracas.

Ryan, R. 1999. *The strong eye of shamanism: a journey into the caves of consciousness*. Inner Traditions, Rochester.

Scaramelli, K. T. and F. Scaramelli 2009. *El arte rupestre y su contexto arqueológico en el Orinoco medio, Venezuela. https://www.researchgate.net/publication/314230601* (accessed 10 June 2019).

Schomburgk, O. A. 1841. *Travels in Guiana and on the Orinoco during the years 1835–1839*. Walter E. Roth, Georgetown.

Schomburgk, R. 1923. *Travels in British Guiana 1840–1844*. (Vols I–II). Transl. by W. Roth (ed.), Formerly, Commissioner of the Rupununi and Pomeroon Districts, British Guiana. Daily Chronicle Office, Georgetown.

Sujo Volsky, J. 2007. *El estudio del arte rupestre en Venezuela*. Universidad Católica Andrés Bello, Editorial Texto C.A., Caracas.

Tavera-Acosta, B. 1956. *Los petroglifos de Venezuela*. Instituto de Antropología e Historia, Facultad de Humanidades y Educación, Universidad Central de Venezuela, Caracas.

Von Petzinger, G. 2016. *The first signs: unlocking the mysteries of the world's oldest symbols*. Atria Books, New York, NY.

Whitley, D. S. 2005. *Introduction to rock art research.* Left Coast Press Inc., Walnut Creek, CA.

Williams, D. 1985. Petroglyphs in the prehistory of northern Amazonia and the Antilles. In F. Wendorf and A. E. Close (eds), *Advances in World Archaeology*, Vol. 4, pp 335–387. Academic Press, New York.

RAR 40-1415