

https://dspace.org/

Dances with Zigzags in Toro Muerto Peru Geometric Petroglyphs as Possible Embodiments of Songs

Andrzej Rozwadowski; J Woloszyn

CAMBRIDGE UNIV PRESS
https://hdl.handle.net/10539/44713
WOS

Downloaded from a DSpace repository. https://dspace.org/

Dances with Zigzags in Toro Muerto, Peru: Geometric Petroglyphs as (Possible) Embodiments of Songs

Andrzej Rozwadowski & Janusz Z. Wołoszyn

Southern Peru is home to one of the richest sites with rock art in South America—Toro Muerto. A unique aspect of the iconography of the petroglyphs of the site is the figures of dancing humans, the so-called danzantes*, which are additionally frequently associated with geometric motifs, mostly variants of zigzag lines. Drawing upon intriguing data recorded during Reichel-Dolmatoff's research in Colombia related to the meaning of analogous motifs in Tukano art, as well as broader exploration of the sonic sphere in South American cultures and the thesis that Amazonian animism was a more archaic ontology over a broader area of South America, this paper suggests that the geometric patterns at Toro Muerto, with which the figures of* danzantes *are juxtaposed, may have been representations of songs. An extension of this hypothesis is the suggestion that some of the more complex compositions consisting of* danzantes *and linear geometric motifs were graphic metaphors of transfer to the other world.*

Introduction

Abstract or otherwise geometric motifs have always been among the most puzzling aspects of rock-art iconography. They have been created in virtually every corner of the world and in every period, from the Palaeolithic in Europe (Clottes 2008) through other periods (Namono 2011; Orton 2013) to recent times, for example in Australia (Spencer & Gillen 1899). Images possessing their direct referent in the real world admittedly may ultimately also feature a great complexity of semantic associations, but at least on the first interpretative level it can be said that they are a representation of that object (to refer, for example, to the image of the eland in South African rock art, whose real-life referent is the antelope, which, however, in San culture accumulates a very complex symbolism—Lewis-Williams 1981; 2001). With geometric motifs, their form itself does not directly 'hint at' such referents. Hence the significant diversity in their interpretations, some of which oscillate around the assumption that the geometrics are schematic representations of real objects (things or elements of the landscape), and others, by far the greater number, assuming that they connote exclusively abstract content, more complex and ambiguous.

Many specific interpretative proposals of this category of rock-art imagery have appeared over the years, and it would be impossible to list them all here. Suggestions include mythical ideas, a system of counting (Layton 1985, 451), a kind of alphabet, expression of male-female 'grammar' (Leroi-Gourhan 1968), vision-induced percepts (Lewis-Williams & Dowson 1988), signs of individual or group identity (Morris 1988, 115) or phenomena with more sophisticated symbolic connotations, such as the spiral as a representation of a vortex leading to another world (Whitley 1994, 17–19). Each time, interpretation of such motifs is conditioned by the art's specific context, sometimes suggested by the ethnography, sometimes being the result of applying both informed and formal methods (Taçon & Chippindale 1998). Ethnographic knowledge can also ultimately revise the assumption that we are dealing with phenomena that have no equivalent in material culture. A very good example comes from South Africa, where Hollmann (2014; 2017)

Cambridge Archaeological Journal 34:4, 671–691 © The Author(s), 2024. Published by Cambridge University Press on behalf of the McDonald Institute for Archaeological Research. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted re-use, distribution and reproduction, provided the original article is properly cited.
doi:10.1017/S0959774324000064 Received 4 Dec 2022; Accepted 31 Jan 2024; Revised 3 Dec 2023

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0959774324000064

demonstrated that at least some of the geometric/non-representational images at the Gestoptefontein-Driekuil Complex in North West Province depict decorative designs applied to the body, clothing, or bags.

The wealth of ethnographic knowledge can thus contribute significantly to clarifying the essence of the given rock-art motifs, and can constitute a kind of reservoir of possible worlds, i.e. such meanings of rock art that have occurred in human culture through history and that may be considered in interpretation proposals. With this study, we wish to expand this set of possible interpretations of abstract motifs in rock art, showing a hitherto little-recognized possibility of reading their meaning and function, namely demonstrating that they may also have been verbal-sonic representations. The sonic aspect of rock art has indeed been frequently commented on recently, but almost solely in relation to the acoustic properties of rocks, caves, or the landscape in general (Díaz-Andreu & Mattioli 2018—rich literature there), or the act itself of making petroglyphs (Rifkin 2009). An exception to this is the study of San rock paintings in the Western Cape in South Africa, in which Parkington and Paterson (2017) argue that undulations and zigzags associated with elephants may depict sounds produced by these animals. Interesting conclusions have also recently been reached by Boyd and Busby (2022), according to whom dots or lines emerging from or entering into the open mouths of anthropomorphic and zoomorphic figures in Lower Pecos River rock paintings denote speech and breath. Significantly, Boyd and Busby (2022, 29–30) make references to different examples of Mesoamerican iconography (Maya, Mixtec and Nahua codices) where such dots or lines (also spiral-shaped) possibly depict songs in visual form. These interesting examples refer to motifs which are directly associated with the mouths of humans or animals, and may be regarded as visualizations of audible phenomena. We propose something different. In our study we show that some geometric images could have been representations or embodiments of songs themselves, in their own right, independent of any depictions of mouths or bodies. We base this study on the case of the petroglyphs at Toro Muerto in Peru, while the source of our interpretative proposal is ethnographic knowledge, more precisely an ethnographic analogy from Amazonia, specifically the art of the Tukano (Tucano) people. We begin by defining the structure of the iconography of rock art and then try to read this structure from the perspective of Reichel-Dolmatoff's research on Tukano iconography. At the same time, we pay attention to new research on Amazonian ontologies that demonstrates the particular importance of the sonic sphere in Amazonian being-in-the-world (Brabec de Mori 2013; Descola 2013; Hugh-Jones 2017; Townsley 1993; Viveiros de Castro 1998; 2007; 2012).

Toro Muerto

Toro Muerto is one of the largest complexes of rock art in South America. The site is a desert gorge flanked to the east and west by hills and descending into the fertile Majes River Valley (see Figure 1), about 100 km (160 km by road) from the city of Arequipa. Its central area, covering around 10 sq. km, is strewn with thousands of volcanic boulders, with about 2600 boulders bearing surviving petroglyphs. The boulders include relatively small stones, 'decorated' with single motifs, and boulders weighing many tons, bearing dozens of diverse images on their surfaces. Interestingly, there are also cemeteries in close vicinity to this main concentration of petroglyphs, which may provide some insights, as we will show next, into the meaning of the petroglyphs.

Despite the significance of this complex for the region's archaeology, Toro Muerto has been investigated rather irregularly and superficially in the past decades, while interpretations regarding the dating, function and significance of the site and the images found there have received little consensus (Linares 1974; Núñez 1986; van Hoek 2003). This provided the impulse for us to undertake new research, which since 2015 we have been conducting through Polish–Peruvian collaboration. The works included a detailed geodetic and iconographic documentation of the entire site, as well as the first excavations at some of the boulders (Wołoszyn *et al*. 2019; 2020).

However, Toro Muerto is intriguing due not only to its size and the number of 'decorated' boulders, but also because of the uniqueness of its petroglyphs. In the most general of terms, they are geometric and zoo- and anthropomorphic motifs, but there is something special in this traditional classification. It concerns an almost overwhelming repetition of images of dancing human figures (known as *danzantes*), unique in the region, and an extraordinary accumulation of geometric patterns, most often in the form of vertical zigzag, straight and sinuous lines varying in width, sometimes with accompanying dots or circles. Significantly, the *danzantes* are very often juxtaposed with the geometric designs, often individually but also with their more complex arrangements. This aspect of the iconography of Toro Muerto's rock art can hardly be considered

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

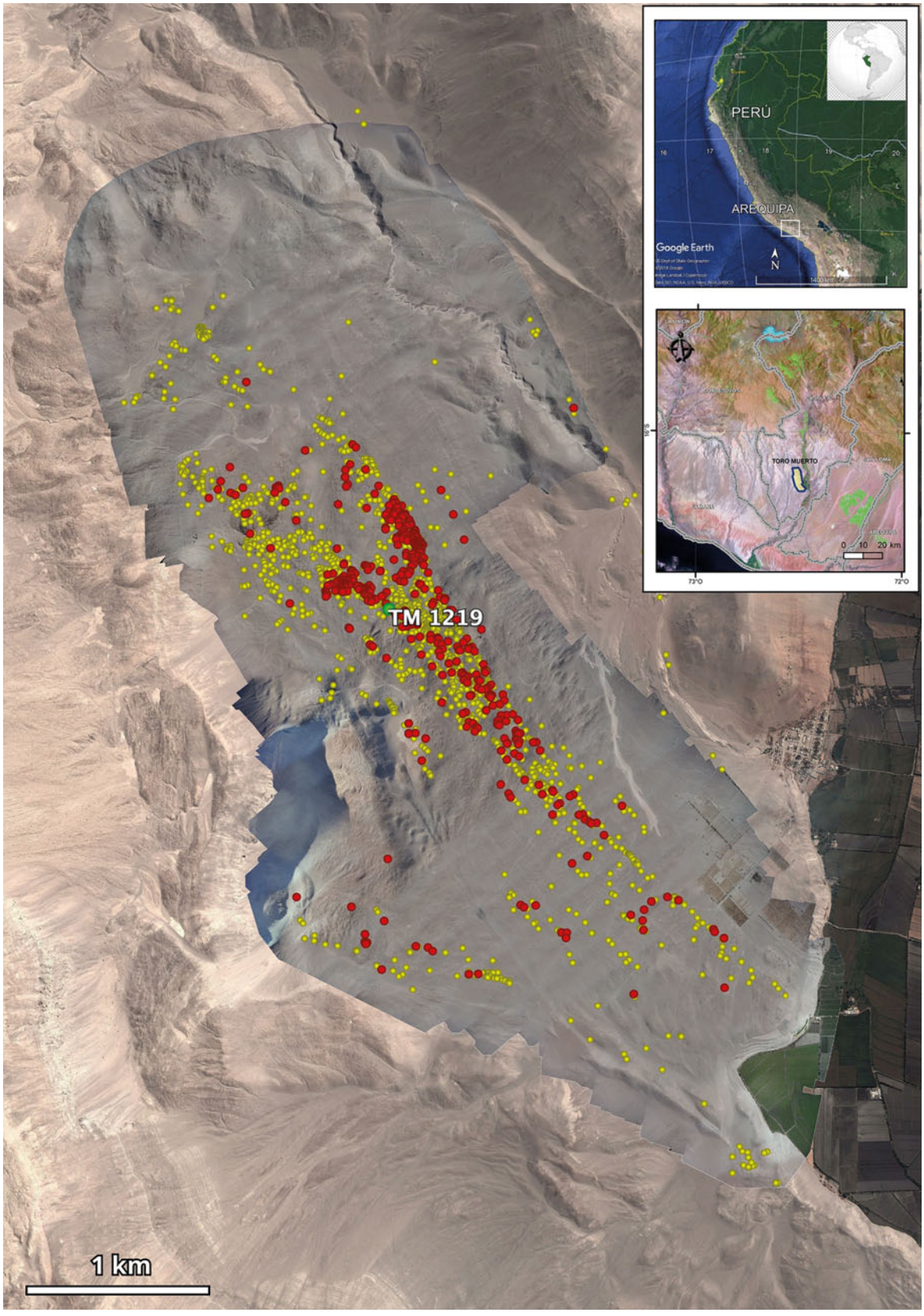


Figure 1. *Toro Muerto. Red points indicate boulders with danzantes, yellow points mark boulders on which danzantes are not engraved, and green point indicates the location of the TM 1219 boulder. (Map: J.Z. Wołoszyn.)*

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

incidental; perhaps it even constitutes the key to understanding the meaning and function of some of the petroglyphs in Toro Muerto.

The essence of this predominant association of anthropomorphic figures and geometric patterns, however, has not yet been determined. Drawing on analogies from other Peruvian sites and the US Southwest, it has been suggested, for example, that the zigzags associated with the dancing figures may symbolize snakes or lightning, and—considering the place's desert nature—could be related to torrential rains, fertility or water cults (Guffroy 1999). Zigzags as independent motifs, on the other hand, have been identified with representations of valleys, rivers, irrigation canals, roads or trade routes (Linares 1990; 1999), and the associated dots or circles with *apachetas* (stone cairns) placed along the traffic trails (van Hoek 2003). In this regard, it was pointed out that in the vicinity of Toro Muerto, at least from colonial times until the first half of the twentieth century, there was an important trade route for caravans (first of llamas, later of mules) used to exchange goods between the mountain area and the Pacific coast. In the context of our proposal, which is presented below, it is worth noting that Antonio Núñez (1986, 338, 361, 368), Cuban ambassador to Peru and one of the most important early researchers of Toro Muerto, suggested that some of the geometric motifs he observed at this site (zigzags, straight lines, points) represent 'musical or dance signs' (*signos musicales o danzarios*), or 'sound communication'. At the same time, he described the straight and zigzag lines marked under the eyes of some *danzantes* as 'weeping rain'. However, none of these hypotheses—which, moreover, usually took the form of peripheral observations or intuitions—have ever been further developed, and none convincingly explained the specifics of this iconographic configuration.



Figure 2. *The top register of one of the engraved canes published by Haeberli (2001, fig. 8a) showing three* danzantes, *a sequence of undulating lines, dots and double/triple bar symbols. Private collection. 9.4 cm high. (Drawing: J.Z. Wołoszyn.)*

Method: ethnography and time depth

To lend greater methodological precision to our proposal, we must first refer to the age of the Toro Muerto petroglyphs. Although the site may have been used by various local and supraregional groups up to historical times, which is evidenced by the archaeological material (primarily pottery fragments) present at the site and at nearby pre-Columbian cemeteries of various periods, the repeatability of the juxtaposition we are interested in, its monothematic character and stylistic coherence, favours the conclusion that at least these particular petroglyphs were created within a relatively brief period by representatives of a single cultural tradition. Rock art at Toro Muerto is also rich in depictions of animals, such as birds, snakes, Andean camelids and felines, which belong to the same petroglyphic context as *danzantes* and geometric designs, and—most importantly—a significant portion of these motifs, sometimes identical in form, appear in miniature version of a few centimetre depictions on several artifacts made of organic material. We are referring to the engraved canes, first published by Haeberli (2001, figs 8–10) (Fig. 2). According to this author, these artifacts came from unknown burial contexts looted by grave robbers at the La Chimba cemetery located in the neighbouring Sihuas Valley. One of them was radiocarbon-dated to 2102±45 BP (R 26167/2; 183–50 BC, 68.3% hpd;

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

364–315 BC and 206 BC–AD 1, 95.4% hpd), demarcating the most probable 'moment' of creation of the *danzantes* in Toro Muerto (Haeberli 2001, 91). Taking into account also other iconographic analogies—present on pyro-engraved gourd fragment and the fabrics of the culture, which Haeberli defined in his article as Siguas 1—the potential temporal brackets for the creation of these motifs should be linked to the end of the Early Horizon (900–100 BC) and beginning of the Early Intermediate Period (100 BC–AD 600).

The petroglyphs of interest therefore most probably date from not more than around 2000 years ago, for which—for obvious reasons—there is no ethnographic-historical context. As Taçon and Chippindale (1998) point out, the priority in interpreting such art should be formal analysis, i.e. concerning the images themselves, their mutual relationships, their place in the landscape, and other relations in regard to any available archaeological context, or the very act of their creation (Jones & Díaz-Guardamino 2018). Formal analysis is the stage of analysis that is genuinely able to demonstrate specific regularities in the iconography, but as Lewis-Williams (1972; 1974) showed long ago, and supported by subsequent studies both in South Africa (Lewis-Williams & Challis 2011; Lewis-Williams & Loubser 1986; Lewis-Williams *et al.* 2021) and elsewhere (Francis & Loendorf 2002; Rozwadowski 2017a; Schaafsma 1985), it is difficult on this basis alone to move on to semantic issues. The latter must be inspired by something, and ethnography or ethnohistorical knowledge in general often prove helpful.

Using ethnographic knowledge and analogies in explication of rock art has a long and complicated history (Baracchini & Monney 2018). Strongest criticism has always been evoked by reaching for analogies from regions clearly not connected geographically or chronologically with the research material, which at a certain point in history even brought about a kind of methodological impasse. However, more recent conceptualizations of this issue show that, even if researchers do not explicitly employ ethnographic methods, ethnographic or early historical data still often and significantly influence research progress (Blundell *et al.* 2010; Keyser *et al.* 2006; Smith *et al.* 2012). In certain cases, it has also turned out that a path towards understanding the rock art of a specific site or region may be to find in it a certain key motif, the unique feature (or its configuration) of which, when correlated with ethnohistorical sources, can offer new insights into the art in question.

The potential of such a strategy has been proven in South Africa (Lewis-Williams 1980; 1981; 1987; 2019), the Great Basin (Whitley 1987; 1992; 2000), or in relation to the Pecos River paintings in Texas (Boyd 1996; 1998; 2003; 2016; Hampson 2015), to name but a few of the better-known examples. Ethnographic sources can sometimes contain direct information about rock art (as it happened in, say, South Africa or the Great Basin), while in other cases the art studied may lack such direct insight, as is the case in Texas, where interpretation was based on correlation of the historical cultural context—linked to peyote hunt ritualism—with prehistoric iconography. This last example is particularly interesting, since it shows that using ethnohistory may prove effective even when there is a considerable temporal distance between the art in question and the ethnohistorical sources used. In the case of the Pecos River rock art, this goes back as far as 4000 years.

We propose a similar interpretative strategy for analysing the petroglyphs of Toro Muerto. In terms of iconography, we want to draw attention to the paradigmatic nature of juxtaposing *danzantes* with geometric motifs, although this—as we have mentioned—does not concern the association of *danzantes* solely with individual geometrics, but also with more complex structures, in which *danzantes* (or other human or anthropomorphic figures) are incorporated into more elaborate arrangements of geometric designs. One of them, fixed on the stone numbered TM 1219, is particularly outstanding, and it is the structure of this composition that inspired us to look at Toro Muerto rock art through the prism of ethnographic knowledge. Our initial iconographic clue, therefore, is the association '*danzantes*–geometrics', the meaning of which, however, we approach not by contemplating what the zigzag itself might have meant, but by attempting to understand the more general relationship between *danzantes* and geometrics, to which these more complex petroglyphic scenes may be the iconographic key, and Amazonian ethnography the source for reading this key.

Danzantes and geometrics

A *danzante* is a schematic representation of an anthropomorphic figure (usually 20–30 cm tall, occasionally larger) most often shown in a dynamic pose with one arm raised and the other lowered, on slightly spread legs (sometimes bent at the knees), with the head presented *en face* or in profile, with a headdress portrayed in the form of a few parallel lines (Fig. 3). The faces of these figures sometimes have clearly marked eyes and other signs (probably facial painting or

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

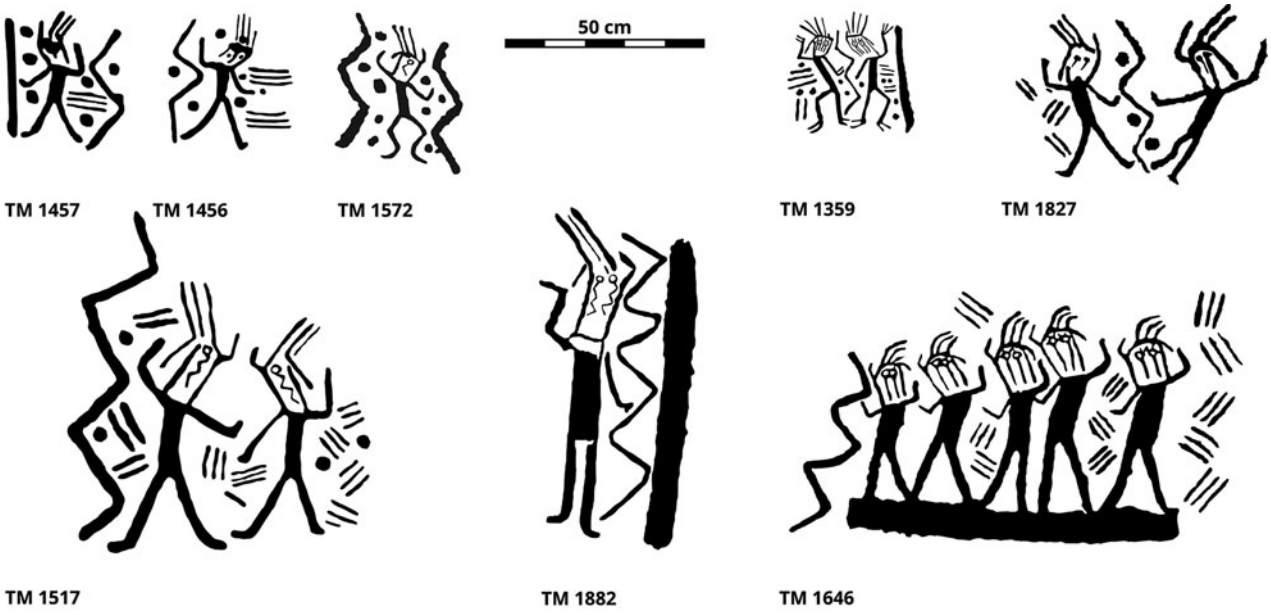


Figure 3. *Variety of* danzantes *in Toro Muerto. (Tracings: Polish-Peruvian research team, compiled by J.Z. Wołoszyn.)*

patterns on a mask, interestingly often also in the form of zigzag lines). Although some *danzantes* present rather static poses, their identification as dancers seems convincing.

Danzantes do not include features enabling unequivocal identification of their gender, although —comparing them to diverse representations of anthropomorphic beings in the pre-Hispanic Andean cultures, such as Nasca, Moche or Recuay, which are comparable chronologically with the Toro Muerto petroglyphs—they could represent male figures, either depicted naked, or with only their torso uncovered, or wearing a short garment on the upper part of the body and a loincloth. In these cultures' iconography women were almost always—apart from situations when portrayed naked (during sexual acts or giving birth)—depicted in long robes, covering the knees at least or reaching the ground (Proulx 2006, 122–9; Scher 2022; Wołoszyn 2014; 2019; Wołoszyn & Piwowar 2015). However, the absence of explicit gendered features of *danzantes* could be significant for our reading of them through an Amazonian cosmological perspective (see further discussion), where, especially in the Tukano origin myths, the main 'actors' are androgynous demiurges and there is no separation between genders (Hugh-Jones 2009, 45–6).

The *danzante* figure is practically an icon of Toro Muerto rock art. Elsewhere it is to be found in the rock art of the nearby site of Pitis, and exceedingly rarely in other locations. In Toro Muerto itself, depictions of the figure presented in a more or less schematic manner occur with varying frequency almost throughout, apart from the extreme northern sector (Fig. 1). Among the 2584 boulders with petroglyphs that we have documented, clear portrayals of *danzantes* can be found on 530 rocks (almost 20 per cent), on which the number of their certain depictions reaches about 1500. Most boulders feature one or two such figures, but there are rocks on whose surfaces there are more than 10, and one has approximately 40. *Danzantes* are found on their own, in pairs, or in larger groups of from three to nine figures.

Among the geometric motifs with which the dancers are associated are vertical zigzags (Fig. 3), sinusoidal and straight (Figs 4 & 5) or—less frequently—crenellated lines (Figs 6 & 7). In the proximity of the dancing figures themselves we also sometimes see the presence of double or triple bar symbols. The most common complement to *danzantes*, however, are zigzags, and as van Hoek (2003, 16) concluded, 'the zigzag and/or its meaning form the very essence of the "dancer"' in Toro Muerto. When considering the general issue of the juxtaposition of *danzantes* and vertical geometric patterns, then in the site as a whole they occur on 309 boulders, i.e. almost 12 per cent. These data are of course approximate, and only serve to provide a quantitative idea of the matter. After all, we do not know how the petroglyphs' creators conceptualized the landscape, whether for example a single boulder was for them a separate category. Neither can we be

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 4. *TM 1309.* Danzantes *associated with the set of vertical and sinusoidal lines. (Photograph: A. Rozwadowski; drawing: Polish-Peruvian research team.)*

certain to what degree today's documentation reflects the original state of the site—some such representations may be on rock surfaces buried under sand, while some have possibly been destroyed. Even if statistically that 12 per cent may seem not very high, when standing at the site it is impossible to avoid the impression that the juxtaposition in question is an important aspect of these petroglyphs, and bears the hallmarks of iconographic *redundancy* characteristic of cult sites (Renfrew & Bahn 2016, 416).

The boulder TM 1219

As we have mentioned, in many cases the *danzantes* are associated in Toro Muerto not only with single geometric designs, but also with their more complex arrangements, consisting of zigzags, sinuous, crenellated and simple vertical lines (Figs 4–7). Among these complex compositions, boulder TM 1219 attracts particular attention. Its iconography—however subjective the judgement—gives the impression of exceptional coherence.

TM 1219 is a massive boulder, with an elaborate arrangement of petroglyphs filling almost the entire surface of its approximately 5 m long face looking southwest (Fig. 8). The uniform colour of the petroglyphs and technique used for making them suggest that the composition was planned, and probably executed within a single creative act (cf. Dobrez 2016, 150). Petroglyphs are also present on the upper horizontal face of this stone (see Figure 8), but their style and subject matter differ from the images on the vertical face of the boulder, so it is likely that they were not created at the same time (which, of course, does not exclude the possibility that they were somehow related to the 'main scene'). In general terms, the scene could be described as a juxtaposition of vertical zigzag, lineal and sinusoidal patterns, in the centre of which (not the precisely measured centre, but the impression of being in the centre) is a large *danzante* figure of almost identical size to the wavy lines accompanying it to either side. On the right side of the 'scene' are also depictions of five much smaller *danzantes*, two birds and five quadrupeds. In terms of utilization of the rock surface, this is a unique composition—no other boulder gives the impression of such a coherent arrangement dominated by linear geometric motifs, of which the *danzante*, equal in size to it, is an integral part. Hence the suspicion that this stone may have been of special significance in the Toro Muerto rock art.

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 5. *TM 1808.* Danzantes *juxtaposed with vertical and zigzag lines. (Photograph: A. Rozwadowski.)*

The art of the Tukano: cosmos and songs

The art of the Tukano people of Colombia rainforest gained prominence in archaeology thanks to its being used for constructing a neuropsychological model aiming to explain the origin of abstract imagery in European Palaeolithic cave art (Lewis-Williams & Dowson 1988). Although the hallucinogenic aspect is undoubtedly an important attribute of Tukano art, in our study we draw attention to one of its other facets.

Reichel-Dolmatoff (1972; 1975; 1978; 1987) demonstrated that the content and origin of the motifs in the art of the Tukano was rooted in visionary experiences evoked by the ritual consumption of the psychoactive drink *yajé/yagé* (also known as *ayahuasca*, most often made from *Banisteriopsis caapi* jungle vine), which formed the basis and guarantee of insight into a world unseeable but known to exist. An important part of his research comprised interviews with local informants, an integral part of which was their graphic recording; the men interviewed drew colourful visions on sheets of paper, which they then explained to the anthropologist.

According to the Tukano these drawings were '*yajé* images', meaning that they showed patterns they had seen while in a state of narcotic intoxication induced by consuming entheogens. Concentric circles, dots, wavy lines, zigzags and crenellation motifs dominated among them. Structurally, these patterns were presented in bands and sequentially, for example a series of wavy lines followed by a band of zigzags, and then for example a band of dots, followed by crenellations, all of which could be interspersed with bands of circles. A substantial proportion of them had the sequences of bands arranged horizontally, although there were also cases of vertical arrangements (Reichel-Dolmatoff 1978, pls V, VIII, X, XXXII, XLII, XLIII) or juxtapositions combining vertical and horizontal bands (Reichel-Dolmatoff 1978, pls XVIII, XXI, XXIII, XXIX, XXXVI, XLI). Since the drawings' descriptions do not suggest that the patterns' orientation was of special significance for their authors, we wish to draw attention primarily to their banded structure (Fig. 9).

The meaning of the scenes drawn by the Tukano referred to the myth of the beginning, to stories of creation of the world and specific entities,

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 6. *TM 1255. At this boulder a* danzante *figure is associated with crenellated designs and straight and wavy lines with dots. (Photograph: A. Rozwadowski.)*

when the primordial spirit-gods (like Snake-Canoe) gave people instructions concerning the organization of earthly life. These were topics the Tukano regularly returned to during rituals, which implied dances and songs sung to the accompaniment of musical instruments. A ritual for them meant transferring to the time of the beginning. Although the Tukano's explanations suggested that the patterns they saw and reproduced were polysemic, some featured a more consistent and limited scope of connotations. One such motif was the double crenellation, of particular interest to us since it also constitutes an important component of the scene on boulder TM 1219 (Figs 8, 9A)—if looking at this scene as a kind of narrative, one can even get the impression that this motif 'starts' or 'ends' the entire composition. The Tukano explained that this figure is representing a Snake-Canoe, a mythical serpent-teacher, but importantly—when juxtaposed with other lines—it was also explained as a representation of cosmic spheres the shaman reached during his visionary journey. It was therefore a motif encompassing a much greater meaning integrating both transfer to the time of creation and the structure of the universe.

Although Reichel-Dolmatoff's research indicated that the images drawn by the Tukano were inspired by hallucinogenic visions, he demonstrated that they also referred to observable phenomena—for example, the spiral motif, symbolizing incest, originated in the imprint left in the sand by the tip of the ritual trumpet made from rolled bark, and the back-to-back double C motif, symbolizing all eligible marriage partners, was inspired by two reed fish traps put back to back as seen from above (Reichel-Dolmatoff 1978, 31). The motifs of Tukano art were therefore, to a certain degree, conventionalized, meaning that the forms they drew during the research were already to some extent attributed to forms known from earlier life experiences. Therefore, one cannot exclude that the usage of at least a portion of these images was regulated by predetermined structural-semantic conventions.

With this in mind, let us stress that the crenellation motif has significant territorial scope. It can be found in rock art from western North America to Mesoamerica (Hedges 1994; Loendorf & Loendorf 1995). Wright and Russell (2011) suggested that in this vast territory it may have symbolized the

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 7. *TM 1650. At this rock a* danzante *is part of a complex composition which includes straight, zigzag (also filled with dots) lines, and a crenellated pattern in the centre. (Photograph: A. Rozwadowski.)*

tiered cosmos and the cosmic axis binding it, and could therefore be linked to the belief that during a ritual there is a transgression of individual cosmic spheres. In proposing such interpretation, they referred to research by Carolyn Boyd (1996), who was probably the first to suggest competently such interpretation of this motif through the lens of the iconographic traditions of Central American cultures (later exploring this theme further: Boyd 2003; 2016). Such interpretation of crenellations—often also referred to as pipette designs (Whitley 1994)—is therefore consistent with the meaning ascribed to this motif by the Tukano. Crucially, this idea was developed further by the Tukano with the help of other motifs juxtaposed with the double crenellation, because of which compositions intriguingly similar to that on boulder TM 1219 emerged.

This complementing of the key motif with additional geometric designs was an important aspect of construing the content and context. Among the polysemic interpretations of these patterns, Reichel-Dolmatoff (1978) noted such explanations as 'thoughts of persons after taking *yajé*', 'mankind', 'life-giving fertilising energy', or 'multiplying power'. However, one explanation often repeated proved particularly intriguing. Namely, the Tukano saw in them the representations of songs (Reichel-Dolmatoff 1978, 56, 68, 74, 76, 78, 84, 92, 96, 98, 106, 116, 118, 128, 130) which were an integral part of the ritual, having also agentive power, and constituting a medium for transfer to the mythical time of the beginning. These abstract patterns therefore illustrated a graphically elusive sphere of culture: singing and songs. Bearing in mind the universality of this motif in the iconography of pre-Columbian America, we cannot exclude the fact that in this case, too, the construction of this motif may have been a matter of convention, and the representation of an idea known more broadly and earlier—that is, not a one-off interpretation proposed by Reichel-Dolmatoff's informants.

TM 1219: cosmological narrative?

The observations outlined above have intriguing potential for attempting to understand the logic of the juxtaposition 'humans–geometrics' at Toro

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 8. *Boulder TM 1219. (Photograph: A. Rozwadowski; tracing: Polish–Peruvian research team.)*

Muerto. The scene on boulder TM 1219 indeed presents surprising similarities to the Tukano drawings, in terms not only of individual motifs but also their arrangement. Remarkably, this similarity applies not to a single drawing made by Tukano during Reichel-Dolmatoff's research, but to the entire set of drawings created during this study. We therefore base our attempt towards a semantic interpretation of this composition through the lens of Amazonian art on the reoccurrence of motifs and the repetition of meanings the Tukano attributed to these images.

Considering the range of meanings of the different motifs, and the way in which meanings are constructed, it seems possible to hypothesize that the scene in question encodes cosmological content with the entire set of activities and phenomena

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

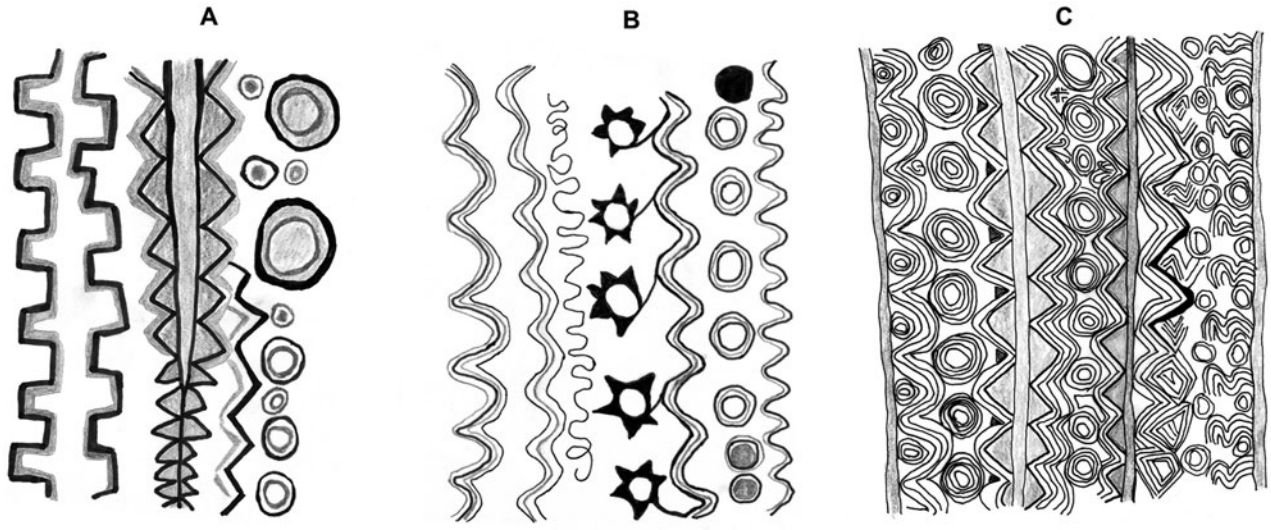


Figure 9. *Redrawing of examples of Tukano drawings (originally in blue, yellow and red), which refer to songs as well as mythological ideas. Both topics have often been represented in banded structures. (A, originally presented horizontally) double crenellated motif (in blue and yellow) is the Snake-Canoe, the central double zigzag pattern (red) also represents a snake, and concentric circles stand for suns. All the images were heard as a song; (B) this drawing was explained as a vision of flowers, songs, and fertilizing power of the Sun-Father; (C, originally presented horizontally) zigzag patterns (in red, blue and yellow) represent Snake-Canoe containing the essence of fertility (rings). (A, B, C: fragments of pls IV, XXIV and XXXI respectively in Reichel-Dolmatoff 1978. Drawing: A. Rozwadowski.)*

related to access to this content, i.e. access to the cosmos. The logical conjecture to follow this is that the central *danzante* surrounded by wavy lines is actually 'surrounded' by songs, which—embodying energy and power simultaneously—were the source of transfer to another world (some Tukano drawings also show humans who are separated by folded lines or surrounded by curlicues, which were explained as representations of songs—respectively plates XIII and XL in Reichel-Dolmatoff 1978). The size of this human, equal to that of the accompanying geometrics, could consequently be seen as an expression of its union with this other world, to which a person was transferred by the songs.

As a whole, the TM 1219 scene could therefore have been a visualization of a visionary journey, a transfer to another world—to the time of creation, or an 'illustration' of the myth of the beginning. It does not necessarily depict a specific mythical event, but an evocation or reminder of that moment or time, via graphic metaphors of contact with that world and of being in it. The hypothesis that we are dealing here with the visualization of the myth of beginning could be seen by some as westernized, especially if we recall Viveiros de Castro (2007), who argues that origin myths are more a feature of the Western mythological perception of the world; that in indigenous Amazonian ontologies the focus is on the idea of transformation and transfiguration rather than on creation *ex nihilo*. However, Hugh-Jones (2009), who addresses Viveiros de Castro's position, shows that there are exceptions to this, and that Tukano mythology is one such exception. Some Tukano myths are indeed about creation from nothing, about gods who bring the world and its contents to life through their thoughts (Hugh-Jones 2009, 36). Viveiros de Castro's perspectivism, however, does not seem entirely contradictory in this regard, because the scene could also be seen, to use his words, as a graphic channel to 'a state of being where bodies and names, souls and affects, the I and the Other interpenetrate, submerged in the same pre-subjective and pre-objective milieu' (Viveiros de Castro 1998, 483).

This contact with the other world or the primordial time was temporal, since on each occasion it was achieved during a ritual (perhaps supported by hallucinogens sharpening the senses, including hearing). Given the uniqueness of this composition, it could have held a kind of instructional or memorizing function at Toro Muerto—after all, there is sufficient space in front of it for a large group to assemble (Fig. 10). Ethnographic observations from other parts of the world confirm at the same time that individual panels may indeed have held special significance within a single complex of petroglyphs (Ross &

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 10. *Boulder TM 1219 in wider landscape perspective. (Photograph: A. Rozwadowski.)*

Davidson 2006). Bearing in mind the possible sonic dimension of this scene, it could have been a kind of multisensory guide to discovering and exploring this other world, in which looking and seeing could have been integrated with other feelings and actions, such as listening or performing specific songs or dances. If the double crenellation opening or closing this composition really did symbolize the cosmos, or its spheres—as in the Tukano art and the other traditions cited—then it would be an important or even crucial component of the entire scene. After all, the cosmos constituted the space that the shaman explored in his visionary journey, while the wavy and zigzag lines could have been visualizations both of the songs taking him to that parallel reality as well as the sensation of being in that other world.

In the case of Amazonian cultures, the non-visual aspect of being in the world is indeed exceptionally important (Brabec de Mori 2013; Sullivan 1990, 431–40). Sound itself is a medium opening the way to the cosmos (Hugh-Jones 2017, 42), and song the shamanic path leading to it (Townsley 1993). Some shamans were called masters of songs who were able to see sounds (Sullivan 1990, 436–7). Petroglyphs depicting dancing humans should therefore be a logical complement to the kind of 'detached-from-time' narrative encoded in this scene, as confirmation that the ritual, of which dance and song are immanent components, transfers one to that realm. The relation between myth, ritual and song/dance may of course be complex, but as various studies on forager societies have shown (Lewis-Williams & Loubser 1986; Townsley 1993; Sekaquaptew & Washburn 2004), when combined they constitute a coherent whole, the core of which is cosmological knowledge expressed through metaphors that permeate each of the cultural spheres.

It is also worth noting that the feet of the central *danzante* on boulder TM 1219 are not fully human (they have three toes), indicating that in this case we may be dealing with the representation of a 'mythological' or, following Viveiros de Castro's (1998, 471) concept of cosmological transformism, a human/non-human subject with human and non-human attributes. Furthermore, the 'equivalence' in size with the surrounding patterns probably indicates its essential importance. In Amazonian cosmogonies there is frequent mention of 'first beings'

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064



Figure 11. *Image of Yuruparí shown as a dancer with curlicues of sound emerging from his body. (Drawing: Desana artist Luiz Lana. Redrawn by A. Rozwadowski after Umusĩ Pãrõkumu & Tõrãmʉ̃ Kẽhíri 1995, fig. 33.)*

from the time of the beginning, and they are ascribed crucial creational significance. In the myths of the Tukano these are the Sun-Father and Yajé-Woman, the latter described as a human–plant transmutation giving people the first *yajé* (Reichel-Dolmatoff 1978, 1–6). Intriguingly, the long 'staffs' held by this *danzante* resemble the rhizomes or lianas of *Banisteriopsis caapi* (*yajé*) (Reichel-Dolmatoff 1978, fig. 3), palm stems (Hill 2011, 11–13) or wild canes *Gynerium sagittatum* (Reyes-García & Fernández-Llamazares 2019, 463) from which, among other things, flutes were made.

Such key figures in Amazonian cosmogonies are said to be the sources and embodiments of sounds and songs (Wright 2015). An interesting analogy in this context stems from a drawing made by Luiz Lana (of the Desana people) depicting the mythical dancer Yuruparí, holding in his right hand a stick as long as he is tall (Umusĩ Pãrõkumu & Tõrãmʉ̃ Kẽhíri 1995, 235, fig. 33). Short lines radiate from his figure, constituting an illustration of sounds coming from his body, which simultaneously is the original source of sound (Fig. 11). Barcelos Neto drew attention to a similar simultaneous identification of the body with sound in the iconography of the Amazonian Wauja people (Brazil), writing that with certain images (e.g. a fish), that which is seen is simultaneously heard, while this hearing refers to songs: 'the same body that is filled with fish is full of songs' (Barcelos Neto 2016, 125). The manifestation of Yuruparí as both sound container and sound-producing being has indeed been noted by many researchers. Hugh-Jones (2017, 42), for example, reports that from holes in the Yuruparí body came all the music of Upper Rio Negro. It is therefore possible that at Toro Muerto as well the short lines seeming to emanate from the dancing figures (see Fig. 3) could have symbolized sound, while the dancer may have been not so much the music's performer as its source and embodiment.

Discussion and conclusions

The interpretation we propose is of course hypothetical, but the conclusions it leads to constitute a logically coherent counter-proposal to previous interpretations of some of the Toro Muerto petroglyphs. We suggest that zigzag lines could be representations of songs, which seems particularly intriguing given the repeated juxtaposition of these patterns with the figures of dancers at Toro Muerto, not only in the more complex compositions (Figs 4–8) but also in the less complex as well. Secondly, our interpretation suggests that the banded structures of geometric patterns could be representations of the cosmos—its spheres and events connected to its creation and its exploration, which could have come about during ritual ceremonies of which dance and song were the quintessence. The associations of *danzantes* with banded structures of patterns might embody visualization of being in this parallel world, emphasizing its authenticity and invariability. Petroglyphs encoding knowledge of this world could have been a type of canonical message as defined by Rappaport (1999).

In addition, if one looks at this situation from the perspective of Amazonian ontology, it may have been not so much about *visualization* of this other world as about *being* in it. After all, as Hill

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

(2011, 5) writes when commenting on the ritualism of the Wakuénai, 'shamanic singing is not a performance *about* moving or traveling around the cosmos; rather it *is* a set of journeys away to death and back to life …'. The Amazonian trope may therefore lead one to suspect that the meaning of the Toro Muerto petroglyphs could have been fluid, that it did not have to be about the precise representation of something concrete, but about evoking a certain state simultaneously constituting a transference to the other world. The petroglyphs may have recalled or embodied the dance, song and cosmos in which the dancer immersed him or herself. Therefore, the explanatory potential of the Amazonian analogy is contained in the number of aspects of Toro Muerto iconography that become meaningful in its light, as well as indicating additional spheres of culture that could have been relevant for the entire context of the functioning of this art—that is, the ritual implying dance and song, and the verbal and sonic spheres.

The features of the petroglyphs we indicated above speak in favour of a ritual context, coinciding with Ross & Davidson's (2006) conclusions regarding almost universally reoccurring features of rock art created in ritual contexts, namely: conventionalization and stylization of the petroglyphs, their accessibility to potential viewers and the possibility of direct interaction with them, and also the concentration of particular motifs in specific locations. At Toro Muerto, one can distinguish distinct sectors with a higher or lower percentage of specific motifs, and smaller, compact sectors characterized by almost monothematic iconography. The *danzantes*–zigzags juxtaposition, for example, is represented in particular abundance in the central-western sector of the site. In this relatively small area, home to 125 boulders with petroglyphs, as many as 65 contain images of *danzantes*. The total of 313 such figures in this sector accounts for almost one quarter of all *danzantes* at Toro Muerto.

The next conclusion arising from the analysis concerns the issue with which we began. If we accept that the zigzag patterns were representations of songs, then we are actually dealing with representation of the sonic sphere of culture. Apart from the sonic contexts of rock art hitherto suggested, such as landscape, the act of making petroglyphs, or depictions of breath, it seems possible therefore that sound could also have been contained in the iconography, while a petroglyph may have been its embodiment. Viewing specific images and sensory interaction with them could therefore have evoked more complex reactions than just visual (cf. Jones & Díaz-Guardamino 2018). Perhaps the petroglyphs were also 'heard', evoking sonic associations and memories. They could also have had identity value, since songs were often recognized as the property of specific tribes, smaller groups within them, or even individuals.

What obviously remains a question is whether the Amazonian cultural context (recorded only in the twentieth century) should be perceived as the direct source of this kind of iconography in southern Peru (dated almost 2000 years earlier). The assumption that we are dealing with the transfer of a complete cultural package from across the Andes, implying an analogous cosmological idea and the associated iconography, which was somehow transferred and adapted in the region of the Majes Valley, seems excessively hypothetical. However, the perception of Andean cultures as totally separated from the Amazonian world is being questioned more and more frequently (Wilkinson 2018, and it seems that the 'Andes–Amazonia divide' that has taken shape in archaeological and anthropological discourse is more an academic construct than a description of a situation actually existing through history (Pearce *et al.* 2020). In regard to the relations between these areas, researchers point out—among other things—that not only are there evident imports (e.g. remains of plants and animals originating from the Amazon rainforest and found on the coast: Wilkinson 2018), but also certain significant similarities in terms of cosmological ideas and themes, probably reaching back to distant times (Hornborg 2020, 61; Quilter 1990). This is linked to the view that the animism associated today with Amazonia could have been a more archaic ontology over a broader area of South America, while different ontologies characterizing Andean cultures (termed *analogisms*: Descola 2013) may be but a relatively recent 'innovation'. As Hornborg (2020, 61) writes, until the colonial conquest, Amazonia was a dense network of settled and hierarchical polities, comparable to those of the Andean region. It was an area inhabited by complex societies settled in different parts of the tropical lowlands, among and between which trade flourished (including green-stone amulets, shell beads and snuff trays, for example). According to Descola's (2013) conception, the 'analogist' ontologies of the Andes were a response to the countless differences in stratified pre-modern societies. As Hornborg (2020, 62) continues, Amazonian animism and Andean analogism should therefore not be seen as timeless and inseparable, but as different responses to local divergences that arose after the conquest of societies that once belonged to the same continuum.

Therefore, considering how important the sonic sphere, including songs, is in the cultures of both

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

Amazonia and the Andes, it is possible that the phenomenon of graphic depiction of songs in the form of lineal/geometric patterns might not be unique, and such a convention may also have existed in various cultures of this vast area in the past. Even if Reichel-Dolmatoff's research showed that the images drawn by the Tukano were stimulated by visionary experiences, their repetition in the drawings of various informants may suggest that they were not unique visions recorded during his ethnographic research. Of course, their hallucinogenic origins cannot be excluded, especially given the synesthetic nature of hallucination, in which the stimulation of one sense causes the automatic experience of another sense, that are finally 'confused' (Cytowic 2002; Hugh-Jones 2017; Horowitz 1975; Klüver 1942; La Barre 1975; Lewis-Williams & Dowson 1988, 211; Siegel & Jarvik 1975). Hearing colours, feeling sounds and tasting shapes or words (Simner 2005) are among the common synesthetic sensations. Hearing images is another form of synesthesis. Klüver (1942, 180), for example, informs about a subject who 'saw' and 'felt' the sounds, and Cavallaro (2013) and Hampson (2015, 124–5, 128) provide further examples on the synaesthetic phenomenon of visualizing sounds or shapes of sounds. Also, it cannot be ruled out that this kind of convention of depicting songs went beyond the region of the Tukano culture and Amazonia. Perhaps the previous failures to recognize the possibility of such reading of these geometric patterns is a result of the fact that archaeological explorations of Tukano art have focused primarily on its hallucinogenic context. This in turn confirms the scientific truism that extracting specific information from the data available depends on the questions posed.

Taking the interpretation presented here as a hypothesis, one can also ask about the type of ritualism that might come into play at Toro Muerto. If this kind of iconography really did connote the idea of contact with the realm of spirits and the cosmos, then the possible functions of rituals associated with transfer to that other reality might concern activities such as healing, impact on the state of nature (weather), or contact with ancestors. The latter may have included interaction with 'mythological' or other divine beings, transference to the time of the beginning, but also contact with the dead or leading the dead to that land. All these concepts—'mythological beings,' 'time of beginning' or 'dead'—are of course Western descriptive categories. From the point of view of Amazonian perspectivism, 'mythological beings' and 'dead' could actually be seen as ontologically equal since, as Viveiros de Castro (1998, 485) puts it: 'the living and the dead are similar in so far as they manifest the same spirit'. This last possibility, i.e. transfer to the land of the dead, seems particularly interesting since in the immediate vicinity of petroglyphs at Toro Muerto there are a few, but heavily looted, large cemeteries. One of them is located at the foot of several huge boulders with petroglyphs of animals, stylistically similar to the main corpus of the rock art of Toro Muerto. Also the surface material collected at this cemetery relates chronologically to the postulated period (see above) of creation of the images in Toro Muerto. These are fragments of pottery, textiles and pyro-engraved gourds manufactured in the highly distinctive Early Nasca style (dated to the beginnings of the Early Intermediate Period). It is noteworthy that Haeberli (2001) linked the development of the local Siguas culture precisely to the influence of Nasca culture from the southern coast of Peru in the Arequipa region. The petroglyphs we are discussing could therefore be linked in some way or another with contact with the world of the dead. It is worth recalling that the canes with images of *danzantes*, birds, different animals and geometric motifs, mentioned at the beginning of the article (Fig. 2), also come from a burial context. Crenellation patterns, moreover, can also be found on the headbands of those buried at Paracas Necrópolis (Frame 1991), so the motif may be seen as related to the other world. Similar patterns are also present in the textiles associated with Siguas culture (Haeberli 2001; 2002). Future examination of the cemetery at Toro Muerto may shed additional light on this issue.

Toro Muerto is an enormous accumulation of petroglyphs. Even if a significant portion of them can be linked to a single cultural tradition, the thousands of engravings there could of course have encoded diverse meanings. Our goal is not to explain the entire rock art of the site using the hypothesis proposed here. Nor do we wish to claim that all zigzags at Toro Muerto should be interpreted as visualizations of songs, and all other geometrics as symbols of the cosmos (particularly when we bear in mind their potential polysemy). When regarding those scenes in which dancers are juxtaposed with specific geometric motifs, however, we suggest that our interpretation not only sheds new light on the Toro Muerto petroglyphs, but also opens up room for further discussion concerning ontology and social context of those petroglyphs as well as rock art elsewhere.

The ongoing debate about the materiality and ontology of rock art (Abadía & Porr 2021; Alberti & Bray 2009; Brandišauskas 2021; Porr & Bell 2012;

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

Sillar 2009; Zawadzka 2019) shows that rock-art images, representational as well as non-representational, are a medium with the potential to convey different information, not just the visual. In many hunter-gather societies, the rock-art images were argued to embody (with the potential to transmit) different non-material phenomena. In South African San rock art, supernatural potency *n/om* was embodied in the eland paintings through the fact that, at least in some cases, eland blood was added to the paint used to paint the image (Lewis-Williams & Dowson 1990, 14). According to San beliefs, *n/om* must be activated, and the songs, which also contain *n/om*, play an important role in its increase (Lewis-Williams 1981; 2019). We can imagine that images of eland may have been more potent when songs were sung in front of them. Similarly, among the Evenki in eastern Siberia, the agentive power *musun* [living energy] is associated with non-human beings, and is thought to manifest itself through sounds and materialized objects, including visual representations (Brandišauskas 2021, 4). Evenki believe that spirits communicate with humans exactly through, among other things, rock paintings and sounds (Brandišauskas 2021, 12). In North American rock art, a popular image is that of a bird interpreted as the mythological Thunderbird. As Hampson (2015, 148) notes, in Native American ontologies thunder is the sonic embodiment of the Thunderbird, so thunder actually 'is' the bird—a liminal creature which combines materiality and spirituality, including the sound of thunder. Another example, closer to the subject of our paper, is the integration of rock-art images with the rock surface (Lewis-Williams & Dowson 1990; Rozwadowski 2017b; Vastokas & Vastokas 1973) or indeed the rock itself (Lødøen 2010; Sieveking 1982), in terms of the affordances (Gibson 1979) of a rock's 'natural' properties, like shape, size, hardness, but also its acoustic qualities (Díaz-Andreu & Mattioli 2018; Ouzman 2005). As Gibson (1979, 127) says (cited by Ingold 2000, 428), 'each object offers what it does because of what it is'. Materialization of non-material into the form of a rock-art image could therefore be inspired by 'natural' properties of the object, which, however, are not 'natural' from the viewpoint of animistic cosmologies (Bird-David 1999; Descola 2013; Viveiros de Castro 2012). In our research we did not notice any sonic qualities about the boulder on which the main composition TM 1219 is engraved. However, we cannot exclude the possibility that the affordances of its environment, including its sonic aspect, were equally as significant as the visual component, but this has yet to be demonstrated.

Acknowledgements

The paper results from the 'Toro Muerto Archaeological Research Project' founded by National Science Center—grant no. 2016/23/B/HS3/01882. We thank the anonymous reviewers whose comments significantly improved the final text of the article.

Andrzej Rozwadowski
Faculty of Archaeology
Adam Mickiewicz University in Poznań
ul. Uniwersytetu Poznańskiego 7
61-614 Poznań
Poland
&
Rock Art Research Institute
School of Geography,
Archaeology and Environmental Studies
University of the Witwatersrand
South Africa
Email: rozw@amu.edu.pl

Janusz Z. Wołoszyn
Faculty of Archaeology
University of Warsaw
ul. Krakowskie Przedmieście 26/28
00-927 Warsaw
Poland
Email: januszwoloszyn@uw.edu.pl

References

Abadía, O.M. & M. Porr (eds), 2021. *Ontologies of Rock Art: Images, relational approaches, and Indigenous knowledges*. London/New York: Routledge.

Alberti, B. & T.L. Bray, 2009. Animating archaeology: of subjects, objects and alternative ontologies. *Cambridge Archaeological Journal* 19(3), 337–43.

Baracchini, L. & J. Monney, 2018. Past images, contemporary practices: reuse of rock art images in contemporary San art of Southern Africa, in *The Oxford Handbook of the Archaeology and Anthropology of Rock Art*, eds B. David & I.J. McNiven. Oxford: Oxford University Press, 1043–66.

Barcelos Neto, A., 2016. The Wauja snake-basket: myth and the conceptual imagination of material culture in Amazonia. *Mundo Amazónico* 7(1–2), 115–36.

Bird-David, N. 1999. 'Animism' revisited: personhood, environment and relational epistemology. *Current Anthropology* 40, 67–91.

Blundell, G., C. Chippindale & B. Smith (eds), 2010. *Seeing and Knowing: Rock art with and without ethnography*. Johannesburg: Wits University Press.

Boyd, C.E., 1996. Shamanic journeys into the otherworld of the archaic Chichimec. *Latin American Antiquity* 7(2), 152–64.

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

Boyd, C.E., 1998. Pictographic evidence of peyotism in the Lower Pecos, Texas Archaic, in *The Archaeology of Rock-Art*, eds C. Chippindale & P.S.C. Taçon. Cambridge: Cambridge University Press, 229–46.

Boyd, C.E., 2003. *Rock Art of the Lower Pecos*. College Station (TX): Texas A&M University Press.

Boyd, C.E., 2016. *The White Shaman Mural: An enduring creation narrative in the rock art of the Lower Pecos*. Austin (TX): University of Texas Press.

Boyd, C.E., & A. Busby, 2022. Speech-breath: mapping the multisensory experience in Pecos River style pictography. *Latin American Antiquity* 33(1), 20–40.

Brabec de Mori, B. (ed.), 2013. 'The Human and Non-human in Lowland South American Indigenous Music'. Special issue of *Ethnomusicology Forum* 22(3).

Brandišauskas, D., 2021. Rock art animism in Siberian taiga: contemporary rituality and materiality of Evenki hunters and reindeer herders. *Rock Art Research* 38(1), 169–82.

Cavallaro, D., 2013. *Synesthesia and the Arts*. Jefferson/London: McFarland & Co.

Clottes, J., 2008. *Cave Art*. London: Phaidon.

Cytowic, R.E., 2002. *Synesthesia: A union of the senses*. Cambridge/London: MIT Press.

Descola, P., 2013. *Beyond Nature and Culture*. Chicago/London: University of Chicago Press.

Díaz-Andreu, M. & T. Mattioli, 2018. Rock art, music, and acoustics: a global overview, in *The Oxford Handbook of the Archaeology and Anthropology of Rock Art*, eds B. David & I.J. McNiven. New York (NY): Oxford University Press, 503–28.

Dobrez, L., 2016. Theoretical approaches to rock art studies. *Rock Art Research* 33(2), 143–66.

Frame, M., 1991. Structure, image, and abstraction: Paracas necrópolis headbands as system templates, in *Paracas Art & Architecture: Object and context in south coastal Peru*, ed. A. Paul. Iowa City (IA): University of Iowa Press, 110–72.

Francis, J. & L. Loendorf, 2002. *Ancient Visions: Petroglyphs and pictographs of the Wind River and Bighorn country, Wyoming and Montana*. Salt Lake City (UT): University of Utah Press.

Gibson, J.J., 1979. *The Ecological Approach to Visual Perception*. Boston (MA): Houghton Mifflin.

Guffroy, J., 1999. *El arte rupestre del antiguo Perú* [Rock art of ancient Peru]. Lima: Instituto Francés de Estudios Andinos.

Haeberli, J., 2001. Tiempo y tradición en Arequipa, Perú, y el surgimiento de la cronología del tema de la deidad central [Time and tradition in Arequipa, Peru, and the emergence of the chronology of the central deity theme]. *Boletín de Arqueología PUCP* 5, 89–137.

Haeberli, J., 2002. Siguas 1: a newly identified Early Horizon culture, Department of Arequipa, Peru. *Textile Society of America Symposium Proceedings* 392, 252–61.

Hampson, J., 2015. *Rock Art and Regional Identity: A comparative perspective*. Walnut Creek (CA): Left Coast Press.

Hedges, K., 1994. Pipette dreams and the primordial snake-canoe: analysis of a hallucinatory form constant, in *Shamanism and Rock Art in North America*, ed. S.A. Turpin. San Antonio (TX): Rock Art Foundation, 103–24.

Hill, J., 2011. Fashioning plants: an Amazonian materiality in three movements. *Trans* 15, 2–30.

Hollmann, J.C., 2014. 'Geometric' motifs in Khoe-San rock art: depictions of designs, decorations and ornaments in the Gestoptefontein-Driekuil Complex, South Africa. *Journal of African Archaeology* 12(1), 25–42.

Hollmann, J.C., 2017. *The Cutting Edge. Khoe-San rock-markings at the Gestoptefontein-Driekuil engraving complex, North West Province, South Africa*. Oxford: Archaeopress.

Hornborg, A., 2020. Anthropology, in *Rethinking the Andes–Amazonia Divide: A cross-disciplinary exploration*, eds A.J. Pearce, D.G. Beresford-Jones & P. Heggarty. London: UCL Press, 58–66.

Horowitz, M.J., 1975. Hallucinations: an information-processing approach, in *Hallucinations: Behaviour, experience and theory*, eds R.K. Siegel & L.J. West. New York (NY): John Wiley & Sons, 163–95.

Hugh-Jones, S., 2009. Fabricated body: objects and ancestors in northwest Amazonia, in *The Occult Life of Things: Native Amazonian theories of materiality and personhood*, ed. F. Santos-Granero. Tucson (AZ): University of Arizona Press, 33–46.

Hugh-Jones, S., 2017. Body tubes and synaesthesia. *Mundo Amazónico* 8(1), 27–78.

Ingold, T., 2000. *The Perception of Environment: Essays on livelihood, dwelling and skill*. London/New York: Routledge.

Jones, A.M. & M. Díaz-Guardamino, 2018. 'Enigmatic images from remote prehistory': rock art and ontology from a European perspective, in *The Oxford Handbook of the Archaeology and Anthropology of Rock Art*, eds B. David & I.J. McNiven. New York (NY): Oxford University Press, 481–502.

Keyser, J.D., G. Poetschat & M.W. Taylor (eds), 2006. *Talking with the Past: The ethnography of rock art*. Portland (OR): Oregon Archaeological Society.

Klüver, H., 1942. Mechanisms of hallucinations, in *Studies in Personality; Contributed in honor of Lewis M. Terman*, eds Q. McNemar & & M.A. Merrill. New York (NY): McGraw-Hill, 175–207.

La Barre, W., 1975. Anthropological perspectives on hallucinations and hallucinogens, in *Hallucinations: Behaviour, experience and theory*, eds R.K. Siegel & L.J. West. New York (NY): John Wiley & Sons, 9–52.

Layton, R., 1985. The cultural context of hunter-gatherer rock art. *Man* 20(3), 434–53.

Leroi-Gourhan A., 1968. *The Art of Prehistoric Man in Western Europe*. London: Thames & Hudson.

Lewis-Williams, J.D., 1972. The syntax and function of the Giant's Castle rock-paintings. *South African Archaeological Bulletin* 27, 49–65.

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

Lewis-Williams, J.D., 1974. Superpositioning in a sample of rock paintings from the Barkly East District. *South African Archaeological Bulletin* 29, 93–103.

Lewis-Williams, J.D., 1980. Ethnography and iconography: aspects of southern San thought and art. *Man* 15, 467–82.

Lewis-Williams, J.D., 1981. *Believing and Seeing: Symbolic meanings in southern San rock paintings*. London/San Francisco: Academic Press.

Lewis-Williams, J.D., 1987. Paintings and power: ethnography and rock art in Southern Africa, in *The Past and Future of !Kung Ethnography: Critical reflections and symbolic perspectives*, eds M. Biesele, R. Gordon & R. Lee. Hamburg: Helmut Buske Verlag, 231–53.

Lewis-Williams, J.D., 2001. Monolithism and polysemy: Scylla and Charybdis in rock art research, in *Theoretical Perspectives in Rock Art Research*, ed. K. Helskog. Oslo: Novus forlag, 23–39.

Lewis-Williams, J.D., 2019. *Image-Makers: The social context of a hunter-gatherer ritual*. Cambridge: Cambridge University Press.

Lewis-Williams, J.D. & S. Challis, 2011. *Deciphering Ancient Minds: The mystery of San Bushman rock art*. London: Thames & Hudson.

Lewis-Williams, J.D. & T.A. Dowson, 1988. The signs of all times. Entoptic phenomena in Upper Paleolithic art. *Current Anthropology* 29(2), 201–45.

Lewis-Williams, J.D., & T.A. Dowson, 1990. Through the veil: San rock paintings and the rock face. *South African Archaeological Bulletin* 45, 5–16.

Lewis-Williams, J.D. & J.H.N. Loubser, 1986. Deceptive appearances: a critique of southern African rock art studies. *Advances in World Archaeology* 5, 251–89.

Lewis-Williams, J.D., D.G. Pearce, D.M. Witelson & S. Challis, 2021. The devil's in the detail: revisiting the ceiling panel at RSA CHI1, Kamberg, KwaZulu-Natal, South Africa. *Azania: Archaeological Research in Africa* 56(1), 34–59.

Linares, E., 1974. El arte rupestre en el sur del Perú. Introducción al estudio de los petroglifos de Toro Muerto [Rock art in southern Peru. Introduction to the study of the Toro Muerto petroglyphs]. PhD thesis, Universidad Nacional de San Agustín de Arequipa.

Linares, E., 1990. *Prehistoria de Arequipa I* [Prehistory of Arequipa I]. Arequipa: CONCYTEC-UNSA.

Linares, E., 1999. *Arte rupestre en Sudamérica: Prehistoria* [Rock art in South America: prehistory]. Lima: Universidad Nacional Mayor de San Marcos, Fondo Editorial.

Loendorf, L. & C. Loendorf, 1995. *With Zig-zag Lines I'm Painted. Hohokam petroglyphs on Tempe Butte, Arizona*. Tempe (AZ): Loendorf and Associates/Tempe Historical Museum.

Lødøen, T., 2010. Concepts of rock in Late Mesolithic Western Norway, in *Changing Pictures: Rock art traditions and visions in the northernmost Europe*, eds J. Goldhahn, I. Fuglestvedt & A. Jones. Oxford: Oxbow, 35–47.

Morris, D., 1988. Engraved in place and time: a review of variability in the rock art of the Northern Cape and Karoo. *South African Archaeological Bulletin* 43(148), 109–20.

Namono, C., 2011. *Pongo* symbolism in the geometric rock art of Uganda. *Antiquity* 85, 1209–224.

Núñez, A., 1986. *Petroglifos del Perú* [Petroglyphs of Peru]. Havana: Editorial Científico-Técnica, UNESCO.

Orton, J., 2013. Geometric rock art in western South Africa and its implications for the spread of early herding. *South African Archaeological Bulletin* 68(197), 27–40.

Ouzman, S., 2005. Seeing is deceiving: rock art and the non-visual, in *Aesthetics and Rock Art*, eds T. Heyd & J. Clegg. Aldershot/Burlington: Ashgate, 253–69.

Parkington, J. & A. Paterson, 2017. Somatogenesis: vibrations, undulations and the possible depiction of sound in San rock paintings of elephants in the Western Cape. *South African Archaeological Bulletin* 72(206), 134–41.

Pearce, A.J., D.G. Beresford-Jones & P. Heggarty (eds), 2020. *Rethinking the Andes–Amazonia Divide: A cross-disciplinary exploration*. London: UCL Press.

Porr, M. & H.R. Bell, 2012. 'Rock-art', 'animism' and two-way thinking: towards a complementary epistemology in the understanding of material culture and 'rock-art' of hunting and gathering people. *Journal of Archaeological Method and Theory* 19(11), 161–205.

Proulx, D.A., 2006. *A Sourcebook of Nasca Ceramic Iconography. Reading a culture through its art*. Iowa City (IA): University of Iowa Press.

Quilter, J. 1990. The Moche Revolt of the Objects. *Latin American Antiquity* 1(1), 42–65.

Rappaport, R.A., 1999. *Ritual and Religion in the Making of Humanity*. Cambridge: Cambridge University Press.

Reichel-Dolmatoff, G., 1972. *The cultural context of an aboriginal hallucinogen* Benisteriopsis Caapi, in *Flesh of the Gods. The ritual use of hallucinogens*, ed. P.T. Furst. New York/Washington: Praeger, 84–113.

Reichel-Dolmatoff, G., 1975. *The Shaman and the Jaguar: A study of narcotic drugs among the Indians of Colombia*. Philadelphia (PA): Temple University Press.

Reichel-Dolmatoff, G. 1978. *Beyond the Milky Way: Hallucinatory imagery of the Tukano Indians*. Los Angeles (CA): UCLA Latin American Center.

Reichel-Dolmatoff, G., 1987. *Shamanism and Art of the Eastern Tukanoan Indians*. Leiden: E.J. Brill.

Renfrew, C. & P. Bahn, 2016. *Archaeology: Theories, methods and practice*. London: Thames & Hudson.

Reyes-García, V. & Á. Fernández-Llamazares, 2019. Sing to learn: the role of songs in the transmission of indigenous knowledge among the Tsimane' of Bolivian Amazonia. *Journal of Ethnobiology* 39(3), 460–77.

Rifkin, R.F., 2009. Engraved art and acoustic resonance: exploring ritual and sound in north-western South Africa. *Antiquity* 83, 585–601.

Ross, J. & I. Davidson, 2006. Rock art and ritual: an archaeological analysis of rock art in arid central Australia. *Journal of Archaeological Method and Theory* 13, 304–40.

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064

Rozwadowski, A., 2017a. *Rock, Cracks and Drums: In search of ancient shamanism in Siberia and Central Asia*. Budapest: Molar & Kelemen Oriental Publishers.

Rozwadowski, A., 2017b. Travelling through the rock to the otherworld: the shamanic 'grammar of mind' within the rock art of Siberia. *Cambridge Archaeological Journal* 27(3), 413–32.

Schaafsma, P., 1985. Form, content, and function: theory and method in North American rock art studies. *Advances in Archaeological Method and Theory* 8, 237–77.

Scher, S., 2022. Una comparación de las representaciones de los vestuarios Recuay y Moche de la región Andina (100–800 dC) [A comparison of Recuay and Moche costume depictions from the Andean region (100–800 AD)], in *Paisaje, Identidad y Memoria. La sociedad Recuay (100-800 dC) y los Andes Norcentrales de Perú* [Landscape, identity and memory. Recuay society (100–800 AD) and the North-Central Andes of Peru], eds J. Gamboa & G. Lau. Lima: Staatliche Museen zu Berlin, 401–24.

Sekaquaptew, E. & D. Washburn, 2004. They go along singing: reconstructing the Hopi past from ritual metaphors in song and image. *American Antiquity* 69(3), 457–86.

Siegel, R.K. & M.E. Jarvik, 1975. Drug-induced hallucinations in animals and man, in *Hallucinations: Behaviour, experience and theory*, eds R.K. Siegel & L.J. West. New York (NY): John Wiley & Sons, 81–162.

Sieveking, G. de G., 1982. Palaeolithic art and natural rock formations. *Current Anthropology* 23(5), 567–9.

Sillar, B. 2009. The social agency of things? Animism and materiality in the Andes. *Cambridge Archaeological Journal* 19(3), 367–77.

Simner, J., 2005. Hearing colours and tasting words: the psychology of synaesthesia. *British Academy Review* 8, 48–9.

Smith, B.W., K. Helskog & D. Morris (eds), 2012. *Working with Rock Art: Recording, presenting and understanding rock art using Indigenous knowledge*. Johannesburg: Wits University Press.

Spencer, B. & F.J. Gillen, 1899. *The Native Tribes of Central Australia*. London: Macmillan.

Sullivan, L.E., 1990. *Icanchu's Drum: An orientation to meaning in South American religions*. New York (NY): Macmillan.

Taçon, P.S.C. & C. Chippindale, 1998. An archaeology of rock-art through informed methods and formal methods, in *The Archaeology of Rock-Art*, eds C. Chippindale & P.S.C. Taçon. Cambridge: Cambridge University Press, 1–10.

Townsley, G., 1993. Song paths: the ways and means of Yaminahua shamanic knowledge. *L'Homme* 33(126/128), 449–68.

Umusĩ Pãrõkumu (Firmiano Arantes Lana) & Tõrãmũ Kẽhíri (Luiz Gomes Lana), 1995. *Antes o mundo não existia: Mitologia dos antigos Desana-Kẽhíripõrã* [Before the world existed: mythology of the ancient Desana-Kẽhíripõrã]. São Gabriel da Cachoeira: UNIRT/FOIRN.

van Hoek, M., 2003. The rock art of Toro Muerto, Peru. *Rock Art Research* 20(2), 151–70.

Vastokas, J.M. & R.K. Vastokas, 1973. *Sacred Art of the Algonkians: A study of the Peterborough petroglyphs*. Peterborough (ONT): Mansard Press.

Viveiros de Castro, E.B., 1998. Cosmological deixis and Amerindian perspectivism. *Journal of the Royal Anthropological Institute* 4(3), 469–88.

Viveiros de Castro, E.B., 2007. The crystal forest: notes on the ontology of Amazonian spirits. *Inner Asia* 9, 153–72.

Viveiros de Castro, E.B., 2012. Cosmological perspectivism in Amazonia and elsewhere. *Hau. Journal of Ethnographic Theory* 1, 145–68.

Whitley, D.S., 1987. Socio-religious context and rock art in east central California. *Journal of Anthropological Archaeology* 6, 159–88.

Whitley, D.S., 1992. Shamanism and rock art in far western North America. *Cambridge Archaeological Journal* 2(1), 89–113.

Whitley, D.S., 1994. Shamanism, natural modelling and the rock art of far western North America hunter-gatherers, in *Shamanism and Rock Art in North America*, ed. S.A. Turpin. San Antonio (TX): Rock Art Foundation, 1–43.

Whitley, D.S., 2000. *The Art of the Shaman: Rock art of California*. Salt Lake City (UT): University of Utah Press.

Wilkinson, D., 2018. The influence of Amazonia on state formation in the ancient Andes. *Antiquity* 92, 1362–76.

Wołoszyn, J.Z., 2014. *Los rostros silenciosos. Los huacos retrato de la cultura Moche* [The silent faces. The portrait vessels of Moche culture]. Lima: Fondo Editorial Pontificia Universidad Católica del Perú.

Wołoszyn, J.Z., 2019. Status markers in Moche iconography, in *Indigenous Graphic Communication Systems. A theoretical approach*, eds K. Mikulska & J.A. Offner. Louisville (CO): University Press of Colorado, 274–96.

Wołoszyn, J.Z., L. Gonzales & A. Rozwadowski, 2019. The petroglyphs of Toro Muerto: new documentation and discoveries at the largest South American rock art complex. *Antiquity* 93, Project Gallery.

Wołoszyn, J.Z., L. Gonzales & A. Rozwadowski, 2020. Proyecto de Investigación Arqueológica Toro Muerto (Arequipa-Perú). Informe de las temporadas 2018–2019 [Toro Muerto Archaeological Research Project (Arequipa-Peru). Report of the 2018–2019 seasons]. *Boletín* SIARB 34, 29–34.

Wołoszyn, J.Z. & K. Piwowar, 2015. Sodomites, Siamese twins, and scholars—same-sex relationships in Moche art. *American Anthropologist* 117(2), 285–301.

Wright, A.M. & W.G. Russell, 2011. The pipette, the tiered cosmos, and the materialization of transcendence in the rock art of the North American Southwest. *Journal of Social Archaeology* 11(3), 361–86.

Wright, R., 2015. The musical body of the universe: the one and many in an Amazonian cosmology. *Arteriais* 1 (1), 124–46.

Zawadzka, D., 2019. Rock art and animism in the Canadian Shield. *Time and Mind* 12(2), 79–94.

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms. https://doi.org/10.1017/S0959774324000064

Author biographies

Andrzej Rozwadowski is Professor of archaeology, particularly involved in rock-art research. His main research interests are ethnohistorical contexts of rock art as well as the contemporary uses of rock-art imagery. He has conducted research in Central Asia, Siberia, and recently participated in the Polish–Peruvian expedition in Toro Muerto. His recent books are *Visual Culture, Heritage and Identity: Using rock art to re-connect past and present* (ed. with J. Hampson: Archaeopress, 2021) and *Rocks, Cracks and Drums: In search of ancient shamanism in Siberia and Central Asia* (Molnar & Kelemen Oriental Publishers, 2017). He also contributed to *The Oxford Handbook of Archaeology and Anthropology of Rock Art* (Oxford University Press, 2018).

Janusz Z. Wołoszyn is an archaeologist who has specialized for three decades in the study of pre-Columbian Andean iconography. His main areas of research are Moche iconography and archaeology of identity. He recently published *Enemy – Stranger – Neighbour. The image of the Other in Moche culture* (Archaeopress, 2021). Since 2017, he and his Peruvian colleague Liz Gonzales Ruiz (Yamagata University) have headed the Toro Muerto Archaeological Research Project, about which more information can be found at the project's website (toromuerto.org).

Downloaded from https://www.cambridge.org/core. University of the Witwatersrand, on 10 Apr 2025 at 08:04:18, subject to the Cambridge Core terms of use, available at https://www.cambridge.org/core/terms.
https://doi.org/10.1017/S0959774324000064