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CONTENTS

THE CONTRIBUTION OF ROCK ART FOR UNDERSTANDING THE ORIGINS OF MUSIC AND DANCING

Fernando A. Coimbra

Abstract · Rock art is a very important source for understanding the origins of music, because it displays examples of musical instruments made of perish materials, which disappear with time, not being found in archaeological excavations, constituting therefore important documents for understanding an early musical behaviour. There are several examples of rock art that may represent dancing scenes, which probably were the result of hearing certain kinds of sounds or music. However, some of those examples may be subjective, being necessary to get information from other sources than rock art. The author analyses several images of musical instruments and dancing scenes depicted in rock art, with different chronologies and from different parts of the world, trying, this way, to contribute for the elaboration of a typology of such instruments and for a better understanding how music in Prehistory and Protohistory could have been like.

Keywords · Rock Art, Music, Dancing, Archaeoacustics.

Introduction

Archaeological evidence shows that there are several examples of "sound-making devices"[1] at least since the Upper Palaeolithic. Among them there are some cases of bone and ivory flutes,[2] lithophones[3] and idiophones,[4] besides other artefacts that are more suitable for communicating at a distance than to produce music, such as bull-roarers and whistles.[5]

Together with these "sound-producing devices" early humans certainly used their own voices to produce sounds, as well as parts of the body such as hands and feet for, respectively, handclapping and footstamping. As Ian Cross stated, «a capacity for musicality (most likely, vocally expressed) must predate the construction of a musical artefact, most likely by a considerable period».[6]

However, regarding the Palaeolithic, it is necessary to distinguish "sound" from "music", which generally requires elements such as rhythm, melody and harmony that hardly could be present in an early musical behaviour, despite the concept of music can vary from context to context and from individual to individual.[7]

Furthermore, research on ethnomusicology and on archaeoacoustics allows being aware that the existence of the so-called Palaeolithic flutes does not mean that they would have been created initially with the intention of producing some kind of music.[8]

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[1] Till 2014, 27.
[2] Buisson 1990, 420-433; Münzel, Seebeger, and Hein 2002, 107-118; Conard, Malina, and Münzel 2009, 737-740.
[3] Dams 1985, 31-46.
[4] Morley 2006, 37-43.
[5] Coimbra, 2018a, 13-21.
[6] Cross 2001, 101.
[7] Coimbra 2018a, 13-21.
[8] Coimbra 2018b, 49-51.

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As a matter of fact, Cajsa S. Lund, already noticed that in the 19th c., «the shepherd in Sweden (...) blew sharp, high-pitched signals on the same type of bone flute in order to scare away his worst enemy – the wolf». For Palaeolithic peoples, this kind of sound tool may «have been considered to be a weapon against real or supernatural enemies and by no means a tool for artistic activity».[1]

Indeed, prehistoric populations did not have any schools for learning music and applying that knowledge to musical instruments. Therefore, Palaeolithic flutes must have become musical instruments only after a large period of time, after an initial musical behaviour probably based on vocalizing and eventually using percussion.

Rock art is an extremely important source for understanding the origins of music, since it displays, sometimes, examples of musical instruments made of perish materials, which disappear with time, not being found in archaeological excavations, constituting therefore important documents for understanding an early musical behaviour and for establishing a typology of prehistoric and protohistoric musical instruments.

In the following two parts of this article we present some examples of musical instruments depicted in rock art and also some cases of possible dancing scenes, which must have been intimately connected with sound or music and therefore related with the origins of music. However, some publications present as dancing scenes certain human figures that may have a different interpretation, being necessary to analyse them through a multidisciplinary approach using ethnography, psychoanalysis and even neuroscience, besides archaeological evidence.

Musical instruments in rock art

Several years ago, Paul S. C. Taçon and Christopher Chippindale wrote that «the special merit and the special attraction of rock-art as the subject of archaeological enquiry is its directness. These are images from ancient worlds as ancient human minds envisioned them».[2] This way, rock art may be considered a privileged field for the research about cognitive expressions of non-literate societies, such as, for example, early acoustic abilities, because it allows a kind of directness between the researcher and the human minds that produced the engravings.[3] Furthermore, as mentioned before, rock art can depict musical instruments made on perish materials that cannot be found in archaeological excavations, what is an important contribute for the study of the origins of music.

In the following lines we analyse some images of musical instruments depicted in rock art, with different chronologies and from different parts of the world, mainly from Europe, Africa, and Asia.

Despite Palaeolithic examples being quite rare, one of the earliest cases is the bas-relief known as Venus of Laussel (Dordogne, France), holding a possible scraper idiophone made of a horn (Fig. 1), dated from about 25,000 BP.[4]

The horn has thirteen regularly-placed incisions along its length, what took some authors to attribute to this figure a lunar symbolism.[5] However, it has close similarities with idiophones made on bovine horn from Mexico and the Antilles,[6] what gives some sense to the interpretation of the figure from Laussel as an idiophone.[7]

[1] Lund 2012, 62.
[2] Taçon and Chippindale 1998, 2.
[3] Coimbra 2014, 51-58.
[4] Huyge 1991, 11-18.
[5] Morley 2006, 41.
[6] Huyge 1991, 11-18.
[7] Morley 2006, 41.

Fig. 1. The Venus from Laussel (adapted from Huyge 1991, 13, fig. 1).

Another interesting example comes from the Cave of Trois Frères (Ariège, France), where a human figure with a bison mask seems to be dancing and playing[1] «what appears to be either a nose flute or a mouth bow (a chordophone)»,[2] having a Magdalenian chronology of about 13,000 BC.

More recent cases were found in the so-called Levantine Art[3] from Spain. For example, in the Cave of Muriecho (Huesca) there are paintings of two characters holding artefacts that may constitute the representation of flutes or horns (Fig. 2). Obviously, this interpretation may be subjective, but the two human figures are part of a scene where other characters «appear to be clapping, shouting, singing or dancing»,[4] suggesting that the objects depict real musical instruments.

In Late Prehistory the diversity of musical instruments increases, also as their depictions in rock art, which become less ambiguous than some earlier examples. It is possible to notice representations of lyres and drums (of different typology) that so far are not visible before.

[1] Some authors have interpreted this instrument as a nose flute, while others considered it as a musical bow (Diaz-Andreu and Mattioli 2019, 503-528).

[2] Garcia Benito 2018, 27.

[3] Levantine Art has a large chronology, with some Pre-Neolithic (Mateo Saura 2002, 49-64), Neolithic and even Late Bronze Age examples, such as the horse rider with helmet from Cingle de la Mola Remígia (Valencia). But what matters here is that, according to Diaz-Andreu and Mattioli (2019, 503-528), in Levantine Art there are several representations of musical instruments, such as flutes, maybe horns, ocarinas, castanets and rhythmic batons, among other cases that largely contribute for the understanding of early musical behaviour.

[4] Garcia Benito 2018, 27.

Fig. 2. Musical scene (?) from Muriecho (after Garcia Benito 2018, 29, 5b).

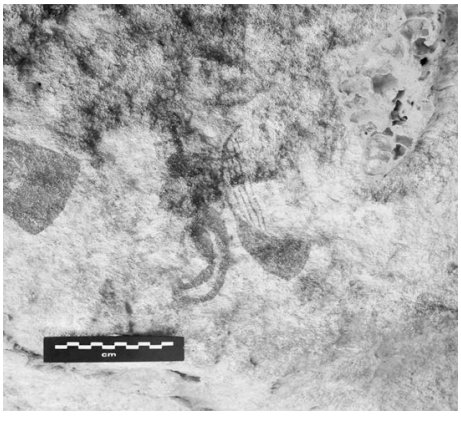

Fig. 3. Four string lyres from Chad (photo: TARA: https://africanrockart.org/).

One of the earliest representations of a lyre is possibly the example that exists in Levantine rock art from El Cerrao (Obón, Teruel).[1] This musical instrument appears also in the Pastoral[2] rock art paintings from Ennedi Plateau (Fig. 3), in Chad.[3]

Lyres are represented with several typologies since Late Prehistory to the Late Bronze Age, where there are several examples on funerary stele from the Southwest of Iberian Peninsula with such representations,[4] appearing also depictions of lyres on the Iron Age Daunian stele from South Italy.[5]

The use of pottery in the Neolithic allows that new instruments could be made and experimented, developing this way new instrumental characteristics.[6] Among these instruments are the Neolithic clay drums[7] covered with animal skin, from several parts of Europe, such as, for example, the cases from Sjane (Sweden), Knabstrup and Garup (Denmark), Mecklenburg (Germany) and Mrowino (Poland), among other examples.[8]

In what concerns rock art examples, drums appear on Bronze Age engravings from Bhimbetka, in India,[9] having the particularity of being hung from the shoulders of the musicians.[10]

Drums of another typology can be seen, not in rock art, but on a Neolithic wall painting from Çatal Hüyük (Turkey), where, in a dancing scene (?), a man is represented holding a hand drum.[11] This type of instrument appears on a later rock art scene from Wadi Harash (Negev, Israel),

[1] Diaz-Andreu and Garcia Benito 2013, 227-256.

[2] According to Lessen-Erz (2012, 30), «first pastoralists become archaeologically visible around 3000 BCE». Therefore, the chronology of Pastoral rock art must consider that archaeological evidence.

[3] TARA: https://africanrockart.org/

[4] Celestino Pérez 1990, 45-62.

[5] Jiménez Pasalodos and Scardina 2015, 161-173.

[6] Both 2018b, 42-43.

[7] Wooden drums with animal skin may have been used in the Palaeolithic but, as far as we know, they did not survive in the archaeological record, and also there are any unambiguous representations in rock art of such instruments.

[8] Aiano 2006, 31-42.

[9] Meshkeris 1999.

[10] Curiously, some paintings with the same chronology, from Magura Cave (Bulgaria) (Arcá 2014, http://www.rupestre.net/tracce/?p=8048) seem to depict similar drums. However, it is necessary to be aware that these examples from Magura may not represent drums, because they are not as clear as the figures from Bhimbetka.

[11] Mellart 1967, 132, figs. 61-63.

dated from the 2nd m. BC, where a human figure plays a hand drum, together with two persons playing asymmetric lyres and four people dancing.[1] It was found also in Finland at the rock art site of Varikallio[2] with a more recent chronology.

Hand drums have a long life in rock art representations, being present still in the 6th c. AD in engravings from Ilinskaia Pisanitsa, in Siberia[3] and from the Altai region, among cultures from the last centuries, revealing «clear correspondences to ethnographically documented shamanic material culture».[4]

Lures, a kind of bronze trumpet, can be seen on rock art from Sweden and Norway. This type of instrument has been found in northern Europe, trough archaeological excavations, being known fifty four complete or fragmented bronze lures: «thirty four from Denmark, eleven from Sweden, four from Norway, five from northern Germany, and one from Estonia»,[5] being dated, generally, from around 1,300 to 500 BC.[6]

In the Kivik Tomb (Scania, Sweden) dated from Early Bronze Age, stone no. 8 has a group of carvings where is possible to see two men playing an early type of bronze lures.[7]

In the rock Tanum 405 (Sweden) there is a representation of four men playing lures, having also swords on their scabbards, horned helmets and accentuated calves, besides being phallic.[8] Another rock, Tanum 248, has a similar scene but only with three men (a fourth one nearby is incomplete), but they don't have swords and they are not phallic, exhibiting, however horned helmets and calves.[9]

In Bjørngård (Norway) there are two representations of lures but without men playing them.[10] However, in Bardal there are several representations of ships with possible lure representations among the schematic lines depicting the crew.[11]

Still in Norway, at the site of Hegre, Kalle Sognnes mentions the representation of a *carnyx*,[12] such as those used by Celtic people in battle, in order to scare their enemies.[13]

Roman type metal horns appear represented on rock art with several examples in Valcamonica, in the Italian Alps, with a chronology from Late Iron Age.[14] Some of these examples appear also on Etruscan and Roman iconography, respectively from the 2nd and 1st c. BC.

Still in Valcamonica, on Rock 24 from Foppe di Nadro, there is a human figure playing a wind instrument, possibly a tuba,[15] next to a dancing (?) warrior.

After mentioning the above examples, it is interesting to observe how the organological classification proposed by Erich M. von Hornbostel and Curt Sachs,[16] is useful to understand how prehistoric musical instruments produced sound, being divided in four main groups: idiophones (sound is yielded by the substance of the instrument); membranophones (sound is extracted by tightly stretched membranes); cordophones (strings stretched between fixed points); and, aerophones (the air is the vibrator that produces sound).[17]

[1] Anati 1994, 153, fig. 156.
[2] Rainio, Lahelma, Äikäs, Lassfolk, and Okkonen 2014, 141-152, fig. 11.
[3] Rozwadowski 2017, 413-432, fig. 2.
[4] Rozwadowski 2015, 195.
[5] Sognnes 2017, 24.
[6] Lund 2018b, 64-67.
[7] Lund 2018b, 64-67, fig. 4.
[8] Coimbra 2018a, 13-21, fig. 4.
[9] Sognnes 2017, 25, fig. 2a.
[10] Sognnes 2017, 29, fig. 5.
[11] Sognnes 2017, 30, fig. 7.
[12] Sognnes 2017, 29, fig. 5c.
[13] Instruments such as the lure, carnyx and horn may have been use mostly for military and battle purposes rather than produce music.
[14] Alberto Marretta, personal communication.
[15] Hickmann 1994, 199-202, fig. 4.
[16] Hornbostel and Sachs 1914, 553-590.
[17] Shaham 2012, 197-214.

Archaeological evidence reveals that in Prehistory and Protohistory all these groups are represented in rock art, being aerophones represented by flutes, lures, horns, a *carnyx* and a tuba (?); cordophones, by several types of lyre; membranophones by drums and idiophones by a possible rasp from Laussel, among other cases.

Dancing scenes in rock art

As mentioned before, dancing scenes in rock art are also useful to understand an early musical behaviour, because, in a general way, people dance using some kind of sound or music. Since human beings are born "equipped" with "sound producers" such as the voice and hands for clapping and, therefore, producing rhythm it is not difficult to imagine that chanting, together with handclapping or footstamping, could provoke the will of dancing as soon as in the Upper Palaeolithic. For example, the already referred image from the Cave of Trois Frères has his legs depicted in a way that suggest movement (eventually dancing), being this concept even better exemplified in a rock art figure from the Cave of Gabillou (Dordogne, France), with a similar chronology, constituted by a human body and the head of a bison.[1]

While in the two previous cases the characters seem to be dancing alone, in an example, from Addaura cave, near Palermo, in Sicily, there is an eventually early example of group dancing dated from around 10,000 BC.[2]

However, an earlier group dancing scene seems to be represented, not in rock art, but in a bone pendant found in Cave Blanchard (Indre, France), dated from about 15,000 BC and exhibited in the Archaeological Museum of Argenton-sur-Creuse.[3] The scene is composed by two rows of female figures holding hands and probably dancing (Fig. 4).

Several authors suggested that dancing may have been also a medium of nonverbal communication during the Palaeolithic.[4]

But, before making any further considerations it is crucial to keep in mind what Colin Renfrew wrote twenty five years ago but still very accurate: «in all attempts to investigate the early past there is the risk that we first conceptualize, setting up a whole series of categories of our own construction, and then order our data (our observations bearing upon the past) in terms of such categories».[5] And also, as Cross and Aaron Watson mentioned, it is important to «remain aware that it is easy to impose modern cultural understandings and experiences onto past societies».[6] As a matter of fact, the archaeologist, in his research, is in the future regarding the object of his study and therefore some subjective interpretations may occur.

We stress these theoretical concepts, because there are some articles presenting prehistoric iconography (on bone, stone slabs or pottery) as dancing scenes where the figures are static, therefore without movement that is, in most of the cases, indispensable for dancing.

Therefore, in order to avoid subjectivity, regarding dancing scenes is useful to have information from other sources besides rock art. For example, according to Meenakshi Dubey-Phatak,[7] there are rock art representations from the Pachmarhi Hills, in the State

[1] Fuentes, Lucas, and Robert 2017, 233-247, fig. 8c.
[2] Anati 1994, 102, fig. 6.
[3] Allain, Desbrosse, Kozłowski, Rigaud, and Jeannet 1985, 37-124.
[4] Garfinkel 2003, 4.
[5] Renfrew 1994, 47.
[6] Cross and Watson 2006, 115.
[7] Dubey-Phatak 1992, 131-145.

of Madhya Pradesh (India), from Mesolithic chronology, suggesting that dances were important for ceremonial or entertainment purposes. The author bases this conclusion in the ethnographic information that the tribal Korkus and Gonds, descendants of the original hunter-gatherers and artists of that region still uphold some of the traditions of their ancestors, which appear depicted dancing and playing musical instruments.

Fig. 4. Bone pendant from Argenton-sur-Creuse (photo Coimbra 2018a, 16, fig. 2).

The paintings from Huashan, China, dated from the end of the 1st m. BC, are better understood thanks to the rituals practised still today by local ethnic groups «in which they imitate frog postures in dancing to entreat the thunder god for favourable weather».[1] Indeed, when looking at that very large rock art panel, several human figures are depicted in a kind of «frog posture»,[2] while others seem to be clapping hands, which indicate a probable dancing ceremony.

Ethnographic information also shows that non-literate societies believed in the presence and the action of evil beings, which could bring illness, disasters, and natural catastrophes. Eventually, these populations thought that certain actions such as music and dance could protect them against such things,[3] becoming these activities organised as ceremonies and therefore necessary to be known by all members of society[4] and perpetuated in the future trough rock art representations.

According to archaeological evidence of the existence of clay drums since the Neolithic, the sounds and rhythms then produced may have developed the will and the habit of dancing among settled populations. Indeed, there are rock art examples depicting dancing scenes in such a dynamic way that can only be understood if an intensive drum session or a frenetic rhythm was taking place. For example, it is the case of the Neolithic paintings from Wed Mertoutek (Algeria), showing two women that seem to be intensively dancing. As a matter of fact, the movement transmitted by the artist to the bodies' position «makes this scene easily suitable to modern European aesthetic»,[5] looking that the figures are dancing "the twist".

Another case from Tadrart Acacus (Libya) reveals some details that are quite interesting. It is possible to observe three women dancing, two of them holding tree branches and the other one, in the middle, clapping her hands, which is a way of percussion and transmits the manifestation of sound and rhythm to the scene (Fig. 5). All the three figures are represented with their heads leaning to their back, being this attitude also present in the paintings of early agriculturalist peoples on the rock shelter Toca de Cima do Fundo da Pedra Furada (Serra da Capivara, Piauí, Brazil) (Fig. 6).

According to personal information from psychoanalyst Torill Lindstrom, dancing with the heads in the mentioned attitude may indicate a certain kind of trance or an altered

[1] Gao 2013, 27.
[2] Gao 2013, 22-32, fig. 3.
[3] Lund 2018a, 14-15.
[4] Coimbra 2019b, 24-28.
[5] Anati 1994, 105, fig. 76.

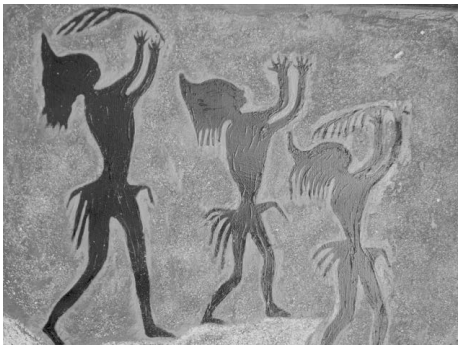

Fig. 5. Dancing scene from Tadrart Acacus (contemporary art reproduction by Rosario Sousa, in Coimbra 2018a, 20, fig. 5).

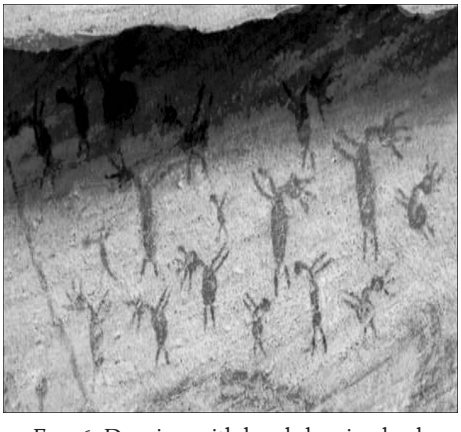

Fig. 6. Dancing with heads leaning back (Serra da Capivara, Brazil) (Adapted from de Oliveira 2019, 83, fig. 65).

state of consciousness.[1] Furthermore, anthropologist Ben Watson argued that frenetic dancing may result in a certain trance, or maybe in altered states of consciousness, according to ethnographic parallels.[2] It seems to be the case of trance dances represented in San rock art from Ukhahlamba-Drakensberg National Park, in South Africa, as for example the figure represented on a slab from Collingham Shelter, with head and body leaning back.[3]

Interestingly, back in 1967, anthropologist Rodney Needham already mentioned that «there is no doubt that sound-waves have neural and organic effects on human beings».[4] Research on neuroscience has been proving the effects of some type of sounds in the human brain. For example, Ian Cook, Sarah Pajot, and Andew Leuchter, argued that certain frequencies produced in Neolithic chambers[5] lead to changes in the functioning of the prefrontal cortex regarding language centers and emotions.[6] More recently, neuroscientists have been researching the effects of dancing on the brain, using structural magnetic resonance imaging technology, reporting that «dance has been shown to modify the brain functions vastly, especially in the premotor regions, and, in parallel, to modulate interpersonal entrainment in movement».[7]

Neuroscience appears this way as an important input to understand the origins of music and dancing, with ongoing research projects bridging this discipline with archaeoacoustics and psychoanalysis.[8] Philosophers have also paid some attention to archaic dancing, as for example, among others, Gaudenzio Ragazzi, which has interesting research regarding prehistoric dancing scenes, arguing that:[9]

[1] Interestingly, the contemporary musician Carlos Santana, which claims to reach expanded states of consciousness, while playing his guitar, is often photographed with his head in a similar position. See, for example, the back cover of the album "Festival" from 1977.

[2] Watson 2009, 30-31.

[3] Deacon and Mazel 2010, 5-23, fig. 8.

[4] Needham 1967, 610.

[5] Cook, Pajot, and Leuchter 2008, 95-104. Acoustic phenomena inside Neolithic chambers may constitute a by-product of architecture, but cases of high reverberation, resonance and standing waves were surely heard by prehistoric populations (Cross and Watson 2006, 107-116) and must have created a deep impression in their minds.

[6] For a developed explanation of the relation between archaeoacoustics and neuroscience, see Coimbra 2016, 121-131.

[7] Poikonen, Toiviainen, and Tervaniemi 2018, 2: https://doi.org/10.1371/journal.pone.01960652.

[8] Coimbra and Madeira, in press.

[9] Ragazzi 2015, 312-313.

«In the analysis of a dance scene we are facing a representation which is (…) reproducing a continuous series of images epitomizing a real event occurring in time, and which remained alive in the memory of the person who has experienced it. The sequence of movements linked to that event is rendered with a unique mark in such a way that its observer (believer, member of the society, priest) can recognize the image as a formalization of the event" (…) In the archaic cultures dance is not then a creative and free act, but it is the result of a formalization process in which each member of the community can identify oneself in the behavioral models, the technical tradition, the social standards, and the religious dogma which blurs the boundaries between the civil society and the rules of interaction with the Universe».

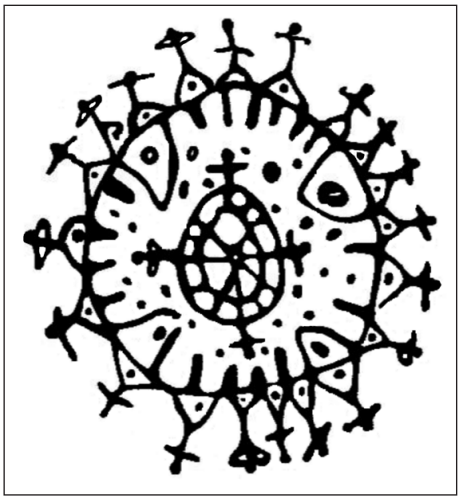

Fig. 7. Circular dancing scene from Geravshan River (after Ragazzi 2015, 323, fig. 12).

The mnemonic character of rock art transmits, for future generations, these experiences, behaviours and identities mentioned by Ragazzi that result from dancing together in prehistoric ceremonies.[1] One interesting example is a group of engravings from Saimaly-Tash Mountains (Kyrgyzstan), dating from the 2nd m. BC, which seems to represent a ritual dance in front of an anthropomorphic solar divinity,[2] constituting an event, carved on rock, to be surely remembered in the future.

Another example of mnemonic character is an earlier rock art image from the valley of the Geravshan River, in Tajikistan, dated from about 3,000 BC, which shows twenty human figures with their arms open, seeming to be dancing in circle around four other humans represented on a border of a circular shape.[3] Regarding the external line of dancers, the majority may depict women, since they have a cup-mark between their legs, as it happens in many examples of female anthropomorphic figures around the world, being this kind of representation usually accepted by scholars as a female symbol. One of the characters without represented sex is lifting the left leg and has his/her hands on the head, on the top of the image, displaying a clear idea of movement (Fig. 7).

Another possible dancing scene, dated from the early Neolithic, in Gobustan (Azerbaijan), consists in two rows of people holding hands in front of two bigger figures that Emmanuel Anati calls «cloudy spirits», seeming the scene «to evoke a ceremony».[4]

Dancing together, hand in hand, in rows or circles, is well documented in the rock art from Bhimbetka (India) where dance and music are represented in cultural scenes with different chronologies.[5]

In South America, besides the mentioned case from Serra da Capivara, dating from the period of early agriculturalist peoples, there is an interesting example with a similar chronology at Toro Muerto (Peru), with some figures dancing,[6] each one having «a dif-

[1] Dancing scenes appear also represented in ceramics, since the Neolithic (Garfinkel 2003, 161-198), but rock art examples contribute with less ambiguous cases.

[2] Martynov, Mariachev, and Abeketov 1992, 93, fig. 67.

[3] Ragazzi 2015, 311-327.

[4] Anati 1994, 142, fig. 136.

[5] Dubey-Pathak 2014, 1-18.

[6] The arms, heads and legs of these characters are depicted in such a way that suggests movement, being therefore considered as a dancing scene.

ferent mask which indicates his identity (or the identity he represents in the dance)»,[1] which again illustrate Ragazzi's arguments.

Final statements

This article obviously does not intend to be a complete inventory of the representations of musical instruments and dancing scenes in rock art, which would be very difficult to do without a considerable team of researchers and would result in a large publication. The author decided to take some suggestive cases, which allowed making some considerations that contribute for a better understanding of the origins of music and dancing.

According to Iain Morley,[2] music's potential to stimulate powerful emotions makes it a common medium for accompanying ritual activities. That is why dancing comes in the sequence of sound turned into early music, which «deals with fundamental human emotional concerns».[3] Furthermore, as Gregory E. Williams mentioned «recent advances in neuroscience have helped expand our understanding of the cognitive aspects of many of the variables which affect the human experience; one such variable is sound».[4]

Disciplines such as archaeomusicology and archaeoacoustics will benefit intensively of the growing interest of psychoanalysts and neuroscientists regarding the effects of some sounds and music in the human brain and sequent bodily effects. Indeed, some arguments of a master thesis presented by a medical doctor, in the frame of psychoanalysis, are quite interesting in this aspect:[5]

> Music and its origins share the space with mankind, playing important individual functions. It brings pleasure, influences emotions, controls anxiety, stimulates the nervous system, transcends, carries away to another place (…) Music goes beyond the individual, embracing the collective, contributing to the sharing of experiences, to the building of a social harmony.

Indeed, early music must have functioned as a factor of cohesion among groups of hunter-gatherers,[6] what helped to create social harmony and interaction. And as Cross said: «Without music, it could be that we would never have become human».[7]

Also dancing, which comes in the sequence of sound and music, must have created social cohesion, according to the rock art examples of people dancing arm in arm (or hand in hand) in rows or circles, as seen above. These dancing scenes were registered on rock surfaces possibly to transmit, for future generations, ceremonies or rituals connected with those dances.[8]

Bibliography

Aiano, L. (2006), *Pots and Drums: An Acoustic Study of Neolithic Pottery Drums*, «euroREA. Journal for (Re)construction and Experiment in Archaeology», 3, 31-42.

Allain, J., Desbrosse, R., Kozłowski, J. K., Rigaud, and A. Jeannet (1985), *Le Magdalénien à navettes*, «Gallia préhistoire», 28.1, 37-124.

Anati, E. (1994), *World Rock Art. The Primordial Language*, Capo di Ponte (Brescia).

Arcà, A. (2014), *Bulgarian Rock Art: the Magura Cave Paintings*, «Tracce. Online Rock Art Bulletin», 33: http://www.rupestre.net/tracce/?p=8048

Both, A. A. (2018a), *Music at the Dawn of Humanity*, in S. De Angeli, A. A. Both, S. Hagel, P. Holmes, R. Jiménez Pasalodos, and C. S. Lund (eds.), *Music and Sound in Ancient Europe*, Rome, 16-17.

[1] Anati 1994, 153, fig. 157.
[2] Morley 2009, 171.
[3] Morley 2014, 148.
[4] Williams 2012, 36.
[5] Gomes 2015, 4. Author's translation from the original text in Portuguese.
[6] Coimbra 2019b, 181-193.
[7] Cross 2001, 102.
[8] Coimbra 2019a, 181-193.

Both, A. A. (2018b), *Sounding Clay. Horns, Rattles, Flutes and Drums in the Neolithic*, in S. De Angeli, A. A. Both, S. Hagel, P. Holmes, R. Jiménez Pasalodos, and C. S. Lund (eds.), *Music and Sound in Ancient Europe*, Rome, 42-43.

Buisson, D. (1990), *Les flûtes paléolithiques d'Isturitz (Pyrénées-Atlantiques)*, «Bulletin de la Société Préhistorique Française», 87.10-12, 420-433.

Celestino Pérez, S. (1990), *Las estelas decoradas del S.W. Peninsular*, «Cuadernos Emeritenses», 2, 45-62.

Coimbra, F. A. (2014), *An Interdisciplinary Approach: The Contribution of Rock Art for Archaeoacoustic Studies*, in L. C. Eneix, (ed.), *Archaeoacoustics: The Archaeology of Sound (Publication of the 2014 Conference in Malta)*, Myakka City (FL), 51-58.

Coimbra, F. A. (2016), *Archaeology, Rock Art, Archaeoacoustics and Neuroscience: What Kind of Relation?*, in E. Anati (ed.), *The Intellectual and Spiritual Expressions of Non-Literate Peoples*, Oxford, 121-131.

Coimbra, F. A. (2018a), *Archaeology, Archaeoacoustics and Early Musical Behaviour*, in L. C. Eneix, (ed.), *Archaeoacoustics III: The Archaeology of Sound (Publication of Proceedings from the 2017 Conference in Tomar)*, Myakka City (FL), 13-21.

Coimbra, F. A. (2018b), *Bird Bones as Raw Material for Palaeolithic flutes: An Archaeoacoustic Approach*, «Evolução, Revista de Geo-História e Pré-História», 2.1, 49-51.

Coimbra, F. A. (2019a), *Rock Art as a Mnemonic Process Among Non-Literate Societies*, «Expression», 23, 24-28.

Coimbra, F. A. (2019b), *Sound as a Factor of Social Cohesion Among Small Human Groups: Some Case Studies since Prehistory until the Present Times*, in L. Oosterbeek and L. Caron (eds.), *Resilience and Transformation in the Territories of Low Demographic Density: Integrated Methodologies of Human and Social Sciences for Integrated Cultural Landscape Management*, Mação, 181-193.

Coimbra, F. A. and Madeira, F. (in press), *Mental Sounds: Building Bridges between Psychoanalysis and Archaeoacoustics*, in F. A. Coimbra (ed.), *Archaeology, Archaeoacoustics and Neuroscience: What Kind of Relation? (Proceedings of the II International Symposium, Chamusca, Portugal)*, Lisbon.

Conard, N. J., Malina, M., and Münzel, S. C. (2009), *New Flutes Document the Earliest Musical Tradition in South Western Germany*, «Nature», 460, 737-740.

Cook, I. A., Pajot S. K., and Leuchter, A. F. (2008), *Ancient Architectural Acoustic Resonance Patterns and Regional Brain Activity*, «Time and Mind», 1.1, 95-104.

Cross, I. (2001), *Music, Mind and Evolution*, «Psychology of Music», 29.1, 95-102.

Cross, I. and Watson, A. (2006), *Acoustics and the Human Experience of Socially-Organized Sound*, in C. Scarre and G. Lawson (eds.), *Archaeoacoustics*, Cambridge, 107-116.

Dams, L. (1985), *Palaeolithic Lithophones: Descriptions and Comparisons*, «Oxford Journal Archaeology, 4», 31-46.

Deacon, J. and Mazel, A. (2010), *Ukhahlamba-Drakensberg and Mapungubwe. Contrasts in South Africa's World Heritage Rock Art Sites*, «Adoranten 2010. Scandinavian Society For Prehistoric Art», 5-23.

Díaz-Andreu, M. and García Benito, C. (2013), *Sound and Ritual in Levantine Art: A Preliminary Study*, in R. Jiménez Pasalodos, R. Till, and M. Howell (eds.), *Music and Ritual: Bridging Material and Living Cultures*, Berlin, 227-256.

Díaz-Andreu, M. and Mattioli, T. (2019), *Rock Art, Music and Acoustics: A Global Overview*, in B. Davis, I. J. Mcniven (eds.), *The Oxford Handbook of the Archaeology and Anthropology of Rock Art*, Oxford, 503-528.

Dubey-Pathak, M. (1992), *Rock Paintings of Pachmarhi Hills*, in M. Lorblanchet (ed.), *Rock Art in the Old World*, New Delhi, 131-145.

Dubey-Pathak, M. (2014), *The Rock Art of the Bhimbetka Area in India*, «Adoranten 2014. Scandinavian Society for Prehistoric Art», 1-18.

Fuentes, O., Lucas, C., and Robert, E. (2017), *An Approach to Palaeolithic Networks: The Question of Symbolic Territories and Their Interpretation Through Magdalenian Art*, «Quaternary International», 503, 233-247.

Gao, Q. (2013), *The Huashan Rock Art Site (China): The Sacred Meeting Place for the Sky, Water and Earth*, «Rock Art Research», 30.1, 22-32.

García Benito, C. (2018), *Wind from the Sky, Wind from the Earth. The Earliest Bone Pipes and Whistles*, in S. De Angeli, A. A. Both, S. Hagel, P. Holmes, R. Jiménez Pasalodos, and C. S. Lund (eds.), *Music and Sound in Ancient Europe*, Rome, 26-29.
Garfinkel, Y. (2003), *Dancing at the Dawn of Agriculture*, Austin (TX).
Gomes, A. F. A. (2015), *Música: correlatos bio-psico-sociais*, MD Thesis, Faculty of Medicine, University of Lisbon.
Hickmann, E. (1994), *Music Archaeology and Rock Art Research: Examples from Valcamonica*, «Notizie Archeologiche Bergomensi», 2, 199-202.
Hornbostel E. M. Von and Sachs, C. (1914), *Systematik der Musikinstrumente, Ein Versuch*, «Zeitschrift für Ethnologie», 46, 553-590.
Huyge, D. (1991), *The "Venus" of Laussel in the Light of Ethnomusicology*, «Archeologie in Vlaanderen», 1, 11-18.
Jiménez Pasalodos, R. and Scardina, P. (2015), *The Lyres on the Daunian Stelae. Towards a Better Understanding of Chordophones in the Mediterranean Iron Age*, in P. M. Militello and H. Öniz (eds.), *SOMA 2011: Proceedings of the 15th Symposium on Mediterrean Archaeology*, Oxford, 161-173.
Lenssen-Erz, T. (2012), *Pastoralist Appropriation of Landscape by Means of Rock Art in Ennedi Highlands, Chad*, «*Afrique: Archéologie & Arts*», 8, 27-43. https://journals.openedition.org/aaa/414
Lund, C. S. (2012), *Sound Tools, Symbols or Something Quite Different? On Possible Percussion Instruments from Bronze-Age Sweden. Including Methodological Aspects of Music-Archaeological Research*, «Orient-Archäologie», 27, 61-73.
Lund, C. S. (2018a), *Prehistoric Sound Worlds. Use and Function in the Remote Human Past*, in S. De Angeli, A. A. Both, S. Hagel, P. Holmes, R. Jiménez Pasalodos, and C. S. Lund (eds.), *Music and Sound in Ancient Europe*, Rome, 14-15.
Lund, C. S. (2018b), *The Bronze Lurs. Magnificent Craftsmanship, Enigmatic Sound Instruments*, in S. De Angeli, A. A. Both, S. Hagel, P. Holmes, R. Jiménez Pasalodos, and C. S. Lund (eds.), *Music and Sound in Ancient Europe*, Rome, 64-67.
Martynov, A., Mariachev, A., and Abetekov, A. K. (1992), *Gravures Rupestres de Saimaly-Tach*, Alma-Ata.
Mateo Saura, M. A. (2002), *La llamada "Fase pre-levantina" y la cronología del Arte Rupestre Levantino. Una revisión crítica*, «Trabajos de Prehistoria», 59, 49-64.
Mellaart, J. (1967), *Çatal Hüyük. A Neolithic Town in Anatolia*, London.
Meshkeris, V. A. (1999), *Musical Phenomena of Convergence in Eurasian Rock Art*, in *NEWS-95 International Rock Art Congress Proceedings*, Centro Studi e Museo d'Arte Preistorica, Pinerolo.
Morley, I. (2006), *The Evolutionary Origins and Archaeology of Music*, PhD Dissertation, Cambridge University.
Morley, I. (2009), *Ritual and Music: Parallels and Practice, and the Palaeolithic*, in C. Renfrew and I. Morley (eds.), *Becoming Human: Innovation in Prehistoric Material and Spiritual Culture*, Cambridge, 159-175.
Morley, I. (2014), *A Multi-Disciplinary Approach to the Origins of Music: Perspectives from Anthropology, Archaeology, Cognition and Behaviour*, «Journal of Anthropological Sciences», 92, 147-177.
Münzel, S., Seebeger, F., and Hein, W. (2002), *The Geissenklösterle Flute: Discovery, Experiments, Reconstruction*, «Orient-Archäologie», 3, 107-118.
Needham, R. (1967), *Percussion and transition*, «Man», n.s., 2.4, 606-614.
de Oliveira, G. F. (2019), *A arte pré-histórica e a prática da magia nas sociedades pré-coloniais no Parque Nacional Serra da Capivara – PI, Brasil*. MD Thesis, Polytechnic Institute of Tomar.
Poikonen, H., Toiviainen, P., and Tervaniemi, M. (2018), *Naturalistic Music and Dance: Cortical Phase Synchrony in Musicians and Dancers*, «PLoS ONE», 13.4: https://doi.org/10.1371/journal.pone.0196065
Ragazzi, G. (2015), *Interpreting the Prehistoric Visual Sources for Dance*, «Music in Art», 40.1, 311-327.
Rainio, R., Lahelma, A., Äikäs, T., Lassfolk, K., and J. Okkonen (2014), *Acoustic Measurements at the Rock Painting of Värikallio, Northern Finland*, in L. C. Eneix, (ed.), *Archaeoacoustics: The Archaeology of Sound (Publication of Proceedings from the 2014 Conference in Malta)*, Myakka City (FL), 141-152.
Renfrew, C. (1994), *The Archaeology of Religion*, in C. Renfrew and E. Zubrow (eds.), *The Ancient Mind: Elements of Cognitive Archaeology*, Cambridge, 47-54.

Rozwadowski, A. (2015), *Historic and Proto-Historic Shamanic Rock Art in Siberia: A View from the Altai*, «Quaderns de Prehistòria i Arqueologia de Castelló», *33*, 195-204.
Rozwadowski, A. (2017), *Travelling Through the Rock to the Otherworld: The Shamanic 'Grammar of Mind' within the Rock Art of Siberia*, «Cambridge Archaeological Journal», *27.3*, 413-432: https://doi.org/10.1017/S095977431700004X
Shaham, D. (2012), *The Articulation of Music and Visual Arts during the Natufian Culture in the Levant*, in E. Anati (ed.), *The Intellectual and Spiritual Expressions of Non-Literate Peoples*, Oxford, 197-214.
Sognnes, K. (2017), *Blowing the Horn: Lure Images in Rock Art in Trøndelag, Norway*, «Adoranten 2017. Scandinavian Society for Prehistoric Art», 24-36.
Taçon, P. S. C. and Chippindale, C. (1998), *An Archaeology of Rock Art through Informed Methods and Formal Methods*, in C. Chippindale and P. Taçon (eds.). *The Archaeology of Rock Art*, Cambridge, 1-10.
TARA (Trust for African Rock Art) (undated), *Rock Art from Chad*: https://africanrockart.org/
Till, R. (2014), *Sound Archaeoalogy: An interdisciplinary Perspective*, in L. C. Eneix (ed.), *Archaeoacoustics: The Archaeology of Sound (Publication of Proceedings from the 2014 Conference in Malta)*, Myakka City (FL), 23-32.
Watson, B. (2009), *Universal Visions: Neuroscience and Recurrent Characteristics of World Palaeoart*, PhD Dissertation, University of Melbourne.
Williams, G. E. (2012), *Rock Art and Pre-Historic Ritual Behaviour: A Landscape and Acoustic Approach*, «Rock Art Research», *29*, 35-46.

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