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Soundscapes of the Ancient Mediterranean. *Tintinnabulum* and Paleochristian Basilicas in Mallorca. An Interdisciplinary Approach

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ABSTRACT

The *tintinnabula* and the chant in the Paleochristian basilicas of Mallorca are analysed here, as an example of interdisciplinary approach from the archaeological and ethnomusicological perspectives that allows to outline soundscapes that linked the ancient Mediterranean communities. The term **soundscape** is used here as a definition of musical practices within a music timbre concept shared from early times.

So that, the nature of sound is considered in this paper as the element that links a group of diverse idiophones in the Mediterranean, manufactured in metal and related to funerary sites (from Sicily to Sardinia, Corsica, Crete, Egypt, Italy and the Catalan-Valencian coast) such as *tintinnabula*—bronze discs that appear in the Balearic Islands dated 650 B.C. up to 123 B.C.) and small bells and other instruments. The various contributions lead to the consideration of these instruments as processional or dance ones, and underlying all these examples remains the «sound idea» or «timbre idea» common to them, which becomes a conceptualization or symbolization of their sound present throughout the Mediterranean.

Centuries later, another example of a musical repertoire shared in this geographical setting becomes also significant from the archaeological contributions. The chant in the Balearic Paleo-Christian basilicas (4th-9th centuries A.D.) can be related to the performance of a vocal repertoire similar to the Christian musical practices from North Africa; a hypothesis that is reinforced with documents such as the letter from the Bishop Severe (s. V), descriptions of the pregregorian repertoire sung in North Africa (McKinnon 2000), as well as ceramics remains and elements of the tombs examined in recent excavations.

The multidisciplinary approach allows to enrich the knowledge of musical practices in early historical periods, in addition to documenting the exchange between the different Mediterranean communities. It is a fact that this exchange was not only goods, but also cultural, religious and anthropological practices.

Keywords: Archaeomusicology, idiophones, Balearic Islands, *tintinnabulum*, soundscape, Paleo-Christian basilicas, pregregorian chant, interdisciplinarity.

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Introduction

When and how can you begin tracing the musical history of a particular place? This question, formulated in the first steps of a research around Manacor (Mallorca) (Duran Bordoy 2019), led to a wider investigation that needed the development of a comparative analysis. The remains of musical practices in this municipality can be dated from the end of the Talayotic and the following Postalayotic period. In the local museum there is a complete bronze disc¹ accompanied by a rod that in Archaeology and especially in the Balearic Islands is called *tintinnabulum*. The existence of these peculiar objects² and others, such as bells, in funerary sites leads to a new question: what was the use or musical function of these instruments? The complexity of the contexts in which prehistoric societies used music requires an approach that has to respond to some interpretive challenges. The analysis and comparison of the contributions from various disciplines, as will be seen in the following sections, expand the interpretive framework of Ethnomusicology; which allows us to sketch contexts of musical performance from historical periods of which not enough data is available.

According to García & Jiménez (2011: 92) and Lund & Hagberg (1993: 375) the fact that these objects sound does not mean that they are necessarily musical instruments; this is one of the starting points that should not be forgotten. Despite this consideration, Balearic *tintinnabula* evoke objects for musical use; and also, the bronze bells found in various archaeological sites in the Balearic Islands. These instruments are present in National Collections, such as those of the Museu de Mallorca, Museu Arqueològic de Catalunya and Museu Arqueològic Nacional; in addition to the existing specimens in local museums — such as Artà, Lluç and Manacor. The study of these instruments from a broader geographical perspective leads to the presumption that some idiophones of different types are present at burial sites throughout the Mediterranean. All in all, it allows us to develop the hypothesis of musical practices that maintain a common element: the sound, the timbre associated with metal idiophones. This specific sonority is defined here by the term *shared soundscape*, which implies, at the same time, a symbolization of the sound as an element present in burial rites; a concept that seems to have been spread throughout the Mediterranean.



Fig. 1. *Tintinnabulum*. Museu d'Història de Manacor.

In addition, other examples of early musical practices can be placed in the context of rituals celebrated in the ancient basilica of Son Peretó, one of the emblematic archaeological sites of early Christianity in the Balearic Islands. It should be noted here that the aim of this study is not to relate the historical moment of the *tintinnabula*,

¹ *Tintinnabula* can be made of bronze, also copper, iron and different alloys (Perelló & Lull 2014: 34-36).

² The Museu de Manacor preserve fragments of incomplete discs, according Magdalena Salas, director of the museum. It is not possible to know exactly where they were found, although it is known that they belong to some archaeological site in the municipality, and were found in the late nineteenth or first quarter of the twentieth century.

bells and other idiophones to the early Christian basilicas, but to establish a methodological connection that includes the contributions of Archaeology to the interpretation of the function and importance of the music in those times. Between the Postalalyotic period and the 4th-5th centuries AC— when the basilicas are dated — historical and archaeological data on the Balearic Islands surroundings are very scarce; therefore, it is difficult to offer an overview of the continuity of certain practices. It is also true that, in the case of the Son Peretó basilica, a specimen of a bronze bell (Riera, Cau and Salas 2012: 47) dating from the 7th century AC has been found on the site; but without any obvious element that could link the instrument to burial practices.

The latest excavations in the early Christian basilicas in Mallorca show findings that allow to document, more and more exhaustively, the richness of the life around these nuclei of early Christianity. The existence, for example, of North African pottery and the confirmation of the relationships between Menorcan Christians with others in different places of the Roman world, but especially in North Africa (Amengual i Batle 2004: 13), leads us to think about the feasibility of common musical practices between these locations. Scholars as McKinnon (2000) have studied the written sources on pre-Gregorian repertoire that fit in the documents related to the Christian community in Mallorca and Menorca (letter to the Christian community by Severus, bishop of Menorca).

In both cases, interpretive approaches to musical practices must necessarily be based on archaeological research. Guarch y Bordes (2017: 38.40) approach starts from experimental archaeology; authors such as Perelló & Lull (2014: 42) mention points of view close to interpretive archaeology. Perhaps the musical aspects could be analysed from an interpretive ethnomusicology, understood as a research framework where the hypotheses formulated are based on archaeological findings, contributions from anthropology and especially from ancient organology but which are, after all, milestones that were defined in the very first comparative musicology. This approach requires an interdisciplinary overlook that has been subject to different considerations among scholars:

The large number of existing archaeological materials that demonstrate the important presence of music in past cultures makes it necessary to consolidate a discipline with significant methodological and theoretical specialisation. Therefore, we must leave aside the epistemological scepticism based on the vision of music as a simple orderly succession of sounds and define the necessary methodologies in order to understand the aspects of Prehistory and Antiquity that material culture reveals to us. This knowledge will not only better understand the past of music but also the cultures that are studied, as music encloses a large number of social, symbolic and ritual behaviours that can respond to questions about past cultures, impossible to reveal based on others remnants of material culture.

Musical Archaeology not only offers answers about music, as a cultural fact in Prehistory and Antiquity, but also deals with the detailed study of the so-called "soundscape", i.e. all the sound aspects of the past, studying elements both musical and *paramusical* in the elaboration of their sound reconstruction hypotheses of the past and based on archaeological remains. Therefore, one can also speak of an Archaeology of the Sound, or "Sound Archaeology" (Homo Lechner 1989: 72-75), rather than musical, as this term defines sounds combined in a more or less coherent and complex way, according to a culturally created code (García & Jiménez, 2011: 81).

The authors expressed in this article the need to broaden the methodological and theoretical horizons and get closer to times of which only the remains of physical objects are known. But reconstructing the musical past means to go beyond the consideration that music is always a sequence of more or less orderly sounds. This is where the concept of *soundscape* is fundamental, because it affects the assessment of timbre and acoustic elements and it is not only related to specific instruments.

From acoustic and sound perspectives, the reconstruction of musical practices presents challenges, where the foundations of Musical Archaeology, as a branch of Ethnomusicology, help to explain the relationships between objects — here, especially sound objects and the cultural context of the societies that used them. Investigating the

chronology, location and context allows us to make hypotheses about the musical framework:

We start from the idea that studies of isolated materials will always provide biased information if we do not take into account studies on other materials in the same chronocultural context. It was people with the same patterns of rationality, the same traditions and cultural values, who interacted with those artifacts, creating them, exchanging them, giving them use and giving meaning to them (Perelló & Lull 2014: 27).

This comparative methodology, which is based on elements of local history and seeks parallels in the nearest cultures, creates a broader framework for reflection that allows new interpretations around the periods studied and enriches the knowledge of the local elements.

1. From the local *tintinnabula* to the bells, discs and sistrums of the Mediterranean

Tintinnabulum means «bell».³ In the Balearic Islands —Mallorca and Menorca, it should be reminded that Ibiza and Formentera conform the Pitiusan Islands— this term defines artefacts that share a similar morphology: they are all metal and disc-shaped objects; usually associated with other elements that would be attached to them: chains, rods, metal wires and wire. They always appear in funerary contexts from the Postalalyotic⁴ period (from 650 to 550 BC to around 123 BC).

Metal discs, some of them complete and others fragmented, have been found in different sites of the Balearic Islands. Several examples can be seen, as mentioned before, in the Museum of Mallorca and Museum of Lluç, also in the Regional Museum of Artà, from old excavations or private collections, in addition to the National Archaeological Museum and Archaeological Museum of Catalonia. These excavations, carried out in the first half of the 20th century, did not have the necessary systematisation for a correct analysis and interpretation, which makes difficult their current classification. Five discs and various elements such as rods and metal chains links are documented in Son Real site —5th century BC. Enseñat (1981: 110) describes, in the necropolis of Son Ribot (Sant Llorenç des Cardessar), a disc on the mouth of an individual holding a rod in his arm, a location that draws a lot of attention for its symbolic meaning. Enseñat also mentions the Cova de Son Bosc, where a fragmented disc appears in the burial 1; a female individual who appears with the disc placed or located on what was the breast (Enseñat 1981: 28). There has been speculation about the possibility that they may be objects intended for female burials; Llinàs et al. (1995: 178) do not doubt about the link between *tintinnabula* and female sex, although this relationship would not have been exclusive to this sex. Only the latter group of researchers opts for this relationship of records with women. It should not be ruled out that sex/*tintinnabula* relationships may be established more clearly in the future as the results of various excavations are analysed.

New archaeological findings enrich this panorama, it is necessary to emphasise here the contributions of Javier Aranburu-Zabala (2017a). «Nuevos materiales baleáricos procedentes de cuevas de enterramiento» and «Nuevos tintinábulo de la cultura baleárica de Mallorca» (2017b). These studies document the discovery of new *tintinnabula* and bronze bells in Son Pelliser, Son Bosc (Artà) and Sa Tanca (Estellencs),⁵ among other sites.

³ The plural is *tintinnabula*.

⁴ The dating of the Talayotic and Postalalyotic period is complicated, the end of the Postalalyotic period was around 123 BC, with the Roman conquest of the Balearics (Perelló & Lull, 2014: 26) and there is a general consensus in delimiting the passage of the Talayotic to Postalalyotic between 500 and 600 BC. Other authors may help to better understanding this chronological framework (Ramis & Santandreu 2011: 318-320). The data updating provided by excavation campaigns in different locations should be taken into account. In this sense, the objects and the studies in different museums are constantly updated.

⁵ «They appear in Son Bauçà, Son Bosc, Son Julià, Sa Madona, Son Real and Son Taixaquet, although their presence can be deduced by the existence of percussive elements with a ring, also in the cave of S'Aluva, and in other deposits there is a lack of graphic representation

Some authors, however, avoid using the word *tintinnabula* and prefer to reference them as *discs*. Perhaps because there are also the Roman *tintinnabula*; which from an organological point of view —and considered as sound objects— are also idiophones, but of a completely different shape: metal objects suspended from different wires, some of them of an erotic content.

According to Perelló & Llull (2014: 26) during the Postalalyotic period the funeral contexts are complicated, new traditions coexist with older ones. Burial in hypogea or natural caves (which began in the Talayotic) present corpses found in complex overlays, which was very common. It is in these sites that many of the mentioned discs appear, those that have been object of different classifications (op. cit. p. 26) especially according to their typology. Thus, Perelló & Llull (op. cit. p. 27-30) describe:

Group A. The more homogeneous group. In the most modern systematization, they are denominated «suspended or fixed discs». Made of bronze, exceptionally iron, they are 10 cm. in diameter approximately. They have a simple decoration on the front, combining different motifs such as concentric circles, central nipple and rim. At the back there is a ring; some of them with chains. One of the aspects to be considered here is that some of the manufacturing materials could be leather or rope. From an instrumental perspective and from traditional instrument-building techniques, it is likely that some holes that appear in the instruments can be attributed to these strings or suspension wires that have disappeared.

Group B. A very diverse group, with a diameter usually larger than group A and manufactured in copper or bronze. The embossed decoration can be geometric or vegetable motives. Many of them have been associated with rods, drumsticks and clappers that, as mentioned before, seem to have had the function of hitting the disc. Also, some of them have a sort of handle to hold them; an element that draws a lot of attention for its function.⁶

These musical objects can be classified as idiophones (Sachs 1940: 60-64). The fact that there are some *tintinnabula* with holes suggests that some of them were made to stay suspended, as seen in the typological classification. The presence of a rod (fig. 1) or hanging clappers leads us to the idea of percussion instruments, and also suggests the integration of this «sound instrument» in a ritual prior to or parallel to the burial, where those objects could be present. In the case of *tintinnabula* with drilling holes, they could be part of the deceased's belongings or attire, but it should also be borne in mind that the accompanying persons could make them sound as part of the burial processional ceremony, and then deposited them with the dead. The fact is that the presence of discs with clappers or bells, suggests a processional ritual, with movements that allow the production of sound; and there are iconographic samples in different parts of the Mediterranean.⁷ The acoustic atmosphere that derives from the presence of metal discs, and, as will be seen, of sistrums or bells, is rather a soundscape associated with burials, where the timbre particularities of these idiophones — acoustically similar - are shared by very distant areas within the Mediterranean. This hypothesis formulated here is also expressed by Giumlia et al. (2010: 470) in relation to the necropolis of Maddona del Piano, in Sicily:

The 1970-1971 excavations brought to light 844 copper-based grave gifts, 10 of which were composite objects (*tintinnabula* pectorals) [...] The so-called *tintinnabula* pectorals are particularly complex ornaments which belonged to few women who played a special role in the local community. Of these, the examples from the graves 197 and 255 have been analysed. These

and detailed descriptions (Albaiaret, Avenc Sa Punta, Son Vaquer d'en Ribera, Sa Cova and Es Morro). There are no parallels for this type of objects outside the Balearic Islands (Coll, 1989: 414; Balaguer, 2005: 281) ». (Aranburu 2017b).

⁶ A handle should not be made if it would not to be used, an argument valid for all ages.

⁷ See *Music and Sounds in Ancient Europe* (De Angeli et al. 2018), processional parades are described there by scholars, in different social contexts, from weddings to funeral rituals participating.

objects were most probably worn as pectorals hanging from a bronze chain (as more complete finds show, see Bernabò Brea, Militello, La Piana 1969, fig. 14, t. 5/1959) and tinkled whenever the person wearing them moved.

These observations about the graves of women who seemed to play an important role in the community are reminiscent of the aforementioned disquisitions of Enseñat (1981), Llinàs and others (1995) on this subject. There seems to be a link between the instruments called *tintinnabulum* and female tombs that at least the different research teams have considered, without being able to demonstrate a clear relationship. Similarly, Placido Scardina (2018: 102-105) documents the presence of the strange instrument made up of metal spirals and called *chalcophone* in female tombs in Cosenza (Calabria), which also carried bells on their necks. All of them are idiophones made of metal in various forms but of similar timbre.

The study by Giunlia et al. (2010: 482) provides an interpretive framework that also serves for the Balearic *tintinnabula*. One of the two Sicilian *tintinnabula* analysed⁸ (inv. No. 71360) was found in the grave of a woman who was wearing a round belt with decorations and the *tintinnabulum* consists of 12 *tubuli* of different diameters, made of sheet metal and 10 small rings, which were more than likely used as a pectoral. It is, therefore, an instrument with a slightly different morphology to the Balearic *tintinnabula*, but which is also called *tintinnabulum* by specialists. The *tubuli* and rings are made of an alloy that contains up to 15% tin and the different sizes of the *tubuli* are designed to obtain different chimes. It may be added here that it makes no sense to make metal *tubuli* of different diameter and length if the intention is not to produce sounds of different pitches. It is difficult to reconstruct the original form of this Sicilian *tintinnabulum*, but there is a second piece (inv. No. 71155) that is complete and allows to visualize its constitution: a perforated bar with 14 tubules — of the same size and composition — and 7 rings of different sizes. These tubules are made of pure bronze, with 11% tin; and it is almost certain that they hung from threads passing through the perforations in the bar. And finally, the conclusion is that with each step taken by the wearer of the object, the metal tubes sounded and had an apotropaic function — keeping evil spirits away — but they also served to draw everyone's attention; the attention of those people present about the person wearing them, in addition to emphasizing the richness of their attire.

Here some features shared with the Balearic *tintinnabula* can be seen; the main difference is that Sicilian objects are not disc-shaped, but are tubes: tubular bells. But we must not forget that the *tintinnabula* of Mallorca present various types, some of them with hanging rods or clappers, which could be hung striking the disc or could be taken as a rod. In the first case, they are very close to the Sicilian *tintinnabula*. A common feature among all are the holes to be hung from a frame or bar - the latter preserved in one of the Sicilian objects; but the pure, tinkling metallic sound attributable to the Balearic *tintinnabula* — whether it struck the discs or let the rods vibrate — must not differ so much from the sound produced by the Sicilian tubular bells. One aspect that would be interesting to check would be the exact alloy used on each island. In any case, chronologically the Sicilian specimens are a little earlier, dated between 1000 and the 8th-7th centuries BC (see note 7).

The studies of Giunlia and others (op. cit.) provide also an important fact: quality control in the production of Sicilian swords and the manufacture of complex objects such as *tintinnabula* demonstrates the sophistication of Sicilian workshops. In the manufacture of a silver belt, they used 17% tin, which makes the piece more fragile; but it allowed to emphasize the silver colour and to imagine that the decorative pieces, when touching each other, made a pleasant sound, with the apotropaic function described before. The same alloy would be used in the

⁸ The article is entitled "The Metallurgy of the Sicilian Final Bronze Age / Early Iron Age necropolis of Madonna del Piano" and focuses mainly on Sicilian metallurgy workshops, the metals used and the analysis of alloys with the contents of different metals in a chronological period spanning from about 1000 BC to the 8th-7th centuries BC, early Iron Age. But the careful analysis of all this material, precisely, explains many aspects of its manufacture and also the sound that could produce (Giunlia et al. 2010: 481).

subsequent manufacture of *tintinnabula* and bells in order to obtain a clearer and brighter sound (Giumlia et al. 2010: 480-481).

Therefore, remains of discs and metal rods -with or without clappers or holes- are present in different parts of the Mediterranean, also dated from the beginnings of Etruscan civilization:

The oldest sounding tools from the pre-Etruscan period are the pear or gourd-shaped clay rattles [...]. In addition, some small bronze idiophones, such as bells, *tintinnabula* and other sounding objects, have been found in Etruscan sites [...] (Li Castro 2018: 118)

Other small instruments such as bells and rattles appear in numerous sites in Catalonia and the Valencian Country (Guarch 2017), also in the Balearic Islands and Pitiusian Islands (Álvarez & Fernández 2015; Perelló & Llull 2014, 2019; Mezquida 2017) and Crete (Milan 2016). These are idiophones made of less common materials such as metal or clay. In the case of the bells, the sound obtained is very similar to what we could obtain from the *tintinnabula*, only the size and the material may influence the pitch and quality of the sound wave produced; acoustically they can be considered equivalent. Mezquida's doctoral thesis (2017: 828-831) mentions the bells found in burials in various sites of the Mediterranean — see Fig. 3— considered as elements of a religious or apotropaic nature.

The sound of the rattles,⁹ on the other hand, would be closer to the sistrum. The studies of Soledad Milán (2016: 207) documents the existence of loose discs in Crete that she attributes to elements of a sistrum; and describes the presence of sistrams of Egyptian influence made of metal or ceramics (op. cit. pp. 204-207) present mostly in Cretan funerary sites. Within Egyptian civilization, they were linked to fertility ceremonies; in the worship of Hathor, goddess of sacred music. One of her attributes was the protection of the *ka* in the other world. It should not be forgotten here that they are idiophones, with discs inserted in rods and a handle. The dates are quite far from the Mallorcan *tintinnabula*, some sistrams dated from the Early Iron Age (11th -7th BC) with metal discs. It is an earlier chronological framework, but it demonstrates how Egyptian civilization influenced Crete, where later remains of sistrams made of terracotta, wood and clay discs can be found. A terracotta sistrum from Archanes Fourni Cemetery appears at a children's funeral site; Milan (2016: 209-210) points out the possibility that symbolic copies of real objects were buried with the bodies; but in her conclusions it is pointed out the possibility of different interpretations. Milan (2016 204) cites the *manaanim*, a sistrum-like instrument initially associated with Palestine that Sachs (1940: 133) undoubtedly relates to Sumerian tombs. Kirchner (1797) also speaks of a Jewish instrument, the *minagnhinim*,¹⁰ which looks almost the same as the one mentioned by Sachs.

2. Interpretative challenges

The difficulty of interpreting all these contributions has been addressed in the article «Música y sonoridad en los ritos funerarios del Postalayótico mallorquín» (Perelló & Llull 2019). The same authors had published previous works pointing out the approach to the Balearic discs from the perspective of an interpretive archaeology, as mentioned above. In their 2019 article, they approach the interpretation of the findings of bronze discs and bells quoting authors such as John Blacking (1973) and Josep Martí (2003), references in musical anthropology and ethnomusicology. It can be seen, then, how archaeological studies use, in recent research, an interdisciplinary interpretive framework where ethnomusicological studies provide an enriching scientific perspective.

⁹ Giumlia et al. (2010) and Guarch (2017).

¹⁰ <https://babel.hathitrust.org/cgi/pt?id=nc01.ark:/13960/t7mp6932h&view=1up&seq=84>

Fernando J. Guarch starts from a broader perspective, thus adding to archaeology a strictly musicological look that initially differentiates the musical instrument from the sound object:

An "object" is understood to mean anything that serves as a subject or matter for the exercise of mental faculties; and the qualifier "sonorous" is attributed to everything that sounds or may sound, that sounds good, or that sounds a lot. In other words, we can define "sound object" as everything that occupies a physical space, that can be perceived through the senses and that when vibrates is capable of generating sound waves at a frequency audible to the human ear. On the other hand, we have the term «instrument», which is often defined as a set of pieces suitably combined to serve a certain purpose related to the exercise of arts and crafts.

Pierre Schaeffer makes a definition of «musical object» with a less physical and more ethereal character, in relation to its nature, when he says: «We understand sound as its own sound, considered in its sonorous nature and not as a material object (any instrument or device) from which it comes. (Guarch 2017: 22).

An important distinction is made here, that is to consider the sound from its own sonorous nature, and not as a material object provided by any instrument or device. This premise, one of the fundamental postulates of this study, allows us to understand that the sound of idiophones made of metal and fixed on different supports — *tintinnabulum*, bells, sistrum — is one of the recurring elements in the soundscape associated with burials in the Ancient Mediterranean. An instrument mentioned before, the *chalcophone*, can be added, as Juan Luís Gomá includes in the same category:

In formal and sonorous terms close to the calcophones are the tubular bells or *tintinnabulum*. This instrument differs from the calcophon by the inclusion of metallic tubes instead of spirals, being suspended from a support, sometimes ornamented (Gomá Rodríguez 2018: 230).

The theoretical and methodological framework of this study starts from the consideration of musical objects from the acoustic perspective, and not so much from an archaeological cataloguing. Sachs (1940: 25-26) admitted that a logical classification is difficult, because the first instrument was not «invented» in the sense that nowadays is understood — the execution of a long-planned idea — because the instruments are an artificial human invention that began first with muffled beats with hollow hands, clear beats with the flat palms, stamping with the heel or the toes: all these shades contributed to making an actual preinstrumental music. One of the most interesting methodological aspects contributed by Fernando Guarch is the realization of acoustic tests in some of the bells analysed in his work; part of the project consisted of the reconstruction of some instruments and the experimentation with both models, based on the conclusions of his doctoral thesis, which included acoustic analysis of some of the bronze bells:¹¹

Experimental archeology has conducted its experimentations beyond the exploration of mechanical processes that will lead to obtaining how and under which conditions the activities involved in the study were carried out. This has brought to a stage that involves an emotional, religious and spiritual field, more ethereal than physical, but which at no time departs from the conceptual bases of this discipline. There is in this thesis a part highly related to a previous concept: the bells and the study of their sound. The possibility of having a certain sonorous object with the physical qualities in almost the same conditions as at the time it was created (at least, this allows you to recreate them) is a tempting aspect for a researcher interested in this topic [...] The analysis of the resulting sounds when the bells are struck, has represented an important aspect of the work, since, in our opinion, it has contributed a series of data that have propitiated the hypothesis of the use of the sound with a more spiritual character than merely the sonorous one and, consequently, distinguishing sound with a playful functionality from that of a spiritual or magical functionality (Guarch 2017: 39-40).

¹¹ Perhaps more research has to be done on the reconstruction of the Balearic *tintinnabula* and the measure of the sound produced; its pitch and characteristics.

Finally, it must be said that the starting point here was the study of *tintinnabula*, bells and sistrums as idiophones of the same category made mostly of bronze - and other alloys such as iron and tin. They are considered, here, as equivalent sound objects of the family of idiophones that appear in funerary contexts in many places in the Mediterranean, with similar acoustic properties. In this sense, the classification of idiophones provided by Guarch (2017: 30) which is detailed in Fig. 2 below, allows us to visualize this concept of sonority: idiophones with different possibilities of manipulation.

Idiófonos	
De entrechoque	Formados por más de un ejemplar, entrechocan entre ellos para producir sonido
De percusión	Son instrumentos contruidos por una o más piezas que son golpeados por un elemento diferente para producir sonido
Pateados	Todos aquellos materiales que precisan o pueden ser golpeados con los pies para emitir sonido
Pateadores o de apisonamiento	Aquellos que precisan ser golpeados contra el suelo en un movimiento vertical
Sacudidos	Material dispuesto para producir sonido al ser sacudido (es el caso de las sonajas)
Raspados	Aquellos que presentan muescas en su superficie produciendo un sonido rítmico al ser golpeadas reiterativamente por el paso de un elemento tipo palillo.
Punteados	Constituidos por una pequeña lámina asegurada a un marco que se puntea con el dedo
Frotados	Idiófonos que precisan de la adherència al ser frotados, tanto por un objeto similar como por uno diferente

Fig. 2. Idiophones classification by. Guarch (2017: 30)

It is worth highlighting its economic value, important in the Talayotic and Postalayotic, with a manufacturing process that was expensive for the metallurgical workshops of those historical periods. Only the possession of apotropaic or protective properties, or the ability to gather a very important symbolic burden for the community explains its amortization in burials. The existence of real instruments and others that could be a representation of what the «real» instrument was also speaks to the high degree of symbolism they had achieved (Giumlia 2010: 482).

Also, the symbolic traditions associated with different musical instruments are important here, which are often very difficult to document. Thus, Josep Gustems (2003) speaks of the symbolism associated with the recorders, in a kind of mythological heritage. *Tintinnabulum* and bells, in their different shapes and materials, have accompanied the funerary sound tradition throughout the Mediterranean. A tradition that it is still present in the language of church bells, calling for funerals, especially in small towns.

The elements analysed here lead us to the consideration of a performance context present in processional ceremonies, accompanying the singing; where the discs could sound in some parades. In any case, most of the sound objects described here need body movement (Giunlia 2010: 470; Perelló & Llull: 107) rather than static positions. The clappers, bells, and discs were to tinkle, they could be part of the clothing of the dead or the conductors of the funeral ceremonies; or of the participants, who could strike them. Sachs (1940: 26) describes the *strung rattle*: «It was made to stress dancing —that is, a complex activity, in which the movements of the head, the arms and the trunk were not audible without an added device».

Underlying all these objects linked to burials within the Mediterranean context, remains the sound *idea* produced by the bells and the tinkling. One should not think so much of the repertoire or «pieces» that could be performed but of the «*sound idea*» or «*timbre concept*» that was obtained. In short, a symbolic conceptualization of sound that approaches the concept of music associated with ritual, with the possible function of protecting or leading the buried human being, but with the same timbre concept shared in the Mediterranean. Therefore, it is a fact that this exchange between different Mediterranean communities was not only goods, but also cultural, religious and anthropological practices.



Fig. 3. Map where the places quoted in the references can be seen. It is not an exhaustive index, but a visual map that labels the approximate locations where idiophones appear, the vast majority in funerary contexts. The map legends are: Gi (Giunlia and others 2010), Go (Gomá 2018), Gu (Guarch 2017), Li (Li Castro 2018), Me (Mezquida 2017), Mi (Milan 2016), P & L (Perelló & Llull 2014, 2019); Sa (Sachs 1940). There are some places that appear in various studies, but here the main reference is mentioned. The bibliographic references of each study mentioned here provide the detailed account of places. Source: personal elaboration.

3. An approach to the musical practices of the early Christian basilicas of Son Peretó and Sa Carrotja¹²

Centuries after the Postalayotic *tintinnabula*, another *shared soundscape* appears, a *vocal soundscape* that began its presence in the social and religious life of the Mediterranean people and is not so much related to burial rituals. The Christian community of Son Peretó has been dated from the 5th century AD to the 8th century (Riera et al. 2012, 13). This basilica with its baptistery contains a cemeterial area, which became a habitat later, a small town that would carry out daily exploitation activities of nearby resources. Despite the local peculiarities of an expanding but young Christianity, there was a common Christianity throughout the Mediterranean favoured by trade. In order to understand the Christianity roots in the Balearic Islands within this context, it is necessary to take into account the relationships of the Balearics with North Africa, where the churches showed a great vitality throughout the 6th century. The documents that allow to know the primitive church of Mallorca and Menorca are, above all, the circular of Severus, bishop of Menorca (5th century), which describes the musical practice of these islanders. In this sense, the studies of J. Amengual i Batle (2004, 16) are very important, who says:¹³

Severus describes an enthusiastic and even fanatical community, which ardently yearns for the conversion of the Jews. The community itself celebrates with hymns, psalms and the Eucharist the successes that God has granted [...]. It clearly tells us that the Christian people were able to sing hymns and psalms, and also to participate actively in the celebration of the Eucharist — “nobiscum”, “with me”, says Severus [...]. As we have shown before, it is the first of the Latin texts that adopts the term *mass* in an autonomous manner in order to designate the celebration of the Eucharist.

The fact that the term *mass* appears in a Latin text for the first time is an extraordinary fact and quite unknown outside the Balearic Islands; this text is linked, obviously, to the local Christian life. Severus provides details that are very important; describes the presence of a powerful Jewish community and the efforts of the Christians to convert them. This testimony of the Jewish diaspora following Palestine occupation by the Roman is significant. It is a reasonable hypothesis to think that part of the musical uses of the Jewish people were used in parallel within the new Christian context, in very close communities that exerted a mutual influence on musical practices.

However, the highlight of Severus' letter is the clear description of the songs. The distinction between psalms and hymns that are not psalms is a distinction that must be explained, according to McKinnon (2000): psalm songs use unaltered texts from the Scriptures, while others adjust the biblical text freely. Amengual's contributions (2013) explain the Christian rituals as highly structured in the Balearic Islands. Amengual (op. cit. p. 13) says that there are serious grounds for considering Consentius, a secular theologian, as the literary author of this letter, even though the legal and historical responsibility lies on the bishop Severus. Likewise, Consentius maintained epistolary contact with Saint Augustine, to whom he requested a meeting, probably in Hippo, which finally did not take place (Amengual 2013: 17). All these data clearly document the relations between the North African settlements and other Roman nuclei, which is also highlighted by Amengual (op. cit. p. 13).

On the other hand, in «La població de Son Peretó vers la mort» (Riera et al.: 2012, 35) it is stated that Christians, in burial ceremonies, kept the gathering called *refrigerium*, or meal that was related to the paradise of God, and, as proof, holes for libation have been found on the roofs of certain tombs. But also objects such as *alfàbies* and pots, poured into a hole where some remains of wildlife could be found. McKinnon refers to the text of Tertullian of

¹² There are other early Christian basilicas in the Balearic Islands, but as mentioned before, the research started from a specific municipality that expanded to a wider geographical framework. Specifically, Amengual (2013: 20) documents in Mallorca, apart from those of Son Peretó and Sa Carrotja in Manacor, the basilicas in Cas Frares and Santa Maria del Camí, and the one that has recently been discovered in Son Fadrinet, Campos. Illa del Rei, Es Fornàs de Torelló and Illa dels Coloms are located in Menorca, in addition to the best known ones: Son Bou and Cap des Port de Fornells. In Ibiza is located the Basilica of Santa Eulària del Riu.

¹³ See *Història de l'Església a Mallorca* by Xamena & Riera (1986).

Carthage — place that can be considered within the scope of a possible influence in the Islands — where the liturgical practices of the community are described, with the agape, an evening ritual where the singing played an important role, along with eating and drinking altogether. It seems that at a certain point, some abuses caused that the Eucharistic practices of evening dinners were moved to the mornings — already in the first centuries —, but perhaps the communities of the Balearic Islands maintained this custom until later. McKinnon (2000: 33) states that the psalms and hymns were typical aspects of those celebrations, as confirmed by Severus' letter; and he adds that they were chants performed at the evening meals and not so much at morning rituals.

The Book of Psalms was one of the most widespread texts in the first centuries of Christianity. Jesus was seen as a new David, but in reality, the Book of Psalms was more a book to be read rather than a book to be sung; a common feature shared by the Jews who also considered it one of the three prophetic books. Newly written hymns were composed as a new form of lyrical expression by early Christians, as McKinnon (2000: 30-31) points out. Also, he stresses out that it is a simplification to say that the Jews had the Book of Psalms as a reading book only, because that was how it was in the synagogue; but not in the temple, where it was sung. This proposal by McKinnon does not fail to show the use of the same texts and readings to be sung within the Christian and Jewish communities of the Mediterranean in the fourth century; in fact, he clarifies that the Psalms should be considered to have been sung in informal contexts outside the temple and in festivities involving different sections of the population — not just the Levites, for example. In short, in terms of the popularity of the two compositional forms, hymns enjoyed a great expansion, but the psalms should be considered as one of the basic and first materials for musical composition.

The early Christians took as the most important moment of celebration the model of Jesus' last meal with his disciples. For this reason, from the third century the descriptions of Christians singing are given during the agape, and two of the most complete testimonies belong to Tertullian of Carthage and Hippolytus, who give a very important role to singing according to McKinnon (2000: 33), who adds: «The early Eucharist was celebrated at such meals, and we can thus suppose that psalmody and hymnody were a typical if no obligatory feature of the early Eucharist». It should also be reminded here that the songs seem to be associated more with the evening supper and not so much with the morning Eucharist as it had been in previous centuries. What was never missing in the mornings were the readings.

The beginnings of the basilica of Son Peretó, as a religious and social nucleus, coincide in the times when the structuring of the Office and the Eucharist — later the Mass — are carried out in Christian communities (McKinnon 2000: 35). Son Peretó and the basilica of Sa Carrotja, due to their insularity, might seem isolated, but the data do not lead to this conclusion:

In short, all these data make us imagine a mixed agricultural and livestock community that intensely exploited various resources within its territory, but imported other products from around the Mediterranean, as evidenced by the presence of amphorae from Africa, Hispania or the Eastern Mediterranean, among others. Apart from the food products that arrived in amphorae, the community used kitchen and table ceramics produced in other places, such as African crockery (TSAD), Gaelic (DSP) or common ceramics of Ebusitan or African production, and kitchen pottery from other parts of the western Mediterranean. Son Peretó, therefore, was within the Mediterranean exchange circuits and was part of an international network; received its products from the nearby Port of Manacor or through large commercial ports and redistribution centres, such as Palma or Pollentia, and its distribution networks (Cau et al. 2012: 37).

In this context, it is necessary to consider that the findings of different ceramics can be considered like documents:

Ceramics is considered today as a definitive documentary source, in a peculiar way to approach the Iberian culture: ideology, religiosity, economy and social classes. Craftsmanship and artistic sensibility ... And therefore, a very sure way to approach an

anthropological and ethnological interpretation of these people (Hernández García 1992: 52).

The findings of pottery allow to establish a clear link between the basilica of Son Peretó and the Christian communities of North Africa. Severus' description of the chants coincides with Tertullian of Carthage descriptions and St. Augustine, referenced by McKinnon (2000),¹⁴ and shows the same geographical and chronological framework. The findings of the tombs with libation holes lead to think that the rituals of the evening meals shared by the community were common; and there was room for musical performances as well. The disappearance of the basilica of Son Peretó towards the end of the 7th or beginning of the 8th century coincides with moments in which the definitive structuring of the Proper of the Mass was carried out in the Carolingian kingdom, a repertoire that will not be able to arrive directly until the Catalan conquest. But before that, Mallorca will live three hundred years of Islamic domination.

The early Christian basilica of Son Peretó undoubtedly had a truly important weight as a religious community and population centre. Some elements display this importance, such as the splendid Baleria mosaic, with an unusual iconography of great visual strength. Canyelles and Mas (2009) already point out to the importance of this woman, probably a presbyter, to whom this splendid tomb was dedicated. It is necessary to note, here, that the vast majority of people could not read, but were able instead to understand the iconographic message in order to deduce the social or religious position of the buried person (figure 4). Its importance as a centre of worship can be deduced from the whole archaeological complex; and therefore, the certainty that the musical practices of the early Christian communities were well present.



Fig. 4. Baleria's mosaic. Museu d'Història de Manacor. Photo by Olaf Tausch¹⁵

¹⁴ Son Peretó is dated in the fifth century, contemporary to Saint Augustine but almost two centuries after Tertullian of Carthage. The descriptions of musical practices, based on McKinnon (2000), clearly match.

¹⁵https://commons.wikimedia.org/wiki/File:Manacor_Museum_Sp%C3%A4tantiker_Saal_03.JPG#/media/File:Manacor_Museum

Conclusions

From the first articles published on the bronze discs of the Islands to the last article published in 2019 by Laura Perelló and Bartomeu Lull, it should be emphasized how the referential theoretical frame has changed for archaeologists, who have broadened their interpretive proposals by going to the framework of comparative musicology and anthropology of music. At the same time, all the archaeological findings help to shape the soundscape of Antiquity from an ethnomusicological perspective, as they underpin interpretive, performance hypotheses: from the use of sound as an element associated with rituals — and therefore a conceptualization that becomes symbolization— to the point of considering the possibility of the existence of a kind of primitive *conductus*¹⁶ to accompany the dead.

The existence of the links of communication between the Christian communities of the Balearic Islands and those of North Africa, by means of the rest of objects and ceramics, the descriptions of the letter of Severus and Consentius allows to figure out the interpretation of a repertoire of songs, a vocal soundscape shared between the Christian centres of the Balearic Islands and North Africa; and which can be included in the pre-Gregorian repertoire.

After analysing the contributions of the different researches cited, the main conclusion is that common sound contexts appear in a millennial Mediterranean much more connected than we usually imagine today. Despite some hypotheses of a certain local identity — in the case of the manufacture of *tintinnabulum* and certain ritual uses — the coincidence of many elements suggests a common anthropological substratum that can only be explained by a habitual exchange of goods, customs, and beliefs that are assimilated locally but that form the same cultural cradle: the Mediterranean Sea. An exchange that this study has tried to follow, taking into account the periods mentioned, nearly a millennium.

In conclusion, the extension of the local perspective to comparative research with other geographical areas greatly enriches the interpretive framework, and influence interdisciplinary methodologies and theoretical contexts that allow to articulate new responses to musical uses and their meaning in the past; and not forgetting the constant updating from archaeological studies.

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¹⁶ *Conductus* is understood here as a musical form that has the function of accompanying a processional parade in a religious or ritual setting.

¹⁷ All the citations included were checked on the 14th of November 2019.

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