Cymbals playing in a Roman mosaic from Mariamin in Syria

Audrey Cottet

Abstract The mosaic of the six female musicians from Mariamin in Syria depicts in exquisite detail a late antique musical performance. The present study focuses on the cymbal tongs player and the finger cymbals player from this mosaic, who have raised little interest so far, yet provide much information on cymbal playing in the Roman-Imperial period. The first part of this work studies the technical aspects of cymbal playing revealed by the Mariamin mosaic. It discusses the typology and playing techniques of cymbal tongs, using a comparative iconographic approach and an experimental reconstruction approach. The Mariamin mosaic portrays a type of cymbal tongs in which the cymbals are struck laterally, in contrast to cymbals tongs in which cymbals are struck frontally, the only type discussed by archaeomusicologists to date. Significantly, lateral cymbal tongs similar to those of Mariamin appear in other late antique mosaics from Bulgaria and Algeria, suggesting that this instrument was widespread. The reconstruction of lateral and frontal cymbal tongs shows that the two instruments sounded different. The Mariamin mosaic also provides information on the use of small cymbals attached directly to fingers. It shows a finger cymbal tying system that seems to differ from the few other Roman examples known to date. It also shows that finger cymbals players could use two different pairs of cymbals to make two different musical notes, one with each hand. These findings illustrate the technical richness of cymbal playing in the Roman Empire. The second part of this work discusses the instrumental associations visible in the Mariamin mosaic, placing them in the context of other late antique representations. The trio of three resonant metallic instruments discernible in the Mariamin band (cymbal tongs, finger cymbals and acetabuli) illustrates the Roman-Imperial taste for abundant metallic tinkling. Finally, the inclusion of cymbal tongs or finger cymbals in musical bands recurs in mythological representations. The cupid disguises of the two children in the Mariamin mosaic echo these images. However, the scene depicted by the mosaic seems anchored in the reality of the late Roman Empire. Remarkably, the Mariamin mosaic shows that ‘simple’ small cymbals could hold an important place in a high-class musical band equipped with prestigious instruments.

Keywords: cymbal, dance, iconography, late antiquity, mosaic, music, organology, Roman world

The Mariamin mosaic: a rich source for archeomusicology
The ‘mosaic of the female musicians’ is the emblema of a mosaic pavement found in 1960 in the ruins of a Roman-Imperial building, in the village of Mariamin, near
Hama in central Syria.\textsuperscript{1} A stylistic analysis gives a dating towards the end of the fourth century or beginning of the fifth century.\textsuperscript{2} The surface with the dimensions 3.80 m x 2.78 m shows a group of six female musicians with different musical instruments (Fig. 1).\textsuperscript{3} The public or private context of the represented performance is

\textsuperscript{1} Zaqzuq & Duchesne-Guillemin 1970.
\textsuperscript{3} The present study includes high-resolution photographs of the Mariamin mosaic taken by Dick Osseman in 2009. In their original form, these pictures reflect the viewpoint of a visitor in the

---

*Fig. 1 Mosaic of the Female Musicians from Mariamin (Museum of Hama, Syria). Photograph: ©Dick Osseman.
debated, but the wooden platform visible in the foreground evokes a show for a rather large audience. The six women wear earrings and heavy dresses with rich decorations, which convey an impression of wealth. The large number and variety of musical instruments suggests a cutting-edge performance, represented with the probable purpose of impressing the viewer of the mosaic. From left to right, one can first see a woman who plays cymbal tong, i.e. two cymbals mounted on a pair of tongs. Then comes a woman who plays a richly decorated organ with twenty-seven visible pipes, assisted by two children dressed as cupids, who press the bellows of this instrument with their feet. In the centre, one woman plays the double pipe (aulos in Greek or tibiae in Latin), a ubiquitous instrument in Roman-Imperial music. Another woman uses two sticks to strike a set of resonant bowls placed on a small table, a device called acetabuli in Latin. The yellow colour of the bowls suggests a metallic composition, which is consistent with descriptions in Latin texts from the fifth and sixth century CE. Among these, Cassiodore’s writings report that the sounds emitted by the acetabuli amazed late antique audiences. Farther to the right, a woman plays a large concert kithara with nine strings and a large soundboard with decorations and a square base. Finally, on the far right, a woman seems to play finger cymbals, which consists of two small cymbals per hand, attached directly to fingers (the identification of these last instruments will be discussed below). The flexion of her right knee, visible through her dress, and her pointing right foot, suggest that she is about to take a dance step.

Scholars consider the mosaic from Mariamin to be a rich documentary source for historical studies on music and entertainment due to its high quality and the large
A. Cottet

Vol. 9, 2022

CLARA

variety of instruments represented. Although some problems were encountered by the mosaicist(s) in the attempt to render the perspective, which are particularly visible for the acetabuli table, this mosaic shows a great intention of realism: it represents characters and objects with an unusual amount of detail. One can even see the fingernails of the musicians, the knots of the wood, and the fasteners on the wooden planks of the platform, maybe metal nails or spikes. Accordingly, the mosaic also depicts musical instruments in great detail. Some of the instruments from the Mariamin mosaic have been thoroughly discussed. In particular, Jean Perrot has underlined the prominent importance of the Mariamin mosaic for

Fig. 2 Cymbal players in the mosaic of Mariamin. Panel (a): Cymbal tongs player. Panel (b): finger cymbals player. Photograph: ©Dick Osseman.

10 See for instance the references in the previous notes and also Perrot 1973; Duchesne-Guillemin 1975 and 1996; Dunbabin 1999, 170-174 and 2008; Kiilerich 2015, Chapter 8.
documenting the history of the organ. The Mariamin acetabuli have also raised a lot of scholarly attention because only two Roman-period representations of this instrument have been identified so far. In contrast, the cymbal tongs on the far left of the mosaic, and the finger cymbals on the far right, have received little attention to date (Fig. 2). This might be due to the relative simplicity of these instruments. More generally, cymbals playing has been the subject of very few dedicated studies for the Roman period. Cymbals are often evoked in the framework of more general studies or reviews on music, art or cultic history. The purpose of the present work is to put forward information given by the Mariamin mosaic on cymbal playing in the late Roman Empire.

**Cymbals before and during the Roman period**

Cymbals are among the oldest musical instruments. Many metallic cymbals have been found at ancient archaeological sites. These cymbals are generally composed of a hollow cup, surrounded by a flat or upturned rim, although the rim is sometimes absent in representations. They display either a small handle or a hole at the centre of the cup, to hold or attach them. Pictorial works are essential to learn how one played cymbals. In representations known so far for the Babylonian, Assyrian, Hittite and Greek societies, musicians hold one cymbal per hand and clap the two together. For clarity, I will call this practice ‘hand cymbals’. In Roman-period representations, a diversification of cymbals playing techniques is apparent. Hand cymbals were still very popular. However, there is also pictorial evidence of cymbal tongs, which consist of two small cymbals each attached to a wooden or metallic stick that are joined at one end to form a pair of tongs. In general, cymbal tongs players are depicted with two pairs of tongs, one per hand, as in the Mariamin mosaic. A few representations show that Roman-Imperial performers also happened to attach directly two small cymbals to two different fingers of one hand and join the fingers to clap the cymbals. This ‘finger cymbal’ technique recalls the one used today in Middle Eastern dances or music from Egypt or Turkey. Alternatively, the

---

14 Hickmann 1949; Vendries 1999; Habetzeder 2012; Cottet 2022.
15 For example, see Baudot 1973, 47-51; Homo-Lechner & Vendries 1993, 45 and 51; Parrish 1995; Bélis 1999, 83; Vendries 2001; Latham 2014/2015; Liveri 2018; Colangelo 2018.
17 See Cottet 2022, note 59 for some examples of representations of cymbals without rims.
18 Duchesne-Guillemin 1981.
19 Alp 2000, 9-11; Şare 2017.
20 McNally 1978, fig. 2; Castaldo 1995; Liveri 2013.
21 Cottet 2022.
22 For Turkey, see Picken 1975, 18-22 and fig. 2; for Egypt, see Marcus 2007, 46 and 51, figs 2.4 and 9.5.
mosaic of the Bacchic Procession from Madaba in Jordania, dated to the first half of the sixth century, shows an acrobatic hand-to-ankle technique: a dancer has one cymbal attached to the back of each of her ankles, and one cymbal in each hand. She strikes the cymbal from one ankle with the cymbal of her opposite hand by lifting the leg backwards and arching. Cymbals were sometimes integrated into Gallo-Roman versions of the sistrum, a rattle of Egyptian origin. It is also possible to observe representations of frame drums with pairs of cymbals inserted in the frame on Roman-period sarcophagi. Finally, it seems that cymbals could be part of the scabellum, a kind of foot clapper used by Roman double pipe players to mark the rhythm. This represents in total seven possible ways to play the cymbals: hand cymbals, cymbal tongs, finger cymbals, hand-to-ankle cymbals, frame drum with cymbals, sistrum with cymbals and scabellum. On top of this multiplicity of playing techniques, cymbals were used by the Romans in a large variety of contexts. They were often associated with Bacchic rites, which is the reason why they appear in numerous representations of Bacchic processions. They were also an important element in the Cybele cult imported from Anatolia. Beyond this worship context, the presence of dancers using cymbal tongs in banquets is testified by iconographic sources. Cymbals and scabellum players were also involved in theatrical genres such as mime and pantomime.

25 One example is the Casali sarcophagus with Dionysus and Ariadne, dated c. 190 CE, originating from Rome and held at the Ny Carlsberg Glyptotek in Copenhagen (inv.no. 843). On this sarcophagus, three frame drums are visible, with elements that look like cymbals (with a cup and a rim) integrated into the frame. One drum shows the cymbals placed in pairs positioned with the rims face to face (the delimitation between the two cymbals is clearly represented with a groove). A second example is the lenos sarcophagus with Dionysian scenes at the Pushkin State Museum of Fine Arts in Moscow, dated c. 210 CE. It shows a single frame drum with cymbals inserted at three places around the frame. The cups and rims of the cymbals are visible. Turcan 1966 discusses the dating of these sarcophagi.
26 On a sarcophagus at the Palazzo dei Conservatori in Rome, dated around 170/180 CE, a scabellum is visible, with circular elements between its two soles, which have a concave shape evocative of cymbals. Before the Roman era, the scabellum had a Greek ancestor, the kroupezai, on which organologic data are lacking (no metallic component is attested). For more details, see Bélis 1988.
27 For example, see Parrish 1995 and note 95.
29 Examples are found in the banquet mosaic from Carthage dating from the sixth century and discussed in Yacoub 2002, 243-248, and on the Brescia casket, an ivory box from the late fourth century discussed in Watson 1981. The Roman-Imperial mosaic of an open-air banquet very recently found in the ancient city of Germanicia in Turkey provides another example (see Demirören News Agency 2022).
Methodology

In the following, I will focus on the cymbal tongs and finger cymbals visible in the Mariamin mosaic, which both require four small cymbals, two per hand, clapped either with tongs or directly with the fingers. The purpose of the present archeomusicological study is to put forward information provided by the Mariamin mosaic on the organology of these instruments, their playing techniques and their context of use. Despite the pictorial style of the Mariamin mosaic, which shows a profusion of detail, one has to be conscious that quite generally, the use of ancient images as sources for archaeomusicology requires caution due to possible inaccuracies in the representations. One can also face difficulties of interpretation of the images due to their ancient cultural context and due to iconographic conventions. To avoid these pitfalls as much as possible, the present study puts the Mariamin mosaic in perspective with remains of ancient instruments, with other representations from the same period and with experimental tests performed with modern reconstructions of the instruments. This mirrors the field of archaeomusicology which is at the crossroads of different domains such as archaeology, comparative iconography and experimental archaeology.\(^{31}\) The construction and study of replicas or reconstructions of ancient instruments is a growing trend in archaeomusicology.\(^{32}\) Ancient musical instruments are rarely fully preserved due to deterioration over time. In particular, parts made with wood or other organic materials are prone to decomposition. For instance, many metallic cymbals have been found without any tying system, and fully preserved cymbal tongs with wood sticks are very rare. In this case, the reconstruction of ancient instruments is particularly useful to understand their organology. Besides, for obvious conservation reasons, the few well-preserved ancient music instruments in museums, such as cymbal tongs, cannot be played. In these circumstances, replicas can be valuable for attempting to evaluate the mechanical and acoustic properties of ancient instruments and to test out possible playing techniques. Note that an instrument can be reproduced with various degrees of accuracy, depending on the purpose of the experiment. If the replica is made to test one particular functionality of the instrument, such as its acoustic properties, making an exact copy with all characteristics matching is not considered necessary.\(^{32}\) In this case, a ‘functional replica’ can be sufficient. Other sources for archaeomusicology include textual sources. Based on our current state of knowledge, ancient texts contain only possible allusions to cymbal tongs and finger cymbals, and do not provide clear information on the organology or playing technique of these instruments. To avoid redundancy with another recent study, I will not discuss these sources here.\(^{33}\)

---

\(^{31}\) Homo-Lechner & Vendries 1993, 11-18

\(^{32}\) Eichmann 2017.

\(^{33}\) See details in Cottet 2022.
Cymbal tongs in the Mariamin mosaic and beyond

The typology of cymbal tongs in the light of the Mariamin mosaic

Frontal and lateral cymbal tongs

The cymbal tongs player of the Mariamin mosaic partially hides behind the organist and the two children, but her instruments are represented in detail (Figs 3a, 3b). The bottom of each tong is made of a cylindrical handle with a small ball at its end. The two curved ends of a ribbon are visible for the right hand, hanging down below the handle (Fig. 3b). Such a ribbon might also be discernible for the other hand. In the right hand of the musician, three horizontal dark brown lines are visible on the tongs handle. The handle of each instrument supports two long sticks, which are significantly thinner than the handle. Five dark brown lines are perceptible at the top of three of the sticks (for the fourth, nothing is visible due to mosaic damages). More precisely, on each of the three undamaged sticks, two parallel lines are located below the cymbal, two near the centre of the cymbal, and one above the cymbal.

34 There are some lines extending from the handle of the left-hand instrument towards the left, but these lines have a shape, direction and position with respect to the handle which is strangely inconsistent with what is visible in the right hand. This might be due to an attempt to represent the motion of the ribbons while the cymbal tongs is shaken.
Fig. 4 Frontal cymbal tongs (a) detail of the sarcophagus n. 115172, conserved at the National Roman Museum, drawing: ©Audrey Cottet; (b) frontal cymbal tong from Egypt (Roman period) British Museum, inventory number EA54014, face and side view, ©The Trustees of the British Museum; (c) frontal cymbal tongs functional replica, face and side view, ©Audrey Cottet.
The simplest interpretation for the lines on the handle and sticks of the instrument is that they are decorative grooves carved into the wood.\textsuperscript{35} Indeed, such decorative grooves are very common on Roman-period small percussion instruments such as cymbals\textsuperscript{36} and wooden clappers.\textsuperscript{37} The Louvre and the British Museum also conserve metallic cymbal tongs decorated with many parallel grooves on the handle.\textsuperscript{38} Regarding the cymbal tongs in the Mariamin mosaic, the rims of the cymbals are represented with a ring of tesserae with a light yellow or brown tone, depending on the light reflections and shadows that are depicted. The cymbals’ cups are depicted with light brown tesserae, plus a few light yellow tesserae that evoke light reflections. This renders well the volume of the cymbals’ cups and their metallic nature. Surprisingly, the four cymbals attached to the tongs are oriented in the same way. More precisely, the convex side of the four cymbal cups is towards the viewers of the mosaic. This feature is indisputable because the four cymbals appear behind the sticks, which are necessarily in contact with the convex part of the cups.\textsuperscript{39} As a result, the two cymbals from a given pair of tongs can only touch from the side. This feature is unexpected in the light of other detailed representations of cymbal tongs, which show the concave sides of the cymbals facing each other. For instance, Fig. 4a shows the details of a sarcophagus, at the National Roman Museum in Rome, dating from the second half of the third century CE. There, one can see a cupid who plays cymbal tongs, with the rims of the cymbals face to face. Museums hold several specimens of this type of instruments. For instance, the British Museum holds a well-preserved pair of cymbal tongs from Roman Egypt (Fig. 4b). This specimen has wooden tongs and a handle covered with leather. Its general shape is in good

\textsuperscript{35} One might consider that the three lines on the tongs handle depict a ribbon coiled three times around the handle, but this interpretation is not very plausible because the lines would be tilted with respect to the handle, as visible for the orange ribbon in Fig. 5b.

\textsuperscript{36} For example, Ziegler 1979, 63-69.

\textsuperscript{37} See, for instance, the wooden clapper 1914,0902.2 conserved at the British Museum, found in Antinopolis, Egypt, and dated between the third and the eighth century. In the photograph available for this instrument, the brown tone visible inside the grooves due to the shadows is consistent with what is visible in the Mariamin mosaic. See https://www.britishmuseum.org/collection/object/G_1914-0902-2

\textsuperscript{38} See the cymbal tongs AF6875 conserved at the Louvre, from Antinoe, Egypt, probably dating to the Roman period from Ziegler 1979, https://collections.louvre.fr/en/ark:/53355/c10010010937, and the cymbal tongs EA26260 from Roman Egypt, held at the British Museum, https://www.britishmuseum.org/collection/object/Y_EA26260

\textsuperscript{39} In antique representations, as well as today, musicians always hold or attach a cymbal from the convex side of its cup. This is the most convenient way to avoid constant physical contact between the cymbal’s rims and a supporting element or a hand. Letting the rim free is essential because the sound of a cymbal is produced by vibrational modes mainly hosted on the rim. Constant physical contact with the rim would strongly damp the sound of the cymbal. Accordingly, musicians strike the rims of two cymbals together because this is a very efficient way to excite the vibrational modes of the cymbals.
pictorial correspondence with the stone relief of Fig. 4a. In the case of the British Museum specimen, one of the sticks is thinner than the other. This feature is not visible on the sarcophagus, but this might be due to a limitation of the stone carving technique. A similar asymmetry is visible in remains of wooden tongs at the Cairo and Louvre museums. Several museums also hold Roman-period specimens of cymbal tongs with symmetric metallic branches, and the cymbals placed again with the rims face to face. These data suggest that there existed two types of cymbal tongs in the Roman Empire: those where one strikes the cymbals face to face, which we will call frontal cymbal tongs (Fig. 4), and those where one strikes the cymbals side to side, which we will call lateral cymbal tongs (Fig. 3). As shown below, the existence of lateral cymbal tongs is further supported by two other late antique representations and a reconstruction of this instrument.

**Other representations of lateral cymbal tongs**

So far, scholars have discussed frontal cymbal tongs exclusively. However, reconsidering the Roman-Imperial musical iconography with the example of the Mariami mosaic in mind, it is apparent that lateral cymbal tongs are visible in other cases, too. For instance, one can recognise lateral cymbal tongs in the Procession of Dionysus mosaic found a decade ago in Stara Zagora (Augusta Traiana) in Bulgaria. According to stratigraphic observations, this mosaic dates from the third quarter of the fourth century CE. It represents two bacchantes, one playing finger cymbals and another playing cymbal tongs, dancing together with a satyr who holds a pedum (shepherd’s crook) above his head (see Fig. 5a). The cymbal tongs from this mosaic are necessarily lateral cymbal tongs. Indeed, the four cymbals are placed before the sticks, so that the concave parts of the four cymbals cups are shown to the viewers of the mosaic. A small dot is visible in the centre of each cymbal, which must correspond to the attachment between the cymbal and tongs at the level of the central hole of the cymbal. Interestingly, various details of the cymbal tongs in the Stara Zagora and Mariamin mosaic are very similar. A very small part of the tongs protrudes above the cymbals in the two mosaics. A small ball delimited by grey

---

40 Object AF 1537 from the Louvre is an asymmetric wooden tong found in Antinoe, Egypt, dated between the end of the fourth and middle of the seventh century. [Link](https://collections.louvre.fr/ark:/53355/c1010042026). Plate XXII, A B and C of Hickmann 1949 shows a seemingly asymmetric wooden tong, severely damaged, which was found together with two small cymbals with diameter 5.8 cm.

41 See the Egyptian cymbal tongs AF6874 et AF6875 at the Louvre, [Link](https://collections.louvre.fr/en/ark:/53355/c1010008759) and [Link](https://collections.louvre.fr/ark:/53355/c1010010937) and the instrument EA26260 at the British Museum, [Link](https://www.britishmuseum.org/collection/object/Y_EA26260).

42 For example, see Hickmann 1949, 523-524; Ziegler 1979, 65; Adato & Judy 1984, 15; Swift et al. 2021a.

43 See Kamisheva et al. 2015; Kamisheva 2015; and Cottet 2022 for a detailed description of this mosaic.
tesserae is located at the bottom of the handle of the tongs in the right hand of the Stara Zagora dancer (Fig. 5c), but this detail is not visible in her left hand due to damage to the mosaic (Fig. 5d). This ball recalls the ones visible below the tongs handle in the Mariamin mosaic (Figs 3a and 3b). In both mosaics, the cymbal tongs appear to be decorated with ribbons. One minor difference between the two mosaics is how the ribbons are tied to the tongs. Angled orange stripes are visible all along the tongs in the Stara Zagora mosaic (Figs 5c and 5d). This suggests that
ribbons were wrapped around the length of the instruments. In the left hand of the player, the ends of these ribbons seem to hang below the handle (Figs 5a and 5e). Below the right hand, the ends of the ribbons are difficult to distinguish from the folds of the dancer’s dress (Fig. 5c).

The mosaic of the Toilet of Venus, from the Roman city of Cuicul (now Djemila) in Algeria, provides another example of lateral cymbal tongs. This mosaic dates from the second half of the fourth century CE at the earliest. On the wide border, which surrounds the main scene of the mosaic, one can see a musical procession on a boat, which carries a man playing the lituus (a kind of curved trumpet), two cymbal tongs players, a rower and a fifth character possibly holding a garland (Fig. 6a). From their clothing, the cymbal tongs players seem to be a man and a woman (on the left and right respectively). This procession represents only a small secondary scene in the border of the mosaic. Consequently, the cymbal tongs are small in comparison with the size of the tesserae used by the mosaicists, and their representation is less accurate than in Mariamin and Stara Zagora. Nevertheless, many details recall the Stara Zagora mosaic, and in particular, the similar placement of the four cymbals, all oriented in the same way, with the sticks behind and a small dot at the centre of each cymbal, which indicates that the musicians are showing us the concave sides of the cymbals (Figs 6b-d). Another striking detail in the Djemila mosaic is the systematic alternation of dark red and light beige tesserae all along the sticks of the instruments. This recalls, in a more awkward style, the alternation of orange and grey tesserae along the tongs in the Stara Zagora mosaic, which depicts ribbons wrapped along the tongs (Figs 5c and 5d). A few dark red tesserae below one of the handles might also evoke hanging ribbons (see Fig. 6b, at the bottom right of the image). Hence, on top of their organology, the cymbal tongs in the Djemila and Stara Zagora mosaic seem decorated in the same way. Such a resemblance cannot be fortuitous and certainly reflects a common cultural context.

To conclude, the rather detailed representation of lateral cymbal tongs in three different mosaics is a key element which suggests that the lateral placement of the cymbals is probably not a mistake of the mosaicists. Furthermore, this placement is certainly not a pure convention either. Indeed, we do not face a single naïve pictorial

---

44 See Blanchard-Lemée 1975, 61-84 for a full discussion of this mosaic (including its dating pp. 69-72).
45 The tunic of the left cymbal-tong player in the Djemila mosaic stops at the knee. Alexandra Croom mentions that for men, ‘the length of the tunic could vary, but it generally came to the knee’. Therefore, a man’s tunic could be ‘worn by itself without any leg covering’ (see Croom 2010, 31 and figs 6, 8, and 14). In contrast, the tunics of women were generally longer, and could come down to the half-calf or the ankles, depending on social status (see Croom 2010, 93, 97 and figs 35, 37, 38 and 39).
46 Another parallel between the Stara Zagora and Djemila female cymbal tongs players is the golden bracelets on their bare arms and forearms.
Fig. 6 Details of the Toilet of Venus mosaic from the Roman city of Cuicul (Algeria), conserved at the museum of Djemila: (a) boat with musicians; (b), (c) and (d): cymbal tongs used by the musicians, with same left to right order of appearance as in panel (a).
Photographs: ©Steve Richards.
model which would be reproduced blindly from one mosaic to another. The tongs are represented twice with the cymbals behind the tongs, and once before the tongs with many realistic details, and these two types of representation are fully consistent. We will see below that these representations are also consistent with an experimental reconstruction of the instrument. Interestingly, the representation of lateral cymbal tongs in various places such as the Mariamin, Stara Zagora and Djemila mosaic suggests that this instrument was rather widespread in the Roman Empire around the fourth century.

**Experimental reconstruction of frontal and lateral cymbal tongs**

Small cymbals with a cup and a rim can emit various types of sounds depending on how one strikes them.\(^4^7\) It is thus crucial to build replicas of frontal and lateral cymbal tongs to test their acoustic properties. With frontal cymbal tongs, one can anticipate that when the cymbals touch, the flat parts of their rims come in contact along their whole circumference. As a result, the cymbals should emit a sharp clapping sound. If the cymbals are not left in contact just after the strike, this ‘clap’ should be followed by a ‘ring’, which is a long-lasting sound, similar to the ring of a bell. Ellen Swift and colleagues have realised two functional replicas of frontal cymbal tongs with symmetric metallic branches, inspired by the specimen EA26260 conserved at the British Museum.\(^4^8\) They published recordings of these instruments. Ringing claps and bare claps are obtained depending on how the cymbal tongs are held and played.\(^4^9\) To complement this experiment, Fig. 4c presents a functional replica inspired by the specimen EA54014 held at the British Museum, made with two wooden sticks. One of the sticks is thinner than the other on its central part, so that it is more flexible. The thinner stick is also curved in order to allow enough space between the two sticks to accommodate the cymbals. To build this replica, I have used modern brass cymbals with a single central hole and a flat rim. The joint between the two sticks is secured with glue plus a leather handle.\(^5^0\)

---

\(^4^7\) Modern Middle-Eastern finger cymbal players are very familiar with this fact. They use finger cymbals with a cup and rim that are surprisingly similar to Roman cymbals. They control the sound quality of the cymbals by modulating the striking technique of their fingers. For further discussions on the modern finger cymbal playing technique, see for instance e.g. Woods 2007, 62-82; Henkesh 2009, 24-25; Gehman 2014, 20; Devine et al. 2016, 60-74; Cottet 2022. Various sounds which can be produced with a cymbal are demonstrated in video 1.

\(^4^8\) Swift et al. 2021a.

\(^4^9\) Swift et al. 2021b. Listen to recordings 02-UC35798 and 03-UC33269a-b respectively, published in the section 'downloads' of this work, see https://archaeologydataservice.ac.uk/archives/view/romaninst_ahrc_2020/downloads.cfm

\(^5^0\) The height of the instrument is 31 cm and the cymbals have a diameter of 5.5 cm. The tongs are made out of beech; they have a height of 29 cm, a width of 3.3 cm and a thickness of about 4.4 mm for the straight branch. The curved branch has a thickness which decreases to 3.3 mm at its central narrowest part.
attach the cymbals to the sticks.\textsuperscript{51} I have tested two ways to play this instrument, which produce different sounds. The first possibility is to hold the instrument from the handle, and shake it vigorously. Since the two sticks do not have the same flexibility, the two cymbals do not move in exactly the same way, and this helps them to meet.\textsuperscript{52} Their rims come in contact for a short amount of time. As a result, the cymbals emit ringing claps.\textsuperscript{53} The second possibility is to hold the instrument above the handle to press the two branches towards one another. The cymbals meet for a longer amount of time than with the first technique because the pressure of the fingers on the tongs cannot be released instantaneously. This produces claps without rings.\textsuperscript{54} Importantly, since the cymbal rims are always face to face, both playing techniques produce claps, with or without ringing.

Archaeological excavations have not revealed any specimens of lateral cymbal tongs so far. Therefore, one can only rely on iconographic information to reconstruct this type of instrument. Since the hands of the cymbal tongs players hide the attachment between the handle and the sticks in the mosaics of Mariamin and Stara Zagora, it is not possible to realise a full reconstruction. The cymbal tongs

\textsuperscript{51}In the specimen EA54014 from the British Museum, the cymbals are linked to the tongs with natural fibre strings, which are probably modern and give no certainty of the original nature of these links (pers. comm. Elisabeth O’Connell, curator at the British Museum). I have undertaken tests with natural fibre cords but they were not satisfying: the cymbals wobbled too much with respect to the tongs due to the flexibility of the cords. Hence, I have chosen to use metallic brads that are more robust, to mimic metallic pins that are present in other ancient specimens of cymbal tongs. In particular, the specimens of ancient metallic tongs found so far are systematically connected to cymbals with metallic pins (see note 41 for examples). Remarkably, the Museum of Fine Arts of Boston holds an instrument in which the cymbals are attached to wooden sticks with metallic clips (objects with accession number 06.2373 and 06.2374). For details, see https://collections.mfa.org/objects/153261/krotala-or-clappers and https://collections.mfa.org/objects/153262/krotala-or-clappers.

\textsuperscript{52}The direction in which the tongs are shaken matters. This confirms that the asymmetry of the tongs plays an important role in the operation of the instrument. More precisely, in video 2 the player moves the instrument in such a way that the thicker (straight) stick precedes the other one along the trajectory of the instrument, and then the player stops the motion of the instrument suddenly, as if striking a hammer. Since the thinner stick is more flexible, it offers less resistance to inertial forces and its cymbal has more difficulty stopping its motion than the other cymbal. Consequently, the cymbal of the thinner branch bumps into its fellow cymbal when the player abruptly stops the motion of the instrument. This enables the player to control accurately the timing at which the two cymbals strike. Conversely, if the player shakes the instrument in the opposite direction, the cymbals do not meet. Indeed, when the player stops the instrument abruptly, the motion of the thicker stick stops quickly whereas the thinner stick moves away from the thick one before returning to its equilibrium position. Video 5 shows a comparison between these two situations.

\textsuperscript{53}See video 2 which shows the frontal cymbal tongs replica being played in such a manner. Ringing claps are also the second sound demonstrated in video 1.

\textsuperscript{54}See video 3 which shows the frontal cymbal tongs replica being played in such a manner. Bare claps are also the first sound demonstrated in video 1.
shown in Fig. 3c are simply one proposition for a functional reconstruction, which shows that the lateral impact of the cymbals is compatible with the organologic data provided by the mosaics. In this replica, the two sticks supporting the cymbals are cylindrical sticks of a relatively flexible wood. They are fitted into two cylindrical holes drilled in a wooden handle. The handle is decorated with three grooves and a spherical button, above which a decorative leather ribbon is attached. Five grooves decorate the top of each wooden stick. A horizontal hole is located at the level of one of these grooves to attach a cymbal. I have used brass cymbals with a single central hole and a curved rim. The cymbals and tongs are again attached with metallic brads. The resemblance of the instrument of Fig. 3c to the representation of Fig. 3b is rather good. Fig. 5b shows the same instrument from the other side, for comparison with Fig. 5c. In this case, the bottom leather ribbon has been replaced by two orange fabric ribbons, wrapped around the tongs along their entire length, and tied above the decorative ball on the handle. There is a clear similarity between Figs 5b and 5c. Even the dot at the centre of each cymbal is reproduced. To strike the cymbals with this instrument, an efficient method is to press gently the base of the wooden sticks while shaking the instrument at the same time to give speed to the cymbals. The two cymbals meet briefly on a narrow area of their rim. This produces a sound that is notably different from the instrument of Fig. 4c. The claps are replaced by a slight impact sound that we will call a ‘click’, followed by a ringing. Regardless of the details of the replica of the lateral cymbal tongs, a clapping sound does not seem possible due to the necessarily narrow contact point between the cymbals. One can conclude that the difference between frontal and lateral tongs was probably not only visual but also acoustic.

Cymbal tongs with ribbons

As mentioned above, ribbons are attached to the lateral cymbal tongs depicted in the Mariamin, Stara Zagora and also probably the Djemila mosaics. Representations of frontal cymbal tongs with the two ends of a ribbon hanging below the handle also exist. One example is visible in the Bacchic procession from the mosaic of the Noheda Villa, in Spain, dated to the fourth or fifth century CE. One can also find

---

55 This replica instrument has a total height of 38 cm (without the ribbons). It uses cymbals with a diameter of 6.3 cm. The tongs are made out of cylindrical pine sticks with a diameter of 9.2 mm.
56 The leather ribbon is narrower at its centre so that it may be tied more easily above the decorative button.
57 Experimentation has shown that the lateral cymbal tongs replica works better if one uses cymbals with a curved rim because this increases the possibility of the cymbals meeting in a lateral movement.
58 Natural fibre attachments again did not provide a satisfying result.
59 See video 4 which shows the lateral cymbal tongs replica being played. Clicks followed by rings are also the third sound demonstrated in video 1.
60 In this mosaic, a Pan character plays frontal cymbal tongs. See Tévar 2015, 468.
the drawing of a male dancer playing frontal cymbal tongs with ribbons in an indirect copy of the Calendar of Filocalus, written in 354 CE. In a convincing analysis, Michele Salzman has identified this dancer as a worshipper of Attis, the consort of the mother goddess Cybele. It is interesting to question the role of the ribbons, or taeniae in Latin, attached to cymbal tongs. In the reconstruction of the lateral cymbal tongs presented in Fig. 3c and 5b, the ribbons have no mechanical role. Various tests showed that it is difficult to use mere ribbons to hold the various elements of the lateral tongs in place and obtain something visually similar to the instrument of the Mariamin mosaic, because the branches of the tongs require a very firm attachment to the handle to withstand repetitive shaking. Accordingly, ribbons were used neither to build the replica of wooden frontal cymbal tongs of Fig. 4c, nor the metallic cymbal tongs replica made by Ellen Swift and colleagues. Therefore, one can assume that the function of the ribbons appearing in the aforementioned mosaics was not mechanical. In fact, it is possible that the ribbons attached to cymbal tongs had the same function as ribbons frequently attached to another percussion instrument used in the Bacchic and Cybele cults: the frame drum. Frame drums decorated with ribbons were already represented in the classical Greek period, and they are still visible in the late Roman period. These ribbons hang down from the outer side of the frame and can move through the air while the drum is played. Like cymbal tongs, frame drums are sometimes represented with ribbons, and sometimes not. However, the question of the function of ribbons attached to drums has attracted little attention to date.

In fact, ribbons can appear in drastically different contexts. In all of the examples mentioned above, the representation of percussion instruments decorated with ribbons occurs in a mythological or religious context. However, the Mariamin mosaic provides an example where the religious context seems incidental. Although cupids are evoked by the two disguised children, the mosaic seems first and foremost focused on the musical performance itself. In another vein, ribbons were also attached to the civic crown (corona civica), a military decoration made with oak

61 The Roman original of this calendar from 354 CE was executed by Furius Dionysius Filocalus. A copy of a copy, made around 1500-1510, is in Vienna, Österreichische Nationalbibliothek MS. 3416. It shows a personification of the month of April as a man playing cymbal tongs, with pieces of ribbon hanging below the handles of the instruments. For more details see Salzman 1990, 83-91, 249, 260-261, and fig. 34.
63 Molina 2014.
64 Landels 1999, 81-82.
65 See for instance Algiç 2015, fig. 5d.
66 Another object present in Bacchic processions and frequently decorated with ribbons is the thyrsus, a long wand which is a symbol or an attribute of Bacchus or his followers. See Olszewski 2019 for more details. Ribbons were also frequently attached to floral garlands, which were an important element in the worship of many Roman deities. See Rogers 2020 for more details.
leaves.\textsuperscript{67} Hanging ribbons also appeared in various hairstyles.\textsuperscript{68} Considering this variety of uses, it would be hazardous to attribute a specific symbolism to ribbons. At least, it seems that ribbons were a popular decoration for cymbal tongs. They could add a nice touch of colour to adorn the instrument, such as the orange or dark red tones visible in the Stara Zagora and Djemila mosaics. Besides, when one plays the lateral tongs replica of Figs 3c and 5b, the free parts of the ribbons hanging below the handles move a lot. This produces a visual amplification of the motion of the cymbal tongs, which was perhaps appreciated.

**The finger cymbal player from the Mariamin mosaic**

**A dancer at the forefront**

We have already noticed that the female character to the far right of the Mariamin mosaic seems as if she is about to take a step (Fig. 2b). One noteworthy element, overlooked in previous studies, is that this dancer seems to be the only character standing on the wooden platform. Indeed, the other musicians stand on a simple grey floor with the organ and the acetabuli table.\textsuperscript{69} This grey floor could be lower than the platform but this feature is uncertain due to the problems of perspective in the mosaic. In any case, the dancer is placed at the forefront of the musical group, and she seems to be the only character for which it is possible to move on the wide space delimited by the wooden floor, which is wider on the right, where she is stationed. In contrast, the other women seem stuck and crowded behind the acetabuli table, the organ and its bellows. Hence, the stage seems organised to ensure the visibility and mobility of the dancer. This implies that she does not have a minor role in the show despite the relative simplicity of the instruments she is holding. Importantly, this simplicity should not obscure the fact that being able to perform dance steps while playing an instrument in rhythm requires dedicated study to develop advanced motor coordination.\textsuperscript{70} We can thus infer that the dancer has notable skills to highlight.

**Identification of finger cymbals in the Mariamin mosaic**

The Mariamin dancer has the palm of her hands towards the viewers of the mosaic. She holds small circular instruments attached to her hands with ropes that are clearly visible. Scholars have offered diverse identifications for these instruments. The only relatively detailed comments were made by M. Duchesne-Guillemin who saw some predecessors of the Spanish castanets.\textsuperscript{71} A rope would pass twice on the thumb to

\textsuperscript{67} Daremberg & Saglio 1877–1919, 1535-1536; Jacobson 2008.
\textsuperscript{68} Vlachogianni 2018.
\textsuperscript{69} The wooden floor could be useful for the dancer because it has a different grip than a flagstone or earthen floor, and therefore it could facilitate the execution of certain dance steps.
\textsuperscript{70} Such a learning process can be observed with finger cymbals dancers in the present-day Middle Eastern style.
\textsuperscript{71} Zaqzuq & Duchesne-Guillemin 1970, 116-117.
link together the two ‘castanets’ from one hand, like modern Spanish castanets.\textsuperscript{72} Later studies refer to these instruments as castanets,\textsuperscript{73} or cymbals,\textsuperscript{74} without any

\textsuperscript{72} For more details on the tying system of Spanish castanets, see chapter V of Udaeta 1989. The rope tie of modern Spanish castanets connects the two castanets of a pair and passes twice above the thumb, or twice above the middle finger.

detailed analysis. In particular, no one has discussed the exact number of castanets/cymbals present in each hand of the musician. Figures 7a and 7b show the details of these instruments. All of their features are consistent with small cymbals. They seem circular, unlike modern castanets that have a wide side outgrowth for their lateral attachment system. Their yellow tone suggests a yellow metal like bronze. In an effort for realism, the mosaicists have used tesserae with different tones of yellow and brown to depict shadows and light reflections on the cymbals. On the instrument of the right hand, a single brown circle evokes the delimitation between the cup and the rim of the cymbal (Fig. 7a). All of these characteristics are consistent with the example of a cymbal from Roman Egypt shown in Fig. 8a. Remarkably, this cymbal has a yellow tone similar to the tone of the instruments from the mosaic. On the instrument of the left-hand, two concentric circles are visible (Fig. 7b). The simplest interpretation for this feature is that one circle corresponds to the delimitation between the rim and cup of the cymbal, and the second one is a decoration. Indeed, many decorative circular grooves are visible on Roman-period cymbals. As an example, Figure 8b shows an example of a Gallo-Roman cymbal found in Laizy (France). \(^{75}\) A double groove is seen on the middle of the cymbal cup. It could correspond pictorially to what is observed in the Mariamin mosaic. Significantly, the Mariamin dancer does not hold her instruments in a position suitable to play ‘hand cymbals’. Indeed, playing hand cymbals requires all the fingers of one hand to be placed on the convex side of one cymbal, and to hold this cymbal from its centre (see for instance Fig. 13, character G). In contrast, in the Mariamin mosaic, the dancer has the fingers of one hand on both sides of the object(s) she is holding. The only instrument with a compatible organology and grip, among the corpus of instruments known for Roman-Imperial music, \(^{76}\) are finger cymbals. A recent study has indeed put forward three representations of finger cymbal players from the Roman period, whose hands are represented schematically in Fig. 10. \(^{77}\) The first one is the pillar of the Satyr found in the Belgian city of Arlon, \(^{78}\) which could date from around CE 160 (Fig. 10a). \(^{79}\) The second one is a low relief sealed in the walls of the Podocataro palace in Rome, which is probably from the second or third century CE (Fig. 10b). \(^{80}\) The third one is the Stara Zagora mosaic already discussed above (Fig. 5a, left character and Fig. 10c). In these three representations, dancers visibly hold two cymbals per hand because the cymbals are shown on their side or with a three-quarter-view. In all likelihood, the Mariamin


\(^{75}\) This cymbal has a dark green colour because of the oxidation of the metal.


\(^{77}\) See details in Cottet 2022.

\(^{78}\) Roulez 1854, 678-681 and no.8 at pp. 685–6; Lefebvre 1975.

\(^{79}\) Dating suggested by Gabrielle Kremer from the Institut für Kulturgeschichte der Antike in Vienna.

\(^{80}\) Claridge & Dodero 2022 (forthcoming).
mosaic provides another example of a representation of finger cymbals, but with a different perspective on these instruments. Since the cymbals of the Mariamin dancer are shown from a top view, one has to assume that a counterpart cymbal is hidden below each of them.

**A peculiar cymbal tying system**

It is interesting to analyse the visible details of the tying system of the Mariamin finger cymbals. The interpretation proposed below differs from that of Duchesne-Guillemin. On the left hand of the Mariamin dancer, two pieces of cord are indeed visible on the thumb (Figs 7b and 7d). However, nothing indicates that the same pieces of cord would hold the two instruments from the left hand. This fact even seems unlikely if one accepts that the instruments are finger cymbals, because the cymbals can only be attached from their central hole. Besides, in the right hand, a single piece of cord is visible on the dancer’s thumb (Figs 7a and 7c). This cord seems to pass near the edges of the cymbals, which are smaller than in the left hand. Importantly, the distance between the centre of the discernible cymbal and the thumb strap(s) is roughly the same for the two hands, which suggests two similar tying systems. Two other pieces of cords appear on the palm of the right hand (Figs 7a and 7c), but they are not visible on the left hand, probably because of the larger size of the cymbals. Figures 7e and 7f propose one possible interpretation for these features, with a similar attachment for the two hands. Note that there can be variations in this interpretation. The purpose of the present analysis is not to impose...
a unique understanding of the represented tying system, but rather to test the compatibility of the details in the mosaic with finger cymbals. For Figs 7e and 7f, I have used dyed leather cords with a diameter of 1.5 mm and cymbals replicas in polymer material with diameters of 4.3 cm and 5.8 cm for the left and right hand, respectively (Fig. 9). In the top view from Fig 7e and 7f, the bottom cymbals are hidden, but they are visible in the side views from Figs 9e and 9f. A basic knowledge of knot-making is necessary to discuss the proposed tying system.\footnote{The slip knot or noose and the overhand knot are explained in Adamides 2014, 88-89 and 108-109 respectively. The Lark’s Head knot is explained in Osterkamp 2018, 18-19.} For the bottom cymbal of the right hand, a cord loop goes through the cymbal hole and is retained on the concave side of the cymbal by an overhand knot (or simple knot). Then, this loop is folded to form a Lark’s Head knot that surrounds the index finger, the forefinger and little finger (Figs 9b and 9e). As a result, two pieces of cord are visible near the palm of the right hand (Fig. 7e). For the left-hand bottom cymbal, the Lark’s Head knot is smaller and surrounds only the index finger and forefinger, so that it is completely hidden behind the bottom cymbal (Figs 7f, 9c and 9f). For the top cymbal of the left hand, I have used two nooses (or slip knots) made in series on the same cord (Fig. 9d). The two slipping ends of the rope then pass through the cymbal hole and are blocked on the concave part of the cymbals with an overhand knot. One can tighten the nooses at will around the thumb (Figs 7f and 9f). On the right hand, I have used the same system but with a single noose (Figs 7e, 9a and 9e).\footnote{If a single noose is used, the tying system is a bit less adjustable than with two nooses in series because the sliding and non-sliding sides of the noose are tied together.} The smaller size of the cymbal might explain this difference. Figures 7e and 7f accurately reproduce the number of strap portions visible in the mosaic, although their placement is not exactly the same. Considering the problems of perspective in the mosaic and the not fully realistic proportions of the dancer’s hands, it may be illusory to seek a stronger agreement.

It is interesting to test experimentally the possibilities offered by the cymbal attachment of Figs 7e, 7f and 9. With this system, one can put on and take off the cymbals relatively quickly. The drawback is that the cymbals wobble a lot below the thumbs because there is a distance of about 1 cm between the holes of the cymbals and the nooses once the nooses are tied around the thumbs. As a result, it is not very convenient to separate completely the cymbals to make them ring if the palms of the hands are upwards like in the mosaic. To stabilise the cymbals, it is more convenient to separate them only partially when one opens the fingers, by letting a narrow contact between the two cymbals on one point of their rims, and stabilising this point with the base of the index finger, as shown in Figs 9e and 9f. I have tested this tying system with modern brass finger cymbals to test the acoustic properties of the configuration obtained. I have undertaken this test with brass cymbals with a diameter 4.4 cm and with a single central hole. With the attachment system from Fig. 9, the cymbals cannot ring since their rims constantly remain in contact with the
hands. Indeed, the ringing sound is due to a vibrational mode of the cymbal, mainly localised on the rims of the cymbals. This vibration is not possible if the rim remains in contact with an object. As a result, the cymbals only emit claps similar to the first sound in video 1.\textsuperscript{83} These claps remain relatively sonorous because the rim of the cymbal touches the hand only on a rather narrow point of contact. This playing

\textsuperscript{83} One does not necessarily want cymbals to ring. For instance, there are some present-day percussionists or dancers who teach their students how to play finger cymbals without making them ring at all because they find that the ringing blurs the rhythm of the music or covers too much the sound of the other instruments. For example, this is the case in the playing method taught by the Egyptian percussionist Hassan Abdel Khalek and the dancer Melinda Gillet, see Khalek & Gillet 2009.
method does not allow the arms to move freely, because the cymbals are not tightly bound to the thumbs. However, one must be cautious regarding the above conclusions because they rely on a hypothetical reconstruction of a cymbals tying system which may not be represented with full accuracy. At least, the above reconstruction suggests that the interpretation of the instruments of the dancer as finger cymbals is compatible with the visible details of their attachment system.

Figure 10 presents a schematic comparison between the details of the finger cymbals in the representations of Arlon, the Podocataro palace, Stara Zagora and Mariamin. There seems to be a great variability in the attachment system of the cymbals from one representation to another. In the Stara Zagora mosaic, single cord loops run around the thumb and the index or middle finger of the dancer’s hands (Fig. 10c). In the Podocataro relief, triple loops are visible on the thumb and index fingers of the left hand (Fig. 10b). This looks clearly different from what is visible in the Mariamin mosaic (Fig. 10d). It seems that there was not a universal method for tying finger cymbals. Of course, this conclusion is valid provided we

---

Footnote:
84 Cottet 2022 discusses the tying systems of finger cymbals and the possible asymmetry between the left and right-hand cymbals for the representations from the Podocataro palace and Stara Zagora.
assume that these representations are accurate in their depictions of the tying systems for cymbals.

A bi-tonal playing technique

An unmistakable feature of the Mariamin mosaic is that the apparent diameter of the cymbal in the left hand of the dancer is noticeably bigger than that in the right hand, by about 60 per cent to be quantitative. This feature suggests that the dancer is using two types of cymbals with different sizes, one in each hand, as already proposed in Figs 7e, 7f and 9. One might argue that this conclusion is not fully certain because the proportions of the dancer’s left hand are not realistic: the palm of her hand is too wide and the fingers too narrow in comparison with the palm of the hand. This could raise concerns that there are proportion issues for the cymbals too. In this context, the different number of brown circles on the left and right cymbals is a crucial element which confirms that there is a physical difference between the left and right cymbals. I already highlighted in the previous sections the intention for realism on the part of the mosaicists, who represented many small figurative details with great care. This intention is visible on the dancer’s cymbals, where an effort to represent shadows and light reflections is apparent (see Figs 7a and 7b). In such a context, the circles on the cymbals are most likely figurative and depict a physical characteristic of the cymbals. In the above sections, I have proposed to interpret the extra circle on the cymbal of the left hand as a decorative groove or double groove, because such grooves are visible on many cymbals from the Roman period conserved in museums. Regardless of the details of this interpretation, the pictorial difference between the left and the right cymbals most likely aims at showing that the dancer is using two different types of cymbals, one in each hand. Actually, this feature is meaningful on a musicological level. The pitch of a cymbal depends on its size, weight and exact shape. Hence, the Mariamin cymbalist is probably supposed to play two different notes with her two hands. This can be very interesting to enrich a rhythmic pattern. A few finger cymbal players use such a trick today, as well as Spanish castanet players who use ‘male’ and ‘female’ pairs of castanets that make two slightly different notes. My previous study has already glimpsed this possibility, but without full certainty. Indeed, the Stara Zagora finger cymbalist seems to have smaller finger cymbals in the right hand, and she seems to hold these cymbals differently from what she does with the left hand (see Fig. 10c). However, due to the naive style of the Stara Zagora mosaic, these features are not fully certain. The Podocataro relief also shows a finger cymbalist who seems to hold two different

---

85 Devine 2016, 42.
86 See page 238, Tip 6 of Dinicu 2011. See also the performances of Mr. Ibrahim (Egypt), Karim Nagi (Egypt/USA), and Alesha Yamal aka Sahira (USA) visible on YouTube. https://www.youtube.com/watch?v=OR1ZdmXbeKc https://www.youtube.com/watch?v=6G5T_hWWrF4 https://www.youtube.com/watch?v=NFFCJhiElUqto&t
87 Udaeta 1989, 88.
pairs of cymbals (one with rims and one without rims) but this feature is again uncertain because of an awkward pictorial style and possible relief wear (see Fig. 10b). In contrast, the Mariamin mosaic provides a very likely indication that finger cymbalists from the Roman Empire could use two different pairs of cymbals to make two different notes.

**Musical associations in the Mariamin mosaic**

*Cymbal tongs, finger cymbals and acetabuli together: the Roman-Imperial taste for abundant tinkling*

Beyond the details of the musical instruments, the Mariamin mosaic is also interesting for the musical interactions that it depicts. In particular, it shows a finger cymbal player and a cymbal tong player together in the same musical band. The two instruments can seem surprisingly redundant, since they both consist of four small cymbals, two per hand. On top of that, the Mariamin musicians use a third type of cup-shaped metallic instruments: the acetabuli. The Mariamin mosaic thus evokes music with abundant metallic ringing or tinkling. Iconographic sources illustrate how Roman people had a taste for a proliferation of such sounds. Pairs playing cymbal tongs are visible on several representations. Sometimes they perform with no other apparent musical accompaniment, such as on the Brescia Casket, an ivory box from the late fourth century depicting a banquet scene, now in the Museo di Santa Giulia at San Salvatore (Italy).88 Another example is provided by a floor mosaic with depictions of the months, found at El Djem in Tunisia and now at the Sousse Archaeological Museum, dated to the first half of the third century CE.89 A pair of cymbal tongs players accompanied by a lituus is visible in Fig. 6. Another couple accompanied by a syrinx (or Pan pipe) player appears on a banquet mosaic from Carthage, dated to the fourth century CE.90 Cymbal tongs can also be associated with bells or hand cymbals. For instance, the Sheikh Zouède mosaic, from North Sinai, dated to the beginning of the fifth century, depicts a satyr and a maenad dancing together and playing cymbal tongs and bells in a Bacchic thiasos (Fig. 11b). A Pan character also plays cymbals a bit further along in this thiasos (see character 10 in Fig. 11a).91 An example of a procession of cupids where a cymbal tongs player...

---

88 Watson 1981, fig. 3
90 The two cymbal tongs players wear heavy dresses which recall those of the Mariamin mosaic. They perform together with a syrinx player, inside a space delimited by the banquet tables. Unfortunately, most of this space has been destroyed. It is possible that other musicians were represented there (see Yacoub 2002, 243-248).
91 See Olszewski 2002 and Braun 2002, 252-258 for a detailed description of the Sheikh Zouède mosaic and a discussion on its date. In this mosaic, the apparent lateral shift between the cymbals is incompatible with the organology of frontal cymbal tongs. One may believe that this feature could describe lateral cymbal tongs but, in this particular case, it might simply correspond to a convention of representation related to the very naive style of the mosaic. For this reason,
this mosaic is not mentioned as a possible representation of lateral cymbal tongs in the previous paragraphs.
and a hand cymbal player are shown together is also discussed below (see characters G and H in Fig. 13). The combination of cymbal tongs, finger cymbals and acetabuli from the Mariamin mosaic follows this trend. Remarkably, one can see the same association of finger cymbals and cymbal tongs in both the Mariamin and Stara Zagora mosaics (compare Figs 1 and 5). This suggests that such a combination did belong to the musical customs of the late Roman Empire, at least in its eastern part. In fact, this conclusion might be corroborated by the very recent discovery of a late Roman-Imperial mosaic in the ancient city of Germanicia (now Kahramanmaraş) in Turkey, which depicts an open-air banquet. This mosaic shows banquet attendees assisted by servants and entertained by a syrinx player and three dancers, one playing frontal cymbal tongs and two others playing instruments that could be finger cymbals. Strikingly, the last two dancers are dressed very similarly to the Stara Zagora finger cymbal dancer. Unfortunately, it is not possible to include a study of this unpublished mosaic in the present article due to its very recent discovery.

Small cymbals in a multi-instrumental band: from mythology to the reality of the late Roman Empire

Mythological bands with cymbal tongs or finger cymbals

Another exciting feature of the Mariamin mosaic is that it shows finger cymbals and cymbal tongs in the presence of a group of diverse musical instruments. It is interesting to survey Roman-Imperial images of music bands in order to learn more about the musical and cultural contexts behind this combination. Musical ensembles had been fashionable since the end of the Roman republic. Increasingly larger orchestras were present in mime or pantomime theatre events. Multi-instrumental music was also performed in circus games, private concerts and even street concerts. This musical trend influenced the Roman-Imperial mythological imagery, which shows imaginary characters or situations, but provides an indirect testimony of real-life musical practices. Several mythological representations show a multi-instrumental musical band that includes cymbal tongs. Examples are provided by mosaics of processions, which show Dionysus and his suite. I have already

---

92 Safinaz Acıpayam, head of the excavation and director of the Kahramanmaraş Museum in Turkey, recently reported on the discovery of this mosaic, see Demirören News Agency 2022.
93 From the pictures published by the Demirören News Agency 2022, the general shape and size of these instruments and the presence of straps seems consistent with finger cymbals. In particular, straps between the bipartite instruments and the thumbs and index fingers of the dancers are clearly visible on the right hands of each of the two dancers. To understand the details in the left hands of the dancers, a closer observation of the mosaic would be necessary.
95 The mosaic of the Noheda Villa, dating from the fourth or fifth century CE, shows a Bacchic procession with eight musical instruments: one pair of frontal cymbal tongs, three tympanums, three syrinxes and one double pipe (Tévar 2015, 462-502). The mosaic of the 'Triumph of Dionysus' found in Samatya (formerly Psamatia) in the district of Istanbul, and dated to the late fifth century, shows a maenad playing cymbal tongs together with a man playing the double pipe.
mentioned in the previous section the Sheck Zouede mosaic. It shows a Bacchic thiasos with many mythological characters such as Dionysos (character 1 in Fig. 11a), Eros (character 2), a couple of centaurs (characters 3 and 4), Pan (character 10) and Heracles (character 12). In this procession, seven different musical instruments are played: a Phrygian double pipe (see character 3), a lyre (character 4), two pairs of cymbal tongs which might be lateral cymbal tongs considering the placement of the cymbals (see characters 6 and 10), one pair of bells (character 7), a tympanum (character 8) and a trumpet (character 9). A syrinx is also represented, as an attribute of the Pan character, but it is not being played (see between characters 9 and 10). However, in the context of the present study, the most striking examples are processions of cupids sculpted on sarcophagi, which echo the two children from the Mariamin mosaic. Cupid bands frequently use hand cymbals, but sometimes cymbal tongs provide the tinkling component to their music. For example, the sarcophagus already partially shown in Fig. 4a represents fourteen infant cupids partying, some of them drinking wine or already drunk, others holding plates full of food, still others playing music (Fig. 12). These cupids play the trumpet, the syrinx, a tympanum (or frame drum) and cymbal tongs (see characters A, B, C and D). Figure 13 shows another beautiful example, which comes from the ‘Paper Museum’ of Cassiano dal Pozzo. A. Claridge and E. Dodero recently discussed this drawing of a Roman sarcophagus, which was made in the 1620s. They could not locate it, but provide a dating c. 300 CE based on stylistic analysis. Twelve adolescent cupids, including five musicians, surround a dressed youth, who is probably the deceased. As in the Mariamin mosaic, two of the musicians play the cymbals, using two

and a satyr playing the tympanum. More than half of this mosaic has been lost, thus it is possible that more musicians were initially represented (Algiç 2015).

96 A very detailed description of this mosaic is presented in Olszewski 2002.

97 See, for instance, the object nos 10, 20, 36, 54, 76, 118, 121, and 130 in the catalogue section of Kranz 1999.

98 Claridge & Dodero 2022 (forthcoming).
different techniques. More precisely, character G uses the hand cymbals technique and character H uses the cymbal tongs technique. The three other musicians E, F and I play the double pipe, the syrinx and the lyre, respectively.

Representations of musical bands with finger cymbals are more difficult to find, probably due to the scarcity of representations of finger cymbals. A possible representation is observed on a Roman sarcophagus from the third century CE of unknown provenance, conserved in Karlsruhe. This sarcophagus shows a boat procession in a Nilotic context. On the largest raft-shaped boat, Cupido and the nymph Psyche are entertained by cupids with bird wings and nymphs with butterfly wings, who play various music instruments (Fig. 14). The Cupids K and M play instruments that seem to be a tympanum and Greek-style tong clappers that are kinds of tongs without cymbals (Fig. 14b). Next to them, the nymph J plays the Phrygian double pipe. The nymph L has an empty left hand, but she seems to hold one pair of finger cymbals in her right hand. Indeed, the position of her fingers and the general cup shape of the two instruments are consistent with finger cymbals (Figs

---

99 The State Museum of Baden (Badisches Landesmuseum) in Karlsruhe bought this sarcophagus in 1969. From the museum records, it was formerly in a ‘Roman private collection’. According to Staatliche Kunstsammlungen in Baden-Württemberg 1970, it dates to around CE 240. This sarcophagus is also discussed in Rehm et al. 1995, 149 and fig. 137; Amedick 1991, fig. 5.3; and Pekáry 1999, no. D-44.

100 Cupid B holds an instrument with a rather circular shape. With his left hand, he appears to hold the instrument from the side, even if this feature is obscured by damage to the relief. His right hand seems to touch the large flat circular part of the instrument. All these features are consistent with tympanum playing.

101 These clappers recall the clapper sticks on the red-figure hydria attributed to the Phiale Painter, c. 430 BCE see Olsen 2021, 156, fig. 6.3. Similar clappers might be visible on a few Roman-period representations, for instance a mosaic from the Aventine hill in Rome, see Jiménez 2021, 93, fig. 22.
Fig. 14 Roman-period sarcophagus conserved at the Badisches Landesmuseum, inv.nr. 69/47. Panel (a): global view of the boat procession scene on the long side of the sarcophagus. Panel (b): closer view of the four musicians in the raft-like boat. Panels (c) and (d): details of the finger cymbals. © Badisches Landesmuseum Karlsruhe. Photographs: Thomas Goldschmidt (panels (a) and (b)) and Katarina Horst (panels (c) and (d)).
14c and 14d). The rims of the cymbals are not represented, as in several other Roman representations of cymbals, including the Arlon relief (see Fig. 10a). The bust of nymph L is half-naked. She shows a lively dancing attitude, with one arm above the head and the waist twisted to look backwards. This strongly recalls the stance of the finger cymbals players in the Stara Zagora, Arlon and Podocataro representations. All of the representations mentioned above suggest that cymbal tongs and finger cymbals were considered as compatible with multi-instrumental groups, but due to the mythological character of these images it is difficult to glean more about the cymbal-tinkling multi-instrumental music in real-life.

**Elements connecting the Mariamin mosaic to reality**

In this mythical context, the Mariamin mosaic stands out for its intention to depict a realistic scene. The children represented in the Mariamin mosaic are not true cupids, but real children disguised as infant cupids. Indeed, straps that hold their false wings in place are visible on their torso. In addition, the children do not play the instruments themselves. Instead, they are responsible for the simpler task of activating the bellows of the organ, which is more realistic for their young age. Furthermore, the Mariamin musicians are heavily dressed, in contrast to mythical musicians who are often naked, partially or fully. Janine Balty and Bente Kiilerich have already highlighted the contemporaneity of the garments worn by the Mariamin musicians. They wear tunics with high girdles, and either narrow or wide sleeves. Such dress cuts are typical of the late Roman Empire. In particular, the dress of the finger cymbal player is almost identical to a dress in a late fourth-century mosaic.

---

102 It is important to highlight that in Fig. 14c and 14d, the two small circular holes that appear between the two cymbals and between the upper cymbal and the fingers of nymph L are not figurative. They are a technical trick to emphasise visually the separation between the fingers and cymbals. These holes are characteristic for sculptures of the third century CE. Since Greek archaic times, sculptors have used drills for modelling reliefs. From the second century CE, Roman sculptors chose not to hide the tool marks, but to emphasise their drill work by placing large drill holes at particular locations such as the point where fingers meet at the back of the hand (e.g. see the right hand of character K in Fig. 14). For more details, see Allen 2019.

103 See Cottet 2022, note 59 for some examples of representations of cymbals without rims.

104 See details in Cottet 2022.

105 For completeness one should mention that there potentially exists another representation of a large music band including cymbal tong players in a realistic context, which is unfortunately heavily damaged. A side of the pedestal supporting the obelisk of Theodosius, dated around CE 390, shows Theodosius I offering laurels of victory to the winner of a horse race, in the presence of a numerous public. This ceremony is accompanied by a band using two water organs, a double pipe, a tuba or lituus and a syrinx, together with four dancers playing idiophones with an elongated shape. Due to the stone corrosion, it is difficult to identify with certainty the idiophones, but they could be cymbal tongs. For details, see Simpson 2000 and Kiilerich 2010, fig. 11.

106 The belts on the abdomens of the cupids also probably belong to the tying system of the wings. See Kiilerich 2010.

107 See Harlow 2004 and Croom 2010 on late Roman costumes.
from the ‘tomb of Mnemosyne’, found not very far away, in Antioch. The dresses of the other women, with narrow sleeves covered by wider pieces of cloth on the upper arms, recall a dancer in a fourth-century mosaic from Carthage, and the character Serena in a late fourth-century ivory diptych from Monza in Italy. Remarkably, the circular gold decorations on the dresses of the Carthage dancer and the Mariamin kithara player are very similar, and the decorations at the bottom of the dresses of the Carthage dancer and the Mariamin organist are alike in style. Such textile decorations were probably not exceptional for Syrian high-class artists. Indeed, John Chrysostom, who lived in the area of Syria in the fourth century, mentions golden garments of women of the theatre. It is also interesting to mention the intense production of luxury textiles in the area of Syria in the late Roman Empire, as testified by ancient textual sources and archaeological remains. For instance, the archaeological site of Dura Europos at about 650 km from Mariamin has produced a bundle of gold thread from the third century CE. It has also revealed a textile with a dark green background and flowers with four petals made with a gradient of colours from red to light beige, which strikingly recalls the background and flowers on the textile covering the Mariamin organ table. These contextual elements suggest that the Mariamin mosaic represents a type of show that belonged to the reality of Syria in the late Roman Empire period, even if it is difficult to evaluate the extent to which such high-class female bands were common. At least, we learn that in Roman Syria, ‘simple’ cymbal tongs and finger cymbals were considered compatible with an elite musical band dressed in luxurious garments and

108 See character on the far right in the mosaic from the ‘tomb of Mnemosyne’, at the Museum of Art of Worcester, inv. Nb.1936.26. https://worcester.emuseum.com/objects/27632/mosaic-of-a-funerary-symposium. There are also strong parallels between the dress of the finger cymbal player and a dress that may be discerned on a fourth-century mosaic from Piazza Armerina in Sicily (see Croom 2010, Plate 8, figure on far right). This dress is also similar to the dress depicted on a fourth century tomb wall-painting from Silistra in Bulgaria (see Croom 2010, fig. 38, figure on the far right).


110 See Croom 2010, fig. 39.

111 PG 56, 274.

112 Stauffer 2007

113 Gleba 2008. From this reference, gold thread dated between the second and fourth century was also found in Tyre (Lebanon) at about 200 km from Mariamin.

114 This resemblance has already been highlighted in Stauffer 2007, 359. The piece of textile is conserved at the Yale University Art Gallery and can be viewed at https://artgallery.yale.edu/collections/objects/5968

115 Interestingly, a pair of female musicians playing the acetabuli and double pipe for a high-class banquet are represented in the Vienna Genesis, a manuscript conserved in Vienna, Austrian National Library, Cod. Theol. Gr. 31, fol 17v. (visible at https://onb.digital/result/10F14EFA ). This manuscript dates from the sixth century and was presumably produced in a cultural centre in the Near East such as Antioch or Constantinople (Hofmann & Rabitsch 2020). It could be a copy of a fourth-century prototype (Frazer 1979, 458-459).
equipped with prestigious instruments. Cymbals could even take an important place, since two of the six musicians in the Mariamin mosaic are cymbal players.

**Conclusion**

To summarise, the study of the Mariamin mosaic and comparison with other representations provides much information about the playing of small cymbals in the Roman Empire. It is possible to establish a clear distinction between cymbal tongs with which one strikes the cymbals laterally or frontally. The difference between these two types of cymbal tongs was probably not simply visual since the reconstructions suggest that they sounded different from each other. We also learn that in the Roman Empire, finger cymbal players could use two different pairs of cymbals to make two different musical notes, one with each hand. Furthermore, it seems that the tying system of finger cymbals could have a certain variability. These features illustrate the richness of playing techniques for cymbals in the late Roman Empire. Remarkably, the association of finger cymbals and cymbal tongs is visible both in the Mariamin mosaic and in the Stara Zagora mosaic from Bulgaria. This fashion is consistent with the Roman-period iconography, which shows the taste for music with abundant metallic tinkling or ringing. Finally, the association of cymbal tongs or finger cymbals with other types of musical instruments, including aerophones and chordophones, is visible in the Roman mythological iconography of Bacchic processions and bands of cupids. These images reflect, in an imaginary context, the development of the Roman-Imperial multi-instrumental music. The two false cupids from the Mariamin mosaic echo these mythological images. Nevertheless, the scene depicted by this mosaic stands out for its connection to the reality of the late Roman Empire. In real-life, cymbals were used by the Romans in a large variety of contexts, such as worship, but also banquets and theatrical events. The Mariamin mosaic suggests that, despite their simplicity, cymbal tongs and finger cymbals could find an important place even within an elite musical ensemble with prestigious instruments. Two cymbal players are present in the Mariamin band, and the wooden floor at the forefront seems reserved for the finger cymbal dancer. This further illustrates the Roman-Imperial taste for cymbals.

Dr Audrey Cottet  
CNRS Research Director  
Laboratoire de Physique de l’École Normale Supérieure, ENS,  
*In partnership with* Université PSL, CNRS, Sorbonne Université, Université de Paris,  
24, rue Lhomond  
F-75005 Paris  
[audrey.cottet@ens.fr](mailto:audrey.cottet@ens.fr)
References


Henkesh, Y. 2009: Sagat Speak - Egyptian Finger Cymbals (booklet accompanying a CD), Bethesba: Serpentine communications.


Khalek, H.A. & Gilet, M. 2009: *Danse orientale - Sagettes - Apprendre à jouer et danser avec l'instrument*, DVD on sale on Amazon


Osterkamp, P. 2018: *Peggy Osterkamp’s Weaving Tips Book 2* (ebook), Amazon.


**Supplementary material**

Video 1 shows various sounds, which can be produced with cymbals (using the hands cymbal technique). It demonstrates consecutively, with the same pair of cymbals: clap, rings with claps, and rings with slight clicks.

Video 2 shows the replica of frontal cymbal tongs of *Fig. 4c*, played by vigorously shaking the handle. The cymbals produce ringing claps.

Video 3 shows the replica of frontal cymbal tongs of *Fig. 4c*, played by squeezing the tongs. The cymbals produce bare claps.

Video 4 shows the replica of lateral cymbal tongs of *Fig. 3c* played by shaking the handle and pressing slightly the tongs. The cymbals produce weak clicks followed by rings.

Video 5 shows the replica of frontal cymbal tongs of *Fig. 4c*, played by shaking the handle in the same way as in video 2, and then played after rotating the position of the instrument by 180° in the hand of the player. Only the first method allows one to make the cymbals sound.