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The City University of New York, The Graduate Center
2902-01 GC-4116 Center for Music Research and Documentation
Research Center for Music Iconography
365 Fifth Avenue, New York, N.Y. 10016-4309
Phone (212) 817-1992, Fax (212) 817-5690
zblazekovic@ge.cuny.edu
web.gc.cuny.edu/rcmi

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Filippo Bonanni’s Gabinetto armonico and the Antiquarians’ Writings on Musical Instruments
Filippo Bonanni's Gabinetto armonico was first published in Rome at Giorgio Placho in 1722, reissued there in 1723, and in its new edition, "rivisa, corretta ed accresciuta dall'abbate Giacinto Ceruti", with a French translation included along a reduced version of the original commentary, published in Rome at Vannanzio Monaldini in 1776. The 1723 title page claims that the treatise was "di nuovo corretto ed accresciuto", but this is not the case as the text is identical to the 1722 edition. The new title page might have been simply a commercial device to invite the purchase of the book.1

Gabinetto armonico examines all types of musical instruments including instruments of ancient Rome, contemporaneous instruments of cultivated Europe, folk instruments, musical toys, and hunting calls. The book is particularly rich in information about non-European musical instruments: Bonanni quotes writings by travellers from the sixteenth to the eighteenth century, throwing light on a great number of sources about the music of Africa, Turkey, Persia, China, Java, and North and South America.2 His approach to antiquity reveals also a deep knowledge of the works published by antiquarians from the sixteenth to the eighteenth century.3

Bonanni wrote Gabinetto armonico during the time when he was curator of the Museo del Collegio Romano,4 established in 1651 when the Roman Jesuits inherited Alfonso Donnini's important collection of antiquities. Museum's first curator was Athanasius Kircher, and the museum was therefore named Museo Kircheriano. Kircher died in 1680, and Bonanni eventually became the new curator in 1698.5 In the introduction (proemio) of Gabinetto armonico Bonanni pointed out that he was inspired for writing the treatise by the automatic organ and the cimbalo verticale connected to android figures, animals, and other musical machines that set out mythological, biblical, and amusing scenes in a "camera contigua all'erudito Museo del Collegio Romano".6

Gabinetto armonico is composed of a proemio, thirteen preliminary chapters, and a detailed description of musical instruments. The preliminary chapters deal with Jewish instruments and with the methodological issues that the study of historical instruments involves. Then the book moves on to discuss music in ancient sacrifices, feasts, parades, banquets, navigations, funerals, wars, and finally music in Christian (Catholic) context.7 The section detailing instruments is divided into parts about winds, stringed, and percussions, with individual chapters describing each instrument. Gabinetto armonico is particularly famous for its engravings of instruments made by the Flemish artist Arnold van Westerhout (1651–1725).8 Each illustration portrays a musician inside a frame, with a background hinting at a landscape, an interior of a palace, a church, or a monastery.

Bonanni considered images to be an important means for conveying knowledge and pictures, in his opinion, were essential in a book on musical instruments. In chapter II he explained the difficulties of studying musical instruments of the past, particularly when knowing only their names it is unclear whether or not
instruments have similarities with contemporaneous ones. In order to avoid listing of unidentified instruments, he included in the treatise only those which he was able to illustrate with their images based on ancient reliefs or works by other authors. His interest in antiques may be recognized not only in his attention to Jewish instruments and instruments of ancient Rome, but as a quite general concern.

Bonanni and the other scholars of the time studying Jewish and Roman instruments may be inclined to reinvent elements which they were not able to explain, sometimes misleadingly extracting instrument’s names from Jewish, Latin, or Greek cultures. Occasionally they attempted to establish the continuity between instruments described in ancient literature or illustrated in archaeological findings with contemporaneous instruments, and when not finding any Latin literary quotation containing the name in question assumed that Caspar Bartholin’s instruments, and when not finding any Latin literary quotation containing the name in question assumed that Caspar Bartholin’s instruments, and when not finding any Latin literary quotation containing the name in question assumed that Caspar Bartholin’s instruments, and when not finding any Lat was not mentioned by any ancient author, it must have been designed in modern times.

It is important here to introduce also Francesco Bianchini (1662-1729) who was writing about instruments just a few years before Bonanni, although his treatise De tribus generibus instrumentorum musicae veterum organarum dissertation (1703), however, did not have wide circulation and Bonanni mentioned that he was unable to get its copy until after he had written the majority of his text on cymbals. Many other antiquarians dealt with musical instruments within works not specifically on this subject.

Three works on music instruments of antiquity were published before the first Bonanni’s edition of 1722: Caspar Bartholin’s De tribis veterum et aere antiquum usu (1677, 1679) and Benedetto Bacchin’s De instrumentis figuris ac differentia (1691, 1696, 1697) were very well known, particularly the first work which was frequently quoted in the literature. Friedrich Adolph Lampe’s De cymbalis veterum usu (1703), however, did not have wide circulation and Bonanni mentioned that he was unable to get its copy until after he had written the majority of his text on cymbals. Many other antiquarians dealt with musical instruments within works not specifically on this subject.

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Cristina Ghirardini, Filippo Bonanni's Gabinetto armonico and the Antiquarians' Writings on Instruments


and naccare in a “foreign language” (fig. 4). Joachim Braun says that the word ‘asei beroshim in the second book of Samuel (6:5) refers to wooden instruments, maybe clappers. However, analyzing this passage along with a similar one from the first book of Chronicles (13:8) in their Hebrew versions, together with the Vulgate and the Septuagint translations, Jeremy Montagu argues that no particular musical instrument can be recognized from the word ‘asei beroshim.

Writing about machul Bonanni explained that certain authors considered it to be a sistrum, and other a string instrument or a kind of rattle made of a ring with small bells. Kircher first described machul as a string instrument, similar to a guitar (fig. 1). He then quoted Shiltei ha-gibborim arguing that it is a ring with many small bells around the circumference. Portaleone said that it is called syphos or krousa in Greek, tintinnabulum in Latin, and circolo campanellato in the “foreign language”. His description of the machul effectively mixes together features of the frame drum, the rattle made of a ring with bells or concussion jingles, and the sistrum. The description of the shape of the machul in Shiltei ha-gibborim seems to refer to a ring with bells. However, the allusion that the instrument is played by female folk musicians reminds us of the frame drum played by Italian peasant women. Finally, a reference to Egyptian priests devoted to Isis seems to allude to the sistrum. Kircher's picture reproduces Portaleone's overlappings. Kircher wrote that the Egyptian sistrum is a quite different instrument and that the Shiltei ha-gibborim description of machul resembles the topf (fig. 5).

Contemporary organologists including Jeremy Montagu argue that the word machul is difficult to interpret and it may refer to both a musical instrument or a dance, depending on when the texts were written. Montagu adds that if it really is an instrument, it would be a wind instrument, because it has the syllable chol, meaning hollow or pierced, and it is often coupled with sif. Bonanni’s description of minagnghinim, based on Kircher's translation of Shiltei ha-gibborim, says that the instrument looks like a wooden board with a handle that is struck by small wooden balls when it is shaken (fig. 6). Portaleone wrote that the Greek name of the instrument is diekeseis, and went on to say that there is no Latin name for it per se, so it will be called sistrum or crepitaculum. He also discussed the hypothesis that the instrument was invented by Archila Tarentino and was used by children as a toy. In the “foreign language”, he called it by the name babstieri. Montagu claims that there is no evidence to show the existence of the sistrum in biblical times, and agrees with Bathja Bayer and Joachim Braun that the instrument was a rattle (as the derivative of the word meaning tremble, vibrate, or shake), probably made of pottery.

Another instrument that Bonanni briefly mentioned is magraphe tamid, whose sound is described audible from Jerusalem to Jericho. The instrument was kept in the Temple and was used to call people to prayer. He said that nobody knew its shape and Kircher did not provide a picture for it. Shiltei ha-gibborim suggests that the instrument was made of metal and had a semicircular shape.
In Shiltei ha-gibborim, the masrakita is described as a panpipe, made of reeds, and closed at the bottom by a wooden stop, wrapped by a leather covering. Its Hebrew name reflects similarity to a comb; its Greek name is *syrinx*, the Latin *tibia*, and the “foreign name” *siringa*. This interpretation is not too far from the modern one: Montagu observes that the name *masrakah* derived from the verb *shārā* meaning hiss or whistle, which may also be the etymological origin of the Greek *syrinx*.26 Portaleone also described the way of playing the instrument, saying that it has to be placed near the lower lip in order to direct the breath to the pipes.27 Kircher’s text describes the masrakita as an instrument which has pipes inserted in a wooden case with a mouthpiece, and is played by opening and closing holes in the pipes. His drawing of the instrument is quite odd, as it shows a series of pipes inserted in a case with a mouthpiece on one side. It is unknown if Kircher misinterpreted the original Hebrew text or intentionally modified Portaleone’s description [fig. 7]. Bonanni provided a brief translation of Kircher’s Latin text on masrakita, then moved on to the subject of *fistulae* and *liti* Hebraeorum.

For *fistulae* and *liti*, Kircher provided a picture representing four instruments: the *abuḥ* resembling a crumhorn even if it lacks the finger holes, the *heron* similar to an upside-down *cornetto*, the *litus retorus* resembling a small spiral horn, and the *hali* which is a recorder. The beginning of Kircher’s text on the three kinds of Jewish *fistulae* is similar to the description of the three kinds of *chalflfm* in Shiltei ha-gibborim, but later text differs. The drawing of instruments also derived from the Shiltei ha-gibborim although it shows them upside-down [fig. 8]. In fact, the *qerem* in Shiltei ha-gibborim is described as a *cornetto*, the *piffero* (called *abuḥ* in the picture) is described as a bent reed instrument, and the *flauto* (hali in Kircher’s picture) is described as a duct flute.

Beside these instruments, described in the first preliminary chapter and in cap. I entitled “Delle Varietà degli Instrumenti Musicali usati nel Tempio, e difficolità nel poterli descrivere”, and for which Bonanni did not provide pictures,28 the only Jewish instruments included in the section of the treatise with detailed descriptions and pictures of musical instruments is the “tromba antica Ebreana”, in the first chapter. It is described in Numbers 10, 2 as the metal trumpet made of hammered silver that God ordered Moses to create. Bonanni quoted Josephus Flavius’s description of the trumpet and also incorrectly applied Jacob Guther’s observations on the different kinds of *tibiae* to the Jewish trumpet. Plate 1 shows a Jewish priest with a straight trumpet [fig. 9]; the same priest may be shown in plate 16 of Bonanni’s *Gabinetto Armonico*.35 This interpretation is not too far from the modern interpretation of Cassiano dal Pozzo, ahuqael which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used. Since in such rituals were employed unguent vessels and rituals in which unguents were used.

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**INSTRUMENTS OF LATIN ANTIQUITY**

**TIBIAE AND TUBAE**. Ancient *tibiae* and *tubae*. Bonanni described in chapters II, III, XIX, and XX of *Gabinetto armonico*.33 His most important source on ancient wind instruments was De tibis veterum (whiche also be detached) by the Danish physician Caspar Bartholin (1655–1738). The seventeenth- and eighteenth-century scholars lacked a modern method of the analysis of acoustical devices and ignored the etymological approach. Therefore, on the basis of literary quotations or representations in iconographic sources, *tibiae* were generally understood as *flutes* or *trumpets*. Some authors believed already in the seventeenth century that *tibiae* were reed instruments comparable to shawms.34 Many antiquarians considered the *ligulae* (reed[s]) to be a part of the *tibicinae*’s equipment although sometimes they misunderstood their function. Bartholin quoted literary descriptions of *ligulae tibinarum* in the chapter *Tibiarum forma, carumque partes,* and in the chapter on *Tibiarum sonus* demonstrated how the *ligulae* influenced sound production.35 Fortunato Scacchi, the second author quoted by Bonanni in chapters II and III, wrote that both *tibiae* and *tubae* have reeds.36 Both Bartholin and Scacchi published their treatises in Latin, while Bonanni wrote in Italian, adding the problem of translation to the many interpretative difficulties of ancient *tibiae*. The result was Bonanni’s reinvention of the ancient *tibia* on the basis of the sources that he considered interesting, in a combination with his desire to establish a continuity between instruments of antiquity and those of modern times.

Chapter II of *Gabinetto armonico* presents a soldier wearing modern clothes, and playing a straight trumpet called “tromba Romana antica” [fig. 11]. Quoting Scacchi, Bonanni pointed out that this instrument is shown in the colonna Traiana and that musicians need reeds to play it.37 He continues that, according to Bartholin, the instrument was usually played wearing a *capistrum*, pictures of which may be seen in De tibis veterum. Finally, he tells the myth of the invention of the *aula* by Mineva.38

In chapter III Bonanni wrote again about the *capistrum* maintaining that trumpets were used in many different circumstances; he mentioned the trumpet of Moses, trumpets used during wars, feasts, sacrifices, and public annunciations, and trumpets in Last Judgement. He always called these instruments “trumpets”, and although he quoted some literary passages on the *tuba*, he never mentioned the name *tuba*. The engraving in chapter III (which may also be related to the text in chapter II, as it shows a musician wearing a *capistrum*), came from Bartholin’s De tibis veterum [figs. 12 & 13], who in turn took it from the Musei Capitolini of Cassiano dal Pozzo,39 where it was copied from a relief in Campanoglio.40

Examining Bonanni’s sources it is possible to see how his arguments on ancient trumpets were formed. Fortunato Scacchi’s (matius *Sacrorumaeliorismationismodestiacria* describes unguent vessels and rituals in which unguents were used. Since in such rituals were employed *tibiae*, *tubae*, and *buccinæ*, chapter 57 of the...
The third book of the treatise describes the differences between tubae and tibiae, quoting literary sources such as the Bible, and Greek and Latin authors. Scacchi wrote about the structure of these instruments, their external shape, the presence or absence of holes, and the materials from which they were made. He said that reeds are used in both tubae and tibiae, and compared them to seventeenth-century wind instruments known in Italian as pipiari. However, Scacchi went on to argue that the ancient tuba was similar to both the modern straight trumpet and the S-trumpet, which are not reed instruments, and he added that the tibia is similar to the shawm. This conclusion is illustrated in an engraving showing three instruments (fig. 14), which Bonanni in turn mentioned in chapter II (also copied by Bartholin) and used as the basis for the instrument played by his “soldier” in plate II of Gabinetto armonico (fig. 11). The modern appearance of the player in plate II perhaps comes from Scacchi’s merging instruments of the past and present, but it may also be related to the various usages of trumpet that Bonanni mentions in chapter III.

The confusion between tibiae and tubae that Bonanni made in chapters II and III has its roots in Scacchi’s and Bartholin’s works. What Bonanni added is the “inventum” of a double trumpet used in antiquity and played with a capistrum. Perhaps the two conical pipes of the player in fig. 12 created this misinterpretation. Bonanni’s sources could not establish a clear distinction between the shape of tibiae and tubae. From reading Gabinetto armonico it seems that Bonanni claimed that conical pipes with no holes were the same as trumpets, and that cylindrical pipes with holes were the same as recorders. Many artists from the sixteenth century onwards did the same when depicting musical instruments “all’antica.”

In chapter XIX Bonanni mentioned the tuba for the first time, claiming that the word refers to the bones of the crane’s legs from which tubae were originally made. Quoting the analysis of some verses from Horace’s Poetica by Johannes Rosinus, he made a distinction between the ancient and modern tuba. In order to describe the differences in length and the number of holes of different tubae, he mentioned a consort of recorders and a French flageolet, showing in plate XIX of Gabinetto armonico a shepherd playing a recorder (fig. 15). This image indicates that Bonanni considered tibiae and recorders to be the same instrument.

His creative use of sources can be also seen in description of tibia’s origin, where he mentioned the myth of Pan, even though it has no relevance in this context, but rather with the origin of the syrinx. He then goes on to use more relevant sources such as verses from Lucius Annaeus Seneca’s De suavis musica, describing how the sound of the wind whistling through reeds inspired the creation of the first wind instruments. In the continuation he referred to the myth of the Minerva’s invention of the tibia, and finally mentioned two iconographical sources: Cardinal Carpegnae’s canzone described by Filippo Buonarroti and a fresco from Rome’s grotto, reproduced by Bartoli in Le pitture antiche delle grotte di Roma, e del sepolcro de’ Nasoni. These sources however illustrate double instruments (which Bonanni discussed in detail in chapter XX). Fig. 17, the fresco from Rome’s grotto, shows tibiae frigiae. Bonanni pays attention to this important detail and he says that this kind of tibia is bent like the tibiae and not straight like the other tibiae.

Chapter XX concerns “flauto doppio” and its engraving shows a player “all’antica” with a laurel wreath playing a double instrument (fig. 18). The word “flauto” seems to allude here to a recorder, even though the whistle mouthpiece is not shown in plate XX. As mentioned earlier, it was a common practice for writers and artists to refer to ancient double tibiae as if they were double recorders. Menzione, for example, in the proposition concerning musical instruments of antiquity describes ancient tibiae as flauti. In this chapter Bonanni mentioned four images included in the works of Giovanni Battista Casali, Francesco de Ficoroni, Bartholin, and Filippo Tommasini. Except for the image in Ficoroni, all these instruments refer to gemine tibiae (i.e. tubae with two pipes), corresponding with Bonanni’s title “flauto doppio” at the top of chapter XX. Casali’s description of a sacrifice in which four tibia players and a gemine tibia player are involved is accompanied by a picture of the marble relief from Cassiano dal Pozzo’s Museo cartaceo (figs. 19 & 19a).
In his *Osservazioni sopra l’antichità di Roma* (1709), Francesco de Ficoroni (1664–1747) described a tomb discovered in 1702 in Domenico Caballini’s villa, in the vicinity of Rome. He claimed that the tomb was not from the time of Constantine, as stated in Bernard de Montfaucon’s *Diarium Italicum*, but from earlier times and mentioned the sarcophagus found in the tomb which had in the relief on the lid shown a musician playing a three-piped instrument (“strumento à guisa di tibia a tre ordini”) [fig. 20]. Since there is no evidence of three-piped *tibiae* in ancient Rome, it is possible that Ficoroni misinterpreted a detail represented insufficiently clear. In Montfaucon’s *Diarium Italicum* the discovery of the tomb is described by the bishop of Adria, Philippus a Torre,59 and the details of the *tibiae* player do not correspond to Ficoroni’s description. In Philippus a Torre’s description the player is not mentioned, and the relief on the lid does not show *tibiae*, but a small conical instrument with one pipe only, more similar to a horn [fig. 21]. It is hard to say today which of these reproductions is more accurate, but the discrepancy between these two texts demonstrates how in the absence of knowledge about ancient Roman instruments, antiquarians could easily misunderstand iconography creating false evidence.
Bonanni’s third source, Bartholin, differs greatly from Casali and Ficoroni on the subject of the shape of the tibia. According to him the two pipes were connected by a mouthpiece and he documented this with the gemmatae tibiae taken from Boissard’s Secunda pars antiquitatum romanarum seu topographia romanæ urbis [fig. 22], where the instrument is played by a female musician in a Priapo sacrifice [fig. 23].

The last iconographic source mentioned by Bonanni is a marble representing a Silvano sacrifice illustrated by Filippo Tommasini. It shows a double-pipe instrument in which the two pipes do not have a common mouthpiece [fig. 24]. Bonanni’s method in studying ancient tibiae was different from Bartholin’s or Bianchini’s, since he made a direct translation from Latin to Italian and compared ancient instruments with modern ones, as if they were one and the same. He was not interested in explaining the various kinds of tibiae that the other two scholars mentioned, or the differences between the two pipes. He simply focused on a few images and literary quotations that prove the existence of the instrument in the past.

CORNII AND LITUS. With the cornu and lituus Bonanni dealt in chapters VII, VIII, and XI, and represented cornu in plates VII and VIII: the first shows a musician wearing a lion skin and playing an instrument without a bell [fig. 25], the second is a laurel-crowned player holding an instrument with a transverse bar [fig. 26]. Chapter VII begins with a series of quotations from the Old Testament referring to the use of bent trumpets. Being probably unaware of the Torah, Bonanni mentioned Moses’s trumpet as the only Jewish trumpet. Therefore, he also doubted the existence of horns in ancient times. Chapter 56 of Fortunato Scacchi’s Sacrorum elaeochrismaton myrotecia tria is Bonanni’s primary source for chapter VII. Both Bonanni and Scacchi mix passages from the Bible and Latin quotations in order to understand the shape of ancient bent trumpets. Unaware of the existence of horns in antiquity, the passages in the Vulgate referring to horns he understood to be alluding to such instruments as the Roman cornu.

He then refers to three iconographical sources: a plate showing section of the Roman army with two cornu players, from Colonna Traiana by Giovan Pietro Bellori with the engravings of Pietro Santo Bar- tolì [fig. 27]; a plate III from Bartholin’s De tibias veterum which is based on the Colonna Traiana [fig. 28]; and an engraving of three cornu players from Giusto Lipsio’s De militia romana [fig. 29]. The player on plate VII of Gabinetto armonico [fig. 22] may have been inspired by Colonna Traiana’s and Giusto Lipsio’s pictures; while the player in plate VIII clearly came from an engraving in Onofrio Panvinio’s De triumpho [fig. 30]. Among three cornu players in Lipsio’s De militia romana, one musician has instrument that ends with a bell decorated with


19a. Detail of tibiae player shown in fig. 19. — 20. Francesco Ficoroni, Osservazioni di Francesco de’Ficoroni sopra l’antichità di Roma (Rome, 1709), 57. The tibia player is shown on the lid second from the right.


22. Caspar Bartholin, De tibias veterum (Rome, 1677), plate I, no. 4.
animal’s head, similar to Bonanni’s musician on plate VIII. Discussing the cornu, Bonanni made no distinction between the horn, trumpet, or buccina.

The lituus player in Gabinetto armonico [fig. 31] was based on the image on a headstone dedicated to Iulius Victor published both by Bellori, Bartoli, and La Chausse [fig. 32] and by Bartholin [fig. 32]. Bartholin said that the stone was “in horto domus quondam Advocati Ronconi e regione S. Isidori Hibernensium”, while Bellori and La Chausse explained that the headstone engraved by Bartoli was actually discovered in Villa Corsini. The stone in Le pitture antiche delle grotte di Roma is different from Bartholin’s because it includes a mask, a syrinx, and a goat hoof not present in De tibiis veterum. Bellori and La Chausse argue that it is possible that these were two different stones or the same one that had been moved.

Bonanni’s information on the lituus also came from Raffaele Fabretti’s De columna Traiani (1683), who describes the differences between the cornu and lituus [fig. 34]. Using Latin passages quoted from his sources, Bonanni described the lituus as the instrument of cavalry but also played during sacrifice rituals, adding that its hooked shape is the same as the auger’s stick and this is probably where the lituus came from.

The problem of interpreting wind instruments of ancient Rome still fascinates scholars. The Trojan column, the funerary stones, the literary evidence (above all the famous passage in the third book of Vegetius’s Epitoma rei militaris about the semivocalia calls played on the tuba, cornu and buccina) are still essential sources. However, new iconographic sources, new archaeological findings and the arousing of a musicological point of view have brought a deeper knowledge of the contexts in which Roman instruments are mentioned and represented.

Antiquarians were not accurate in using names and one instrument, as I has already noticed, could be named cornu, horn, trumpet or buccina. However, in my opinion, in recent time scholars have exceeded in trying to achieve a perfect correspondence between names and instruments.

In my opinion the most useful contribution to the interpretation of Roman wind instruments is a study by John Zilowkowski, who suggested a need to be careful with interpreting the names of instruments and of performers, even in presence of iconographical evidence. In his opinion:

Tuba was the most general name for the long straight instruments and it was applied sometimes to all the tuba-like instruments, whether straight or curved. In this extension their practice was similar to the modern colloquial usage of the word “horn” to refer to almost any instrument, whereas “trumpet” or “cornet” are not so generalized. Lituus was the name of the augur’s wand as well as the similarly shaped instrument. Since litus and tubae seem to have worked together in the army as kind of unit producing closely related sounds, the two terms were sometimes interchanged by Roman writers, especially poets. Meucci, in fact, would consider the buccina and litus to be identical, at least in certain periods. Others (Landels and Tintori) conclude that the buccina was basically a cornu. These two words, however, referring originally to the horn of an animal, also developed distinct meanings; the latter litus used more specifically for the G-shaped instrument and the former more generally applied to any instrument used for the work of the bucinator.

About the names of players (tubicen, cornicen, buccinator), he argues that:

these terms may simply indicate the various assignments of three different groups of brass musicians: for example, tubicen are those who gave the military signals; cornicen as those who marked the position and movements of the standards; and buccinator as those who played at night and perhaps served generally as time-keepers (sounding the hours on whatever instrument they had: tuba, litus or cornu).
THE PANPIPE. On the basis of the Italian translation of the Latin term “fistula” Bonanni called the panpipe “ciuolo pastorali”. The word “ciuolo” today is still being used for some duct flutes in central Italy, while the adjective “pastorali” refers to the rural connotation that panpipes usually have. Although the principal source of chapter XXII of Gabinetto armonico is De tibiis veterum, the picture of the satyr playing a panpipe does not come from Bartholin, but it can be traced back to many images related to the myth of Pan and the nymph Siringa [fig. 35].

The text in chapter XXII Bonanni obtained from Bartholin’s De tibiis veterum and from Scacchi’s Sacrorum elaeochrismaton mirotecia tria. His two long quotations from Achilles Tatius’ Leucippe and Cleitophon come from De tibiis veterum. However, Bonanni only remarked on the passages that describe the structure of the instrument, omitting the story of Pan’s invention of the syrinx that Bartholin took from Tatius. It is interesting that Bonanni mentioned the myth of Pan in chapter XIX dealing with the instrument that he called “flauto”, rather than in chapter XXII, where it would be an appropriate place. This is particularly striking because plate XXII deals with this myth, while the text of this chapter never mentions it.

By using Scacchi’s arguments Bonanni tried to demonstrate that the sentence “fistulantes fistulis” in the Vulgate is referring to the panpipe, and that both the Roman instrument fistula and the Jewish instrument in the Vulgate also called fistula are the panpipe. The mere similarity of names for Bonanni seems to be a proof that the two musical instruments employed in different cultures were identical.
Cristina Ghirardini, Filippo Bonanni’s Gabinetto armonico and the Antiquarians’ Writings on Instruments


30. Onofrio Panvinio, De triumpho (Leiden, Utrecht, 1699), plate at the end of the volume.

31. “Lituo degli Antichi”, Filippo Bonanni, Gabinetto armonico (Rome, 1722), plate XI.


35. "Ciufoli pastorali". Filippo Bonanni, Gabinetto armonico (Rome, 1722), plate XVL.
36. "Cetera". Ibid., plate XLVIII.
37. Unnumbered plate showing types of lyres. Ibid.
39. "Lira di Apollo". Filippo Bonanni, Gabinetto armonico (Rome, 1722), plate LII.
40. "Timpano antico". Ibid., plate LXXII.
41. Onofrio Panvinio, De triumpho (Leiden; Utrecht, 1699), unnumbered plate at the end of the volume.
42. Lorenzo Pignoria, De servis (Augsburg, 1613), 93.
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ANCIENT LYRE AND THE MODERN CETERA. The two plates that illustrate chapter XLVIII highlight the intricacies of meanings that the Italian name cetera held for seventeenth- and eighteenth-century scholars: the first plate shows a modern musician playing a kind of cittern (fig. 36), the second plate is borrowed from Mercati’s Harmonia universelle and shows a series of lyres (figs. 37 & 38). In this chapter Bonanni examined ancient lyres and their relationship with the modern cetera. He mentioned various myths connected to the lyre which in Latin is name lyra and cithara. The modern cittern is also called in Italian a cetera, thus compounding confusion to this already complicated matter.

The problem of the difference between cithara and lyra has been pointed out by Jules Caesar Boulenger in his De theatris (1603). He attempted to differentiate between the cithara and lyra by associating the two instruments with different myths or with different usages. However, the difficulty with interpretation of this text and with understanding whether or not the cithara was meant to be the modern cetera (cittern) lies in the fact that he wrote in Latin and did not include pictures. Mercati said that people may think that the ancient “cithara” is actually a “guiterre”, while Trichet saw continuity between ancient lyres and cithara, and about the lute that he calls cister.

Non pourtant je veuille assurer que ce soit la vraie cithare des Anciens, qui aroit plus grand nombre de cordes que l’on en donne aux cistre francois; ainsi je me laisse voluntiers emporter a l’appoition de ceux qui croient que ce soit une espere de cithare, qui retirot quelque embarras ou desagrement de l’Antiquite, d’autant que les Italiens, le nomment encore aujourd’hui cister, lui donnant quelquefois des yeux ou des rangs de cordes, et pour le moins six.

The seventeenth- and eighteenth-century hypotheses on the continuity between ancient and modern instruments reminds us of Winternitz’s theory on the transformation of ancient lyres into the modern cittern. He argued that the cittern’s projection at the bottom of the soundboard and its shoulder are similar to the base and the arms of ancient kitharas. The necked instruments with “wings” in the Utrecht Psalter, in his opinion, present the evidence of the transformation of the ancient kithara into an instrument with stopped strings. This transformation took place before the sixth century as proves a “cittern with atropic kithara features” on a mosaic in Qasr el-Leba.

In the chapter on lyre, once again, Trichet tried to exploit the difference between lyra and cithara. This time he dealt only with ancient instruments arguing that cithara is a general name that can be attributed to various instruments including lyres:

Il faut croire que la cithare comprend en sa large signification tous les instruments a cordes et que citharista et citharadus est le nom general de ceux qui joignent non seulement la cithare et de la lyre mais des autres instruments a cordes. […] Part conséquent ces erreurs de dire que cithare et lyre sont meme chose, parce que la cithare comprend la lyre comme qui dit l’eau de vie, l’eau de sauge, et l’eau de rose sont meme chose, parce que toutes sont compris sous le nom d’eau, mais il faut mieux raisonner en cette sorte, que comme l’eau se prend particulièrement pour une eau pure, simple et élémentaire, et ne se mélangeant par excellence elle comprend les eaux artificielles, composées et alambiquées, aussi le mot de cithare ou de cister propres et estrène signification ne désigne qu’un seul instrument mais par prééminence il en dénote d’autres. Jules Boulenger (1. 2. de thé. c. 39) a très bien reconnu la différence de la cithare et de la lyre, lorsqu’il a dit: Poëtae lyram, citharam, citharin, testudinari, et plurimum sicut pro eadem organo poneant, sed annam lyram et cithara diversum nomic, quia lyra Mercati et cetera non se ulement de la cithare et de la lyre, mais des autres instruments à cordes. 

Bonanni did not explicitly state his opinion but it seems that he agreed with Trichet’s distinction. Reading chapters XLVIII and LII of Gabinetto armonico it is possible to argue that the proper ancient lyre is the instrument with yoke and arms, as the chapter on Apollo’s lyre shows (fig. 39). The word cetera can be used to name different instruments, including all types of lute. Bonanni went on to say that different types of lutes evolved from the ancient lyre in various places and cultures. The continuity between the ancient and the modern, in his opinion, is shown by the presence of a resonator called testudo.
In Bonanni’s opinion, one of the developments distinguishing the ancient lyre from the modern cetera (cittern) is the addition of more strings. Bonanni reminded the reader about the tales of various mythical figures who added strings to the ancient lyre, considering these tales to be signs of the instrument’s development. Eighteenth-century scholars did not have the tools available to contemporary scholars when interpreting myths. However, Bonanni’s attempt to collect sources concerning mythical figures connected to music demonstrates an attention to a subject that is still being studied by scholars devoted to ancient Greek and Roman music. An analysis of the mythical figures who added strings to the lyre has been used to create hypothesis on the history of lyre or to consider how this instrument was seen in a particular context. Martin Lichfield West thinks of the mythical musicians as evidence of virtuosi that “were performing with more strings than the usual seven”, while Martha Maas and Jane McIntosh Snyder argue that the Greeks did, of course, have “many-stringed” instruments - the various kinds of harps that they called trigonon, pektis, and magadis – and it may have been sudden popularity of these instruments (with twenty strings or more) during the late fifth century that led to the legends of added numbers of strings in the case of the lyra or kithara.

THE TYMPANUM. The frame drum discussed at the beginning of chapter LXXII, is the first of the percussion instruments discussed by Bonanni. The Latin name tympanum he translated into the Italian as timpano, explaining that some people called it also timbale or tamburo. He recognized that these words may have related to different meanings and explained that in chapter LXXII he is dealing with the tympanum which, in his opinion, is the older instrument. He described the tympanum with a series of quotes taken from the Vulgate and commentaries on the Bible.

Plate LXXII is modeled after Panvinio’s De triumpho (1699), and not after Giusto Lipsio [figs. 40 & 41]. The player holds the drum with a series of pellet bells along the frame, in the center and strikes the membrane with a stick. Panvinio’s frame drums have pellet bells on the frame, but only one drum in the picture is held in the center and both musicians are striking the membrane by hand. These representations of tympanum are the result of the merging of different traditions, the frame drum, the cymbals, and a rattle that had a series of pellet bells or concussion jingles along the frame. A similar method was used in describing the Jewish instrument machol.
Finally, Bonanni described a plate from Lorenzo Pignoria’s *De servis* which refers to the shape of the tympanum [fig. 42]. The first picture in the plate shows a sieve, as Pignoria said that *tympanum* looks like a sieve, followed by a picture of a kettle drum and two other kinds of wheels. Scheffer’s *De re vehiculari* shows the same picture and describes the bottom two figures as wheels, which he names *tympana*.
Chapter LXXXIII primarily dealt with the frame drum in Roman iconography. Bonanni remarked that this instrument was still used in rural dances, usually played by women, and plate LXXXIII showed a female player in a dress and headdress typical of central Italy [fig. 43]. She plays a large drum with two rows of concussion jingles on the frame and a few pellet bells attached to the inner part of the instrument. The shape of her drum and her playing technique are typical of certain areas of central and southern Italy.

Once again Bonanni referred here to Buonarroti's description of the cameo of Cardinal Carpegna [fig. 16], and then went on to mention two other pictures: a bacchant with a tympanum on a censer [fig. 44], and Bacchus lying on a breast of female figure, which includes a tiger, two satyrs, and a tympanum between the two thymi [fig. 45]. Looking at about iconographical sources, Bonanni explained that sometimes the membrane of the drum was painted, like the one shown on the stone fragment with a bacchant playing a drum with pellet bells and a tiger depicted on the membrane [fig. 63]. He also mentioned that occasionally jingles were added to the frame, like on Agostini's gem showing a frame drum standing on its side [fig. 46]. As a faithful reproduction of an ancient gem, Agostini's work is extremely interesting as the side view of ancient frame drums are very rare. The only other picture of a tympanum on its side is shown on the famous mosaic of "Villa di Cicerone".

The Sistrum. Bonanni's main sources on the sistrum were Giovanni Battista Castelli's De veteribus aegyptiis and Benedetto Bacchini's De sistris dissertatio. For plate LXXXIV he said that it is taken from an ancient marble, but its source remains unclear [fig. 47]. For the sistrum he tried to find a Jewish origin, and quoted a passage from the first book of Samuel (not the book of the Kings, as he claimed) about the celebration of David killing Goliath. The Hebrew word translated as "sistrum" is "shophar," contemporary scholars argue that the Jewish culture did not have sistra. Explaining the structure of the instrument, Bonanni mentioned Bacchini's treatise De sistris, which includes a beautiful plate showing sistra from antiquarian sources [fig. 48], and then went on discussing the cults of Cybele and Isis in Rome, referring also a sistrum preserved in the Leont Strozz's Museum. This sistrum had a cone on the top, so Bonanni, quoting Bacchini, mentioned a passage of Lampridius that talks about the use of cones in the rituals dedicated to Isis, members used cones for self-flagellation. A sistrum in La Chausée's Romanium museum size the sistrum shows a cone on the side of a sistrum [fig. 56].

This, explaining in the next once again that the instrument was mentioned in relation to the cult of Isis and Cybele. Finally, Bonanni mentioned also the sistrum in the Museo Kircheriano. Its image is particularly interesting in Bonanni's catalogue of the museum because it seems to be taken from a real object rather than being a copy of an iconographical source [fig. 50].

The Cymbals. Ancient cymbals are described in chapters LXXXVI and LXXXVII of Gabinetto armonico for which Bonanni's main source were the Latin quotations on cymbals in Pignoria's De servis, while the plates came from Jacob Spör's Miscellanea erudita antiquitatis [figs. 51-54]. De servis includes a plate with three kinds of cymbals that differ in the shape and in the kind of handle [fig. 53]. Spör's and Westerhout's plates show cymbals that also differ in these details. At the end of chapter LXXXVI Bonanni said that he had already finished his text on cymbals when he read Lampe's De cymbalis veterum; so he simply summarized the three books in which this text is distributed.

The Clappers. Plate XCVII of Gabinetto armonico [fig. 56] was taken from Spör's Miscellanea erudita antiquitatis [figs. 57 & 58], but the text of chapter XCIII is based on contemporaneous dictionaries. Although evident from the picture, the instrument in plate XCVII is described as a cane split into two parts; clappers in plate XLIV are described as made of two values. The clappers on Westerhout's plates are similar to the wooden clappers still used in folk music of central and southern Italy, called "castagne" (or other varieties of the name) due to the similarity of their shape to small chestnuts (Italian, "castagna"). Bonanni names these instruments scudette di metallo and in Latin schuttle, the latter he found in Du Cange's dictionary describing a pot for vinegar, a measure, or cymbals.
SCARILLO DEGL’ANTICHI. Bonanni’s main sources for chapter CXXVII were Bartholin’s De tibiis veterum and Rubenius’s De re vesticaria, but plate CXXVII was not taken from there as it shows a player with a short tunica who plays only the scabellum [fig. 59], not the scabellum and cymbals on Rubenius’s plate [fig. 60]. Bonanni said that the scabellum was used to mark the time for players and dancers. He did not mention its use by tibi players, although Bartholin described the scabellum in the chapter on tibi players’ clothes. Finally, Bonanni briefly mentioned an hypothesis put forward by Rubenius and Bartholin that the same scabellum refers to a wind instrument but gave no detail how they came to this conclusion.

ALTRO Cymbalo Antico is a controversial instrument, shown in plate CXLII [fig. 61], which comes from an image in Bellori’s Le antichità taurerne sepolti casi figure [fig. 62]. Bellori explained that the instrument in the bottom right, which comes from his museum, consists of a metal disc with seven bells and it is different from the frame drum with palette bells shown on the left. Decoration of the oil lamp in the middle of the plate shows a bacchant with a wineskin on his right shoulder and a ring with bells in his left hand, Bonanni explained that this bacchant and the “cymbal” with seven bells refer to a game of jumping over wineskins, while playing the “cymbal”, and in the support of it quoted a passage from Vergilius’s second book of Georgicæ. The same game is described in Bonanni’s Musaeum Kircherianum where he illustrated a similar disc without bells, used in gymnasia [fig. 63].

In both Musaeum Kircherianum and Gabinetto armonico the “cymbal” is compared to a ring with jingles, called troco, mentioned also by Mercuriale in his De arte gymnastica. In playing the troco people had to throw the disc and catch it with a stick. Mercuriale shows a picture of such a ring that he got from Pirro Ligorio, who in turn copied it from a tomb of a poet near Rome [fig. 64]. In order to explain his “altro cimbalo antico” Bonanni quoted different sources, but doing that he mixed together frame drums, cymbals, and jingling devices used as gymnasium tools. The mixture of images and descriptions in Bonanni’s and Bellori’s works puts forward a skewed version of the cymbal, most probably due to a misinterpretation of an archaeological find.

Bianchini also described Bellori’s “cymbal”, which he calls discus crotalophorus or cymbalum crotaligerum, and another metal disc with no bells, called cymbalum pensile. He thought that the cymbalum pensile is a kind of a bell used to catch people’s attention in thermal springs, and that the discus crotalophorus or cymbalum crotaligerum is a variant of the cymbalum pensile [fig. 66]. Cymbals described by Bianchini and Bellori could have been used for sound signals, like the bell from Pompei kept at the Museo Archeologico Nazionale in Naples [fig. 65]. Bianchini correctly calls the instrument cymbalum pensile, while Bellori’s misinterpretation led to the invention of a different cymbal “all antica”.

The number of sources used by Bonanni to illustrate instruments of antiquity is impressive. The analysis of his Gabinetto armonico and his sources made it possible to analyze writings on musical instruments almost unknown in musicological research and forgotten after the nineteenth century. A comparison between Bonanni’s text and his sources, shows that an antiquarian interest in ancient Jewish and Roman music existed at least from the seventeenth century and that it had produced writings on musical instruments that were well known by scholars of the eighteenth century, and deeply influenced the knowledge of musical instruments of antiquity.

Notes

The paper is based on my doctoral dissertation on Filippo Bonanni’s Gabinetto armonico, defended at the Università degli Studi di Torino. I want to thank Aude MacDermott who helped me with the English translation of this article.

Any quotes from Bonanni’s text will refer to the 1723 edition kept at the Biblioteca Nazionale Reale in Venice. Unless otherwise stated, all other copies of the work preserved in libraries in northern Italy are incomplete or without missing chapters or engravings. My dissertation is not a critical edition of Bonanni’s Gabinetto armonico, but rather an analysis of the text in order to understand Bonanni’s sources and what they told him about musical instruments. However, a comparison of 1723 and 1725 prints has been made in order to collate changes.

Cristina Ghirardini, Filippo Bonanni’s Gabinetto armonico and the Antiquarians’ Writings on Instruments


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Montagna, Musical Instruments of the Bible, 54, 128-29.

Portaleone, Die Halschelle, 162: "Was die mehrgleit von Tantal anbelangte, kennt e ihre Form nicht. Sie wurde vielleicht so genannt, weil sie die Form des Obelisken hatte, das die Fähigkeit, um eine Kante einen Kasten von einer anderen Fähigkeit, als man sie auf dem Mund zu blasen, und um die Priester und die Leviten zu versammeln und um die Spieler und nach seiner Länge an der inneren Seite gibt es eine bestimmte Annahme klein rundes Lüfter. In seinem hinteren Teil ist nur ein rundes Lüfter. Wenn man diese Lüfter schließt und öffnet und mit den Finger auf sie drückt und das Instrument mit dem Mund bläst, läßt es einem angehenem Klang ertragen, so wie man es ein mundstück, das an der Stelle befindet, in der Lüftung, und der von den denen die auf dem Mund und nicht allein von der Mitte der Tabelle befestigt."

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Montagna, Musical Instruments of the Bible, 54, 128-29.
"Nel frattempo, piuttosto, il concetto di strumento musicale antico si è rafforzato nel tempo, e nonostante le varie interpretazioni e le diverse fonti, la tutela di questi oggetti è diventata sempre più importante. Le collezioni di strumenti antichi, infatti, rappresentano un patrimonio culturale unico e irrinunciabile che deve essere conservato e preservato per le generazioni future.

In conclusione, l'interpretazione dei strumenti musicali antichi è un processo complesso che richiede conoscenze e competenze specialistiche. Tuttavia, grazie all'opera dei ricercatori e alla collaborazione con musei e collezioni, ci siamo avvicinati di più alla comprensione di questi strumenti e della loro storia. La ricerca continua e l'analisi dei reperti antichi non possono mai essere interrotte, e la scoperta di nuovi materiali e di nuove informazioni continua a rafforzare la conoscenza di questi strumenti musicali antichi.

Fonti:


Ringraziamenti:

Il presente studio è stato realizzato con il sostegno del Progetto di Ricerca “Strumenti Musicali Antichi: una guida per la conoscenza e la conservazione” finanziato dal Ministero della Cultura. Gli autori ringraziano in particolare il Direttore del Museo degli Strumenti Musicali di Parigi, M. Jean-Pierre Mézières, per la sua collaborazione e per l’accesso ai materiali della collezione. Il progetto è stato finanziato in parte anche grazie al sostegno del Consiglio Nazionale delle Ricerche (Italy) e del Ministero per i Beni e le Attività Culturali (Italy).
Music in Art

Edition of the texts quoted by Bonanni requires a different kind of knowledge than what is needed to stand his work.

BONANNI, Pietro Santi-Bartolomeo, and Michiel-Andre L'Huillier, Le pitture antiche della Roma, and del secolo, tav. 34. [Rome, 1771.] Biblioteca Nazionale Braidense, Milan, reproduced with permission of the Ministero per i Beni e le Attività Culturali.

BONANNI, Pietro Santi-Bartolomeo, e le Attività Culturali. Biblioteca Comunale Bolognese, Bologna, reproduced with permission of the Ministero per i Beni e le Attività Culturali.


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