

## **Bold as brass: 'brass instruments' in the Roman army**

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### **Abstract**

'Brass instruments' played an important role in the Roman army; their use enabled greater communication and organisation on the battlefield. These instruments served a range of tactical and strategic purposes, which provided an advantage to the ancient Roman army. The *tubiliustrium* festival displayed the military and spiritual significance of these instruments through the symbolic purification of *tubae sacrorum* (sacred trumpets), and as such will be presented as a brief case study. Despite the considerable amount of primary literary evidence, discrepancies within definitions and terminology in the ancient source material provide boundaries to thorough analyses of the use of musical instruments in Roman warfare. These discrepancies have limited the amount of contemporary Anglophone scholarship on this topic. By placing emphasis on the examination of primary sources, including archaeological and visual evidence, this article will: suggest clarifications of terminology, and attempt to provide an evaluation of the use of 'brass instruments' in the Roman army.

**Keywords:** brass instruments, ancient, Roman, *tuba*, *cornu*, *bucina*, *lituus*

## **I. Introduction**

The communication of commands from generals to the various divisions of their armies is an often-overlooked aspect of ancient warfare; in the midst of a cacophony of violence, one soldier's voice would have been virtually indistinguishable from the horrified screams of another. The development and employment of loud aerophones (wind instruments), therefore, signify a notable technological advancement in ancient warfare. These 'brass'<sup>1</sup> instruments were an integral part of the Roman army, enabling greater communication and organisation on the battlefield. The *tuba*, *cornu*, *bucina* and *lituus* were the four main instruments employed by the Roman army to execute both strategic manoeuvres (in terms of signalling and misinformation) and tactical manoeuvres (pertaining to direct commands and communication through signals on the battlefield).

Despite the considerable amount of ancient source material regarding the description and use of these various instruments in the ancient Roman army, discrepancies within the definition and/or the imprecise use of terminology contribute to a considerable degree of confusion and ambiguity. In order to comprehend effectively the use of these instruments, the largely ambiguous primary source material must be examined thoroughly.

Analysing the descriptions of these instruments provided in the ancient source material will allow me to formulate my own definitions, thereby minimising confusion. This also permits a musicological analysis of these instruments, particularly in regards to construction and typology, which can provide important insights into the evaluation of their sound and potential playing techniques.

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<sup>1</sup> The use of the word 'brass' in this article refers to the modern use of the term in regards to denoting lip-vibrated aerophones, as opposed to materials used to construct the ancient instruments.

Finally, the military and spiritual importance of these instruments to the Roman army is clearly emphasised through the symbolic, ritual purification of the *tubae sacrorum* (sacred trumpets) during the *tubilustrium*. In order to evaluate the importance of the use of these instruments, we must first define and discuss their characteristics and typology.

## II. Definitions, Typology and Playing Techniques

Before evaluating the possible playing techniques of these brass instruments, it would be beneficial to discuss the typology and construction of the four main instruments: *tuba*, *cornu*, *bucina* and *lituus*. The typology as well as the ambiguous ancient definitions and descriptions of several of these instruments are debated topics throughout modern scholarship. Consequently, the definitions presented in this study are my own interpretations of the primary and secondary source material. The confusing use of terminology will be addressed, briefly, in each general definition of the instruments, and will then be addressed, more specifically, under ‘Terminological issues’.

The *tuba* is described in ancient texts as a straight, cylindrical instrument ([Vegetius 3.5](#); [Ovid. Met. 1.98](#)) with a flared bell ([Soph. Aj. 17](#));<sup>2</sup> as Varro asserts ([Varr. LL.5.117](#)), the name was derived from

Figure 1: Stele of the *bucinator* Aurelius Surus; depicted with *tuba* in left hand. (Photo: Istanbul, Archaeological Museums)



<sup>2</sup> κώδωνος referring to the ‘bell-shaped’ flare of the instrument.

*tubi* meaning tubes, and this shape is clearly depicted on the stele of the *bucinator*, Aurelius Surus (see Figure 1). Ancient Greek authors refer to this instrument as *salpinx* (σάλπιγξ) but the origin of this instrument appears to be the same as the *tuba* rather than being a distinct Grecian variant.

Figure 2: Trajan's column depicting the use of *cornua*. (Photo: Rome, Museo della Civiltà Romana)



Varro asserts that the *cornu* was named due to its original construction from horn, whilst emphasising that it was later crafted from bronze (Varr. *LL.* 5.117). Ovid describes them as “horns of curving bronze” (Ovid. *Met.* 1.98). This is corroborated in the description of Vegetius, which notes that the instrument was “bent back on itself in a circle” (Vegetius, 3.5). There is uncertainty surrounding identification of this instrument, however, and the etymology of the word *cornu* itself seems to be a central issue. *Cornu* can mean: i) the horn of an animal; ii) a musical instrument, made from horn, which may be more accurately

translated as an 'animal's-horn' or 'hunting horn'; or iii) a curved musical instrument originally made from horn but, later, bronze (in the case of the Roman military *cornu*). The curved instruments seen on a section of Trajan's column (Figure 2) appear to be a depiction of this third type of *cornu* (as described by Varro and Ovid).

There is an associated lack of clarity in modern scholarship surrounding the definitions and typology of the terms *bucina* and *lituus*, partly due to a degree of ambiguity within the primary literary tradition. In terms of the scholarly debate, Meucci offers the most convincing solution to the argument, suggesting that the confusion was compounded partly by the synonymous use of these terms to denote a single instrument in the late sixth to early seventh centuries AD (Meucci, 1989, p. 87). Pliny describes the *bucina* as being made from the *bucinum* shell (Plin. *NH* 9.103), and Smith asserts that the Greek term *concha* (κογχε) is used to denote this instrument in several Greek texts ([Smith, 1890](#), s.v. 'tuba').<sup>3</sup> The link between *concha* and *bucina* is evident in Virgil and Ovid, where *conch* appears to be more reasonably understood within the context ([Virgil, \*Aen.\* 6.171, 10.209](#); Ovid, *Met.* 1.335). Meucci suggests a scribal emendation may be the cause for the confusing nature of Vegetius' description of the *cornu* and *bucina*. When the extant text is revised, the reader is presented with a clear and differentiated description of both instruments (Meucci, 1989, p. 86; Vegetius, 3.5). Pliny also provides an anecdote, which suggests that *tubae* and *bucinae* were also, at times, made from wood ([Plin. \*NH.\* 16.179](#)).

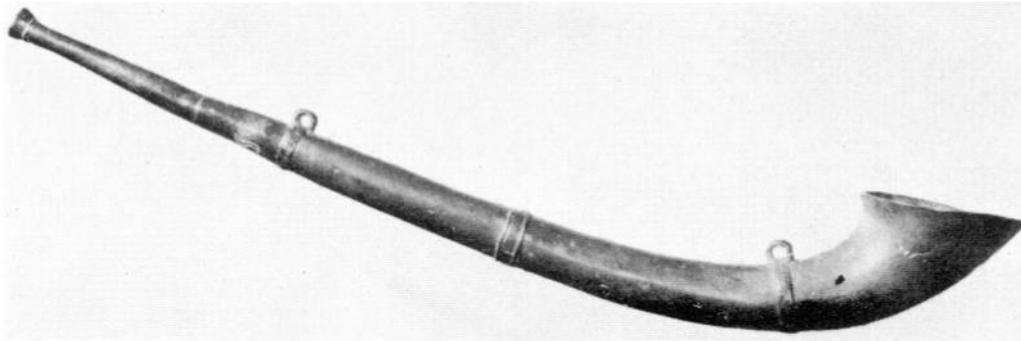
The *lituus*, as well as being the curved staff of the augurs, also refers to a curved brass instrument. According to Aulus Gellius, the instrument resembled the aforementioned staff to some degree ([Aulus Gellius 5.8](#)). Seneca described the *lituus* as a bronze instrument with a hooked end ([Sen. \*Oed.\* 733](#)). A *lituus* fitting this description, found

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<sup>3</sup> E.g. [Euripides, \*Iphigenia in Taurica\* 303](#).

in the Rhine near Dusseldorf (Figure 3), consists of a conical tube with a curved, flared bell and notably features a set cup-shaped mouthpiece.

Figure 3: A lituus found near Düsseldorf in the Rhine. (Photo: Germany, RLM Bonn)



All of these main brass instruments can be regarded as 'natural trumpets', as they do not utilise pitch-altering mechanisms such as holes, slides, or modern valves. As a result, these instruments are limited to notes of the harmonic series of the fundamental or base note of each individual instrument, which is ultimately determined by its length ([Scholes, 1974](#), pp. 588-589). Harmonic series refers to the series of 'overtone' frequencies that correspond directly to any pitched note (Scholes, 1974, pp. 5-6). These 'overtones' are usually heard in combination; for example, in the multi-layered frequencies of an open guitar string. 'Natural trumpets' and other brass instruments, however, have the ability to isolate individual harmonics using a particular performance technique, called *embouchure*, which adjusts the lip-tension on the mouthpiece, varying the rate of vibration of the instrument's air-column (Scholes, 1974, p. 181). This variation of lip-pressure allows for the production of different notes along the harmonic series allowing for reasonably complex

melodies similar to the military piece 'Taps'.<sup>4</sup> It seems reasonable to assert that instruments such as the *tuba*, *cornu*, *bucina*, and *lituus* were capable of producing a range of notes based on the harmonic series, enabling the use of unambiguous melodic signals. Ginsberg-Klar claims that the Rhine *lituus* (Figure 3) is capable of producing a range of notes, further suggesting that these harmonics were used for signalling ([Ginsberg-Klar, 1981](#), p. 314). Procopius, writing in the mid-sixth century AD, noted that the technique used by the trumpeters in the Roman army in 'ancient times' (παλαιόν) - namely to issue two different 'strains' (νόμους) on the same instrument (*tuba*) - had, by his own time, become obsolete. This suggestion is strong evidence for the use of reasonably complex performance methods.

Due to the imprecise descriptions of the surviving literary tradition, the scarcity of fully preserved musical instruments, and the very nature of musicological analyses, the evaluation of ancient instruments is often both retrospective and comparative. This form of anachronistic analysis has its own particular strengths and weaknesses, and while the conclusions may seem reasonable, they are not definitive and can, at best, be regarded as highly probable. It seems worthwhile to at least *attempt* to understand aspects of the playing techniques and methods of brass musicians in the ancient world and a comparative analysis of methods of modern 'natural trumpets' provides an important reference point. Although scholars such as Holmes and Coles criticise as 'anachronistic' the comparison between modern and ancient mouthpieces ([Holmes and Coles, 1981](#), p. 281), the methods of performance remain remarkably unchanged, which allows the use of modern comparisons as an important reference point, in lieu of surviving archaeological evidence.

### III. Terminological Issues

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<sup>4</sup> For a more in-depth discussion of brass instruments refer to: [Meyers, A. \(1997\)](#).

Discrepancies within definitions and misuse of specific terminology within the ancient source material present a substantial barrier to a thorough analysis of the typology and application of ancient brass instruments. Primary sources often use terms designating brass instruments indiscriminately or interchangeably. This occurs not only in the surviving literary tradition but also in some forms of epigraphic evidence; for example, the stele of the *bucinator* Aurelius Surus, who is strangely depicted holding a *tuba* (see Figure 1.). This literary source material can be categorised into two main groups, each with its own particular strengths and weaknesses: incidental references within dramatic works, and military treatises.

In various instances the incidental use of these terms may serve a specific poetic or dramatic effect. These terms may have been used interchangeably to fit the poetic metre, to avoid the repetition of a particular term, or even simply to assist in the composition of more evocative diction, as the main purpose for these texts was to entertain. This type of source material, however, does have some benefits, particularly in the provision of aural descriptions of these instruments ([Hor. Carm. 2.1.18](#); Virgil, *Georg.* 4.72; *Aen.* 9.503), and the inclusion of some specific terms, which help in the assertion of origin, most notably providing a link between the Latin *tuba* and Greek *salpinx* (σάλπιγξ).<sup>5</sup>

Primary sources dealing more closely with the history of warfare, (military commentaries or treatises) provide the most reliable accounts of the use of brass instruments within the Roman army, as they generally attempt to deal more closely and specifically with various aspects of ancient warfare. The reliability of each account differs and should be evaluated on an account-by-account basis. Military treatises place more

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<sup>5</sup> Linking the term *salpinx* with Tyrrhenians (Etruscans) provides a strong originary connection between *tuba* and *salpinx*. *salpinx*: [Aesch. Eumen. 567](#); [Soph. Aj. 17](#); *tuba*: Vergil, *Aen.* 8.526 (*Tyrrhenus clangor*); [Stat. Thebaid 3. 650](#).

emphasis on the specific use of these instruments, but are equally susceptible to errors relating to their use of terminology. This is particularly evident in Vegetius' somewhat confused statements regarding the description of *cornua* and *bucinae* (Veget. 3.5.) and their uses, as well as the distinctions between *aeneatores* (brass musicians) (Veget. 2.22). Meucci aptly suggests these errors are due to a scribal emendation, whereby the scribe confused the use of the term *cornu*, pertaining to the circular bronze instrument, with the horn material *cornu*, pertaining to the animal's horn used to construct the *bucina* (Muecci, 1989, p. 86). These are only a few of the many terminological issues that must be acknowledged and addressed when attempting to provide an analysis of the typology and use of ancient brass instruments.

#### **IV. Uses in the Roman Army**

The brass instruments of the Roman army were employed in three major contexts: i) signalling soldiers within camp, and in military training exercises; ii) in the execution of tactics while in direct contact with the enemy on the battlefield; and iii) in the implementation of strategic manoeuvres, primarily in terms of misinformation. These brass instruments will be evaluated more generally in regards to these three major contexts in order to highlight their various applications, while also discussing some of the more problematic issues regarding their 'instrument-specific' uses.

##### ***i) Uses within Camp***

One of the basic uses of brass instruments within the Roman army is the signalling and issuing of orders within the Roman camp itself. The widespread use of the *bucina* in this more subordinate context is strongly attested by the primary source material. The *bucina* was successfully employed on the battlefield during the first century AD. However, from an

earlier period, the *bucina* was used within the camp to mark the nightwatches (*vigiliae*) ([Liv. 7.35, 26.15](#); [Prop. 5.4, 4.4.63](#); [Tac. Ann. 15.30](#); [Front. Strat. 1.5.17](#)), and in the conveying of orders to troops (Veget. 2.22, [Polyb. 14.3](#)). Whilst the *bucina* appears to be the main instrument used within the camp, Polybius asserts that *both* the *bucinatores* (*bucina* players) and *tubicines* (*tuba* players) issued a signal near the commander's tent at dinnertime, so that the night-watchmen would take up their correct positions (Polyb. 14.3).

In contrast to these citations Vegetius suggests that all signals relating to the infantry - including the call to advance and retreat in battle, signals issued while on night-watch or outpost duties, and even in military drills and exercises - were issued by the *tubicines* (Veget. 3.5). Furthermore, Vegetius asserts that the *bucina* issued the *classicum*, which was considered to be the sign of *imperium* and was sounded whenever the emperor was present (Veget. 3.5). This account suggests the utilisation of *tubae* exclusively with infantry matters, regardless of location. This contrasting account may be influenced by the late-fourth to mid-fifth Century AD composition of Vegetius' work, describing a later practice. Vegetius does, however, strongly emphasise the importance of the use of both *bucinae* and *tubae* in all military training exercises, and notes that by training in obeying these signals during times of peace, the troops were likely to respond to these commands more effectively in battle (Veget. 3.5).

## ***ii) Tactical Uses***

The tactical applications of military brass instruments are particularly important as their skilful application enabled greater communication and organisation on the battlefield. The evidence presented by military treatises and other technical sources is of particular importance when evaluating the deployment of brass instruments within a tactical context.

Vegetius records that the signals applying to the soldiers are issued on the tubae, and that when the cornua sound, it is the Roman standards (military flags used for communication on the battlefield) that respond to the signal rather than the individual soldiers (Veget. 2.22). When a battle is set to commence, however, Vegetius notes that both tubae and cornua are sounded simultaneously (Veget. 2.22). Vegetius mentions the bucina only within its original context within the camp and does not acknowledge the use of litui. This indicates that the main instruments used in a tactical capacity, at least during the period when Vegetius composed his treatise, were the tuba and cornu, and also strongly implies the omission of litui during this period.

The *Etymologies* of Isidorus provides an interesting comparison to Vegetius' account of the use of military brass instruments within a tactical context. In his entry on war-trumpets, Isidorus makes a distinction between the uses and definitions of both *bucinae* and *tubae*. Supported by evidence from the *Aeneid*, Isidorus states that the 'ancients' differentiated between the *tuba* - meaning 'trumpet' (Virgil, *Aen.* 9.503) - and *bucina* - meaning 'war-trumpet' (Virgil, *Aen.* 7.519). He adds that, while the sounding of a *bucina* would raise the alarm and 'signify' the approaching war, the signal for battle was issued by the *tubae* ([Isidorus, \*Etym.\* 16.4.4](#)). Here, Isidorus' terminological entry affords us a novel glimpse of the circumstances in which these instruments were used typically in warfare; or at the very least, in the course of military actions during the 7<sup>th</sup> century AD. The encyclopaedist also provides further descriptions of some of the various soundings and tactical uses of the *tuba*, including signalling: at the commencement of battle, for the order to pursue a fleeing or routed enemy, and also to issue an order of retreat (Isidorus, *Etym.* 16.4.4). This reaffirms the consistent use of *tubae* in the communication of various types of

orders to soldiers during battle, and also suggests that one of the main functions of the *bucina* was to raise alarm, seemingly regardless of context.

Evidence concerning the utilisation of brass instruments by the Roman cavalry is often vague and contradictory. Once again, the ambiguity within the ancient source material establishes a significant boundary to a thorough analysis of the use of brass instruments within a cavalry context. The use of the *bucina* seems to have been particularly prevalent within the Roman cavalry (*equites*), which can be seen in the funerary inscriptions of various equestrian *bucinatores* (*CIL* III 3352; *CIL* VI 3179), including the stele of Aurelius Surus (Figure 1). Lydus further emphasises the link between the *equites* and *bucinae* through the distinction of three different types of brass musicians (Lydus, *Mag.* 1.46);<sup>6</sup> *tubicines* (infantry buglers); *bucinatores* (cavalry buglers); *cornicines* (players of the horns).<sup>7</sup> While Lydus' passage and various funerary inscriptions attest the use of *bucinae* by the cavalry, several other ancient authors - including Virgil (*Georg.* 3.182), [Silius Italicus](#) (4.97, 13.146, 14.25) and Statius (*Theb.* 11.325) - note the use of *litui* by the *equites*; Stat.). It is unclear whether these authors are using the terms *bucina* and *lituus* interchangeably, or noting the specific use of the *lituus*. At any rate, it is worth noting that the main purpose of these texts was to entertain rather than inform, and the use of *lituus* in these contexts may have been used for dramatic or poetic effect. It seems reasonable to assert that the signals used by the *tubicines* and *cornicines* in the movement of soldiers and standards would have been similarly utilised by the cavalry *aeneatores*.

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<sup>6</sup>Translation in [Meucci \(1989\)](#), 89 and fn. 49.

### **iii) Strategic Uses**

All that remains in the evaluation of the various uses of these ancient brass instruments is their strategic applications. Brass instruments were also used effectively in the orchestration of various strategic manoeuvres, usually in order to deceive the enemy. The ancient source material provides a considerable number of references to attest the use of brass instruments within this context; several of which are presented in the anecdotal evidence of Frontinus' *Strategems*. The main issue regarding the use of Frontinus however, is a general lack of specificity in regards to his use of terminology. Frontinus often uses vague terminology when referring to these instruments, such as: *aeneatores* (Front. Strat. 2.4.3.), or *signa canere* ('signal to sound'; Front. Strat. 1.9.2.; 2.7.); which somewhat hinders an 'instrument-specific' evaluation of their uses within a strategic context. Despite this lack of specificity, various types of strategic uses become particularly apparent.

Brass instruments were often used to intimidate the enemy and to give a false impression of size and power. This is particularly evident in Frontinus' anecdote of Minucius Rufus; although vastly outnumbered, Minucius, through the deployment of a detachment of *aeneatores* in the surrounding hills, presented the impression of a vast multitude through their echoing sound, and sent the enemy fleeing in terror (Front. Strat. 2.4.3). A similar instance is accounted in Livy; the Roman *tubicines* and *cornicines* created such an uproar that the enemies' "elephants ... turned upon the Moors and Numidians behind them" (Livy, 30.33.12). It seems reasonable to assert that the Roman general was well aware of the intimidating nature of the brass instruments and would have exploited this characteristic accordingly.

Another important strategic use of brass instruments was to provide the enemy with misinformation. Frontinus notes that during the social war, Sulla, after failing to negotiate

terms of peace with Duillius, successfully withdrew his entire army at night whilst under the enemy's watch, by leaving behind a single *bucinator* entrusted with the sounding of the watches to provide the false impression of their continued presence (Front. *Strat.* 1.5.17). These various strategic applications of brass instruments provided the Roman army with a considerably advantage, which further emphasises the importance of the use of brass instruments within this military context.

## **V. Implications of the *tubilustrium* Festival**

The *tubilustrium* festival, occurring annually on the 23<sup>rd</sup> of March after the conclusion of the *quinquatrus* (as well as a corresponding festival on the 23<sup>rd</sup> of May),<sup>7</sup> centred on the ritualistic purification of *tubae sacrorum* ('sacred *tubae*') and provides an important example of the military and spiritual significance of *tubae* to the Roman army. The specific nature of the *tubae* that were purified within this festival is however, somewhat unclear. Varro uses the term *tubae sacrorum* (Varro, *L.* 6.14), suggesting the use of ritualistic instruments over the use of military instruments, whilst Ovid provides the vague, "melodious trumpets" ([Ovid. \*Fasti\*, 3.849](#)). Scullard suggests that the ceremony also involved the symbolic purification of the trumpets of the entire army, which seems to be an entirely likely possibility, although the specific use of military instruments remains unclear (Scullard, 1981, p. 94). The inclusion of the festival within the month of March, which was dedicated to Mars, the Roman god of war, is particularly significant, as it directly aligns the purification of these *tubae* with Mars, and coincides with the commencement of the Roman

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<sup>7</sup> This festival however, seems to have been designed to purify the trumpets used the following day in the summoning of the assembly, and Scullard asserts it is unclear whether the purification of the army was involved, as it would seem to be too early for the purification of a returning army. [Scullard \(1981\)](#).

campaign season. In this way the lustration of the *tubae sacrorum* can be seen as a symbol of the readiness of the Roman army for the campaign season and can be interpreted as a direct invocation of the patronage of Mars in the protection and success of the Roman armies.

## VI. Conclusion

Brass instruments including *tubae*, *bucinae*, *cornua* and *litui* had an extremely important role within the Roman army. Their application, both tactically and strategically, enabled greater communication and organisation on the battlefield as well as the execution of various strategic manoeuvres, providing the Roman army with a considerable advantage. The ambiguity presented by the primary source material within the use of specific terminology, which has instigated modern debate, provides a considerable boundary to a thorough analysis of brass instruments in the ancient Roman army. Through the critical evaluation of primary sources, however, a more thorough analysis can be established. A musicological analysis of the typology of these brass instruments, including the presentation of hypotheses regarding playing techniques, whilst criticised as anachronistic, offers important reference points in regard to the critical evaluation of these instruments. Finally, the *true* extent of the importance, and military and spiritual significance of these brass instruments to the Roman army, was epitomised by the symbolic lustration of *tubae sacrorum* during the *tubilustrium* festival on the 23<sup>rd</sup> of March, which can be seen as a direct invocation of Mars and an outward declaration of the preparedness of the Roman army for the commencement of the campaign season.

## **Acknowledgements**

With many thanks to Dr. Peter Keegan, Ancient History Department, Macquarie University, for his supervision, encouragement and keen editing; to Jessica Borron-Ragusa for her support and continued interest; to my family for their love, strength and motivation; and to Uncle Bill Rawle, for his ongoing support, inspiration and for the intellectual discussions that are sorely missed.

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