

# A NEW LOOK AT THE HISTORICAL, LINGUISTIC AND TAXONOMIC BASES FOR THE EVOLUTION OF LIP-BLOWN INSTRUMENTS FROM CLASSICAL ANTIQUITY UNTIL THE END OF THE MIDDLE AGES

**Don L. Smithers, D. Phil. (Oxon.)**

To the memory of Frank Ll. Harrison

*In the writing of history it is just as misleading for an author to conceal what actually happened as to report what did not. The historian's task is to instruct and persuade serious students by means of the truth of the words and actions he presents, and this effect must be permanent, not temporary.*

Polybius, *Histories*

**F**or nearly a century it has been fashionable to think of metal lip-blown instruments as having been introduced into Europe after the decline and fall of the Roman Empire. The agencies for this alleged process of introduction and its concomitant technologies are said to have been the Arabs and/or Moors: from the Arabs in the eastern Mediterranean and the Moors in southwestern Europe sometime during the Middle Ages.<sup>1</sup> Such a notion was promulgated by adherents to what Herbert Heyde has referred to as the *Wiener Kulturkreislehre*.<sup>2</sup> But as fashionable as this idea may have been and the large number of scholars and organologists who unquestioningly subscribed to it, there is now ample evidence to dismiss it as having been but the result of considerable wishful thinking, based largely upon insufficient data, an imperfect historical record (and an imperfect reading of it), misconstrued linguistic and etymological evidence, and, not in the least, a wrong-headed, if romantic, ethnocentricity enthusiastically bestowed upon Muslim culture and its avowed superlative influence on Western Civilization. Muslim influence on Western Civilization there certainly was, but not with respect to the perpetuation of the design, manufacture, and use of trumpets in Europe from the end of the Roman Empire to the beginning of the Renaissance.

The aetiology for the obvious use and dissemination of trumpets (or trumpet-like lip-blown instruments) at the advent of the Italian Renaissance is much more a question of neoclassical revivals and the widespread development of well-established metal tech-

---

*Don L. Smithers is widely known for his recordings on cornetto, piccolo trumpet and natural trumpet. Author of numerous articles and The Music and History of the Baroque Trumpet before 1721, he is at work on a comprehensive history of the trumpet.*

nologies in Western Europe and far less the likelihood for any process of "reintroduction" as a consequence of Arab and Ottoman influences. There is, moreover, sufficient evidence to assert that such influences may well have worked the other way round, that the Muslim world did, in fact, take over the manufacture and use of trumpets from the

---

1. Sachs, *History of Musical Instruments*, p. 280; Galpin, *Old English Instruments*, 4th ed., p. 148; Kastner, *Manuel général de musique militaire*, p. 126; K. Schlesinger, EB (11th ed.) xxvii, pp. 326, 353; Winternitz, *Musical instruments and their symbolism in Western Art*, p. 212. Farmer (*Historical facts*, p. 13), in mentioning the 13th-century Spanish Cantigas de Santa Maria, the illustrations of which reproduce a number of different kinds of musical instruments, including a pair of *tubae*, almost in the same breath cites the verses of the 14th-century poet, Juan Ruiz, who, when referring to various musical instruments of his day, frequently used their Arabic derivative names, his reference to the trumpet being *añafil* (from al-nafir). Farmer then cites Kathleen Schlesinger's *Precursors* . . . (p. 410), adding that she held to the conviction that "the greatest proportion" of the instruments in the Cantigas "can be traced to an Oriental origin, through the Arabs." Jeremy Montagu (*World of Medieval and Renaissance Musical Instruments*, p. 41) is the latest iconologue to follow the official "line" of this less-than-objective view of European history: "The long trumpets . . . were the great instruments of state among the Moorish armies and became immediately popular in the European armies also." Montagu, like his predecessors, seems never to have heard of the chronicles of Procopius, Theophanes, and Joann Skylitzes, or the *Strategikon* of the Pseudo-Maurice, and the *Taktikon* of Leo VI. One of the few authors of the present generation to have departed from this long Islamo-centric tradition for the development of trumpets in Europe is Baines (*Brass instruments* . . . p. 67 ff.). But even Baines is reluctant to see the full implications of the late Roman and Frankish evidence and writes of the "impact of the Moslem on a decayed trumpet tradition in the West." Moreover, and despite his citing the work of Friedrich Behn, Baines was reluctant to admit that the Romans had indeed developed a twice-folded trumpet. He does not mention the important tombstone evidence discussed below.

In most of these comparatively recent references, there is not a word even about the possibility of any Romano-Frankish-Byzantine influence, as though on Dec. 31, A.D. 476, the Roman Empire ceased to exist and with its sudden extinction went the results of nearly a thousand years of cultural activity, accretion and influence, not to mention the estimable consequences of military conquests and occupations, technology, history, language, law, and all the thousand and one other manifestations of and lasting effects which a nearly monolithic civilization had on the world and its inhabitants, all the way from the British Isles in the Atlantic to the Indus Valley far away in the western precincts of India. Of course the Spanish referred to such militarily useful objects as trumpets by their Arabic names. The lingua franca among the majority of Mozarabs in the early Middle Ages was Arabic (see Vasiliev, *Hist. Byzantine Emp.*, 1952, p. 215ff.). But the name of an object is hardly the basis for assuming that the origin of one necessarily follows that of the other.

There is one important and sobering question that has to be asked about all this: Does the turning of so many blind eyes to the numerous historical sources that were readily available to these authors—and which clearly reveal that the Franks and other Germanic inhabitants of the late Roman Empire had perpetuated the traditions of Roman trumpets—betray an anti-German if cultural bias?

2. Herbert Heyde, *Trompete und Trompetenblasen im europäischen Mittelalter* (Ph.D. diss. Karl-Marx-Universität), Leipzig 1965, p. 5 ff. See also Albrecht Schneider, *Musikwissenschaft und Kulturkreislehre* (vol. 18 in *Orpheus-Schriftenreihe zu Grundfragen der Musik*, ed. Martin Vogel), Bonn and Bad Godesberg 1976.

Romans and their immediate successors: those who either dwelt in what was left of the Western Empire after the 5th century or the inhabitants of the Byzantine Empire, which did perpetuate a large number of Roman traditions and practices up until the fall of Constantinople in A.D. 1453. It is this writer's contention that the history of the trumpet in Western Civilization is an unbroken one and that the development and use of trumpets by the Romans was maintained and continued in an evolutionary process by those who had been given the role and responsibility for defending the Western Empire—those who were ethnically not Romans but belonged, nevertheless, to the empire, either as legionaries or as imperial *foederati*. These were the thousands of legionaries, artisans and confederates from that geographic region that was to become Western Europe: namely, the Germans, Franks and Gauls.<sup>3</sup> It is both the artifact and literary evidence for this contention that is the subject of this article. Let me, therefore, attempt to separate the individual strands of the problem and, by so doing, hope to bring greater clarity to a long and complicated set of historical issues.

### Some taxonomic considerations

From the Age of Perikles to the beginning of the Middle Ages, there were at least six distinctive kinds (or genera) of so-called lip-blown aerophones or, in a generic sense,

---

3. In the author's forthcoming treatise on the classic trumpet there is considerable material, much of it unpublished hitherto, which attempts to show that the inhabitants of the British Isles after the departure of the Romans in A.D. 407 may have sustained some of the traditions of Roman trumpets and trumpeting. For as Tacitus (*Annals* II / 45) tells us how the Germans learned the then modern military tactics from and adopted the equipment of the Romans, and, again, says (in *The Histories* III / 1, IV / 46, *et passim*.) how Germans, Gauls and Britons were often the strength of a Roman legion, having been raised from childhood in foreign garrisons by legionary fathers for careers in the Roman army, so Geoffrey of Monmouth (*Historia Regum Britanniae*, Book VI / 3) informs us about the Romans having attempted to instruct the Britons in the use of various defensive weapons, etc. as they were preparing to abandon the British Isles at the beginning of the 5th century.

Since Roman times (at least) Britain has known a variety of lip-blown instruments, some more indigenous than others. It is certain that the *bucina*, *lituus*, *cornu* and *tuba* were known and used in Britain during the Roman occupation, inasmuch as these instruments were an integral part of the equipment of Roman legionary forces at the time. The surviving artifact evidence found in Britain lends support to this contention. Moreover, the ancient Celts and the later Saxons had their own traditions for the use of lip-blown instruments, exemplified by surviving Celtic trumpets and Saxon horns, all of which cannot be so easily dismissed as having had no influence on later developments with respect to the several species of cast and beaten metal as well as wood and natural horn lip-vibrated instruments in England, Ireland, Scotland and Wales. Next to nothing is known about the manufacture and use of these instruments following the withdrawal of the Romans and up to the time of the Norman Conquest, but there is enough evidence to assert that the inhabitants of the British Isles long before the Middle Ages were acquainted with horns and trumpets, however primitive, and did cultivate their use. It is, of course, very difficult to produce the necessary primary artifact and secondary iconographic evidence from the so-called Dark Age period between the time of the Roman evacuation and the Norman invasion. Yet, the substantial amount of indirect tertiary literary evidence during this period does support the contention that the Britons, Saxons and other occupants of the British Isles during the early Middle Ages did use several varieties of trumpets and horns.

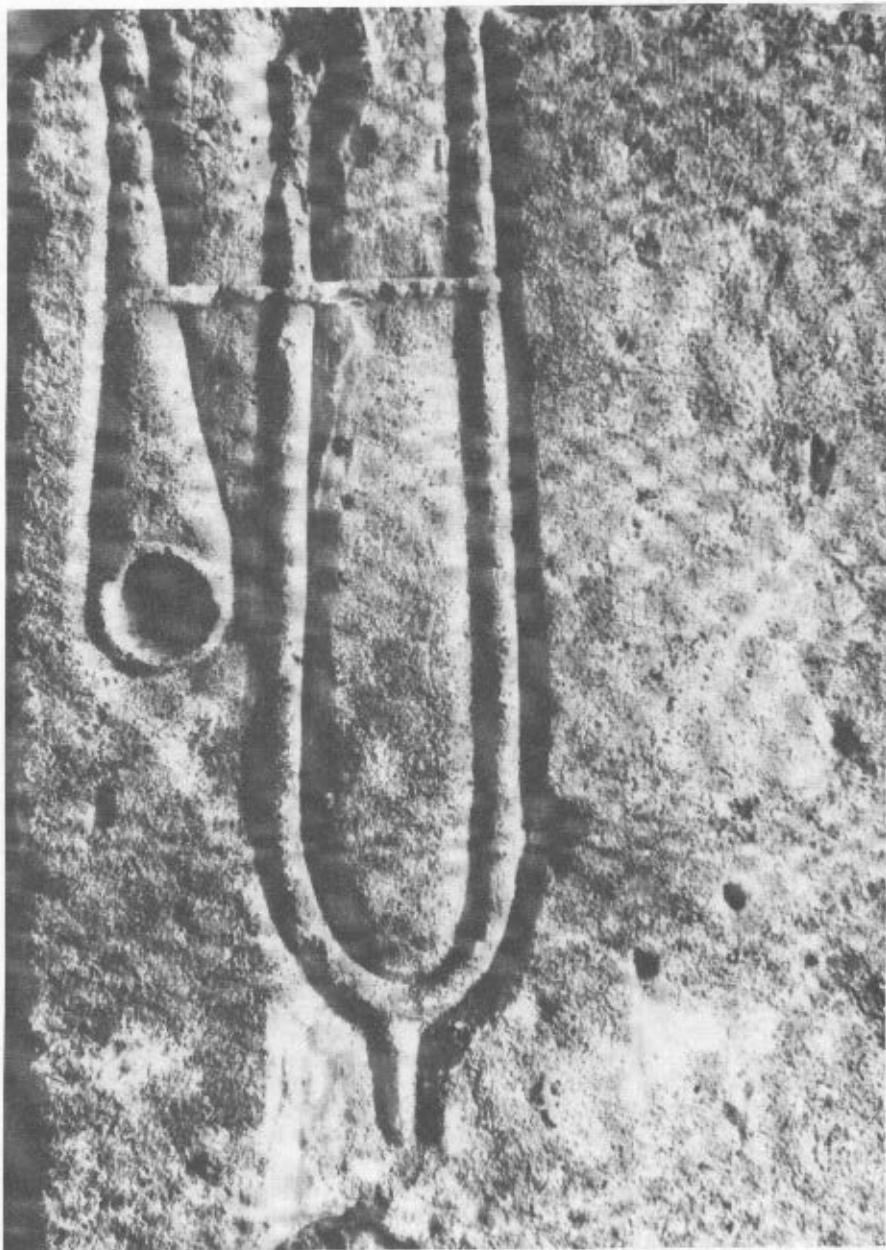


Fig. 1: Bonn, Rheinisches Landesmuseum: Tombstone fragment from Remagen of an unknown Roman *bucinator*.



Fig. 2: Mainz, Mittelrheinisches Landesmuseum: Tombstone from Zahlbach near Mainz of the Roman legionary *bucinator* Andes.

trumpets. Some were "natural," i.e. made from the hard parts of one or another species of animal (e.g. the exoskeletons of certain marine animals, or the horns or tusks from particular mammals), others were "artificial," i.e. manufactured by design from a variety of materials. Of the former there were the several kinds of primitive trumpets, from the conch and *buccina* to the shophar and *oliphant*. Of the latter, or manufactured trumpets, there were several species, from the Egyptian *sh-n-b*, Israelite *htztsrth*, Celtic *carnyx*, and Greek *salpinx* to the Etrusco-Roman *cornu*, *lituus*, *tuba* and *bucina*.<sup>4</sup> Many varieties of both natural and manufactured trumpets were found throughout the known world at the beginning of the Christian era. Some were played with a central, bi-labial embouchure, others were played from one or the other corner of the mouth.<sup>5</sup> Some were played with detachable mouthpieces, whilst others had the blowing receptacle cut in or attached to the instrument itself. Unfortunately, in the present taxonomic system for the classification of musical instruments as it has existed with but minor modifications since the era of Galpin, von Hornbostel and Sachs, no account is taken of some of these distinctions, particularly if a lip-blown instrument is played from the side of the mouth or with a central embouchure. Other distinctions are unaccounted for also, either by dint of their not being thought relevant by iconologists who do not play any of these instruments or as a consequence of being overlooked in the first instance. With regard to playing positions, in some cases it is not possible to tell from the instrument itself whether a central or side embouchure was used for producing a sound, other data and criteria having to be used for such determinations.

The systematics hitherto applied to the taxonomic classification of musical instruments, like the basic Linnaean system in botany and zoology, were generally satisfactory for their day. But it is time to move on. For as modern taxonomy has become so proliferate in the natural sciences, notably in the greater particularization of the genus, species and subspecies in recent biological classifications, so too must it be comparably

---

4. Variations in spelling for and the use of superscripts with the names of Etrusco-Roman lip-blown instruments are explained in notes 7 and 8.

5. At various times and places trumpeters are known to have played two (or more!) trumpets at the same time. The south Indian *tiruchinnam* was often played in pairs by the same person, one from each corner of the mouth. (Sachs said he found this hard to believe.) As we shall see, this method was not unknown in Classical Antiquity (see note 35) or in Europe, neither in the Middle Ages, as illuminated MSS. testify, nor in the Baroque era, when horn players were known to have cultivated such an unusual and difficult technique. The fact that both European and non-European players of lip-blown instruments have been able to play two instruments at the same time forces us to reconsider some of the related ideas of Winternitz (*Musical instruments and their symbolism in Western art*). It was his belief that ancient iconography (which is sometimes either imprecise with respect to specific details or, from age, rather indistinct) showing one player with two separate wind instruments was invariably intended to be a player with a double aulos. This has to be reconsidered in light of a variety of evidence that was presumably unknown to Winternitz.

As far as producing a sound from one or the other corner of the mouth, the asymmetrical tissue structures at each of those junctures do not form the same type of sound generator as the upper and lower lips do at the center of the mouth. The side embouchure is quite analogous to the manner in which the vocal cords operate. The need for developing a responsive and reliable side embouchure is important for playing particular lip-blown instruments, especially those with short bores and diminutive blowing apertures or mouthpieces.

applied in the generation and speciation of musical instruments, not only as a result of an instrument's own peculiar "internal" characteristics of material and design, but according to identifiable "external" criteria of its manufacture, function, required playing techniques and whatever relationships to other instruments in what Darwin referred to as that "propinquity of descent."<sup>6</sup> By the establishment and employment of more specific, consequently better, criteria, it will be possible to account for the relationships between, say, a *buccina* and a *bucina*,<sup>7</sup> or one kind of *lituus* and another.<sup>8</sup>

To begin with, what are "Trumpets," i.e. lip-blown instruments, within the organization and classification of the kingdom of *instrumentis musicae*? Are they a family, or a genus? As in the phylogeny of biological species, so for the history of the development of lip-blown resonators: from the need to establish more clear-cut definitions in the morphological characteristics distinguishing genera, the genus does come to have special significance. Taking as a framework the basic Linnaean organization, the phylum is the highest taxonomic category and does, therefore, constitute a primary division of a kingdom. The secondary divisions (again following the basic framework of Linnaeus) are class, order, family, genus, species and subspecies. In attempting to establish the position of trumpets within this hierarchy, it is necessary, indeed *a priori*, to establish the necessary hierarchical criteria for a lip-blown resonator. In which case, is it of primary importance to know that such instruments are lip-blown, or to know what the geometry is (was) in the shape of the resonator itself? Physicists conclude that it is the resonator that takes precedence over the means by which the sound is actually generated. From the standpoint of an historical, taxonomic ordering of musical instruments both are important, but perhaps, and even arbitrarily, one can be put before the other.

In a sense, one ought to proceed from the standpoint of the observer, i.e. the listener, noting first the origin of the sound, whether it comes from an instrument that is hit, blown, shaken, scraped, plucked, bowed, or worked electronically. If the sound emanates from a blown, i.e. wind instrument, from what kind of a resonator, that is, what are the instrument's internal (and, to whatever extent of importance, external) geometric configurations, and of what sort of material is it constructed? After this is known, it

6. Charles Darwin, *Origin of species* (1968/1976), p. 399.

7. The additional "c" in the one spelling is based upon the oldest versions of the word, which, in the earliest literary sources, meant one or another species from the genus *Cymatidae* or the families of *buccinidae* or *strombidae*, all in the class *gastropoda* from the phylum *mollusca*. In other words, a marine-shell trumpet, perhaps a conch, or, more likely, a triton. *Buccina*, therefore, is one way of differentiating between the various natural, marine shell trumpets and the particular species of metal tubular trumpet called a *bucina*. This is a double-folded type of military trumpet, which, as Maria Ginsburg-Klar rightly noted, "until recently was supposed to have been developed only in the Middle Ages" (in "The archaeology of musical instruments in Germany during the Roman period," *World Archaeology* xii, No. 3 1981)—see Figs. 1 and 2.

8. To differentiate between the older type of *lituus*, a specimen of which from the Vatican Museums is reproduced in Fig. 6, and the later cavalry variety (which may be closely related to the Celtic *carnyx*), an example of which is reproduced in Fig. 9, the present author refers to the one as *lituus*<sup>I</sup>, the other as *lituus*<sup>II</sup>. For similar reasons, a comparable differentiation is made between lip-blown instruments made from the hard parts of mammals and those made from metal. A species of instrument belonging to the former is referred to as a *cornu*<sup>I</sup>, the latter a *cornu*<sup>II</sup>.

is then necessary to observe the sound generator itself, the physical mechanism(s) by which the air within the resonator is set into various modes of vibration. However important it is to know, for example, that a particular rank of organ pipes are flue resonators, it is more so to know whether they are cylindrical, stopped or open, or that some other kind of geometry was used in their design and manufacture and to what extent the material of which they are made influences the sound production. This is not the approach that was taken by Galpin, von Hornbostel and Sachs nearly a century ago.<sup>9</sup> And the incorporation of their approach by organologists like Bessaraboff, for example, certainly did not take into account the basic Linnaean framework of systematics; Bessaraboff even omitted the family and genus (or order and family).<sup>10</sup> If the approach taken by Galpin and subsequently by Bessaraboff had been more according to the classical taxonomic system of classification elaborated and improved upon by Linnaeus and his followers, neither would have made the kind of mistakes in both identifying and classifying several instruments now preserved in the Boston Museum of Fine Arts.<sup>11</sup> We shall have something to say in a moment about such specious items as the anachronistic "buysine" found in the Boston collection. There is, at the same time, a need to address the question of authenticity with respect to another alleged instrument of supposed greater antiquity which belongs to the Boston Museum also. This is the multi-segmented tubular object of ivory and other materials assumed by some to be a Greek *salpinx*. But more of these matters later.

In coming to grips with the necessities for a clear perception of the evolution of European trumpets before the Renaissance, some attempt ought to be made to readjust the Galpin-Hornbostel-Sachs systematics of musical instruments, particularly from the standpoint of the study of lip-blown resonators. If the phylogeny of musical instru-

---

9. Galpin, *Old English Instruments*, London 1910, pp. 311-314; 4th ed. 1965, pp. 231-234. Galpin rightly credits the first attempt at a systematic classification of musical instruments to Victor Mahillon (whose simplistic system was the basis for organizing his catalogue of the Brussels instrument collection in 1888), but erroneously noted that Mahillon's "subdivision of the wind instruments into wood and brass is very superficial, the material used in their construction being of secondary importance" (sic). (In his revised edition, Thurston Dart made no comment on this incorrect conclusion.) Galpin's first proposal for a systematic arrangement of musical instruments was for the Music Exhibition at London in 1900. A more comprehensive classification was put forward by Erich von Hornbostel and Curt Sachs in their "Systematik der Musikinstrumente. Ein Versuch," pub. in the *Zeitschrift für Ethnologie*, xlvii, Berlin 1914, pp. 553-590.

10. Nicholas Bessaraboff, *Ancient European musical instruments; an organological study of the musical instruments in the Lindsey Lindsey Mason Collection at the Museum of Fine Arts, Boston, Cambridge (Mass.) 1941*. Notwithstanding Bessaraboff's enormous contributions to musical instrument scholarship and the abiding value of his comprehensive study, his comments on such aspects of lip-reed instruments as, for example, the "presence or absence" of the so-called pedal tone for trumpets and their various genera, is quite misleading and often irrelevant. Such observations betray a real knowledge of brasswind acoustics, the function of mouthpieces and the historical bases of trumpet playing in *stilo clarino*.

11. The core of the Boston Museum collection consists of instruments that were sold by Galpin around 1920, a few of which were products of that "old swindler" Leopoldo Franciolini (see note 23).



ments, via the living beings down through the ages who made and designed them, is susceptible to the same kind of scrutiny for all living things, with all their greater diversity by speciation, specialization and other evolutionary processes, then it follows that a comparable system of classification may be of use in a more correct evaluation of the origin, evolution, function and use of instruments like trumpets at several crucial stages in their development, use, and dissemination. Let us first, therefore, briefly examine one possible approach toward an eventual formulation of a more precise taxonomic organization.

We begin with the Phylum *Aerophonae*, or wind instruments. This is a large category with several radically different physical principles employed for the production of sound. There are the whistle types, which, by the regular pulsations of eddying air, produce a sound. There are the single-blade squeakers—a blade of grass, for example, held between the thumbs, which is excited by a rapid flow of air blown across it. There are the single- and double-reed sound generators, or air valves (clarinets, oboes, etc.), which include the outward-beating bi-labial air valves (lip-vibrated aerophones), and the sort of mechanisms which account for what Stravinsky said was one of his “earliest memories of sound”!<sup>12</sup> There are also the unusual aerophones that, by the turbulence created as an object travels rapidly through air, create one kind of sound or other. These are the bullroarers (stone or heavy wooden rhomboids suspended on the end of a cord and swung rapidly around in the air) and whips (the violent crack of a whip is made by the tip of the whip actually travelling faster than the speed of sound, which then creates a miniature sonic boom). There are also hybrid or compound acoustical systems that are both aerophones and stringed instruments: such are the aeolian harps.

From this broad spectrum we narrow down the field from the general to the particular by examining the one *sub-phylum* of wind instruments which, by various means, have to be blown, or, in Latin, *inflare*. Of these we trace the appropriate ramifications to the class of *air valves*, for which there are the sub-classes of sound systems made by the regular “popping” of air from the opening and closing of a single or double reed. One sub-class embraces the *outward-beating bi-labial air valves*, or, less precisely, the *lip-reed aerophones*, which are rather different from the simple single- or double-reed sound generators and can only be analogized with them. Unlike former approaches and systems of classification, the outward-beating air valves have to be considered quite separately, certainly from the standpoint of the physicist.

The class of air-valve sound generators (and sub-classes of single vs. double reeds, as well as bi-labials or lip reeds) divides into several orders, which are differentiated by the shape and material of the resonator. There is the order of entirely conical air valves, from megaphonic types (which, to create a sound, may use either single or double reeds, a person's lips and/or vocal cords), and simple cylindrical tubes (which may employ one or another of the same sound generators—the *didjeridoo*, for example), to the compound resonators. Of the order *outward-beating bi-labial air valves*, or lip-reeds, with compound resonators, is the family of *Tubae*, or *Trumpets*, i.e. those instruments played with the lips and having bores with a complicated geometry in varying proportions of cylinder, cone and/or expanding curvatures. It is here that the intransigent may allow either their prejudices or their lack of understanding for the wider meaning

---

12. Igor Stravinsky, *An autobiography (Ma vie)*, New York 1936 (1962), pp. 3-4.

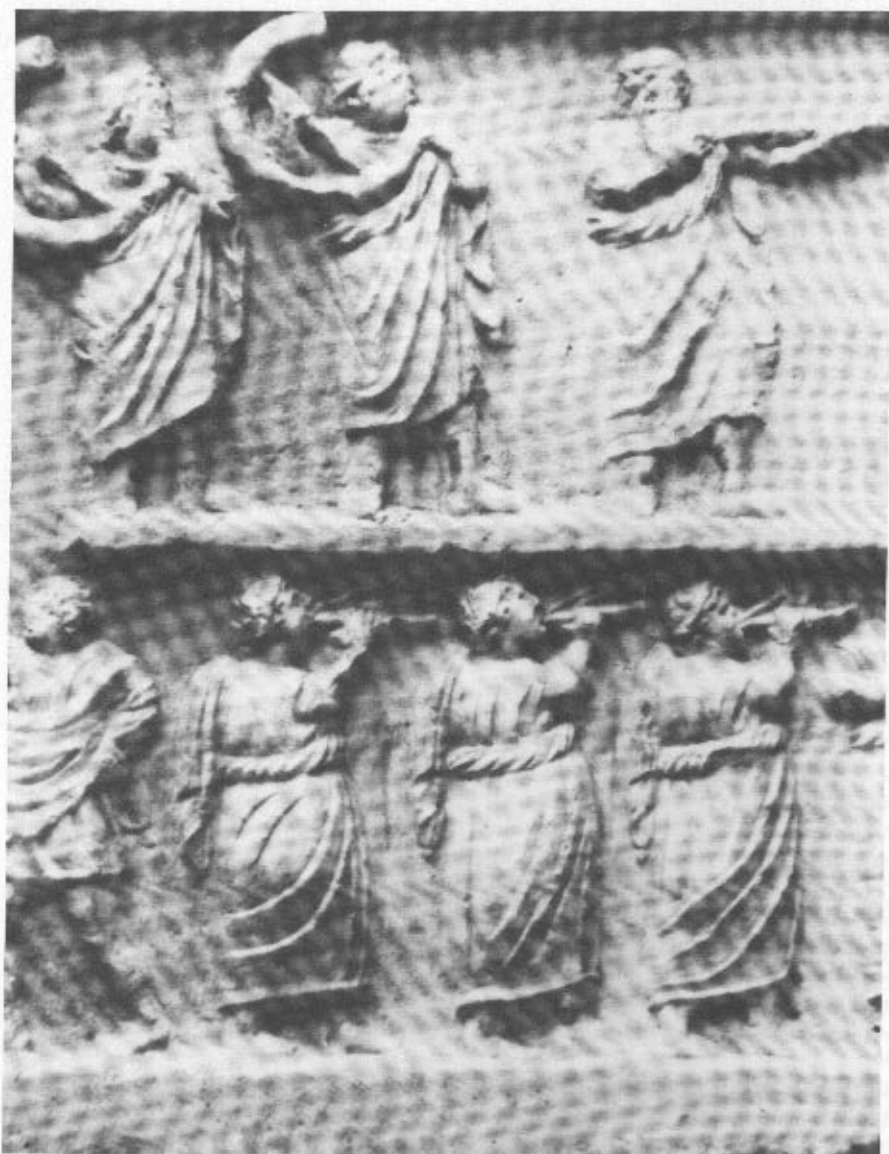


Fig. 3: Aquila, National Museum of the Abruzzi: Marble relief from Amiternum showing a funeral procession being led by two *cornicines*, a *liticen* and four double aulos players (*tibicines*).

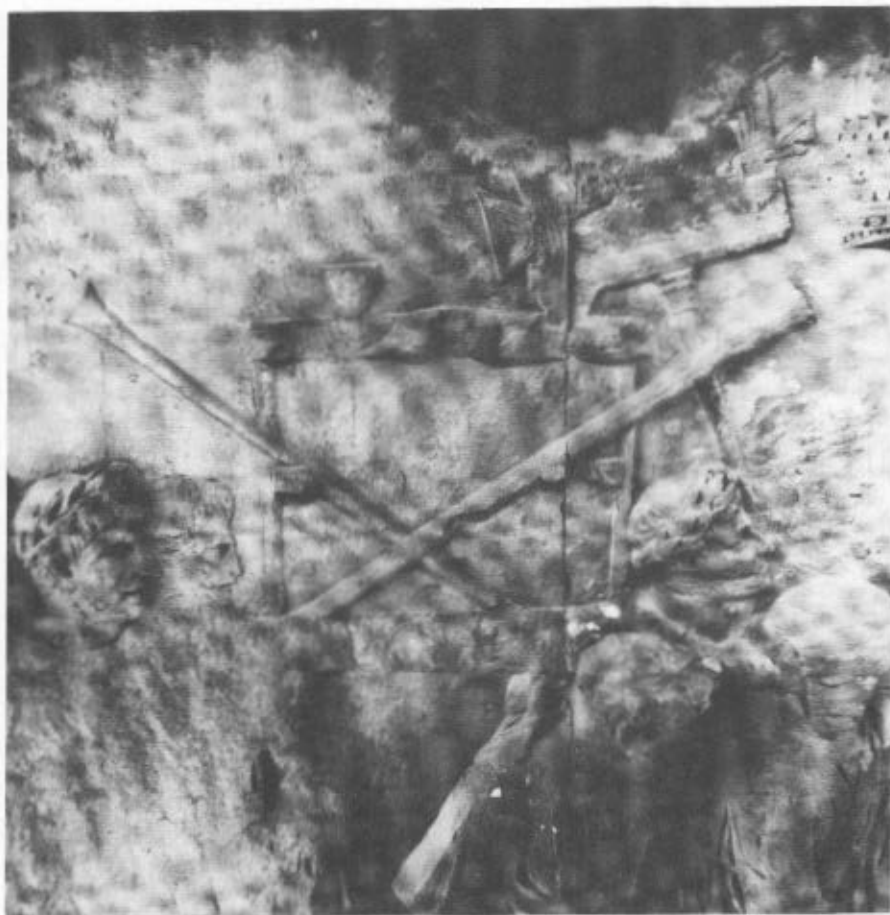


Fig. 4: Rome, Arch of Titus: Cult objects and other utensils taken from the Temple of Jerusalem in A.D. 70, including the two sacred silver trumpets.

of trumpet to prevent them from following the logic of the proposed classification and both the historical and etymological implications of trumpet to define a particular genus of lip-reed aerophone.<sup>13</sup> But historically the word trumpet (*tromba*), from the Old High German/Old Saxon *trumme/ drumbe = drom/ drum/ thrum > dr(o)mba/ drumba > tromba/ trompa/ trumpe, (trumbet/ trumpet/ trompet)*, can suggest any one of a large variety of lip-blown resonators, of whatever material, from fingerhole horns to bugles and even trombones.

The family of Trumpets (*Tubae*), then, embraces a number of genera, including those made of wood, metal and other materials. Like the family of deciduous trees, which includes numerous genera, such as the oak (*Quercus*), maple, willow, elm, etc., each with its own categories of species and sub-species, the family of trumpets therefore includes the primitive tubular horns made from the exoskeletons, horns, or tusks of animals: the conchs, cow horns, shophars, oliphants, etc. Some of these evolved to more sophisticated sound sources, having had fingerholes added to them, like fingerhole horns and ivory cornetti. All these, of course, are individual species. Some mutated and became made in the same form and played in the same way, but were manufactured from other and more "artificial" materials: "conchs" made from ceramic, or cornetti made from different kinds of wood, covered with leather, and with a variety of decorations and eventually even made with mechanical devices, like keys. Of the many genera of tubular trumpets, there are those in a direct line of descent from the primitive ones that were made of wood or bamboo, some with more complicated compound resonators having been made with conch shells or animal horns affixed to the end of the tube and thus not only extending the bore but changing the resonant spectra of the entire instrument. Of the more sophisticated genera of tubular trumpets, there are the various species made of metal. It is these with which we are principally concerned in this essay. There are manifest difficulties in tracing their "propinquity of descent."

### The most ancient metal trumpets

The oldest surviving species of tubular trumpets made of metal are the two remarkable specimens discovered by Howard Carter in 1922.<sup>14</sup> They were found among the many treasures preserved within the tomb of the Egyptian pharaoh Tutankhamun. Both instruments have been described in detail by Lise Manniche in her detailed examination of *Musical instruments from the tomb of Tutankhamun*;<sup>15</sup> they are also discussed

13. *Trompeten* was, in fact, used to define the one principal subdivision of *Aerophone* in the von Hornbostel-Sachs proposed system of classification, a system that, moreover, also employed a modified Dewey classification based on whole and decimal numbers. Understandably, von Hornbostel and Sachs did not account for the more recent developments made by physicists in the science of acoustics.

14. There are from time to time references to an alleged third surviving Egyptian copper trumpet preserved in the Louvre at Paris. It is not a trumpet but very probably the stand of an incense burner. Such an object is depicted on a fragment from a painted Attic lekythos preserved in the NYMMA: Greek and Attic Vases, Rogers Fund 1913, no. 13.227.16: Lekythos (oil jug), c. 490 B.C., Attic, which shows Nike with an incense burner (attrib. to the Dutuit Painter). The burner has the same appearance as the inverted trumpet-bell-shaped bronze object in the Louvre which Hickmann said was a "third Egyptian trumpet" (see notes 16 and 17).

15. No. VI in the *Tut'ankhamun's Tomb Series*, Oxford (Griffith Institute), 1976.

in two highly informative studies by Hans Hickmann<sup>16</sup> and Henry George Fischer.<sup>17</sup> There is little I could hope to add to these publications. Yet, with respect to the methods that were employed in manufacturing the Tutankhamun trumpets, some additional comment seems appropriate from the point of view of the present study.

The two trumpets from the tomb of Tutankhamun were made sometime before the death of the young pharaoh, who reigned from about 1340 to 1331 B.C., during the Eighteenth Dynasty of the New Kingdom. In other words, they were made during the late Bronze Age, at the height of the Hittite Empire and about a century before the era of Moses. This was during the consolidation of the Assyrian kingdom, just when the Celts were emerging as a cultural entity in Central Europe and less than a century before the destruction of the city of Troy VI. It was during an active period of international trade and the establishment of several city states across the fertile crescent; it was also the period that witnessed the apogee of the Mycenaean age with the building of grand palaces at Mycenae, Tiryns, Pylos and on the Acropolis at Athens. It is important to understand this time frame, especially with regard to the manufacture of the one trumpet from Tutankhamun's tomb.

The Tutankhamun trumpets were made very nearly a tone apart. The longer of the two (approximately in B $\flat$ ) is made of silver with a length of 58.2 cm., and, happily, was not damaged beyond repair by the experiments used to determine its pitch, as it was erroneously reported.<sup>18</sup> The shorter trumpet (approximately in C) is made of bronze with gold overlay (the integral mouthpiece is made of silver) and has a total length of 49.4 cm. The unusual feature of the longer silver trumpet is the crenellation method that was employed in joining the two long edges of the oblong strip of hammered silver when it was rolled and formed into the instrument's longest tubular section. This method, then, appears to originate in antiquity and is, remarkably, still very much used in the manufacture of the cylindro-conical bores for the bell sections of modern brass instruments. It is a method of construction that must surely have found its way to other times and places by diffusion. It is difficult to imagine such a method having occurred elsewhere by polygenesis. The method used for the shorter trumpet, by which the long edges of the hammered strip of bronze were joined after being rolled into the tubular section, was also time-honored but simple and obvious: without any crenellation the two edges were but slightly overlapped and soldered. The overlap method had been used in numerous recently examined specimens of tubing made from rolled hammered sheets of metal dating from the Roman and/or early medieval periods. The pieces of a Roman *cornu* in the British Museum, for example, show that the

---

16. *La trompette dans l'Égypte ancienne*, Cairo 1946 (repr. Brass Press, Nashville 1976).

17. "The trumpet in ancient Egypt," in *Pyramid studies and other essays presented to I.E.S. Edwards* (Egypt Exploration Society), London 1988, pp. 103-109.

18. See Fischer, "The Trumpet in ancient Egypt," p. 104, where the Wallace Curator of Egyptology at the N.Y. Metropolitan Museum of Art notes that "the silver trumpet was not irreparably damaged by the experiments as Montagu states." Fischer's observations are supported by the work of Manniche (*Musical Instruments from the tomb of Tut'ankamun* p. 13) and confirmed by the substantial quantity of material she sent this writer, for which I am most grateful.

bell sections were fashioned by such a ubiquitous and simple technique.<sup>19</sup> Such recognizable methods of construction as these two must be entered into the basic formulae for any taxonomic classification of brass instruments. Hitherto, such organological details have not been considered as necessarily appropriate criteria for music instrument systematics.

However elegantly exceptional they may have been at the time of their manufacture, if it is possible to regard the two surviving trumpets from the tomb of Tutankhamun as but the tip of a proverbial iceberg of trumpets that were likely to have been made (of whatever material) for ceremonial religious-military purposes as well as for their documented use as signal instruments for the Egyptian army, then it is necessary to draw certain conclusions touching on *influence*. What were the external consequences for what appears from the surviving evidence to have been a long and fairly ubiquitous use of trumpets in Egypt from the Eighteenth Dynasty until the Ptolemaic period? Was it a process of diffusion from mainly Egyptian sources that caused the spread of trumpets to the Aegean and northern Mediterranean?—or was it from some other and possibly common source(s) in the East that the Egyptians and thereafter both the Greeks and Etruscans learned of the use and manufacture of these stentorian instruments? Let us briefly consider the Greek examples first.

There are many surviving illustrations from antiquity of Greek trumpets, mostly of the σαλπινγξ (*salpinx*), but some also of the κοχλος and κεραξ (or βουκινον). Most of these have been accounted for in the comprehensive and descriptive inventories of Sir John Beazley.<sup>20</sup> Others have been noted in the work of both Paquette<sup>21</sup> and Fenzl.<sup>22</sup> Yet, despite the number of known Greek references and illustrations, and the allegations for one surviving example of a *salpinx* notwithstanding, there are no bona fide specimens of these instruments to have come down to us.<sup>23</sup> Judging, therefore, from what evidence

19. London, BM: Roman *cornu* (cat. no. 1839.118 46.D.) presently being studied and in the process of being restored. While I was in the museum's laboratory I noticed a mouthpiece that presumably belonged to the instrument. Some X-ray photographs that were shown to me were not very revealing as far as the mouthpiece is concerned. A comparable mouthpiece from Caerwent (Venta Silurum) is reproduced in Fig. 10.

20. J.D. Beazley: 1) *Attic black-figure vase painters*, Oxford 1956 (New York 1978);

2) *Attic red-figure vase painters*, Oxford 1942 (New York 1963);

3) *Etruscan vase painting*, Oxford 1947 (New York 1976);

4) *Paralipomena; additions to Attic black-figure vase painters and to Attic red-figure vase painters*, 2nd ed., Oxford 1971.

21. Daniel Paquette, *L'Instrument de musique dans la céramique de la Grèce antique, études d'organologie*, Paris 1984.

22. Eva Fenzl, *Die Geschichte der Salpinx aus der Sicht der griechischen und römischen Kunst* (M.A. "Diplomarbeit," Univ. Vienna, Wien 1986.

23. One of the few reports about the Boston multisectional ivory, brass and bronze instrument, sometimes referred to as a *salpinx*, appeared in the *Amer. Journ. of Archaeology* (xli, 1937, pp. 52-57): "Archaeological notes—recent acquisitions of the Museum of Fine Arts, Boston." Along with some photographs, the report gives several basic dimensions and notes that there are "thirteen" (there are actually 14) tenon-socket fitted lengths of ivory tubing with an additional and conically tapered bronze bell section. The overall length of the completely assembled object is c. 156 cm. It should be noted that the *AJA* report rightly said that the object's "material and its great length show that it is not a

there is, what can we conclude about the relationship(s) between these instruments and their known predecessors?

Although Herodotus writes that the Greeks had borrowed many ideas from the Egyptians,<sup>24</sup> there is a noticeable disparity between the two trumpets of Tutankhamun (as well as the other and comparable trumpets to be seen in Egyptian iconography) and

---

military *salpinx*." There are many problems that prevent me from sharing the enthusiasm about this object expressed by some writers (most of whom do not appear ever to have actually seen much less examined and measured it). In the first place, the heavy bronze bell may well have come from something else. There is evidence for what was at one time a soldered brace to another and missing part that must have been made of bronze also. Secondly, the weight of the bell is such that no amount of caulking the appropriately intended ivory tenon and/or the bell socket will allow the bell to remain attached to and held by the ivory tube without falling off. This is also the problem with the mostly cylindrical bore compounded from all 14 ivory segments. A long tube consisting of so many relatively short and rather crudely articulated lengths sags under its own weight causing one or more joints to separate. With the heavy bronze bell section added to it, the integrity of the bore is, if not lost, certainly precarious. It does appear that the entire ensemble can remain together for display purposes, but certainly not if the instrument has to be moved about. The third and most serious problem with this object, one that appears to be of a relatively modern origin, is the existence within each ivory section of an almost equivalent length of brass tubing that was forced inside. This was presumably done in order to have a continuous cylindrical bore without leaks when all the sections were fitted together. Unfortunately—and either on account of the bits of brass having been forced into the ivory sections or because of unequal rates of expansion, absorption of water vapor by the ivory, etc.—many of the segments are seriously cracked. All of the sections, including the bell, appear to be very old, but it cannot be said with any degree of certainty that the fully assembled object is actually a trumpet or was ever intended to be. Like the so-called buysine, also in the Boston Museum of Fine Arts, with the date "M + CDLX" and the maker's name Sebastian Hainlein, of whom the elder of the two Nuremberg trumpet makers by that name was not producing instruments until c. 1580, the alleged *salpinx* may have been the work of an antique musical instrument forger like that "old swindler" Leopoldo Franciolini. A number of unauthentic straight *tuba*-like trumpets (so-called busines) were passed off as originals on such unsuspecting collectors as Heyer and Galpin before anyone could prove that Franciolini was indeed a swindler. Of these the Boston "buysine" and Williams College long trumpet (which was at one time on loan to the Boston Museum) are from Franciolini. There are several other suspect trumpets accounted for in his catalogues that are now part of the inventories of several important instrument collections. The only bonafide long trumpet that I, for one, can be certain of is the recently discovered Billingsgate long copper trumpet now in the London Museum that was dug out of a piece of ground in Billingsgate, London, from what was once part of the edge of the Thames River channel some centuries ago. The instrument is described in two articles from the 1988 issue of the *Galpin Society Journal*. Unfortunately, one of the authors does not seem to know much about the authenticity of surviving long tubular trumpets and unabashedly cites some of the Franciolini fakes as corroborating and/or comparative evidence. The reader is urged to study the important publication by the late Edwin M. Ripin: *The instrument catalogs of Leopoldo Franciolini* (No. 9 in the series *Music indexes and bibliographies*), Hackensack 1974. A more detailed discussion of these matters from our particular perspective will appear in this writer's forthcoming treatise on the classic trumpet.

24. Herodotus, *History* II/51.

the vast majority of images of the Greek *salpinx* reproduced in Attic black- and red-figure vase paintings. Judging from the remarks of Josephus, there was a propinquity of descent for the kind of trumpets Moses gave instructions to be made by the Jews to those of the Egyptians—from whom Moses presumably got the idea for their manufacture and use in the first instance.<sup>25</sup> Obviously, changes in the design and manufacture of the Greeks' trumpets would have taken place over the several intervening centuries from the era of Tutankhamun to the Age of Perikles, as changes do seem to have occurred in the trumpets of the Jews during the same period. Each of the trumpets represented in the Arch of Titus at Rome (which supposedly reproduces the cult objects, including the pair of silver trumpets, pillaged from the Great Temple at Jerusalem in A.D. 70) does have an appearance more like the Roman *tuba* than the kind of trumpet either described by Josephus or used by the Egyptians.<sup>26</sup> But ancient Greek trumpets are noticeably different from both types.<sup>27</sup> Perhaps the Greeks did not rely so much upon foreign archetypes as to have perpetuated in copper or bronze the design and use of more primitive but indigenous instruments (of whatever materials). There may be, after all, some truth in the contention of Paquette, who, in describing a 6th-century B.C. Attic red-figure painting by Nikosthenes showing a conch being blown by what appears to be a Greek foot soldier "Au milieu des hoplites," says that the figure calls his comrades to battle "à l'aide d'une conque marine, origine de la salpinx."<sup>28</sup> The premise of Paquette's concluding subordinate clause may well be so, but

---

25. See Numbers 10/1-10, and Josephus, *Antiq.* III/xii, 6 (Whiston trans. p. 82). The Bible gives no dimensions for the trumpets of the tabernacle. Josephus, however, says that the length of each "was little less than a cubit," adding that "It was composed of a narrow tube, somewhat thicker than a flute, but with so much breadth as was sufficient for admission of the breath of a man's mouth: it ended in the form of a bell, like common trumpets. Its sound was called in the Hebrew tongue *Asosra*."

26. The cubit was loosely based on the length of a man's forearm from the elbow to the tip of the middle finger (the Egyptian hieroglyph for the cubit is a representation of the forearm). But inasmuch as there were several different cubit standards, it is difficult to know which cubit Josephus had in mind. It is not unlikely that the cubit to which he referred was either the common cubit or the Roman one, in either case a length of approximately 17.5 inches (plus or minus 0.5 in.). If our assumptions about the information given by Josephus are correct, then the silver trumpet of the tabernacle, being "a little less than a cubit" in length, was just under 17 inches long, which is about three inches shorter than the smaller of the two trumpets found in the tomb of Tut'ankamun by Howard Carter in November, 1922. This, of course, does not jibe with the relative lengths of the two trumpets taken from the Temple of Jerusalem in A.D. 70 as depicted on the Arch of Titus at Rome (see Fig. 4). The two trumpets represented there are longer, nearly twice the length of the forearms of the various figures shown. It is not impossible that the sculptors of the Arch of Titus had represented the longer Roman *tuba*, assuming that the information provided by Josephus was relatively correct and that the temple trumpets were considerably shorter. There are, however, a number of other variables that will need to be considered and looked at in greater detail if and when more information is available.

27. Virtually all Greek trumpets seen on pre-Alexandrine painted ceramics have only two distinctive anatomical sections: the long cylindrical tube and the dome or gourd-shaped bell. For comments on changes in the shape of Greek trumpets from the era of Alexander the Great, see below and note 37.

28. Paquette, *L'Instrument de Musique*, p. 75.



he does not say why. Earlier, and without offering any additional evidence beyond the one iconographic source, Paquette moots that "Si la salpinx provient de la conque marine, comme l'atteste le vase [of Nikosthenes], les Grecs la tenaient pour un instrument d'origine étrusque."<sup>29</sup> How Paquette came to this conclusion is not at all clear. He provides no further explanation or additional evidence. There is, however, one possibility that Paquette could have mentioned. It is not as far-fetched as one might first imagine.

Most of what is known about the look of ancient Greek warfare derives from the images preserved on Etruscan and Attic black- and red-figure ceramics. Two such sources, one a red-figure amphora (c. 490-480 B.C.) preserved at Vienna,<sup>30</sup> the other also a red-figure amphora attributed to the Cleophrades painter (c. 480 B.C.) preserved at Würzburg,<sup>31</sup> depict armored shield- and spear-bearing Greek hoplites. The interesting details from our perspective are the figures shown decorating the hoplites' shields: both are black Africans (Nubians?), each shown blowing a tubular trumpet (*salpinx*?) with a more pronounced gourd- or shell-like bell than seen on many trumpets from this period, but which, significantly, have been affixed to the ends of tubular trumpets of various tribal peoples and in various parts of the world up to the present century. Who and what is being depicted on these two amphorai? Are the black African trumpeters supposed to be slaves? In any case, are they playing Greek trumpets or their own? The fact is, we know precious little about the cultural relationships of native, so-called primitive tribal people with the more civilized, urban societies of North Africa, Asia Minor and Europe before the Middle Ages.<sup>32</sup> Most images of the *salpinx*, notably the oldest ones, before the Macedonian period certainly, look suspiciously like primitive instruments. It is not beyond the bounds of credulity to suppose that the ancient Greeks and/or their Mycenaean predecessors may have been influenced in the use and manufacture of trumpets by one or another indigenous group of Asia Minor or Africa, if not directly, then possibly through intermediaries, like the Phoenicians, perhaps.

A unique feature, one entirely peculiar to the early representations of Greek trumpets, is the appearance in many sources of the *phorbeia*. This is the cheek strap so often seen being worn by aulos players in paintings of Attic pottery. It was, in fact, some-

29. Ibid.

30. Red-figure amphora (c. 490-480 B.C.) preserved in the Kunsthistorisches Museum, Wien, cat. IV 3724 (332); Fenzl, *Geschichte der Salpinx*, No. 21.

31. Red-figure amphora, attrib. Cleophrades painter, Würzburg cat. no. 508 (302). See A. Furtwängler and V. Reichhold: *Griechische Vasenmalerei*, ii, 1909, p. 227 f. and pl. 104; Fenzl, *Geschichte der Salpinx*, No. 19.

32. It should be noted that directions of influence between primitive, tribal people and urban civilizations work two ways. There are numerous examples of civilized societies imitating the art and artifacts of primitive people and vice versa. Likenesses, therefore, between such seemingly diverse species of trumpets as, for example, the Madagascar tubular trumpet with a horn bell section shown in Sachs (*Hist. Mus. Instr.* 1940, p. 146), the Zulu *icilongo* and the Etrusco-Roman *lituus*<sup>I</sup> (shown in Figs. 5 and 6), as well as between the Ethiopian *dinke* and the Celtic *carnyx* from the Gundestrup kettle (see Figs. 7 and 8) do raise a number of hitherto unaddressed issues, not the least of which was the influence in Classical Antiquity of the more technologically advanced metal cultures on adjacent (or relatively nearby) but less advanced tribal societies, or vice versa.

times worn also by a *salpinktes*.<sup>33</sup> The purpose of the *phorbeiā* (in Latin *capistrum*) for trumpeters was probably twofold. The one was, as for aulos players, to support the cheeks of the player, to keep them from puffing out when blowing the instrument. But for the *salpinktes* it may well have had another function. Either the strap was made so as to have a large enough opening in the wide mid-section that covered the mouth, large enough, that is, to allow the rim of the mouthpiece to make contact with the player's lips, or else it actually contained the mouthpiece within it, the rim-cum-flange being suitably large enough so that only the shank was allowed to pass through an opening in the middle of the strap. This latter method would most certainly have been useful for players who found it necessary to hold the reins of a horse in one hand, the *salpinx* in the other (it must be remembered that the riding of a horse in antiquity had to be managed without recourse to stirrups, thus increasing the difficulties for a rider to control a mount with only one hand on the reins). With such an arrangement the *salpinktes* would always have had the mouthpiece in playing position, so long as the *phorbeiā* was tied around his face and at the back of the neck.<sup>34</sup> The upper blowing end of the instrument could therefore have been easily slipped on and off the shank of the mouthpiece itself, which was always securely fastened in place on the embouchure by the *phorbeiā*. As unusual as this method may seem today, it could well have prevented a *salpinktes* from losing his mouthpiece, while at the same time supported the lips and cheeks, especially when playing at the kind of amplitude suggested by several accounts describing Greek trumpeters and trumpet playing.<sup>35</sup> How long the *phorbeiā* continued to be used is difficult to say. It is no longer seen in depictions of *salpinx* players after the Macedonian period. I know of no example of any Roman trumpeter shown using such a device, though there are numerous examples of Roman aulos (*tibia*) players with the comparable *capistrum*.

There were significant changes in Hellenic military accoutrements and their employment as a direct result of the reforms and reorganization of the Macedonian army

---

33. Nearly half of the Attic black- and red-figure vase paintings of the Greek *salpinx* seen so far show the trumpeter with the *phorbeiā*.

34. It may be significant that the reference to the *phorbeiā* in *The Wasps* of Aristophanes (Starkie ed., London 1897, line 582), "with his mouthpiece on he plays a quick march for the jury as they file out of court," may well have been applicable to a trumpeter when wearing the *phorbeiā* with what is presumed to have been an integrally fitted trumpet mouthpiece.

35. The importance of trumpeters in Greece is attested to by their role in the Olympiad. In drawing on the well-known accounts of Athenaeus of Naucratis (*Deipnosophistai*) and Julius Pollux (*Onomastikon*), H.A. Harris has written that "The part played by trumpeters was so important that from 396 B.C. a competition for them was included in the Olympic Games. Later in that century a trumpeter from Megara, Herodorus, won the event at ten successive Olympiads. This interesting figure was only just over five feet tall, but he was a prodigious eater and drinker and could play two trumpets at the same time [see note 4 above]. He did not confine his efforts to the sports arena. The success of Demetrius Poliochtes in his siege of Argos in 303 B.C. was due to the inspiration which the trumpeting of Herodorus exercised on the troops." After commenting on how loudly Greek trumpeters could blow, Athenaeus mentions that women were also famous as trumpeters in Greece. He notes that Aglaïis, the daughter of Megaeles, "blew the trumpet [*salpinx*] for the procession in the first great parade at Alexandria."

by Philip II, which were implemented and developed by his illustrious son, Alexander the Great. These reforms "made the Macedonian army the fastest, lightest, and most mobile force in existence, capable of making lightning strikes 'before anyone had time to fear the event' "36 With these reforms we may suppose that the *salpinx* had already taken on more of the shape and form of the later Roman *tuba* at that time.<sup>37</sup> Alexander certainly did make important use of trumpeters, who were, if Plutarch is to be trusted, highly disciplined and courageous.<sup>38</sup> But the Greek army was not the only one to undergo important changes. It was around this time (after the Second Samnite War, that is after c. 340 B.C.) that the Roman army was reorganized also.<sup>39</sup> What possible influence the Etruscans may have had during this period is difficult to say. They were

36. Donald W. Engels, *Alexander the Great and the logistics of the Macedonian army*, Berkeley, Los Angeles and London 1980, p. 119.

37. See the "Grecian trumpeter [*salpinktes*] from a fictile vase" reproduced in Fig. 12 (from Thomas Hope, *Costume of the ancients*, vol. ii, London 1812, Pl. 156). A comparable, though simpler, Roman tuba-like *salpinx* was already depicted in the 4th century B.C. on an Apulian volute-krater (NYMMA: Greek and Roman Vases, fragment of a Volute-Krater, 4th century B.C. Rogers fund 1919, nos. 19.192.81.5, 10, 11, 19)—see Fig. 11. Note that the *salpinktes* holds a *caduceus* in his left hand. Another fragment from the same red-figure volute-krater shows a figure riding in a chariot. It is described as a "battle of gods and Titans." One of the giants is inscribed with the name (in Greek) "Hyperion." That such a type of trumpet appears on an Apulian red-figure vase suggests, perhaps, that the Etruscans already had developed the *tuba* form and may have been responsible for its having been adopted by the Greeks. As mentioned below in note 40, a pair of *tubae* of the more advanced type do appear on an Etruscan tombstone from around 400 B.C.

38. In Plutarch's *Life of Alexander*, for example, note the account of the trumpeter, who, by refusing to obey the ill-conceived orders of his intoxicated commander-in-chief, Alexander the Great, to sound the general alarm, even after being struck with Alexander's fist, was afterwards "highly praised for his conduct, because it was chiefly thanks to him that the whole camp was not thrown into a turmoil."

39. As early as the war with Veii (c. 550 B.C.) and as a consequence of Servius Tullius ascending the throne of Rome, trumpets became an integral part of the reorganization of Roman society with his inauguration of the census. Livy (*History*, Bk. I) notes that, the better to defend the kingdom, Servius caused the Roman population to be divided into classes and centuries (groups of 100 men) "according to the scale based on the census." After dividing up his Roman subjects into several hundred centuries of four classes, each well-equipped for war, he added a fifth class of 30 centuries consisting of slingers ("lapisque missiles") and two centuries of trumpeters ("cornicines tubicinesque in duas centurias distributi"). But as well as this organization had served the Romans, the humiliating defeat the Celts (Gauls) had inflicted on them in 390 B.C. and the consequences of the First and Second Samnite Wars, the Roman army (and navy) was, to cite Webster (*The Roman imperial army*), "remarkably transformed," with changes in tactics and the introduction of newer and deadlier weapons. It was during this period (c. 325 B.C.) or soon after that four kinds of metal lip-blown instruments became standard equipment for the recently formed legionary forces: the *tuba*, *cornu*II, *lituus*II (perhaps as a consequence of the Roman experience with the Gallic *carnyx*) and the *bucina*, an instrument about which, as Webster concludes, "little is known." Whether the *bucina* was by then the double-folded type of trumpet seen on later tombstones and, as Vegetius says (*Epitoma rei militaris*), blown at executions and for the *classicum*, or was still a primitive instrument made of shell (or possibly animal horn), remains unknown.



Fig. 5: City of Johannesburg, Africana Museum: Photograph by P.R. Kirby (c. 1930) of a Zulu playing an *icilongo*.

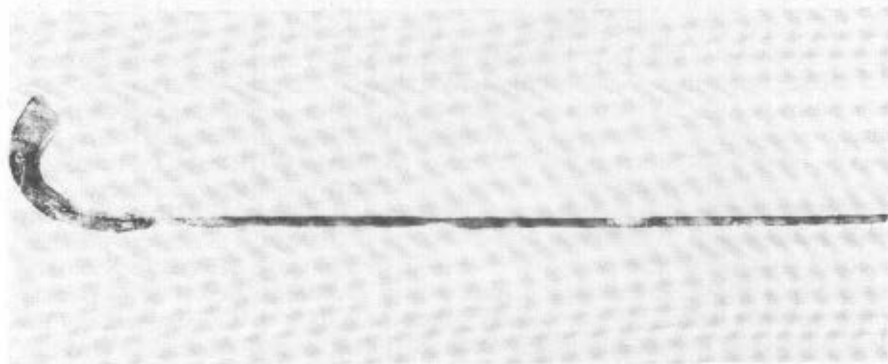


Fig. 6: Vatican, Monumenti Musei e Gallerie Pontificie (Museo Gregoriano Etrusco): Etrusco-Roman *lituus* from Vulci.

superb metallurgists and smiths, and, in light of their increasing difficulties with Rome, as well as the existence of Greek colonies on both sides of the Italian peninsula and the intercourse between the several cultures, there is no reason to suppose that Etruscan influence was anything but significant.<sup>40</sup> Which brings us to the next question touching on the evolution of metal trumpets, Etruria, and the emergence of Rome.

### The Lydian connection: The Pelasgi and Tyrsenoi

The Etruscans were no strangers to the sound of trumpets. There is, moreover, evidence, however slight, that the idea of metal trumpets had been transmitted to other and perhaps older inhabitants of sub-Alpine *Italia*; to the late Bronze-, early Iron-Age Veneti in the northeast of Italy, for example.<sup>41</sup> One may conjecture, of course, that processes of polygenesis were at work rather than of diffusion. It is not impossible that a number of these tribal groups had arrived at the idea of metal tubular trumpets, straight or curved, independently of one another and without the necessity of outside influences; the usual regions mentioned to explain the origins of such lip-blown resonators as those that supposedly made their way to the more western precincts of the Mediterranean being somewhere in Asia Minor or the Middle East. But such a view implies that people at the time lived in isolation, without knowledge of what was going on in other regions. At almost any time, especially for a part of the world where communication was relatively quick, people have generally known what was going on

---

40. While images of Etruscan trumpets are generally restricted to curved, *cornu*-like instruments and sometimes show the early type of *lituus*, there are some significant sources of straight trumpets. One source is particularly significant. It is an Etruscan tombstone (stele) from c. 400 B.C. ("del predio Tamburini") that depicts two seated *tuba* players with long instruments that terminate in bells with almost modern, hyperbolic curvatures. The most comprehensive and still entirely relevant study of Etruscan tombstone art is Pericle Ducati's article "Le pietre funerarie Felsinee" in the *Monumenti Antichi; pubblicati per cura della Reale Accademia dei Lincei*, xx, Milano 1910, cols. 359-727. Since what survives of pre-Christian and notably Etrusco-Roman tombstones, sarcophagi, etc., is now but the tip of what was a very large and proverbial iceberg, we may conclude that the still existing sample of funerary art with trumpets suggests that the image must have been fairly common, if not ubiquitous, and, in conjunction with various Greek traditions, may well account for the amount of New Testament associated imagery of trumpets, Christ, Resurrection, Last Judgement and the Life Everlasting.

41. For evidence of pre-Roman trumpet imagery and those appropriate artifacts from northeastern Italy as bronze *situlae*, see such relevant studies as, for example, M. Ghirardini, "La situla . . ." in *Monumenti Antichi; pub. d. R. Acc. dei Lincei*, x, Milano 1900, cols. 100-108, and Albert Grenier, *Bologne; Villanovienne et Étrusque VIIIe-IVe siècles avant notre ère (Bibliothèque des écoles Françaises d'Athènes et de Rome, cvi)*, Paris 1912; see also the monumental study of Montelius referred to in note 78. Roman writers like Livy and Cato spoke about the Etruscans and their having at one time dominated "nearly all of Italy"—except the land of the Veneti, that is.

The Celts may have worked a variety of influences on their southern neighbors, not in the least with respect to metal technology and the manufacture (and use) of trumpets. Ducati ("Le pietre funerarie Felsinee," col. 492—see note 40) makes reference to Gallic (Celtic) elements having been found on some 5th- and 4th-century northern Italian tombstones. For references to the Celts and the manner in which they blew the *cornyx*, see notes 63 and 80.

in other places, even over comparatively great distances. Taking the orthodox point of view, therefore, let us examine the Lydian connection.

In his comprehensive historical and archaeological survey of the Trojan War, Michael Wood devotes a chapter to the "Sea People," an appellation taken from the Egyptians for the marauding groups who came in boats and "threatened them in two major attacks" in c. 1210 B.C. and c. 1180 B.C. There also appears to have been a major confrontation with these invaders during the reign of Ramses II, when they made their way up the Nile Delta around 1290 B.C., but were subsequently defeated, with many of their number taken prisoners. Wood moots that these "mysterious raiders" may have been *Tyrsenoi* (Lydians from western Anatolia who, as Tyrrhenians, were later said to have emigrated to Italy) and might well have been responsible for bringing down "the world of Mycenaean palaces."<sup>42</sup> Moreover, they may have actually consisted of many Mycenaean Greeks—"rootless migrants, warrior bands and *condottieri* on the move as other conditions, economic, social or whatever, broke apart the fragile stability of their world." There is evidence for concluding that the attack on Egypt in c. 1210 was made by a force of some 20,000 invaders, consisting chiefly of Libyans, but, significantly, strengthened by a large contingent of Sea People who may have accounted for as much as a quarter of the total number of invaders.<sup>43</sup>

Lydia was a province of the Hittites called Assuwa. The civilization of the Hittites was heavily dependent upon Mesopotamian models, particularly for writing, and flourished in that part of Anatolia (western Asia Minor), including Lydia, from about 1600-1200 B.C. They entered Asia Minor around 2000 B.C. and became the first Indo-Europeans with a written language.<sup>44</sup> Having borrowed so many aspects from their Tigris-Euphrates neighbors and doubtless some from their Egyptian enemies, the Hittites very probably did have and use trumpets.<sup>45</sup>

Some time not long after the burning and sacking of Troy by what we are told was the army of Agamemnon,<sup>46</sup> there is historical evidence for a number of population

42. Michael Wood, *In search of the Trojan War*, New York and Oxford 1985, p. 219.

43. There is evidence that some of these "Peoples of the Sea" can be identified with the Tyrrhenians/Etruscans, the *Trs.w* being mentioned in Egyptian hieroglyphs as one of the Viking-like group of sea rovers who attempted to invade Egypt during the reigns of Merneptah and Ramses III, i.e. during the period from 1230 to 1170 B.C. See G.A. Wainwright, "The Teresh, the Etruscans and Asia Minor," *Anatolian Studies*, ix, 1959, p. 197 ff.

44. C.G. Starr, *A history of the ancient world*, Oxford 1969, p. 82.

45. A limestone relief from the exterior north wall of Medinet Habu shows a Syrian town, probably Tunip, under siege by the forces of Ramses III in c. 1180 B.C. A trumpeter, presumably an Egyptian, is unmistakably shown blowing his sh-n-b (see H.H. Nelson, *Medinet Habu Reports*, x, Chicago 1931, fig. 19). Much of Syria had been under the control of the Hittites. Given the variety of other and related facts, it seems unlikely that the Hittites would not have had and used trumpets during much of the time of their relationship with the Egyptians.

For a 9th-, 10th-century Anatolian bronze figurine of a trumpeter in the BM (cat. no. 130909), which may reflect last vestiges of Hittite influence and/or manufacture, see Joan Rimmer, *Ancient musical instruments of Western Asia in the British Museum*, London 1969, p. 29 and Plate VIII/b.

46. The Trojan War is supposed to have occurred sometime between c. 1375 and 1250 B.C. Most of the traditional details derive from *The Iliad* of Homer, who lived sometime in

migrations and tribal wanderings in several areas of the Aegean and eastern Mediterranean: "some, like Menelaos and Odysseus, took as long as ten years to find their way home . . . ; some took to piracy and attacked places in the Mediterranean; others, like Agamemnon himself, returned to political upheaval, palace coups and assassination."<sup>47</sup> The Greek Golden Age, with all its panoply of gods and heroes, collapsed less than a century after the Trojan War, and, as we may conclude from the writings of Thucydides,<sup>48</sup> Herodotus<sup>49</sup> and others, there were numerous and continuous resettlements, with large-scale migrations of people and many colonies established both in the western Mediterranean in Italy and Sicily, and to the east in Ionia. All these regions had been established subsequent to the war with Troy, with the classic heroes like Diomedes, Philoktetes and Idomeneus "finding new lands in Italy."<sup>50</sup> There are, moreover, a number of accounts, like that of Virgil's *Aeneid*, for example, that—however mythologically cast for poetic-rhetorical purposes at the time and whatever degree of hyperbole notwithstanding—do raise the suspicion that these migrations were real and had, in fact, brought about a considerable amount of interracial mixing and a number of significant cultural impacts in various regions of the Italian peninsula.<sup>51</sup>

If the *Tyrsenoi*/Tyrrhenians were, in fact, the progenitors of the Etruscans, as so many authors of classical antiquity have said, it is not illogical that they and/or their Etrurian offspring were credited with the invention of the trumpet. A comparable assignation is often made to Moses, who very likely never *invented* the trumpet of the ancient Israelites, as Josephus said,<sup>52</sup> but, having been raised as an Egyptian prince, passed on to his Hebrew kinsmen what he doubtless knew of it and its efficacy in ancient Egypt, as he reputedly did with respect to Egyptian weapons.<sup>53</sup> Whatever the truth of the matter, it is most improbable that the Tyrrhenians/Etruscans had discovered the use of the trumpet, but instead had transmitted what they knew of its exist-

---

the 8th century B.C. The events he sang about from the sagas with which he is so often credited took place over four centuries earlier and were likely to already have been part of a fairly well- and widely known oral tradition by his own generation.

47. Wood, *Trojan War*, p. 26. Agamemnon's family, the Atreids, came from Lydia in western Turkey. The Atreidae were, traditionally, the descendants of Atreus who had taken over the kingdom of Mycenae; the greatest deeds of the House of Atreus are celebrated in the stories of the Trojan War. As Wood notes (p. 157), "The origins of the Atreids are said to have been Anatolian, Lydian, where we know that there was a Greek [Achaian?] presence from the fifteenth century B.C., but fascinating as this story is, the present state of our knowledge does not allow us to say anything useful about the alleged outside origin of some of the Late-Bronze-Age Greek dynasties."

48. *The history of the Peloponnesian War* (Crawley trans., Chicago 1952) I/11-12.

49. *History* (Rawlinson trans., Chicago 1952), I/94.

50. Wood, *Trojan War*, p. 26.

51. In Virgil's account of the Trojans' migration to northwestern Italy and in other Greco-Roman literature describing the resettlement of the Tyrrhenians from Lydia there are links with the history of the trumpet. In Virgil there are the references to Aeneas's trumpeter Misenus and his role in the postwar odyssey of the Trojans; and in the works of the other authors referred to below attribution is given to the Tyrrhenians for the invention of the trumpet.

52. See note 25.

53. Josephus, *Antiq.* II/xvi, 6.

tence and use by their ancestors and other inhabitants of Asia Minor and Ionia (and possibly elsewhere, perhaps Egypt) to the native inhabitants of what was to become Etruria. In this instance, diffusion seems to be the more likely explanation than polygenesis. Considering the amount and degree of cross-fertilization between the eastern Mediterranean and Etruria, notably in the design and manufacture of painted pottery, for some aspects of metallurgy, in some architectural elements and, from the few known facts as there are, about a possible linguistic relationship, we must conclude that Macnamara put the case as reasonably as possible when she concluded:

These tantalizing glimpses into what was already the remote past at the time our written records begin, are too inconclusive for us to accept them as sure evidence of a migration from the east at an early date. Nevertheless, they are sufficient to ensure that the question should remain open and to turn our imagination to the legend of Tyrrhenus.<sup>54</sup>

Given the limitations of space, let me attempt to summarize here the fragmented historical evidence that can be brought to bear in arguing for a possible Tyrrhenian origin of metal tubular trumpets in western Italy. Tyrrhenus is an eponym of the Tyrrhenians, i.e. the Etruscans, who are known to have used trumpets in ways anticipatory of the Romans. In the Roman Antiquities (I/27) of Dionysius of Halicarnassus, Tyrrhenus is a son of King Atys and comes from Maconia (Lydia). Yet, in the same work and, perhaps for ethnocentric reasons, Dionysius promoted the idea that the noble ancestors of the Romans had been an aboriginal culture, springing up out of their native Italian soil.<sup>55</sup> This, of course, is without any basis in fact. As Macnamara

54. Macnamara, *Etruscans* p. 24. For a linguistic connection between the Tyrrhenians (Lydians) and the Etruscans, Macnamara (p. 18) cites Thucydides (*Peloponnesian War* IV, 109) and notes that the only language outside of Italy to reveal a close propinquity to Etruscan "is found written in inscriptions, dating to the seventh and sixth centuries B.C. on the Aegean island of Lemnos, which the Greeks particularly associated with the Tyrrhenians."

55. This is the argument of Massimo Pallottino in his book *The Etruscans* (rev. ed. trans. J. Cremona, Bloomington 1975, p.67ff.). Yet, and expectedly, there is evidence for some contradictions in these accounts, which Macnamara has noted (p. 16). Dionysius (I/28) quotes Hellanicus of Lesbos, a contemporary of Herodotus, who said that the Tyrrhenians had changed their name from that of the *Pelasgi*, a people who had migrated from the Aegean to western Italy. Herodotus (*History* I/56-58, II/50-52, VI/136-140) mentions the *Pelasgi*, as does Homer variously. In *The Iliad* (II/684), Homer sang of the "Pelasgian Argos," while in *The Odyssey* (XIX/177) he sang of the inhabitants of Crete, which included the "noble *Pelasgi*" (Butler trans.). On the other hand, the *Oxford Classical Dictionary* cites the same passage where Odysseus is said to describe the *Pelasgi* as having been among the "motley" population of Crete.

*Pelasgi* appears to have been sometimes used by the Greeks in references to the "aboriginal" people of the Aegean, although some authors at the time use the term for any immigrant people living in *Hellas*. Moreover, *Pelasgi* may have been sometimes used as an uncomplimentary euphemism for a foreigner or an immigrant of inferior status, much in the same way that *Welsh* has long been used by the trans-Alpine German-speaking inhabitants of Central Europe when referring to Italians, or *Welsh* by the English when referring to the natives of *Cymru*.

One of the more fruitful discussions of the *Pelasgi* is to be found in A. Kannengiesser's informative article, "Ueber den gegenwärtigen Stand der etruskischen Frage" (*Klio*, Bei-



succinctly concluded, the suggestion of Dionysius that the Etruscans were an indigenous Italian race "will not bear much scrutiny."<sup>56</sup> The scholars of his own age did not think much of his idea either. In the scholion of Plato's *Timaeus* (25b), Tyrrhenus is Atys' grandson, and in the first book of his *History* (I/94), Herodotus mentions that Tyrrhenus, the son of King Atys, left his famished homeland with a group of his Lydian countrymen and "colonized Tyrrhenia," the other name for Etruria and called as such "after the name of the king's son" who founded the colony.<sup>57</sup> And Tarchon, either the brother or son of Tyrrhenus and whose name is memorialized by the Etruscan city of Tarquini, which bears his name, is said to have assumed command of the Tyrrhenians upon their arrival in what was to become Etruria. He is credited with having founded the 12 cities of the Etruscans.<sup>58</sup> According to Lycophron,<sup>59</sup> the sons of Telephos were reckoned to include Tarchon and Tyrsenos, the "two founder/heroes of the Etruscans"<sup>60</sup> and Eurypylos, the chief of the Keteioi (Ceteians),<sup>61</sup> a people Kerényi suggests were probably "survivors from the empire of the Hittites."<sup>62</sup>

The *Genealogiae* (later called the *Fabulae*), of Hyginus (cclxxiv/20), credits Tyrrhenus with the invention of trumpets. Diodorus Siculus, too, says that the "Tyrrhenians [or "Hetrurians"] were the inventors of the *salpinx*, as it is called, a discovery of

---

*träge zur alten Geschichte*, viii, Leipzig 1910, p. 257), where from our special point of view, the relationship of the Pelasgi/Tyrrhenians and the probable earlier history of metal tubular trumpets is further clarified with the reference to a "pelasgische bzw. hettitische Urbevölkerung."

Herodotus (*History* i/57) noted that the Pelasgians had villages east of Cyzicus, and "beyond the Tyrsenians," but that the Athenians, in terms of their origins, "were certainly Pelasgi." Herodotus also writes (ii/51) that the Greeks had borrowed many practices from the Egyptians, but that the "peculiarity which they observe in their statues of Mercury they did not derive from the Egyptians, but from the Pelasgi."

56. Macnamara, *Etruscans*, p. 17. Macnamara is but one of a long line of scholars to have concluded that the Tyrrhenians/Etruscans were descended from Lydians (who may themselves have been of Hittite stock). Skutch, for example, in his article in Pauly-Wissowa (vi, p. 730ff.) considered the identity of the *Tyrsenoi* and Etruscans to be established beyond question, and that the former had migrated to the shores of western Italy and had founded the colonies of Etruria. But Skutch saw little reason to equate the *Tyrsenoi* with the *Pelasgi*, arguing that the latter were not a seafaring people. R.C. Jebb (*The fragments of Sophocles*, i, 1917, p. 201) noted that, by the generation of Thucydides, the names of the two people had become conflated, both acquiring "a general connotative sense of 'pre-Hellenic in the Aegean.'"

57. Herodotus, *History* I/94, Rawlinson trans., Chicago 1953, pp. 245.

58. Strabo, *Geography*, V/2, 2.

59. *The Alexandra*, line 1249.

60. See C. Kerényi, *The Heroes of the Greeks*, London 1959 (1981), p. 339.

61. Homer, *The Odyssey*, xi/521.

62. Kerényi, *Heroes of the Greeks*. It will be remembered that for nearly five centuries the Hittites occupied most of Asia Minor or Anatolia, including that western portion between the Ionian cities on the coast and Phrygia which constituted Lydia, whence the Tyrrhenians supposedly came. Besides having been famous as merchants and innovators for such pastimes as games (having supposedly invented dice), the Lydians were reputed to have been expert craftsmen, highly skilled metallurgists and, among their many achievements, are supposed to have invented coinage.

the greatest usefulness for war and named after them the "Tyrrhenian trumpet."<sup>63</sup> References to the Tyrrhenians and the invention of the trumpet are also found in Athenaeus,<sup>64</sup> Pausanias,<sup>65</sup> and Pollux,<sup>66</sup> as well as in such dramatic works as the *Eumenides* of Aeschylus (Wechlein ed., lines 570-1/ Paley ed. lines 537-8), the *Ajax* of Sophocles (line 17), and, in the plays of Euripides, *Heracles* (lines 830-1), the *Phoinissae* (the *Phoenician Virgins*, lines 1377-8), and *Rhesus* (lines 988-9). Moreover, in Virgil's *Aeneid* (viii/526) there is the reference to "Tyrrhenusque tubae mugire per aethera clangor."

Some references to the first appearance of the trumpet in the Italian peninsula suggest that the instrument was first brought there by Tyrrhenian pirates. A text attributed to Menander, for example, mentions the epithet *lystosalpinktai* (literally, "robber-/buccaneer-trumpeters").<sup>67</sup> Seneca, in his tragedy of *Oedipus*, uses Tyrrhene as an epithet for a gang of Phoenician pirates who attempted to kidnap Bacchus.<sup>68</sup> This correlates with a comment by Ephorus of Cyme (c. 405-330 B.C.), which is quoted by both Strabo in his *Geography* (V/2, 4) and mentioned by Hesiod in his *Theogony* (lines 1010-1016), that sometime before the second half of the 8th century B.C. Greek sailors had been terrorized by Tyrrhenian pirates in the seas around Sicily and off the western coast of Italy.

If there is any basis to these stories and to the claims that the idea of the trumpet did arrive from Lydia to the western shores of Italy, then plausible explanations must be sought to account for such surviving sources of trumpet iconography as, for example, the engraving of a curved and what presumably would have been a metal trumpet on the bronze situla "Arnoaldi." Associated with the North Villanovan Culture, this is the remarkably decorated bronze bucket (an ossuary?) that was found in an Etruscan

---

63. Diodorus, *Library of History* V / 40, 1. In the same work (V / 30, 3) Diodorus mentions the Gauls who "have trumpets after the Barbarian manner, which when blown make a horrid noise in order to strike a fitting terror [in the enemy]." This is supported by the account of Polybius (see note 81 below).

64. Athenaeus, *Deipnosophistai*, IV / 184: "... horns and trumpets were both invented by the Etruscans."

65. *Description of Greece*, ii / 21, 3 (Spiro ed., Leipzig 1903, p. 179). In describing Corinth and the sanctuary of "Trumpet Athena," Pausanias says that it was founded by Hegeleos. J.G. Frazer (Pausanias, op. cit., vol. i, p. 102) translates the appropriate section as follows: "They say that Hegeleos was a son of Tyrsenus, that Tyrsenus was a son of Hercules by the Lydian woman [Omphale], that Tyrsenus invented the trumpet, that his son Hegeleos taught the Dorians who accompanied Temenus how to play on the instrument, and that therefore he gave Athena the surname of Trumpet." Given the limitations of space here, the complicated story of the relationship of Athena and the history of the trumpet will appear at another time and place.

66. Julius Pollux, *Onomastikon*, IV / 75: "... the Etruscans traditionally play the cornu," while the Tyrrhenian/Etruscan salpinx was "a sonorous loudly sounding trumpet."

67. Menander, *frag. incert.* 399.

68. *The tragedies of Seneca*, trans. Frank Justus Miller, Chicago 1907. In the same play (lines 429-467) Seneca tells the story of how dolphins came to be—that when Tyrrhenian pirates jumped into the sea (having been frightened by a trick of Nereus), their bodies took on the form of dolphins. The same story is mentioned in Seneca's *Agamemnon* (Miller trans., op.cit., p. 451).

tomb in 1880 near Bologna.<sup>69</sup> A more detailed depiction of such an instrument is found on an engraved bronze mirror that came from the same burial site.<sup>70</sup> The type of trumpet is one unknown in Greece and for the civilizations of the eastern Mediterranean and beyond.<sup>71</sup> It is, however, rather like the early *cornu*II associated with the Etruscans, from whom the Romans presumably learned of its manufacture and use (along with the early type of *lituus*I, an instrument, like the *cornu*II, found represented in a number of Etruscan tomb paintings and on several Etrusco-Roman sarcophagi).<sup>72</sup> The sacerdotal status of the trumpet and its many associations with eschatological matters and the Last Things has been met before, notably in the unmistakable presence of the two trumpets of Tutankhamun within his tomb, the sacrificial-propitiatory function of the *salpinx* in many ancient Greek ceremonies, one or more *tubae* associated with Roman rites of sacrifice, the pair of trumpets from the previously mentioned Etruscan tombstone,<sup>73</sup> the pair of silver trumpets from Numbers 10/1-10, and, above all, the divine surrogacy of the Voice of the Trumpet (*kol shofar*) for that "primordial" and "redeeming sound" from Mount Sinai, "when the Jewish people received from God the revela-

69. Now preserved in the archaeological museum at Bologna. For particulars on Etruscan *situlae*, see the studies by Ghirardini and Grenier mentioned in note 41. The "Arnoaldi" find is similar to the bronze *situla* (without any representations of trumpets) found in the Golini tomb (the so-called *Tomba dei Velii*) near Orvieto, the marvellous paintings of which are preserved in the archaeological museum at Florence.

70. In the Grenier work cited in note 41, there is a discussion of the "mirroir Arnoaldi" (p. 367ff.), with a reproduction of the *cornu* player shown in the fig. (no. 118) on p. 368. Grenier wrongly referred to the specific type of instrument as "la *tuba* étrusque."

71. These observations, of course, run counter to the remarks of Pallottino (*The Etruscans*, see note 55, p. 155), who says that "The instruments [of the Etruscans] are manifestly the same in Etruria as in the musical world of the Greeks; this identity is not surprising in view of the many debts Etruscan cities owed to the civilization of Greece." The Greeks had no metal lip-blown instruments remotely resembling the *lituus*I, *lituus*II or *cornu*II. Moreover, the Etruscans (and the Romans after them) never appear to have played trumpets with a *phorbeia*.

72. Aquila Museum: Marble relief from Amiternum showing a funeral procession being led by two *cornicines*, a *liticen* and four double aulos players (*tibicines*) see Fig. 3. A comparable relief of a funeral procession on a stone sarcophagus from Vulci in the Boston Museum of Fine Arts includes a farewell scene with an Etrusco-Roman *cornicen* to the right.

In the one tomb at Cerveteri (Caere), the so-called "Tomb of the Reliefs," are two pillars that supported the roof of the large sepulcher. On the one was an elaborate set of carvings showing various utensils, domestic animals and a pair of *litui*. Each instrument is representative of the oldest type (*lituus*I), of which there is the one surviving example in bronze preserved in the Museo Gregoriano Etrusco at the Vatican (see Fig. 6). Francesco Buranelli, the Etruscan Museum's curator, to whom I am grateful for several pieces of information, has said that the Vatican instrument is from Vulci (the Feoli collection). Darneberg and Saglio (article "Lituus") have said that the instrument was found at Cerveteri, near the tomb with the carved *litui* just mentioned. In the *Bolletino dei Musei e Gallerie Pontificie* (M. Scarpignato, "Sulle collezioni Feoli," p. 20) the *lituus* is described as "un bronzo di difficile interpretazione." Questions of provenance, "interpretazione," etc. will doubtless be answered in the monograph by Prof. Maria Bonghi Jovino.

73. See note 40.

tion of the Torah."<sup>74</sup> As in Judaism so subsequently in Christianity and Islam, this most ancient and highest purpose of the trumpet, of whatever genus and species, was to become, both as a direct consequence of its use by the Romans and its eventual theological connotations, the embodiment of those two "principal stations" of spiritual liberation: the union of immanence and transcendence as expressed so eloquently in the *First Letter of Paul to the Corinthians* and the *Revelation of John*.

## Trumpets and the Celts

The idea that metal trumpets were used by older, more native Italic people, the Veneti, for example, before the appearance of the Etruscans, is not implausible if it allows that the Celts were already in possession of trumpet-making technology at the time. A possible Celtic connection in the dissemination of metallurgical skills early in the first millennium cannot be ruled out. Nora Chadwick, for example, discusses the possibility of cultural diffusion and the settlement of Central Europe by the forebears of the Celts in a supposed wide-ranging search for metals by prospectors, either those who had been sent out from the Middle East or others who worked on behalf of middlemen engaged to serve the growing Middle Eastern need for metals.<sup>75</sup> The successive Bronze Age Únětice, Tumulus and Urnfield Cultures lead directly to the Celts. The latter, the Urnfield Culture, were regarded by some scholars as being "proto-Celt" and the immediate forebears of the Celtic Hallstatt Iron Age culture of Central and Western Europe;<sup>76</sup> they became known variously as the Keltai, Galli or Galatae by the writers of classical antiquity. It was during this period, c. 1000 B.C., that these Celtic progenitors produced a variety of improved metal weapons and other implements, including vessels and "parading equipment" (armor, shields and ceremonial swords) from beaten bronze.<sup>77</sup> Judging from the dimensions of the smaller variety of Celtic *carnyx*, it is unlikely that this form of trumpet was cast, as the earlier but smaller side- and end-blown Bronze Age Celtic trumpets were.<sup>78</sup> Very probably, the *carnyx* was made in a way similar to the straight and curved tubular trumpets (*lures*, *cornuæ*, *litui*, etc.) of the Nordic Bronze Age people, the Etruscans, and eventually the Romans, i.e.

---

74. Leo Schaya, *The universal meaning of the Kabbalah*, trans. from the French by Nancy Pearson, London 1971, p. 135. It may be of interest to point out that an infallible sign for the end of a *saeculum* for the Etruscans, i.e. the end of one age and the beginning of another, as well as a portent or *signum* of fateful events to come for the Romans, was the sound of trumpets from heaven.

75. See Nora Chadwick, *The Celts*, Harmondsworth 1970 (1982), p. 27. In writing about the impact of metals on the history of mankind, Robert Raymond notes (*Out of the fiery furnace*, pp. 656) that the Celts "were the first to fit shoes to horses, and iron rims to their chariot wheels. . . . They gave the familiar form to the chisels, files, saws and other hand tools that we use today. They pioneered the use of chain armour, the iron ploughshare and the flour mill." They may well have played a principal role in the development and use of metal trumpets.

76. Hallstatt is in Upper Austria, about 45 miles southeast of Salzburg.

77. Chadwick, *The Celts*, pp. 24-29.

78. If they were cast, they may have been manufactured as one or more surviving examples of the *lituus*<sup>II</sup> were, i.e. cast longitudinally in two halves, the two pieces having been joined by soldering or re-casting.

by rolling sheets of beaten bronze, copper, or silver and joining the edges with solder.<sup>79</sup> Individual bits and pieces (fittings, decorations, etc.) may have been cast, but the tubular section(s), as for many of the other known and comparable metal lip-blown instruments of the same era, gives/give the appearance of having been made from sheet metal. If, therefore, it could be shown that the impetus for the manufacture of metal trumpets in Europe came via the Celts and their supposed Middle Eastern ancestors (or, possibly, Phoenician middlemen), some additional credence might be lent to the general theory of diffusion in the spread of trumpet-making technology from east to west. What the more subsequent relationships were between Celtic metal technology and such specific objects as the cast Bronze Age trumpets unearthed in Ireland as well as the *carnyx*, the Greek *salpinx* and the Roman *lituus*<sup>80</sup>, is not readily apparent.<sup>80</sup> There is some resemblance between the small variety of *carnyx* and the later type of *lituus*, an instrument that had no slight utility for the Roman cavalry. That the Romans were familiar with both the small and large species of *carnyx* is well supported by literary and such objective evidence as that to be seen in surviving Roman coins and sculpture.<sup>81</sup>

### The role of the Phoenicians

It has been suggested that any trans-Mediterranean, east-to-west dissemination of metal trumpet-making technology as well as a knowledge of the use of trumpets transmitted to the Italian peninsula, perhaps before the appearance of the Tyrrhenians/

79. Another but less effective method of fastening the edges of a rolled sheet of metal for a tubular trumpet could have been with rivets. In the monumental work of Oscar Montelius (*La civilisation primitive en Italie depuis l'introduction des métaux*, Stockholm 1895-1910, text vol. col. 312, plate vol. No. 60), there is reference to a pair of Celtic horn-like metal decorations with riveted edges that were part of the "Fonda Baratela," objects found in the ruins of an Etruscan temple near Este (province of Padua) in 1880-81.

80. The suggestion made earlier (see above and note 32) about the possibility of some black African influence in the making and use of trumpets by the Greeks has another parameter with respect to the manufacture and use of the many Celtic side-blown cast bronze trumpets that were found in Ireland. As Sachs noted (*Hist. Mus. Instruments*, 1940, p. 48), side-blown trumpets were "common among the South American Indians and the African Negroes. . . . They also existed far away in Ireland during the bronze age and, as we know of prehistoric relations between northeastern Africa and Ireland, this otherwise incomprehensible fact is not miraculous." What Sachs did not moot was the possibility that the influence could well have worked the other way. After all, the basis of side-blown trumpets is largely on account of the instruments having been made of elephant tusks (or animal horns) where, in order to maintain the integrity of the tusk, an opening can only be made farther along away from the tip to that region where the tusk is no longer a solid mass of dentine but where the pulp cavity begins (many animal horns and some shells have comparable anatomical structures which require a blow hole on the side rather than on the end). Inasmuch as elephants were employed so extensively for warfare by the Romans, Carthaginians and others before the Christian era, there must have been an abundance of ivory that was used for a variety of purposes, not in the least for oliphants and comparable signal horns.

81. During the final conflict between the Romans and Celts (Gauls), when hordes of the latter invaded Northern Italy in 225 B.C., Polybius recalls (*The Histories*, Scott Kilvert trans., II/29) how the Romans were "dismayed by the splendid array of the Celtic host and the ear-splitting din" from the "countless horns and trumpets being blown simultaneously in their ranks." And, "as the whole army was also shouting its war cries, there arose such a babel of sound that it seemed to come not only from the trumpets and the soldiers but

Etruscans, might have depended upon seafaring middlemen like the Phoenicians. Some mention ought therefore to be made about this other possible route by which the trumpet may have travelled from the Middle East to Southern Europe. It is one but little researched and rarely mentioned by cultural historians. For as Roberto Suro wrote in his report on the Phoenician exhibit at Venice (in the Palazzo Grassi) in 1988, entitled "A neglected civilization gets its due in Venice,"<sup>82</sup> "Few history textbooks teach much about the Phoenicians than their invention of the first phonetic alphabet and the virtual disappearance of their civilization after the Romans destroyed Carthage in 146 B.C." Quoting from Sabatino Moscati, the scientific director of the exhibit, the report notes that the Phoenicians "were a major civilization that produced an original synthesis, bringing many Oriental elements into the Mediterranean. Even though they ended as the vanquished, not the victors, they exercised an influence we still feel today." Unfortunately for the Phoenicians, the historical record is, as Suro concluded, "primarily from the pens of foes and rivals who praised their skills as navigators and craftsmen but often depicted them otherwise as barbarians." The Phoenicians who settled North Africa and founded the city of Carthage were either already in possession of the necessary skills of trumpet-making and playing, or developed them soon after. The most substantial evidence of their knowledge for an efficacious military use of trumpets, very much like that reported of the Romans, is to be found in Livy's account of the Punic Wars. No doubt the Phoenicians before that time already had a well-developed military science that included the skillful use of trumpets, as did their Etruscan allies.

After the fall of Lydia in 546 B.C. there was considerable agitation in the Western Mediterranean due to Greek and Phocaeen incursions, not the least of which was the founding of the city of Marseilles (Massilia) by the Phocaeans and the establishment of Greek colonies on Corsica. The upshot of these intrusions into the political-economic spheres of both the Etruscans and the Phoenicians of the west, i.e. the Carthaginians, was an alliance of the two with their combined fleets having engaged the Phocaeans in c. 535 B.C. But the Etruscans, Carthaginians and the Greeks themselves were losing ground to a new and highly aggressive adversary, the Romans, who, over the next four centuries were to take on the Etruscans, the Greeks, the Carthaginians and the Gauls, with the result that they not only became masters of their own house but by 146 B.C. rulers of most of the western Mediterranean, North Africa, Sicily, Macedonia and Achaia. It is obvious from the accounts of Livy and others that during all this strife-ridden but momentous period the use of trumpets was virtually universal. Trumpets of one kind or another were used for military purposes on both land and on the high seas by all the principal combatants, from the Persians and Seleucid Greeks in the East, the

---

from the whole surrounding countryside at once.'

There are several surviving representations of the Celtic *carnyx*, of both the large, *cornu*-like type of instrument, as well as the shorter and, presumably, more ubiquitous kind, not unlike the later *lituus* II of the Romans. A third type of Celtic *carnyx* is uniquely found reproduced on the Gundestrup silver kettle, which dates from the end of the second century B.C. The three nearly identical instruments shown on this vessel (which is preserved in the Prehistoric Department of the National Museum at Copenhagen) are remarkably like the Ethiopian *dinke*, which is also played several at a time (see Figs. 7 and 8).

82. NYT, March 15, 1988.

musical instruments, military tactics and technology.<sup>86</sup> This is unfortunate. The more so from our perspective, inasmuch as the Roman Empire of the East not only perpetuated many of the older traditions of Latium, but appears to have transmitted various aspects of Roman civilization to the so-called barbarians. There is no doubt, in this author's mind at any rate, that the Eastern Roman Empire of Byzantium was as significant in perpetuating Roman traditions in the Aegean, Levant, and Asia Minor as Latium and its legions had been in Northern Europe.

Despite their ubiquity throughout much of the civilized world and, what is more, over a period of many centuries, there is surprisingly little surviving artifact evidence for Roman trumpets. What survives includes an imperfect example of a 1st-century *cornu*<sup>II</sup> (or *tuba curvam*) preserved at Naples and an earlier type without a flaring bell at Rome; a somewhat intact specimen of a *lituus*<sup>I</sup> in the collections of the Vatican Museums;<sup>87</sup> examples of the *lituus*<sup>II</sup> are to be found in Poland, England and Germany;<sup>88</sup> parts of a *cornu*<sup>II</sup> are preserved in the British Museum; and there are a number of individual specimens of what appear to be *tuba* and *cornu*<sup>II</sup> mouthpieces preserved in various European collections, some having been misidentified as medical devices for giving enemas!<sup>89</sup> There is, of course, a relatively greater amount of surviving iconographic and other representational evidence.<sup>90</sup> But whereas the amount of surviving artifact and representational evidence for Roman trumpets is quite small by comparison to estimations of what the actual numbers of instruments and players were, the documentary evidence for their existence and use is quite another matter. From the beginning of the republican period to the latter days of the Eastern Roman Empire,

---

86. One of the few studies to deal with the military establishment of the Roman Empire of the East is the work of F. Aussenances, *L'armée byzantine à la fin du VI<sup>e</sup> siècle d'après le Strategicon de l'empereur Maurice* (in the series *Bibliothèque des Universités du Midi*, fasc. XIV), Bordeaux, Grenoble, etc. 1909.

87. See Fig. 6.

88. The Saalburg *lituus* is shown in Fig. 9.

89. For many particulars concerning the whereabouts of the surviving artifact evidence for Roman brass instruments, see Marlies Klar, "Musikinstrumente der Römerzeit in Bonn," in *Bonner Jahrbücher: Jahrbücher des Vereins von Altertumsfreunden im Rheinlande*, clxxi, 1971 and Maria E. Ginsburg Klar, "The archaeology of musical instruments in Germany during the Roman period," *World Archaeology*, xii, No. 3, Feb. 1981. The most egregious misidentification of a Roman trumpet mouthpiece is the one cited as a "Rectal Clyster" in John Stewart Milne's *Surgical instruments in Greek and Roman times* (Oxford 1907, Pl. XXXVIII, No. 2, with a ref. on pp. 106-7), the object being correctly cited as a *cornu*<sup>II</sup> mouthpiece in *Römische Legionen in Helvetien* (from the Schweizerischen Landesmuseum, Bern), p. 23 and fig. 3. Ralph Jackson, Keeper of the Department of Prehistoric and Romano-British Antiquities at the British Museum, to whom I am most grateful for all this information, has noted that another formerly misidentified *cornu*<sup>II</sup> mouthpiece (sometimes referred to as a "cannula") is the one from Caerwent preserved at the Newport Museum in Wales (see Fig. 10).

90. For such comprehensively illustrated works, see, for example, Inez Scott Ryberg, *Rites of the state religion in Roman art*, Rome (Amer. Acad.) 1955; *Die Reliefs der Traianssäule, herausgegeben und historisch erklärt von Conrad Cichorius* (two vols. of plates, three of text), Berlin 1896-1900; and K. Lehmann-Hartleben, *Die Trajanssäule*, (i text, ii plates), Berlin 1926.



Fig. 7: New York, Museum of Natural History (photographic archive): Ethiopian *dinke*.



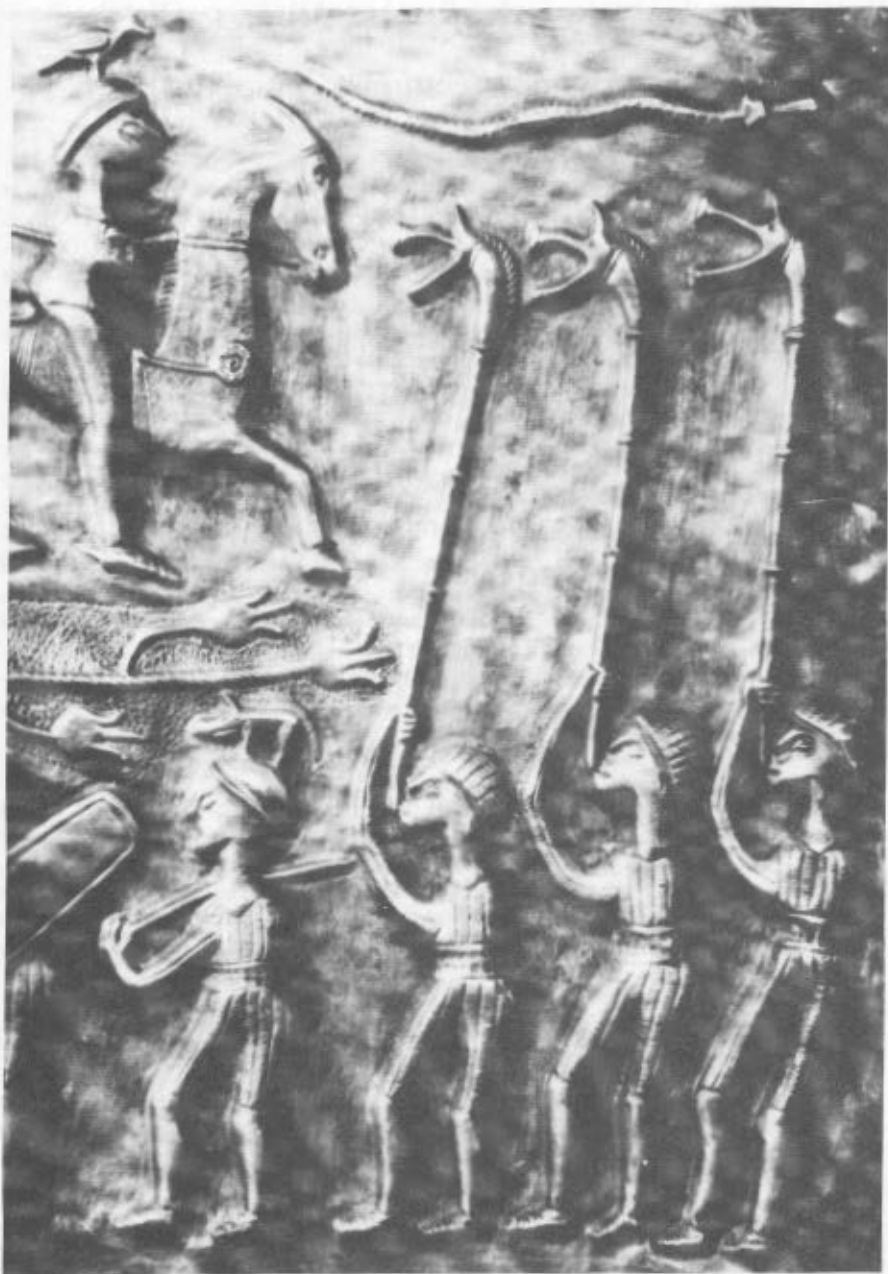


Fig. 8: Copenhagen, Nationalmuseet: Gundestrup silver kettle with detail showing the long form of Celtic *carnyx*.

Phoenicians from the Levant to Carthage<sup>83</sup> and beyond the Pillars of Hercules (Straits of Gibraltar), to the Etruscans, the Celts (Gauls), and, not in the least, the Romans.

## The Romans and the proliferation of trumpets in the ancient world

There were at least eight discriminate species of trumpets used by the Romans. From the primitive exoskeleton and animal horn *buccina* and *cornu*<sup>I</sup> as well as the borrowed Etruscan metallic *lituus*<sup>I</sup> and *cornu*<sup>II</sup> during Rome's early days as a kingdom and thereafter as a republic, to the imperial age with the added use of the *tuba*, *lituus*<sup>II</sup>, *cornu*<sup>II</sup> (or in some instances, what appears to have been a *tuba curvam*<sup>84</sup>) and *bucina*, the Romans made the most extensive use of trumpets of any known civilization before their own and up until the beginning of modern Europe. Most uses of the trumpet by the Romans were, predictably, for military purposes.

The evidence for the use of trumpets by the Romans is extensive, and, besides several special studies,<sup>85</sup> one of the best broad-brush treatments of the subject is to be found in Günther Wille's comprehensive *Musica Romana; die Bedeutung der Musik im Leben der Römer* (Amsterdam 1967). Wille, of course, does not limit his discourse to trumpets only. He includes well-annotated discussions of other instruments also, as well as for singing, theatrical music and music theory up until the era of Boethius and Cassiodorus. Unfortunately, Wille's study does not include any appropriately relevant and detailed discussions of surviving artifact evidence of Roman trumpets, mouthpieces, metal technologies, etc.; nor does he follow the history and use of the trumpet in the post-Western Empire (after the 5th century) in Byzantium. Investigations of this latter aspect are long overdue. For reasons that are not entirely explicable, the Eastern Roman Empire of Byzantium is frequently omitted in studies dealing with the history of

83. In Appian's *Roman History* (VIII/i, 96) there is a description of Carthage and its harbors. Appian notes that the harbor master ("admiral"), whose building was on a small island at the entrance to the anchorage at Carthage, gave signals to the ships by the sounds provided by his trumpeter. In light of other historical sources, we may suppose that the ships made reply with the sounds of their own trumpeters, inasmuch as shipping since that time, particularly capital ships, appear always to have had trumpeters as part of the crew.

84. Many of the earliest *cornu*<sup>ae</sup>, both of Etruscan as well as pre-imperial Roman origins, appear to end as a truncated cone, without a flaring bell section. The later ones, those seen on Trajan's Column, for example, have tapered bell sections terminating in a flare with some kind of hyperbolic curvature, very nearly the same as the tapers and curvatures of Roman *tubae* from the same period. Notwithstanding such variables as the use of different mouthpieces and a curved air column as compared to a straight one, there should not have been profound differences in the sound spectra between the two varieties, i.e. between a *tuba* and the later type of *cornu* or *tuba curvam*.

85. Besides the several specific and highly informative articles on Greco-Roman instruments in the classical lexicons of Daremberg and Saglio or Pauly-Wissowa, there are such special studies as Günter Fleischauer's "Bucina und Cornu" in *Wissenschaftliche Zeitschrift der Martin-Luther-Universität Halle-Wittenberg*, July, 1960, and Curt Sachs, "Lituus und Karnyx," in *Festschrift zum 90. Geburtstag Gr. Exzellenz des Wirklichen Geheimen Rates Rochus Freiherrn von Liliencron . . .*, Leipzig, 1910.

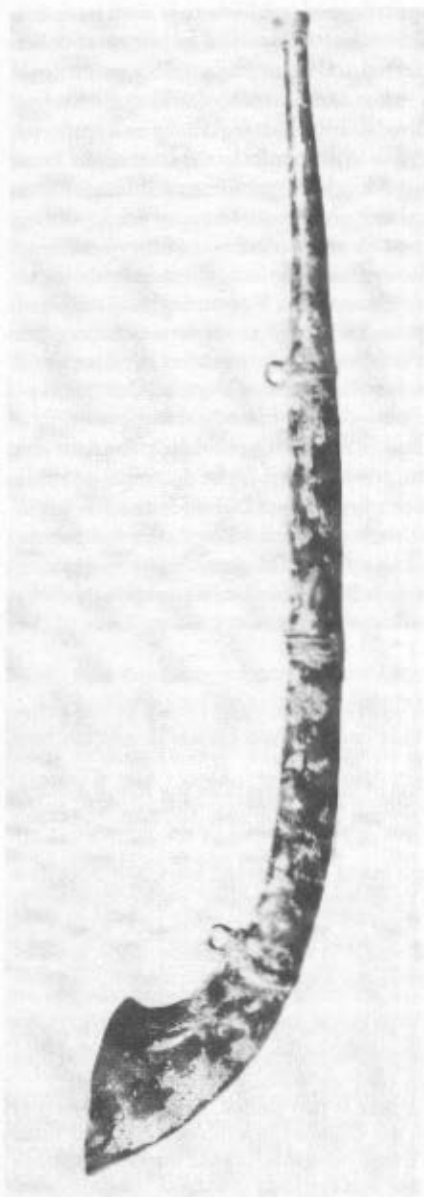


Fig. 9: Bonn, Rheinisches Landesmuseum: Roman *lituus* (the so-called Saalburg *lituus*II) found in the Rhine River near Düsseldorf during dredging operations.



Fig. 10: Newport (Gwent), Newport Museum and Art Gallery: Roman *cornu*II mouthpiece from Caerwent (Venta Silurum) in Wales.

there are at least 52 authors from classical antiquity known to this writer who have left a variety of documentary sources in Latin and Greek that mention in one or another context the use of the instruments already referred to.<sup>91</sup> No doubt many more such sources will be discovered in due course. But what is known so far is sufficient to conclude that there must have been many hundreds of Roman legionary and imperial trumpeters at any one time from the era of the Punic Wars until the decades of the First Crusade. And doubtless thereafter the number and kinds of trumpets used for military and/or ceremonial purposes during any particular period in the various principalities of Europe, in the far-flung Islamic territories, and in what remained of the Byzantine Empire was very great indeed. And however inconclusive (so far), there is evidence to suggest that when some trumpeters died, notably those of the Roman legions, they had their instruments buried with them.<sup>92</sup> This was undoubtedly an ancient practice, one that was apparently known to Virgil, inasmuch as he mentions that after the death and cremation of the Trojan trumpeter Misenus, the faithful friend of Aeneas, the "tools of the hero's trade, both oar and trumpet," were placed with his ashes and buried in a tomb at Misenum.<sup>93</sup> If this was, in fact, a general practice, it would help explain the paucity of surviving instruments.<sup>94</sup> It would, moreover, shed light on some possible allusions to a trumpeter's instrument having been broken up and added to his inhumated (or cremated) remains. The evidence for this is to be found on 1) the tombstone from Mainz of the German imperial legionary trumpeter Sibbaeus, 2) the tombstone from Carnuntum of the trumpeter C. Valerius and 3) the tombstone originally from Cologne but now preserved in the Musée Gallo-Romain at St. Germain-en-Laye of the First Legionary trumpeter C[aius]. Vetieni[us].<sup>95</sup>

---

91. An annotated source inventory of all Greek and Roman authors known to this writer who have mentioned the use of trumpets in various contexts will appear at another time and place.

92. For a discussion of grave goods and mention of such aspects as the *funus militare*, see J.M.C. Toynbee's *Death and burial in the Roman world*, Ithaca 1971, p. 52ff. and Vegetius, *Epitoma rei militaris*, Bk. II.

93. Virgil, *Aeneid* VI, the story of the death and burial of Misenus, lines 156-235. The quotation is from the English prose ed. of James Lonsdale and Samuel Lee, London 1929, pp. 162-4. In the critical ed. of *The works of Virgil* by John Conington (vol. ii, London 1884/Hildesheim 1963, p. 455) it is suggested that, "in the strict sense," the arms of Misenus "appear to have been burnt with him," while his oar and trumpet were buried with his ashes.

94. If deceased Roman trumpeters were in fact, interred with their instruments, it would explain the discovery of buried trumpets (or trumpet fragments), the sites of which may well have been where the trumpeters themselves (or their ashes) were laid to rest.

95. The first and second sources show *tubae* broken in two pieces, the third shows only the upper part of what is assumed to have been the covered mouthpiece end of a *tuba*, though some scholars, the earliest having been Behn, have interpreted the carved image to be a "römische Tamburmajorstab." See Brigitte and Hartmut Galsterer, *Die römische Steininschriften aus Köln* (vol. ii of the *Wissenschaftliche Kataloge des Römisch-Germanischen Museums Köln*), Köln 1975, No. 206, pp. 52-3 and Pl. 44. See also Otto Doppelfeld's catalogue *Römer am Rhein*, Köln 1967, pp. 173-4. I am most grateful to Stefan Neu, an archaeologist in the Römisch-Germanisches Museum at Köln, for his many kindnesses, especially during my visit in the winter of 1986 and for taking the trouble to answer my several subsequent letters of enquiry.

It is certain that the idea for and use of metal tubular trumpets was adopted by the inhabitants of the Roman Empire north of the Alps. Judging from the few surviving tombstones as there are, as well as preserved copies of funeral monument inscriptions<sup>96</sup> and the comments of Roman historians like Tacitus, there were many German legionary trumpeters.<sup>97</sup> The fact that images of the double-folded *bucina*, of a form nearly the same as most military trumpets in the Renaissance and thereafter,<sup>98</sup> are found on the tombstones of German legionary trumpeters more than suggests that the trans-Alpine natives of the imperial Germanic provinces knew what such instruments were for and how they were played. Furthermore, we may reasonably conclude that such instruments were made by skilled metalsmiths in or near those regions, smiths whose metallurgical abilities are well documented and who assuredly passed on their skills from one generation to the next in the usual and oldest method known: the traditional relationship of master and apprentice. It is by such a relationship that many skills and trade secrets managed to outlast the disintegration of the Roman Empire of the West, having survived in the numerous *castra* and tribal villages along the Rhine and Danube, and wherever else Germanic smiths carried on their metal-working crafts long after the legions had disappeared from their trans-Alpine outposts.<sup>99</sup>

The idea that the Roman empire collapsed all of a sudden and with little if any persistence of long-established Roman traditions among the Gauls and the Germano-Frankish peoples north of the Alps is a fiction. Many aspects of Roman technology, military tactics and architectural skills did persist.<sup>100</sup> There was change, of course.

---

96. See the *Corpus Inscriptionum Latinarum (CIL)*, 1863-

97. As Maria Ginsburg-Klar has rightly observed ("Archaeology of musical instruments in Germany"; see note 7), and for historically obvious reasons, "all the known important metal wind instruments of the Romans are represented in Germany." The exoskeleton *buccina* is also represented, but probably not so much as having been a sound source, rather as a visual emblem or for its traditionally symbolic value associated with the gods of the sea (Triton, for example) and the soul's journey after death.

98. See Figs. 1 and 2.

99. Helmut Nickel, the Curator Emeritus of Arms and Armor at the N.Y. Metropolitan Museum of Art, has made the following astute observation: "The most treasured of weapons of a Germanic warrior was the sword (*spatha*); beautifully pattern-welded blades, whose surface markings evoked comparisons with dragon skin or twisting snakes, were produced in the Rhinelands, where mythical smiths, such as Wayland or Regin, to whom Siegfried once was apprenticed, were located, and where the cutlery center of Solingen still flourishes" (from "Arms and armor," in *The Arthurian encyclopedia*, New York 1986, p. 16).

100. Those who would like us to believe in the sudden demise of the Roman Empire usually fail to mention the continuing, however evolving traditions of Roman trades and technologies. There were, moreover, the late Roman and Byzantine guilds, from organizations of bakers, barrel makers, butchers, cheese makers, carpenters and metal workers to gold beaters, weapons makers and such groups as the Roman *collegium* of ivory carvers—the list is formidable. One of the best treatments of the subject is still Albert Stöckle's *Spättrömische und byzantinische Zünfte . . . (Klio, Beiträge zur alten Geschichte, ix, Leipzig 1911)*. Stöckle shows (p. 67ff.) that the relationship of the master-apprentice was by no means an invention of Europeans during the Middle Ages. Furthermore, the idea that limitations on the number of qualified members of a particular guild to restrict supply in order to keep prices high was an invention of European capitalism is quite erroneous.

Without the great numbers of men provided by the legions, who raised and maintained most of the large works (fortifications, bridges, walls, roads, etc.), and well beyond the borders of Italy, there was a noticeable decline in the scope and scale of such building projects.<sup>101</sup> And with the legions went a vast array of concomitant trades: smiths, fletchers, leather workers, and so on, many of whom had been under a central authority and had military status,<sup>102</sup> carrying on their manufacturing according to tried and tested patterns and long-established technological methods in some 37 arsenals or arms factories (*fabricae*), which were "scattered throughout the Empire."<sup>103</sup> But much of all this industry did rub off on the colonials and inhabitants of those regions occupied or strongly influenced by the Romans. As Derry and Williams have said,

Skills that had been practiced in Roman Gaul survived in Merovingian France, and there were some Syrian experts working in western Europe, while by the eighth century there were books in circulation describing Byzantine skills. Great skill was expended on the forging of swords and the decoration of their handles and scabbards. The most remarkable surviving product of the age is a type of pattern-welded sword. . . . Such welding required great skill, and the works of Burgundian and Frankish smiths were even imported by the Arabs.<sup>104</sup>

---

101. The Roman legions spent a considerable amount of their time as construction workers and civil engineers. The notion that the legions were constantly engaged in fighting or perpetually on the march is not only a hopelessly romantic fiction, but pays little credit to their enormous skills and achievements in raising much of the significant works still to be seen today. But the reason for the gradual decay and eventual abandonment of the Roman roads in so many parts of Europe was not so much due to the legions having disappeared but, as modern industrial countries like the United States are beginning to learn, because of the enormous expenses in their upkeep (see Lynn White, "Technology in the Middle Ages," in *Technology in Western Civilization*, i [ed. M. Kranzberg and C.W. Pursell, Jr.], New York and Oxford, 1967, pp. 66-7).

102. For the increasing control of imperial authority that was exercised over the guilds, see Stöckle, *Spätromische und byzantinische Zünfte*, and the succinct remarks of George Ostrogorsky, *History of the Byzantine State*, New Brunswick 1969, pp. 25-34.

103. See Philippe Contamine, *War in the Middle Ages* (trans. Michael Jones), Oxford 1984, p. 5ff. and note. For indices of the many imperial arsenals and centers of Roman technology and manufacture, which produced a considerable amount of the armaments, accoutrements, etc. of the Roman army, see the *Notitia dignitatum*. Updated from year to year, this was an official register of the various offices, other than municipal, that existed in the Roman Empire. The primary source consists of two such *notitiae*, the one for the Empire of the East (the *Notitia Orientis*), the other for the Empire of the West (the *Notitia Occidentis*). Both registers name the various arsenals in the eastern and western precincts of the Roman Empire at the time the one surviving source was compiled, i.e. around A.D. 402 (see the edition of Otto Seeck published at Berlin in 1876). A translation of both registers appeared in the series *Translations and reprints from the original sources of European history* (Univ. Penn. Dept. of History), vi (series for 1899), Philadelphia 1900. For a historical summary of the *Notitia* . . . and plausible arguments for the dating of the primary source, see J. B. Bury, "The *Notitia Dignitatum*," *Journal of Roman Studies*, x, London 1920, pp. 131-154. See also Dietrich Hoffmann, *Das spätromische Bewegungsheer und die Notitia Dignitatum*, Düsseldorf (c. 1969).

104. T. K. Derry and Trevor I. Williams, *A short history of technology*, Oxford 1982, p. 131.

It is still fashionable to regard the centuries immediately following the collapse of the Roman Empire in the West as a "Dark Age," an era when all the inhabitants were illiterate barbarians living either as nomads or in caves and mud huts. But as Lynn White observed, "The traditional historical picture of the Middle Ages (roughly from the 5th century A.D. to the mid-15th century) has been one of cultural decline, particularly in the early Middle Ages. These centuries, from the 5th to the 9th, have therefore sometimes been called the Dark Ages. Yet such a view of the Middle Ages and even of its early period, is false when viewed from the standpoint of the history of technology."<sup>105</sup> It might be of some interest to point out that these so-called backward and uncivilized people not only had a flourishing culture of their own, but had, in many instances, taken the best of technology and craftsmanship from the Romans, often adding their own skills, innovations and refinements, particularly in metal-working. As Derry and Williams also noted, the most interesting uses the early medieval craftsmen made of metals, notably during the era of Carolus Magnus, was in the manufacture of tubes and in casting. With respect to the former, there was the erection of church organs with metal pipes made of copper or bronze, doubtless based on one or more prototypes from Byzantium, whence the earliest medieval organs installed at Aachen (as well as Metz and elsewhere) are said to have been imported.<sup>106</sup> Some of these organs were big, even by some modern standards. The one at Winchester, for example, is said to have had up to 400 bronze pipes with an air supply provided by 26 bellows.<sup>107</sup> As far as the technological skills required for the latter, i.e. in casting, medieval northern European metal workers produced a great variety of objects. Of these, church bells are the most impressive, certainly from the standpoint of their manufacturing technology, i.e. of the implied furnaces, machinery and tools that would have been necessarily required. Most of these were cast in bronze and began to make their appearance from the beginning of the 8th century. All of which presupposes, in the first instance, great expertise in the identification, selection and smelting of metal ores, and, with no less skill, the working and finishing of the different metals into their final shapes.<sup>108</sup> And not just bells. If there was no other surviving evidence for the metallurgical expertise of early medieval northern Europeans, then the impressive achievements in cast bronze still to be seen in the Cathedral of Hildesheim would be testimony enough to the consummate skills of some unknown 10th-, early 11th-cen-

---

105. White, "Technology in the Middle Ages," p. 66.

The Merriam-Webster definition given to *Dark Ages* is that period applied to all, "or, more often, to the earlier part" of the Middle Ages "because of its intellectual stagnation." For many who subscribed to such a view, "intellectual stagnation" should be understood as a want of ecclesiastical writings for the Church of Rome. From the standpoint of what is now known of the history of technology, Byzantine social and military history, Arabic writings, and the development of Northern European institutions, "Dark Age" is hardly applicable anymore.

106. See Notker's life of Charles the Great (*De Carolo Magno*), English trans. by Lewis Thorpe, *Einhard and Notker the Stammerer: Two lives of Charlemagne*, Harmondsworth 1969 (1983), pp. 143, 195.

107. Derry and Williams, *Short History of Technology*.

108. It should be noted that the Celts had produced remarkable lost-wax castings long before the Christian era. Some fine examples being the many side- and end-blown bronze trumpets found at various sites in Ireland.



Fig. 11: New York, Metropolitan Museum of Art: Greek and Roman vases, fragment of a 4th-century B.C. Apulian painted volute-krater showing a Greek *salpinx* as a prefiguration of a Roman *tuba*. (Note that the *salpinktes* holds a *caduceus* in his left hand.)



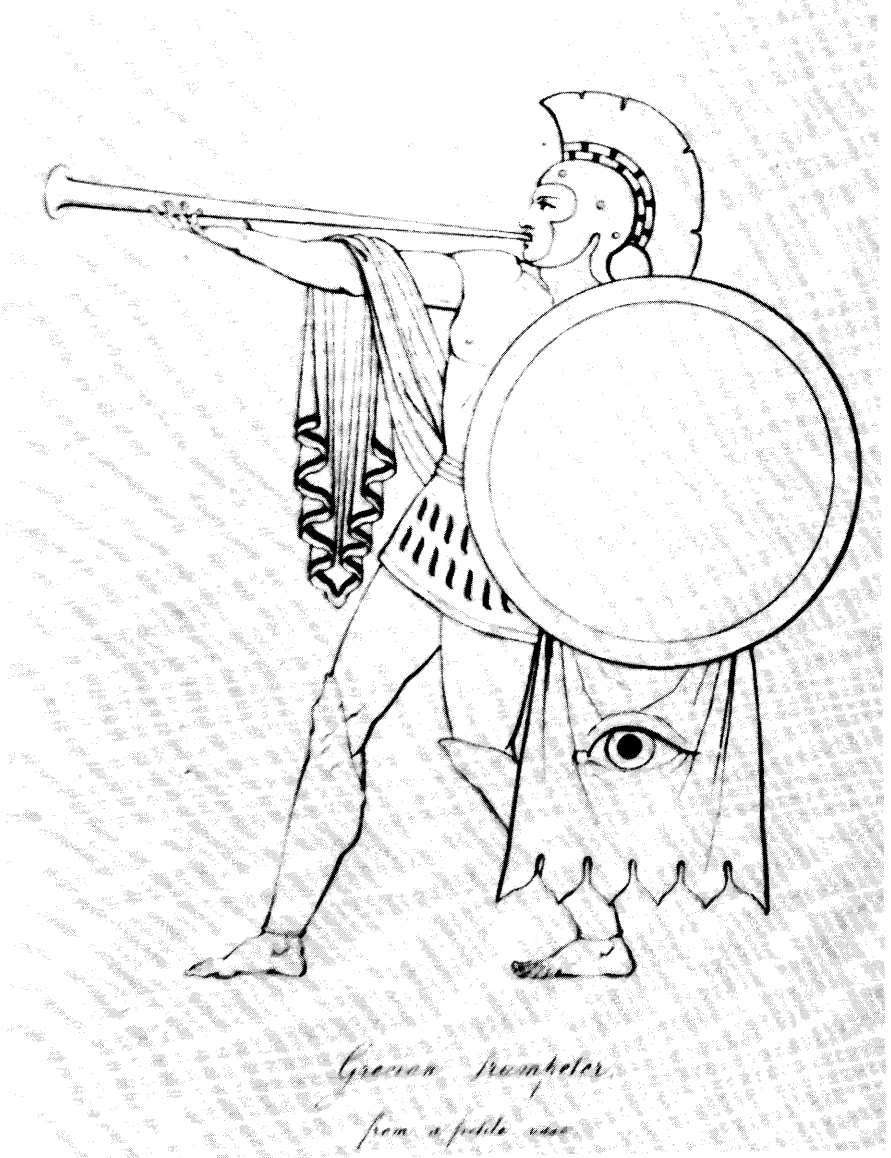


Fig. 12: From Thomas Hope, *Costume of the ancients* (London 1812): Rendering from a fictile vase painting of a Grecian trumpeter blowing a tuba-like *salpinx*.

ture German metallurgists. Not only is the *Christussäule* one of the earliest concrete examples of northern European neo-classicism, but it and the somewhat earlier *Bernwardstür*, which bears the date "M•XV" (the monumental *Christussäule* is said to have been cast some five years later), are the ever-abiding testimony for the extraordinary metallurgical skills of the Germans and the implied mining and smelting furnace technologies needed for such large-scale work, work more usually associated with the first glimmerings of the Industrial Age than with the end of the 10th century!

No. The traditional view of the post-Roman to early-medieval period of Europe is certainly flawed when looked at from the standpoint of technological history. There was indeed a continuity of technology from the Roman world into the Middle Ages. As Lynn White concluded,

. . . any decline in technology in the early Middle Ages was more apparent than real. As we have seen, a technology is responsive to social needs; the needs of the psychologically urbanized and politically centralized Roman Empire differed from those of the agrarian and politically decentralized states which arose out of the ruins of the Empire in the West. But technical skills seem to have diminished in no significant way. Instead, the changing conditions in the West stimulated technological advance there.<sup>109</sup>

### Trumpets, technology and the 'Dark Ages'

In his *Mohammed and Charlemagne*, Henri Pirenne proposed that the end of the world of classical antiquity had been delayed until the 7th century,<sup>110</sup> and that the resettled tribal people of the 4th to 6th centuries had managed to preserve those political institutions that were useful "and did not therefore deliberately destroy classical civilization."<sup>111</sup> Moreover, it has been suggested that Pirenne showed that "the Germanic invaders also made a determined effort to preserve classical culture in all its forms—a goal reinforced by the Church, which attempted to do the same."<sup>112</sup> But Pirenne spoke of political institutions; he devoted very few words to technology, metal-working skills, carpentry and the host of concomitant trade secrets, working methods and the other highly developed crafts needed for the construction of houses, churches, ships and so on. After posing the question, "What did this Roman empire in its death throes transmit to its heirs?" Derry and Williams reply that there was "more than might be expected. Every one of the barbarian peoples, except perhaps the Huns, had long been in contact with the empire through trade; the finds of Roman coins as far away as northern Scandinavia and central Russia bear silent witness to this. Moreover, the barbarians had for centuries entered the empire and sampled its economy as mercenary

109. White, "Technology in the Middle Ages."

110. Trans. of the 10th ed. in French, London 1939.

111. Richard Hodges and David Whitehouse, *Mohammed, Charlemagne and the origins of Europe*, London 1983, pp. 3-4.

112. Hodges and Whitehouse, *Origins of Europe*. Pirenne, of course, was not the first to note that the so-called barbarians who invaded Rome had taken considerable pains to "preserve the monuments of the nation whom they had subdued," to the extent that "an officer was created to protect those works of art, which Theodoric considered as the noblest ornament of his kingdom" (from the *Variae* and *frag.* of Cassiodorus via Gibbon, *Decline and Fall*).

soldiers and pioneer settlers. Further, there was the influence of the Christian state church, its bishops, and its monasteries. In spite of the teachings of Augustine's *De civitate Dei*, churchmen cherished the memories of the material splendors of the earthly Rome. When what were once Roman cities became the centres of episcopal administration among converted barbarians, it was natural for the bishop to preserve what he could of the Roman way of life—if it was only the keeping of an aqueduct in repair or a fashion in the building of a basilica."<sup>113</sup> Thus it came about, conclude Derry and Williams, that the technological traditions that Rome had developed on its own or got from one or another of its many eastern provinces was never entirely lost to the heirs of the Western Empire. There was a persistent and "teasing memory of vanished comforts and luxury, useful skills in Mediterranean agriculture, and, even while the Roman roads fell slowly into decay,<sup>114</sup> a continued employment of fine techniques of metalwork for ornaments and weapons."<sup>115</sup>

The conclusions of Hodges and Whitehouse (as well as a number of other scholars to have recently published their findings) were founded upon a more substantial base of archaeological evidence than Pirenne had. It is their considered opinion that there was no "critical role of Islam in the Mediterranean in the formation of early medieval Europe."<sup>116</sup> A more reasonable and modern perspective is, therefore, "to place faith in gradual change rather than to identify the significant steps and processes involved in the emergence of medieval Europe." Both Mohammed and Charlemagne, conclude Hodges and Whitehouse, "were products of the collapse of Rome," and the "creation and subsequent collapse" of the Carolingian Empire was "a vital force in the making of the Middle Ages."<sup>117</sup> It was, in fact, the collapse of whatever last vestiges of central imperial authority in the 9th century that "proved to be the catalyst to dramatic changes which have ultimately conditioned our world." An important legacy of the Carolingian Empire of the Franks, of that "Renaissance of the ninth century," was the founding of all the post-Roman towns and villages of medieval Europe and the establishment of a "new economic strategy."<sup>118</sup> Besides the abiding artifacts, ideas and surviving technological methods of ancient Rome, which in their persistent utility in sub-

---

113. Derry and Williams, *Short history of technology*, p. 24.

114. See note 99.

115. Derry and Williams, *Short history of technology*, p. 24.

116. Hodges and Whitehouse, *Origins of Europe*, p. 175.

117. *Ibid.*, p. 175.

118. But not just a material legacy. In *The Renaissance discovery of Classical Antiquity* (Oxford 1969), Roberto Weiss notes to what extent the court of Aachen had contributed to both the preservation and transmission of the arts and ideas of late classical antiquity. For while it is true that writers like Tacitus and Lucretius, Propertius and Catullus, "just to give a few leading examples," says Weiss, did fall rapidly "into oblivion after the Carolingian age, only to reappear again with the rise of humanism," Virgil and Cicero, Ovid and Lucan, Persius and Juvenal, Horace and Terence, Seneca and Valerius Maximus, Livy and Statius, "and the list is by no means complete, were always read." This was the very age "when enthusiasm for the antique led even to the accurate copying of illustrated manuscripts of the late Empire . . ." And while there is no primary, artifact evidence for the use of metal lip-blown instruments and their implied manufacturing technology during the era of Carolus Magnus (but there is little hard evidence for a variety of other things that did, in fact, manage to survive from the end of the Roman Empire of the West until the Renaissance),

sequent centuries had been both a continual source of wonder and admiration,<sup>119</sup> there were the many other aspects of Roman civilization enlivened and transformed as a direct result of the Carolingian Renaissance into newer and better implements, methods and ideas, which affected the lives of countless Europeans and the development of that Middle Age before the next and greater flowering of neoclassicism.

Gloom and doom notions about post-imperial, early medieval life in once and former Roman cities (or large legionary garrisons), are off the mark. Many of these large urban and/or fortified areas continue to be mentioned (in some cases frequently so) from the end of the Western Empire right through the so-called Dark Ages. Cities like Colonia Claudia ara Agrippinensium (Cologne/Köln), Londinium Augusta (London), Venta Belgarum (Winchester), Eburacum (York), Lugdunum (Lyons), Parisii (Paris), Lucca, Pavia, Ravenna, Verona and Rome itself were never abandoned. Indeed, as the authors of *Mohammed, Charlemagne and the origins of Europe* conclude, cities like Lucca, Pavia and Ravenna "were unaffected by the gloom of the Dark Age recession."<sup>120</sup> The bases for theories suggesting that post-Roman, pre-medieval urban life disappeared are not supported by recent archaeological investigations. That Rome itself sank into oblivion, as one might gather from so many histories written about medieval Europe, is also a fiction. As Hodges and Whitehouse conclude from such recent archaeologically based studies as that of Richard Krautheimer, "The state of Rome during the Dark Ages is intriguing. Like Byzantium, it continued to be not simply large, but very large, by local standards . . ." <sup>121</sup> And however unclear it remains with respect to the size of early medieval Rome's artisan population, the fact that the city was experiencing a relative boom in the building of monasteries and the erection of other large ecclesiastical buildings during the so-called Dark Ages, suggests that there were skilled craftsmen, albeit religious and/or lay workers attached to particular monasteries or monastic orders. As Hodges and Whitehouse again observed, "Historians believe that the monasteries grew enormously during the course of the ninth century, with the greatest centres like Corbie, St Riquier and St Denys in northern France housing many thousands of monks and lay workers. Of course, how realistic these numbers are has yet to be properly evaluated."<sup>122</sup> Certainly there was considerable shrinkage of the former scope and business for the once bustling economic and administrative centers of impe-

---

there is enough literary and other documentary material to easily conclude that the court of Aachen did resound to the noise of the Franko-German emperor's trumpets. Moreover, it would be easy to conclude that the sounds of trumpets were heard at his Roman coronation on Christmas Day in the year 800, as they were likely to have been heard at subsequent imperial coronations such as that of Conrad II, the Salian.

119. A.G. Drachmann, "[Technology in] The Classical Civilizations," op. cit., pp. 65-6: ". . . most of the elements of machinery used to improve technical devices after 500 A.D. had actually been invented before the fall of the Roman Empire. . . . And, while the Roman Empire declined and eventually disintegrated, its engineering constructions remained as a source of wonder and amazement for future generations, a constant reminder of 'the grandeur that was Rome.'" Anyone who supposes that the engineering skills of the Romans had disappeared with the end of the Empire of the West should note the techniques of construction for such specific projects as the monumental tomb for Theodoric at Ravenna.

120. P. 74.

121. Hodges and Whitehouse, *Origins of Europe*, pp. 72-3.

122. *Ibid.*, p. 85.

rial Rome. But however "modest affairs" they may have become in comparison to the old imperial days, many of these places did persist, their newer and less august role as ecclesiastical centers notwithstanding.<sup>123</sup> But the rich and powerful seem always to persist, regardless of the vicissitudes of invasion, economic collapse and other calamities. And while trade in the Mediterranean sphere was severely diminished after the collapse of the Western Empire and before the revival of commerce in the 8th and early 9th centuries, what was happening in the northwest was "in startling contrast."<sup>124</sup> But more of this at the conclusion of this study.

By the 9th century the Scandinavians, the Saxons, and the Franks needed neither the Arabs nor the Moors to "reintroduce" the manufacture and use of metal lip-blown instruments into Western Europe. The once and popular myth, that nearly all refined aspects of post-Roman Western technology had to be imported by the "uncivilized barbarians" from the so-called culturally superior Islamic invaders of the Middle East, North Africa and southern Spain (who were, it must be noted, mostly illiterate nomads), has gradually given way to the realities of historical and archaeological evidence. This notion was so convincingly promulgated by adherents to that Viennese *Kulturkreislehre* referred to earlier that it became almost a canon of Western historical thinking. Certainly, from the point of view of influential musicologists like Curt Sachs and others of his persuasion during the early decades of this century, there has been a non-European, Middle Eastern ethnocentricity in theories and explanations to account for the "introduction," rise and development of musical instruments in the West.

More so than other medieval European cultures, the Franks (Mervings) and a number of other Germanic people had employed trumpets (or their close relative surrogates) since the time of the Western Empire, having presumably taken over the function, use and manufacture of metal lip-blown instruments from their once and former Roman overlords. Amalgamating these aspects with Christian ritual (and the necessities of survival), the Germans, to a greater extent than any of their neighbors, maintained both the religious and the military traditions of the trumpet, with a curious intermixture of both in the long-established office of the night watch. Performing their vital office from the oldest towers and walls of countless medieval towns and outposts, many of which had been either former Roman *castra* or forts established during the Carolingian era, the German Wächter<sup>125</sup> were not only part of the hierarchy that or-

---

123. The *History* of Gregory of Tours depicts the era following the invasions of the Western Empire in the 5th century as one of decay and the disintegration of Roman institutions. The archaeological evidence, as Percival (*The Roman villa*, London 1976) as well as Hodges and Whitehouse (*Origins of Europe*) conclude, does not entirely support Gregory's contention. However incomplete, what the archaeological record tends to suggest is that Roman institutions did persist, albeit in a degraded form. The growth of local nobility in the western kingdoms was indeed undermining central authority, but the dispersion of power lends more credence to the idea that local centers, especially those that had been the provincial cities during the days of imperial Rome, began flourishing and taking on much greater importance as regional centers than they had in former times.

124. Hodges and Whitehouse, *Origins of Europe*, p. 75.

125. In England, *wait*, a word that, in its old spelling, *waight*, reveals its linguistic and historical propinquity to the common OHG/Middle German word for watch/watchman, having sounded in its pronunciation very much the same as the German-Saxon *Wächter*/er.

dered the hours and lives of men, but epitomized the ever-present need there once was to invigilate for the outbreak of fire from within and the invasion of enemies from without a town's all-embracing walls. Many of these towns had been built on the sites of Roman garrisons, and it seems probable that the same priestly status of the once and former Roman legionary *tuba*, *cornu* and *bucina* players (many of whom, certainly those in legions stationed along the Rhine and Danube, were ethnically and linguistically Germanic in their origins)<sup>126</sup> and the tactical significance of the instruments themselves persisted, both by tradition and necessity, following the disintegration of the Western Empire. The paucity of artifact evidence notwithstanding, it can be demonstrated that the Germans, as Tacitus suggested, learned the lessons their Latin masters had taught them and learned them well.<sup>127</sup>

### Trumpets, Christian Europe, and the Middle Eastern connection

In his overview of *Medieval Warfare*, H. W. Koch writes that "The question has been put why the Arabs were, unlike the Germans, not absorbed into the fabric of Roman culture." Koch then explains that the reason for this was that the Arabs "were in possession of a spiritual power, the Islamic faith. Theirs was not a quest for new lands," or "territorial expansion, but the submission of the world as they knew it to Allah. That submission," writes Koch, "did not necessarily mean the conversion of the conquered, but simply obedience to God and his prophet Mohammed. Religion and national faith are one and the same thing."<sup>128</sup> Koch misses the point completely. By the time the Arabs entered the stage of European history there was little left of "Roman culture" to absorb any large ethno-racial (and religious) population, especially one as large and zealous as that of the Arabs of Islam. After the prolonged and taxing wars with the Persians, Visigoths, Lombards, Slavs, Avars, and the Arabs themselves, there was little that once was the glorious Roman Empire in the East. By A.D. 700, say the authors of *Mohammed, Charlemagne and the origins of Europe*, "the Byzantine Empire was reduced to Constantinople, Asia Minor and a few coastal fringes in Greece and Italy."<sup>129</sup> Furthermore, the Germans (Franks, Gauls, Teutons, Visigoths, Saxons, Burgundians, and other tribes north of the Alps) had been living on or near the borders of the Western Empire for many years, some in actual and profitable contact for generations with Roman outposts along such major Roman routes as the Rhine, Danube and Elbe. And even the Germanic warriors, the Cherusi, Suebi and others, who had been at

---

126. The *tubicen* Andes, for example. See below.

127. See note 3.

128. London 1978, p. 25. This neither jibes with what Ostrogorsky has said (*History of the Byzantine state*, p. 110) nor with what A.A. Vasiliev (*Hist. Byzantine Emp.*, 2nd ed. 1952, p. 208) and L. Caetani (*Studi di storia orientale*, i, iii, Milano 1911-14) have concluded. Vasiliev said that "The great majority of the fighting Arabs consisted of Bedouins who knew Islam only by hearsay. They were concerned with nothing but material, earthly benefits, and craved spoils and unrestrained license. Religious enthusiasm did not exist among them. . . . Unbearable living conditions were responsible for the crushing force with which the Arabs rushed upon the Byzantine Empire and Persia. There was no religious element in this movement."

129. Hodges and Whitehouse, *Origins of Europe*, p. 56.

war with Rome were quick to learn the skills and methods of their well-armed, well-trained and well-organized imperial adversaries. As Tacitus noted in the *Annals*, "The old German unsystematic battle order and chaotic charges were things of the past. Their long wars with Rome had taught them to follow the standards, keep troops in reserve, and obey commands."<sup>130</sup>

In evaluating the impress of the Roman Empire on the peoples of what were to become the kingdoms and principalities of early medieval Europe, it must be noted that many of these tribes had relinquished their young men to the Roman legions. It has already been noted that many Germans had served as auxiliaries in the Roman army. Numerous legionaries in the last centuries of the Western Empire spoke one or another Germanic dialect as their mother tongue and formed a significant bridge between the Latin culture of the south and that of their own regions.<sup>131</sup> As Gibbon observed, "the Germans, who delighted in war, and who found it more profitable to defend than to ravage the provinces, were enrolled not only in the auxiliaries of their respective nations, but in the legions themselves, and among the most distinguished of the Palatine troops. . . . The barbarian soldiers who displayed any military talents were advanced, without exception, to the most important commands; and the names of the tribunes, of the counts and dukes, and of the generals themselves, betray a foreign origin, which they no longer condescended to disguise."<sup>132</sup> Moreover, and as Gibbon noted, the Germans, Franks and other foreign legionaries "were often intrusted with the conduct of a war against their countrymen . . ."<sup>133</sup> Many legionary trumpeters were ethnically and linguistically *Germani*, including one or both of the two whose gravestones display the almost modern double-folded form of the *bucina*.<sup>134</sup> In a word

130. Tacitus, *Annals* II/45, Grant trans. pp. 97-8.

131. See Alexander Riese, *Das rheinische Germanien in der antiken Litteratur*, Leipzig 1892. By citing a large number of original sources as illustrative of the "vorrömische Zeit" and "die Zeit Caesars," to the period A.D. 375, "bis zum Ende der römischen Herrschaft" (and with many entirely appropriate quotes from Vegetius on the Roman use of *tubae*, *cornuae*, and *bucinae*), Riese demonstrates to what extent the Rhein and western Germany were an integral part of the empire and its legionary forces. The number of Germano-Frankish names associated with the military during the last centuries of Roman administration of this vital geographic sector underscores the extent to which the Germans were integrated into the fabric of imperial policies, administration, military operations and strategy. See also Richard Frank's *Scholae Palatinae: the palace guards of the later Roman Empire* (Ph.D. diss. Univ. Calif.), Berkeley 1965, especially pp. 65-70 and 198-201.

132. Edward Gibbon, *The decline and fall of the Roman Empire*, Chapter seventeen (Univ. of Chicago ed., i, 1952 p. 248).

133. Gibbon, *Decline and Fall*.

134. See Figs. 1 and 2. The first monument, a tombstone fragment of an unknown *bucinator*, is from Remagen, now preserved in the Rheinisches Landesmuseum, Bonn, cat. no. 15319. The second, of the trumpeter Andes (whose legionary assignment does not appear as a verbal inscription but from an actual illustration of the *bucina* shown next to the inscribed information), was found at Zahlbach near Mainz and is preserved in the Mittelrheinisches Landesmuseum, Mainz, cat. no. S. 608. The inscription is found in *CIL* (see note 96) XIII 7023. That a Roman trumpeter played a *bucina* as an *equites*, i.e. as a cavalryman, is supported by tombstone inscriptions, as, for example, the one from *CIL* III 3352 *titulum p[osuit] F[lavius] Rufinus eq[ues] buc[inator] coh[ortis] eiusde[m] h[eres] ex t[estamento]*, or *CIL* VI 3179—*P. Ael. Decimianus eq. sing. Aug. bucinator heres*.

and as Koch replied to his own question, "The Germans in the provinces of the Roman Empire were Romanized; not the Arabs."<sup>135</sup> But the aim of the Arabs, writes Ostrogorsky, "was not so much the conversion of men to the new faith as the subjugation of fresh territory and the establishment of their control over the unbeliever."<sup>136</sup>

For the sake of argument, let us assume that the Arabs were not much influenced by the Byzantine Empire; could they have learned the use of metal tubular lip-blown instruments from their defeated Sasanian neighbors to the north in what is today Syria, Iraq and Iran? More than likely trumpets were regularly used by the Persians during their perennial conflicts with the Byzantine Empire and before their subjugation by the Arabs around the middle of the 7th century. It is certain that during the height of the Persian Empire, before Alexander's conquests, and much later, during the Sasanian period, the Persians had recourse to the use of trumpets. A.R. Burn, the author of the important monograph treating of *Persia and the Greeks*<sup>137</sup> from the rise of the Persian Empire to the prolonged conflicts of the Greeks with Darius the Great and his successor, Xerxes, and leading up to Marathon and Plataia, has written to this author noting that the one black-figure plate from Vulci showing an archer-trumpeter and attributed to Psiax (London BM 591) is, in fact, "of a Persian trumpeter with scale armour."<sup>138</sup> Perhaps significantly, if fancifully, the figure is shown blowing his trumpet downwards, "as if conceding defeat?" asks Burn.<sup>139</sup> This is one of two comparable black-figure plates in the British Museum, the one of a Greek *salpinktes*, the other noted by Beazley as being an archer-trumpeter, but with no additional comment about the scale armor and the trumpeter's Persian origins.<sup>140</sup> The two instruments are virtually identical and each is played with a *phorbeia*, the cheek-strap discussed earlier.<sup>141</sup> That Psiax depicted a Persian trumpeter blowing an instrument virtually identical to the Greek trumpeter's *salpinx* can have at least two explanations: the first is that the artist only knew what a *salpinx* looked like and had never seen a Persian trumpet (though having had a Levantine name does allow the possibility that Psiax was familiar with Persian culture); the second is that the Persian trumpet at the time was virtually identical to the Greek, perhaps was an imitation of it—or, possibly, came even earlier and was the basis for the development of the *salpinx*. After all, the Persians, though racially descended from one of the lesser Indo-European tribes of Iran (the Achaemenids) and with strong ties to the Medes in the north, were the direct beneficiaries of the kingdom of Babylonia after the Median dynasty had been ousted by Cyrus (Kurash—the grandfather of Cyrus II, "the great"). The labyrinthine political, dynastic and military con-

---

135. Koch, *Medieval Warfare*, p. 25.

136. Ostrogorsky, *History of the Byzantine state*. For the relationships between the Roman Empire of the East and the Arabs see the comprehensively important work of A.A. Vasiliev: *Byzance et les Arabes*, 3 vols., Brussels 1935-50.

137. Second ed. with a postscript by D.M. Lewis, London 1984.

138. Letter from A.R. Burn of Dec. 11, 1984.

139. Inasmuch as other Attic vase paintings of trumpets do show them being blown downwards, the symbolism suggested by Burn's question would seem to be of doubtful significance.

140. J.D. Beazley, *Attic black-figure vase-painters*, Oxford 1956 (New York 1978), p. 294, numbers 19 + 20.

141. See above text and notes 33 and 34.



nections leading to the establishment of the Persian Empire by Cyrus I in c. 539 B.C. is the subject of the first three chapters in Burn's remarkable study. But for our purposes it is enough to know that the Persians (and their ancestors) had long dwelt in or near the Tigris-Euphrates valley (in the fertile crescent) and were linked with the fate of the older kingdoms whose origins went back to the Sumerians. Knowing this and considering the trumpet's history and its known use previously by the Assyrians, Babylonians and very probably the Sumerians, with a strong suspicion that even the appearance of trumpets in Egypt was likely to have been as a result of their introduction from the East,<sup>142</sup> it does not tax the imagination to conclude that the Persians and their ancestors had been inured to the sound and appearance of trumpets long before their encounters with the Greeks. Moreover, it may well be that the Greeks themselves had learned of the use of trumpets from the same quarter as the Persians had.

The evidence for the existence of Persian trumpets before the Sasanian period is not substantial. The appearance of at least one type of trumpet that may have been used by the Persians at the time of King Darius is suggested by some of the gold objects excavated on or near the southeastern shores of the Caspian Sea, two from what was probably a hoard buried by the Scythians, perhaps around 500 B.C., others from a hoard buried many centuries earlier. The contents of the one hoard were described by Baron Clement Augustus Bode in the report communicated by C.R. Smith, "On a recently opened tumulus in the neighborhood of Asterabad, forming part of ancient Hyrcania, and the country of the Parthians."<sup>143</sup> With this hoard of gold objects were two small trumpets, "weighing together five ounces and a half of gold. They resembled in miniature the trumpets used in Persia at the Nagharkhaneh, or pavillion where music is performed at sunset in honour of the shah." In some respects the objects represented by Bode in Plate XVI with his report seem to resemble a type of fireman's vamp horn or speaking trumpet used in the last century. Three other trumpets made of silver were part of the contents of the earlier hoard and have been described by Erich Schmidt.<sup>144</sup> From this evidence it is difficult to see how such instruments at full scale could have produced anything but the most primitive of musical sounds. It is possible that the objects were not true facsimiles of the actual instruments from the time but stylized representations, and may have been cult objects or a child's toys, as the miniature silver trumpet and other "toy" instruments from the 12th or 13th century appear to have been that were found in the Chancay Valley in Peru.<sup>145</sup> But what may be reasonably deduced from the historical record and the artifact evidence, as meager as it may be, is that the Persians and their Greek antagonists used trumpets and very likely in ways

142. See Fischer, "The Trumpet in Ancient Egypt," pp. 105-6.

143. Published in *Archaeologia*, xxx, London 1844, p. 250.

144. See Erich F. Schmidt, *Excavations at Tepe Hissar Damghan (with an additional chapter on the Sasanian building at Tepe Hissar by Fiske Kimball)*, Philadelphia 1937. The three silver trumpets ("signal horns") were part of the "Hissar III C hoard (I) of the Treasure Hill." The objects date from about 1800 B.C. and may have been of Sumerian origin (see M. Rostovtzeff, "Sumerian treasure of Asterabad," *Journal of Egyptian Archaeology*, vi, p. 4ff.). Two of the trumpets (items H 3225-6) are preserved in the University Museum, Philadelphia cat. nos. 33-21-892 and 33-22-420, one is at Tehran, Iran (item no. H 3224).

145. NYMMA: Three pre-Columbian toy instruments, including a toy trumpet of silver, 4.5 inches long, from the Chancay Valley, Peru c. 1300 A.D.

comparable to their use in the Roman Empire. And not just on the dry land. As early as the end of the 6th and the beginning of the 5th centuries B.C., trumpets were used on the high seas as they would be during the Roman imperial era, the Middle Ages, the Renaissance and during the naval engagements off Port Arthur between the Russians and the Japanese early in this century. Details for the use of trumpets on the high seas will be provided in a forthcoming study from the present writer, but suffice it to say here that trumpets have been of vital importance in the tactics of both generals and admirals in an unbroken historical continuity stretching back over the last two and a half thousand years.

It is at this juncture in history that the evolution of metal tubular trumpets appears to convolute upon itself and the trail runs cold. Some scholars have theorized that metal trumpets came from the East, that the appearance of trumpets in Egypt toward the end of the Second Intermediate Period and their documented use thereafter is thought to have been the result of a process of east-to-west diffusion.<sup>146</sup> Egypt (including Nubia) is the only part of Africa for which there is any historical record for the use of tubular trumpets before the Assyro-Babylonian era in Mesopotamia. Yet, straight end-blown trumpets, as already noted, do seem to have been played by black Africans in the days of Perikles, as they were until recently, until the Second World War, that is.<sup>147</sup>

### Trumpets and the rise of Islam

It is an irony that the very year in which the Byzantine Empire was victorious over the Persians (622 A.D.) was also the year that witnessed the Muslim Hijra (Hegira).<sup>148</sup> It is ironic, for at the same time Heraclius was defeating the Persian Empire, Mohammed was laying the foundations of the political and religious unity of the Arab world which would overrun both the Byzantine Empire and what was left of Persian imperial culture. And though Mohammed's work was, in the words of Ostrogorsky, "undeveloped and devoid of intellectual quality," it was, nevertheless, "full of primitive energy and dynamic in the extreme."<sup>149</sup> Not long after the death of the Prophet the irrepressible force of Islam began to manifest itself in the great exodus of Arabs from their barren tribal lands. The first to suffer in the Arab zeal to "march onwards from state to state," as the Koran demands,<sup>150</sup> were the two neighboring empires: Persia collapsed at the first onslaught and Byzantium surrendered its eastern provinces in just over 10 years after the death of Mohammed. The persistent state of war between the Roman Empire of the East and the Persians had so weakened both that the way was prepared for the Arabs. Following the victories of Heraclius, Persia had been reduced to complete disorder, going from bad to worse as each successive brigand attempted to wrest power from his predecessor. But in the process of destroying the Sasanids the

146. See note 140.

147. See above text and notes 30, 31 and 32.

148. Hijra or Hegira, meaning "the flight," an event commemorated annually on July 15, the traditional, though incorrect, date of Mohammed having fled with his followers from Mecca to Medina in A.D. 622 and adopted by Islam to mark the beginning of the Muslim era.

149. Ostrogorsky, *History of the Byzantine state*.

150. Suras, "The Rending" (*Al-Inshiqaq*), No. 84 in the traditional sequence of chapters in the Koran.

strength of Byzantium had been so sapped that either its will or its resources (or both) were incapable of any sustained conflict with the Arab invaders. Yet, the nomadic Arab tribesmen themselves, having become such a source of consternation to the weakened Roman Empire of the East and having overrun the Persians, were soon to have troubles enough of their own. For during this period the Turks from both the north and the east began their migrations into those decimated eastern lands that once had been part of the Byzantine and Persian empires.

Toward the beginning of the second millennium of the Christian era, there had been considerable ferment among and a widening geographic range for the Turkish and Mongolian nomads of the Eurasian Steppe. Much of this ferment led to a substantial ethnic inundation of the civilized regions of Europe by these barbarian nomads in what had been the heart of the Romano-Byzantine empire. Moreover, the more recently established areas of Islamic culture were also affected, some, as Coles has said, having "suffered terribly from nomad infiltration and conquest," but which, nevertheless, seem to have profited more than the Christian communities "from the upheaval of traditional relationships which the steppe invasions brought in their wake."<sup>151</sup> The consequences of these invasions on the Islamic communities of what had been large areas of the Persian Empire were relatively quick and had definite military implications. For although Islam was capable of "absorbing and incorporating these intruders," what it gained from their more aggressive and refined military science was to prove indispensable in performing what was one of the six fundamental duties of the Muslim faith: the waging of a Holy War or *Jihad*. Islam had absorbed and incorporated the Turks. The Turks had embraced the Muslim faith. But it was largely their more sophisticated military tactics, horsemanship, and the pride in their own peculiar customs, institutions and, most significantly, their own language that kept the Turks apart from the rest of Islam. From the end of the 10th century these newcomers to Islam comprised the majority of Muslim rulers and soldiers. From the 11th to 13th centuries the Turks were the dominant political and fighting force of the Muslim world and "constituted the cutting edge of Islamic expansion into both Hindustan and Christendom."<sup>152</sup> It was during this period also that envy—and admiration—of the obvious wealth and affluent lifestyles of the civilized and largely Christian world began to work various and sometimes ominous effects on the well-established Romano-Byzantine communities of the Mediterranean. Nevertheless, and despite the conclusions of Pirenne, with the decline of the Roman Empire "the Mediterranean did not switch from being a Roman lake to a Moslem one."<sup>153</sup> And as Byzantium began to shrink in size and power as a consequence of the successive intrusions from the several and largely nomadic forces around its borders, the Mediterranean "does not appear to have been the monopoly of any single power."<sup>154</sup>

The admiration—and envy—of the Islamic world for the obvious prosperity and luxury of Byzantine civilization is reflected in both the prolonged (and eventually successful) attempts to possess it and the singular efforts expended to acquire the legacy of

---

151. Paul Coles, *The Ottoman impact on Europe*, London 1968, p. 11.

152. Coles, *Ottoman impact*, p. 14.

153. Hodges and Whitehouse, *Origins of Europe*, pp. 75-6.

154. *Ibid.*

its traditional scholarship. For it was during much of this period that Islam had been transcribing, translating, transmitting and improving upon a considerable body of knowledge and technology of mostly Mediterranean origins—that large legacy of the past, the accumulated wealth of learning from centuries of Greco-Roman civilization, much of which had been preserved as part of the written record in Greek and Latin forming a considerable part of the manuscript books and scrolls kept in church and state archives from Cairo and Alexandria to Constantinople, Rome and a number of other libraries in the Middle East, North Africa, Sicily and elsewhere on or near the Mediterranean. How else had several fundamentally nomadic and primitive groups of people—Arabs, Turks, Berbers, Moors and other Saracenic tribes—managed to acquire such a comprehensive knowledge of classical geometry, architecture, music theory, and numerous other aspects of Greco-Roman science and technology in so comparatively short a space of time? There were, moreover, several other and not mutually exclusive channels through which considerable knowledge had flowed. The Jews had made enormous contributions in medicine and mathematics, particularly in their role as translators; the Sabaeans and Persians had transmitted a large body of learning concerned with cosmology and astronomy, and Turko-Arabic contacts with and conquests in the East, notably in China and India, had contributed much to the acquired knowledge of Islam. During this entire period the trumpet (like Roman siege engines, much metal technology, water wheels, aqueducts and architectural principles) has an unbroken history of use in both spheres of the post-Roman Christian world, as such works as the *History of the wars* of Procopius, the *Chronicle of Theophanes*, the *Strategikon* of the Pseudo-Maurice, and the enormously important history of Joann Skylitzes corroborate, besides that suggested by no small amount of inferential data gathered from documentary, iconographic and artifact evidence of both eastern and western European origins. By the time one begins to see straight and S-shaped tubular trumpets in the manuscript paintings of Safavid Persians, the “normal,” double-folded military trumpet of Nuremberg manufacture was already a fact by more than a century. No. The use of trumpets by the armies of Islam was never an anticipation of their use in Europe. Quite the contrary. What Timurid and Safavid Persian painters and other Islamic artists usually depicted are instruments that existed earlier in Germany, Italy, and elsewhere in northern and southern Europe. Trumpets with an appearance like Roman *tubae* (and usually with several bosses) and others made as an S-shape in a single plane which were depicted in such wonderful MS. paintings as those from the Houghton *Shah-nameh*<sup>155</sup> are to be seen in Italian works of art executed two or more centuries earlier. And such references in Arabic (as there are) to the *buq* appear to be well after the appearance and citations of the varieties of metal tubular *bucinae* already referred to.

In the game of words, their derivations, connections, connotations, and meanings, one has to be careful to know who and what comes first. To have supposed that nearly

---

155. The *Shah-Nameh (Book of Kings)* of Shah Tahmasp, privately owned by Arthur A. Houghton, Jr., is described by Stuart Cary Welch in *A king's book of kings; the Shah-Nameh of Shah Tahmasp* (New York 1972 / 1976). Welch's study reproduces more than 250 paintings from the 16th century manuscript, some of which remarkably depict both straight and S-shaped trumpets associated with Safavid civilization.

a thousand years of the Roman Empire counted for so little when the Arabs began their impact on Western Civilization, or, worse, to have forgotten that there ever was a thousand years of the Roman Empire, is a sad commentary on the otherwise marvellous scholarship of organologists from the early decades of the present century. Yet how is it that the observations of the Arab scholars themselves were overlooked in the pursuit of theories seeking the oriental origins of European brass instruments? It was "the greatest of Muslim historians,"<sup>156</sup> Ibn Khaldûn (d. 1406), who wrote that the *buq* (trumpet) and *tabl* (drum) were unknown to the armies of Islam "in the early days."<sup>157</sup> It was the great Arab teacher of history and *belles lettres*, Abu Sa'id al-Asma'i, too, who wrote in the 9th century that he knew only of the *buq* as a martial instrument of the Christians.<sup>158</sup> Doubtless this information was unknown to European musicologists at the turn of the 20th century. But surely it cannot have escaped the notice of historians and organologists a generation or more ago, their adherence to this, that or another *Kulturkreislehre* notwithstanding, that of the many references to the "Day of Resurrection," when "The Trumpet shall be sounded and all who are in heaven and earth shall fall down fainting, except those who are spared by Allah"—references in the original Classical Arabic text of *The Recital*,<sup>159</sup> there are no words for trumpet that can be construed as meaning a metal, tubular instrument. Like the vast majority of references in the original Hebrew of the Old Testament for trumpets and trumpeting, the inspired language of the Prophet in the Koran refers to a trumpet in words connotative of one or another kind of instrument derived from the horns of an animal. Both of the medieval Arabic scholars Ahmad b. Hanbal (d. A.D. 855) and al-Djawhari (d. circa A.D. 1005) were in agreement that *sûr* and *nâkâr* were horns. The Hebrew *shofar* and *keren* are comparably used in the Old Testament. If, therefore, the words chosen for trumpet in the Koran do not suggest a metal tubular instrument but one made from the horns of one or another kind of animal, what are we supposed to think about the Arabs having introduced metal trumpets into Europe? Even the word *buq*, frequently cited as connoting a metal trumpet and the origin of the French *busine*, was, according to Farmer,<sup>160</sup> likely for some time to have meant a species of spiral conch, which is what the earlier meaning of the Latin *buccina* was. In the same article and by way of reference to the work of R.P.A. Dozy, Farmer noted that "the word *buk* appears to have been derived from the Greek *bokaun* or the Latin *buccina*." This contradicts the propinquity proposed by Galpin of *buk* with the Mesopotamian/Persian *PUKKU*, *Bouq* or *Buki*, the "archaic root" supposedly meaning to "bellow or roar" and which allegedly "underlies many of the Asiatic trumpet-names."<sup>161</sup> In this respect Galpin appears to have

156. Farmer, *A history of Arabian music*, p. 39.

157. See the *Muqaddima* of Ibn Khaldun partially pub. in French as the *Prolegomènes historiques d'Ebn Khaldun (Notices et extraits)*, xixxxi, Paris 1862-68. A more recent translation by F. Rosenthal, *The Muqaddimah: An introduction to history*, was published in 3 vols. (New York 1958). The quotations are from Farmer, *History* p. 154.

158. See E. W. Lane, *Madd al-qâmûs, an Arabic-English lexicon*, London 1863-93 (under "*buq*"). See also Farmer loc. cit.

159. *The Recital* is how *al-Quran* translates into English.

160. *Encyclopedia of Islam*, p. 1291, col. 1, "*buq*."

161. Galpin, *The music of the Sumerians*, London 1936 (Baden-Baden 1972), p. 22.

guessed incorrectly.<sup>162</sup> The apparent shift of meaning for *buq* from a natural marine shell trumpet to a metal one may well have been as a consequence of the Arab contact with one or both regions of what had been the Roman Empire. The *bucina* was (or had been) known to the military in both regions. Which brings us to the origins and uses of the words *busaun*, *posaun*/*posaune*, and *busine*, words that, for reasons mostly inexplicable, are now generally thought to suggest a long-bore tubular lip-blown instrument made of metal. How often has one seen (and heard) a pretentious use of the French *busine* for what original textual sources invariably have as *tuba*, even well into the medieval period as documents in the French vernacular became the norm rather than the exception.<sup>163</sup>

It must not be forgotten that the Arabs (and Moors) got as good as they gave. There are a number of examples of words and the objects they represent(ed) having been

---

162. According to the information recently conveyed to this writer by several etymologists, the appearance of *buq* words in Semitic or Semantically influenced languages post-dates the Arab objective and linguistic borrowings of the Roman *buccina*/*bucina*, which are related to either or both the Greek *βουκος*, Latin *bucca*. The one meaning the horn(s) of a bull or ox (the *βου-* prefix in many Greek words having to do with cattle or any related bovine words, is the root for that meaning huge or monstrous, like one of the native species of wild bulls that once roamed the northern reaches of the Mediterranean). The other meaning the cheeks, notably when they are puffed out, as in such expressions as *buccas inflare*. The latter having, of course, a certain applicability to *buccina*/*bucina* players, especially those shown in traditional iconographic expressions of artists from the Roman period right up until the present, with a player like Dizzy Gillespie being the most notable living exponent of such time-honored imagery.

163. The obvious propinquity of *busine* to *bucine*/*bucina* does raise the question of the kind of instrument that was intended by the use of the word in French. The French have also used the word *trompe*, which, after the Middle Ages, was sometimes connotative of a circular trumpet or hunting horn. But what is not accounted for in recent references to and pretentious uses of *busine* is the possibility that, due to ignorance and prolonged misuse, it may have become imprecisely applied and might well have meant any type of metal lip-blown instrument. Official French documents, on the other hand, more precisely refer to the straight type of instrument frequently seen in medieval French iconography as a *tuba* and the players as *tubicines*. What sort of instrument a *businar* played is uncertain. It is not unthinkable that it was a twice-folded descendent of the *bucina* seen on the gravestones of Germano-Roman *tubicines*/*bucinatores* mentioned previously. The idea that a *b(p)usaun*/*posaune* was such a species of trumpet is not easy to dismiss in light of the kind of instrument that soon became associated with the word(s) in Germany after the 15th century. The longer and consequently more resonant *busaun*, before it acquired a slide and became an instrument of variable pitch, may be one possible reason for Luther's use of the word when alluding to the trumpets of Last Judgment in his translations of scripture. Jacob and Wilhelm Grimm (*Wörterbuch*, ii, "Busaune") suggested that "Luther entschied für posaune, durch welche hochdeutsche aussprache das tönende wort noch kräftigeren klang empfangen hat. alle redensarten und beispiele sind unter P aufzuschlagen." It is not unthinkable that, for a variety of historical-linguistic reasons (or those of fashion), some Europeans began to misapply the generic sense of *buq*/*bucina*/*busine* to both straight and folded tubular trumpets. We shall probably never know why the original name for what had been one or another kind of coiled trumpet (whether of shell or of metal) became equally applicable to both straight and coiled (or folded) instruments by the medieval period. Yet, it should

borrowed by the Arabs in the course of their dealings with the several populations of post-Roman Europe. As *buq* appears to come from the Latin *bucina*, so too another word of no small military significance, *al-darqah/târiqî* (a type of pointed shield) appears to derive from the French *targe* / Old High German *zarga*. Moreover, *quntariya* (a heavy lance) seems to be "either of Greek or Romanic derivation."<sup>164</sup> For besides having sought and prized the fine Frankish swords made by 8th-century Franco-German smiths,<sup>165</sup> the Arabs, as White observed, were not exempt, "even before the First Crusade, from the contagion of Frankish military ideas."<sup>166</sup> E. Lévi-Provençal, who quotes at length the 13th-century (?) Arabic writer Ibn Sa'îd in *L'Espagne musulmane au X<sup>ème</sup> siècle*,<sup>167</sup> shows to what extent the Andalusian princes and warriors in Spanish Islam took as models the equipment of their Christian neighbors.<sup>168</sup> A more interesting question, therefore, is where the Arab and later Turkish (Ottoman) armies might have first seen and heard trumpets and learned how they were used for military tactics. There is little doubt that the Arab invaders of the Byzantine imperial provinces east of the Bosphorus and later in Sicily and southern Italy had ample opportunities to see and hear trumpets as they were used by the armies of Heraclius, Constans II and, two centuries later, Basil I. The commentary and illustrations from the history of Joann Skylitzes provide sufficient evidence for the Byzantine use of trumpets during this period.<sup>169</sup>

---

be noted that many Muslims did differentiate between the two species, calling one a *buq* and the other *al-nafir*, the second word which, in metathesis, accounts (as Farmer noted) for the etymology of the European word fanfare (the earliest fanfares undoubtedly having been played by that instrument traditionally held to be the most imperious of the Roman trumpets, namely the straight *tuba*, being the trumpet normally blown for imperial ceremonies). Since the Middle Ages, most angel iconography (as in a great deal of secular iconography representing ceremonies of the high and mighty) straight trumpets have had the same visual symbolic connotations as they had in Classical Antiquity. Military engagements and the undertakings of warlords may be depicted with various species of trumpets, but God, His angelic host, and great potentates are invariably shown with straight trumpets. For whatever reasons, these became misnomered by *buq*, or *busine*, *posaune*, etc.

164. See Lynn White, *Medieval technology and social change*, Oxford 1962/1965, p. 35.

165. Derry and Williams, *Short history of technology*, p. 131: "Skills that had been practiced in Roman Gaul survived in Merovingian France, and there were some Syrian experts working in western Europe, while by the eighth century there were books in circulation describing Byzantine skills. Great skill was expended on the forging of swords and the decoration of their handles and scabbards. The most remarkable surviving product of the age is a type of pattern-welded sword. . . . Such welding required great skill, and the works of Burgundian and Frankish smiths were even imported by the Arabs."

166. White, *Medieval Technology*, p. 35.

167. Pub. at Paris in 1932.

168. Lévi-Provençal, *L'Espagne Musulmane*, p. 145. Lévi-Provençal also cites the work of Dozy (*Suppl. Dict. Arabeque*, ii, p. 555). See also L. White 1962/1965 p. 36.

169. Joann Skylitzes was a high Byzantine official who, toward the end of the 11th century, produced a chronicle covering the period from A.D. 811-1057. His chronicle is especially important from the standpoint of his having relied on sources that are no longer extant. This is especially true of the material dealing with the period from about the middle of the 10th century to the end of the work. And, as in the case of several late classical,

There were, moreover, the crucial and determinate battles fought north of the Pyrenees by the Frankish forces of Charles Martel ("the Hammer"), the grandfather of Charlemagne, who succeeded in driving out the Arabs from Aquitania (southwestern France) and back into Spain by A.D. 759. Martel apparently came to rely on heavily armed cavalry, made all the more effective by an innovative use of stirrups,<sup>170</sup> and with a likely use of trumpets for providing the kind of signals that would account for the observation of Procopius, that "at one signal in the first charge" against a foe the Frankish infantry all at once threw their battle axes "to shatter the shields of the enemy and kill the men."<sup>171</sup> Procopius does say that trumpets were used for signalling, both by the cavalry and for the infantry during the Gothic Wars waged by Belisarius against the Moors in Spain: "With the cavalry trumpets urge on the soldiers to continue fighting with the enemy, but with those of the infantry call the men back to the retreat."<sup>172</sup> And if the two centuries it took the Byzantines (and Carolingians) to drive the Arabs from the mainland of the Italian peninsula did not provide sufficient opportunities for Islam and Christendom to experience each other's peculiar institutions, strategies, and a host of cultural particularities, the decades immediately preceding the First Crusade would have been sufficient for one side to see and hear what the other was capable of. For without doubt the nearly 30-year conquest of Muslim Sicily by Robert Guiscard with his aggressive and well-equipped Norman forces had provided both the northern liberator and his Saracen adversaries with considerable knowledge of one another's military tactics. But doubtless Guiscard had been well-informed about some of the most time-honored and proven fighting techniques, both from his immediate Norse ancestors and as a consequence of what had been preserved of the knowledge of classical and mostly Roman military science.<sup>173</sup> The basis for this latter assertion is the history of such

---

early medieval illustrated works, like that of Prudentius, for example, the subsequent editions of which continued to reproduce the style and details of the original edition(s), the illustrations with the 15th-century illuminated Ms. edition of Skylitzes' chronicle now at Madrid appear to preserve the iconographic details of Skylitzes' own era. This is noticeable, not only with respect to the Roman style of armor and other accoutrements of military battle dress, but as regards the many illustrations of trumpets and the manner in which they are employed.

170. White, *Medieval Technology*, p. 28: "under Charles Martel and his sons the meaning of the stirrup for shock combat was being realized." After citing numerous archaeological studies, iconographic sources and several comparatively recent theories, White concludes (p. 27) that "the dating of the arrival of the stirrup in western Europe . . . may be placed in the first part of the eighth century, that is, in the time of Charles Martel."

171. Procopius, *History of the war*, Bk. VI ("The Gothic war"), xxv, 4 (Loeb ed., Dewing trans., vol. iv, 1924 / 1979, p. 85). Although Procopius is speaking of the tactics and use of arms by the Franks a number of years before the time of Charles Martel, there is little reason to conclude that much had changed in the interim.

172. Procopius, *History of the war*, VI/xxiii, 23-30. See also VI/xxiii, 34. That the Germans at the time knew as much about the use of trumpets as the Romans, see also Procopius's account in VII/xxvi for the taking of Rome by the Ostrogoths under Totila in A.D. 546.

173. It is not insignificant that the account of Robert Guiscard's taking of Durazzo (Dyrrachium) in 1081 as related by Gibbon specifically mentions that when the city was entered at night by stealth, "the Greeks were awakened by the name and trumpets of the conqueror." (Gibbon, *Decline and Fall*, Ch. 56 Univ. Chicago ed., 1952, ii, p. 359).



Roman military treatises as that of Vegetius, whose *Epitoma rei militaris* was widely read from the time of its writing at the end of the 4th century A.D., appearing as it did in numerous copies, translations, and formats, including fold-up pocket-size versions, obviously intended for use in the field.<sup>174</sup> Significantly, Vegetius was studied and circulated at the time of the Norman invasions. Contamine notes that Hrabanus Maurus (A.D. 776-856), the archbishop of Mainz from 847, had advised the Carolingian Emperor (and King of Italy) Lothar I (A.D. 840-855) "to re-read Vegetius the better to resist the Normans."<sup>175</sup> Maurus had made another and condensed edition in which a number of appropriate interpolations had been added with an emphasis on the use of cavalry.<sup>176</sup> Vegetius, of course, does have several important recommendations for the use of various signal instruments, including the *tuba*, *cornu* and *bucina*.<sup>177</sup>

Numerous aspects of medieval warfare incorporated by the Lombards, Ostrogoths, Franks and subsequently imitated and employed by the armies of Islam were in a direct line of descent from the Romans. Citing various evidence, Alföldi, White and others show how different elements of the accoutrements and tactics of medieval armies can be traced back to their classical origins. The employment of such objects as the lance-and-pennon, for example, which became an imperial standard during the Middle Ages, has been noted to have had its origins "in the ancient Etruscan and Roman use of a spear (without pennon) as a symbol of authority."<sup>178</sup> In citing various evidence White refers, of course to Andrew Alföldi's article, "Hasta—summa imperii: the spear as embodiment of sovereignty in Rome."<sup>179</sup> Had White, Alföldi and others turned their attention to the history and use of tubular lip-blown instruments they would soon have noticed the definitive links which had been forged all the way from Greco-Etruscan times to the medieval period. It is nevertheless certain that the ways in which metal tubular trumpets were used by the armies of both the eastern and western precincts of the Roman empire during the period of its rapid decline (circa A.D. 400-1000) were part of a continuing process in the employment of classical military tactics, a process that either did not depend upon Islamic military practices, or, if the Arabs were already using trumpets at the time of the Hijra, was independent of them. But whatever evi-

---

174. Not only did Vegetius figure importantly in military tactics during the so-called Dark Ages, but his treatise was one of the more important instigative forces behind the neoclassical movement of the 15th century in Italy. For notwithstanding the importance (and notoriety) of Machiavelli's *Il Principe*, it was his *L'arte della guerra* that was far more important, famous and, in its many editions, translations, etc., widely known, having served as the basis for an entirely new, indeed, neoclassical approach to military tactics and strategy. Machiavelli's treatise drew heavily on the *Epitoma rei militaris* of Vegetius, whose ideas did, in fact, permeate military science in the Renaissance, as the work of Lipsius readily testifies.

175. Contamine, *War in the Middle Ages* (see note 103), p. 211.

176. Hrabanus Maurus, *De procinctu Romanae miliciae*, Dümmler ed., *Zeitschrift für deutsches Altertum*, xv, 1872. See also White, *Medieval technology*, pp. 149-50 (= White's note 1 for p. 32 of his text).

177. Of the many comparatively recent editions of Vegetius, the best is the annotated Teubner ed.: *Flavii Vegeti Renati Epitoma rei militaris*, Leipzig 1869.

178. White, *Medieval Technology*, p. 151.

179. In the *American Journal of Archaeology*, lxiii, 1959, pp. 1-27.

dence may exist for an independent use of trumpets by the armies of Islam, it does not follow that trumpets were used by the nomadic Arabs and North African Berbers (Moors) before the Hijra, before their substantial contacts with the armies of Byzantium and those of the sequestered kingdoms of the Western Empire.<sup>180</sup>

The Islamic world of the early medieval period had absorbed a great deal from the inhabitants of the latter Roman Empire. As the wealth of the Arabs became staggering, with rich caliphates being established in various parts of their new-won empire, they appear to have adopted a number of cultural elements of the vanquished, taking from the subjugated in the many far-flung regions of Islam the best of their learning, technology and variety of other cultural assets. It was at this time that numerous translations of classical texts into Arabic had been made.<sup>181</sup> Rich and resplendent Arab courts were established, the most notable exemplified by the Alhambra at Granada, the great mosque at Cordoba, the citadel in Cairo, and the gorgeous tiled buildings of Baghdad, the legendary city of the Arabian Nights. There is little question that these and numerous other places within the vast expanse of Islam by the 10th century did echo to the sounds of caliphs' and sultans' trumpets, kettledrums and all the other ancient harmony of war, sounds once but the preserve of the Romano-Byzantine Empire. Yet, it might be prudent of the iconologist to note the dates for the various Mus-

---

180. A.A. Vasiliev's comprehensive three-volume study of *Byzance et les Arabes* (Brussels 1935-1950) cites a quantity of documents, and many passages of Arabic chronicles, histories and other literary sources from the 9th to 13th centuries of the Christian era are quoted by the author in translation, some in extenso. One cannot help but notice the appearance of numerous details, e.g. precise descriptions of events, enumerations, etc., provided by the original Arabic documents. Yet, it must be mentioned that of all such detailed references, as, for example, to signals having been given during military engagements, lengthy descriptions of places and events, numbers of prisoners taken and the amounts of ransoms paid for their return, etc., there is not one reference concerning the use of trumpets or to trumpeters. We may conclude, of course, leastways from the one source of Skylitzes' comprehensive chronicle, that the armies of Islam during this period did have recourse to trumpets on some occasions. Nevertheless, there is the distinct impression from the amount of historical material quoted by Vasiliev that the use of trumpets by the Arabs appears to have been rather limited, certainly in comparison to their use by the armies of Byzantium and, many years later, by the forces of the Ottoman Seljuq Turks.

181. In the chapter simply entitled "Music" by Ali Jihad Racy in *The genius of Arab civilization; source of Renaissance* (ed. by John R. Hayes, Cambridge, Mass. 1983, pp. 121-2), there is mention of Arabic "court affluence and acquaintance with the worldly splendor of conquered empires" which "stimulated humanistic interests." Racy notes that the Abbasid caliphs were particularly known for their interests in the arts (i.e. in the seven sciences as defined by Martianus Capella and others). In the 9th century the Abbasid Caliph al-Ma'mun (A.D. 813-33) established the "House of Wisdom" (presumably in Baghdad), which was "a scholarly institution responsible for translating into Arabic a vast number of Greek classics. . . ." One can easily conjecture that among the many Greek treatises translated into Arabic were some that dealt with military matters and the use of such tactical implements as trumpets for providing signals in the field and an added touch of splendor for court military ceremonial. There is little evidence that the Arabs used metal lip-blown instruments before their assimilation of Romano-Byzantine ideas.

lim depictions of such instruments and compare the chronology with Christian illustrations of and historical references to comparable acoustical devices before ignoring the long-established traditions and the vast legacy of the Roman Empire at the outset of the Middle Ages.

### Trumpets and the northern Europe-Baltic connection

As far as cultural cross-fertilization, trumpets, and the armies of Islam are concerned, there is another connection with Europe that needs to be mentioned, one to the far north with the kinsmen of Robert Guiscard. This is the Scandinavian connection, in particular that with the Northmen traders and pirates, i.e. the Vikings.

In stark relief to what Pirenne had concluded about trade and commerce after the collapse of imperial Rome and the decline of Western institutions are the observations of Philip Grierson: "The whole approach, that of accumulating evidence for the existence of trade instead of trying to form an overall picture of how and to what extent material goods changed ownership, is in itself profoundly misleading and can only result in conclusions far from the truth."<sup>182</sup>

What has sometimes been underestimated is the significance of northern Europe and the growing importance of trans-Alpine trade after the 5th century. Evidence for this trade is various, including a variety of metal objects found in cemeteries north of the Alps, some of which came from as far away as North Africa. Byzantine gold coins found with several of these objects of Coptic origin place this trade as sometime between A.D. 490 and 560.<sup>183</sup> As far as this enquiry is concerned, it should be noted that the Northmen (Normans) not only had and used metal tubular trumpets but many appear to have exercised these abilities as bodyguards and trumpeters at the imperial court in Constantinople. The Varangian Guard, initially made up of northern Russians and soon after "reinforced by frequent additions of Varangians and other Northmen, played an important role in the Byzantine army."<sup>184</sup> By the end of the 10th century the Varangians were the official bodyguard of the emperor and within a relatively short space of time consisted almost entirely of English and Scandinavians who had emigrated to Constantinople.<sup>185</sup> One of the most distinguished Varangians during the reign of Empress Zoe was Harald Hardradi, who became King of Norway. In the *Heimskringla* (*King Harald's Saga*) Harald, by then leader of the Varangian Guard, went on various expeditions with the "Latin-speaking troops" against the Saracens in Sicily and in the Holy Land.<sup>186</sup>

Besides the persistence of metal lip-blown instruments in the Eastern Empire, most

---

182. Philip Grierson, "Commerce in the Dark Ages: a critique of the evidence," *Transactions of the Royal Historical Society*, fifth series, vol. ix, 1959, p. 124.

183. See Joachim Werner, "Fernhandel und Naturalwirtschaft in östlichen Merowingerreich nach archäologischen numismatischen Zeugnissen," *Bericht der Romanisch-Germanisch Kommission*, xlii, 1961, pp. 307-46.

184. Ostrogorsky, op. cit., p. 304.

185. See A.A. Vasiliev, "The opening stages of the Anglo-Saxon immigration to Byzantium in the eleventh century," *Annales de l'Institut Kondakov*, ix, 1937.

186. Judging from the several references to trumpets and trumpet signals that appear in *King Harald's Saga*, it is evident that the Norwegian king was no stranger to the sounds of lip-blown instruments and the various uses to which they could be put.

likely played by some of the same Northern Europeans who constituted the Varangian Guard, there was the blowing of trumpets in long-established rites and traditions exercised by the Saxons, Vikings and other Germanic "Northmen" in Western Europe, as there had been by the Celts, who centuries before in Ireland had produced the remarkable end- and side-blown trumpets cast in bronze. Moreover, there was the Judeo-Christian tradition itself, with its numerous references to a practical, here and now, use of trumpets, their eschatological and highly charged symbolic significance notwithstanding.<sup>187</sup> The cultural crosscurrents between these northern warriors and their Saracenic contemporaries have yet to be accurately assessed. But cultural impacts there were, some with the most fateful consequences, as those in Sicily, for example. The employment of some traditional and largely Roman elements of warfare by the Northmen and their European contemporaries, augmented by an ever-increasing spread of Judeo-Christian traditions, may well account for the most significant aspect in the continuous and ever-increasing use of metal signal instruments among Northern Europeans after the disintegration of Roman imperial authority in the West.

### Conclusion

One of the greatest fictions perpetrated in the field of historiography is the notion that the Renaissance was somehow anomalous and a material-intellectual process arising out of discontinuities. From the time of the writing and publication of Edward Gibbon's monumental *Decline and Fall* . . . at the end of the 18th century to the era of Jacob Burckhardt with the first appearance of his *Die Kultur der Renaissance in Italien* in 1860, it became almost a canon of historical thinking that until the Renaissance all knowledge of the classics had disappeared, that the authors of antiquity had been forgotten, or at least had not been read in nearly a thousand years, that most, if not all, of the ancient principles of art and architecture, military science, technology, etc. had been lost since the fall of the Roman Empire, and that, somehow, the barbarians had destroyed nearly all memory of classical learning. The idea that the Italian Renaissance was a singular phenomenon of culture, owing its inception, development and dissemination to the genius and dynamism of the modern, post-medieval European neoclassicist, artist and intellectual became so accepted a tenet of late 19th-, early 20th-century scholarship and for the many orthodoxies of academic enquiry, that few have ever questioned the basic facts for this seemingly anomalous "rebirth" of classical principles and the supposed singular rediscovery of the many material and intellectual concomitants of classical civilization. Of course, numerous aspects of ancient learning, technology and science had been forgotten over the centuries since the disintegration of imperial authority. But much had been remembered also, and, what is more, preserved by the very "barbarians" it became so fashionable in the last century to blame for the loss of so much culture and learning. At the outset of *The structure of scientific*

---

187. It can be mooted that the many references in the Koran to that day when the "Dread Event" shall come to pass, the "Day of Resurrection and of Judgement," when the "Trumpet shall be sounded" and "none shall be saved except him who comes before his Lord with a pure heart," are a direct borrowing from New Testament theology, notably the trumpet references from *The Gospel according to Matthew* (24/31), *The First Letter of Paul to the Corinthians* (15/51), and *The Revelation of John* (Chap. 8 ff.).

*revolutions*. Thomas S. Kuhn plants his standard firmly into the high and open ground of objective enquiry with the proposition that

History, if viewed as a repository for more than anecdote or chronology, could produce a decisive transformation in the image of science by which we are now possessed. That image has previously been drawn, even by scientists themselves, mainly from the study of finished scientific achievements as these are recorded in the classics and, more recently, in the textbooks from which each new scientific generation learns to practice its trade. Inevitably, however, the aim of such books is persuasive and pedagogic; a concept of science drawn from them is no more likely to fit the enterprise that produced them than an image of a national culture drawn from a tourist brochure or a language text.<sup>188</sup>

To end here as Kuhn began, it has been the aim of this essay to show that we have indeed been misled by such books in fundamental ways. It is time to re-evaluate the contributions made by the early, post-Roman inhabitants of what we now call Western Europe. The image we have been given specifically about one of the oldest and "most exalted" of musical instruments does not fit the facts. As a more precise picture emerges, it should become abundantly clear that the history of brass instruments is rather different from what we had been led to believe. Moreover, it is now time to regard particular species of trumpets as more than acoustical devices. Many were more than sound sources, musical or otherwise. They were emblems of temporal and spiritual authority and, as such, must be considered with the sagacity and rectitude they deserve.



### Postscript

It is only after the final editing for publication of this article that the author became aware of some appropriate work just recently published by two Italian scholars. Mention should therefore be made of Renato Meucci's "Roman military instruments and the *lituus*" (*Galpin Society Journal* 1988, pp. 85-97), which appears to be a translation of his "Riflessioni di archeologia musicale: Gli strumenti militari romani e il *lituus*" (*Nuova Rivista Musicale Italiana* 1985, pp. 383-94) and his "Lo strumento del buccinator A. Surus e il cod. Pal. Lat. 909 di Vegezio" (*Bonner Jahrbücher* . . . 1987, pp. 259-272). Moreover, it is only since corresponding with Dr. Francesco Buranelli, curator of

---

188. Thomas S. Kuhn, *The structure of scientific revolutions*, 2nd enlarged ed. (vol. 2, no. 2 in the series *International encyclopedia of unified science*, Chicago 1970 (1971), p. 1.

the Museo Etrusco in the Vatican, that this author became aware of Maria Bonghi Jovino's study dealing, among other things, with the unusual zig-zag shaped *lituus* from Tarquinia and which is published in the *Atti del Convegno Internazionale di studi "La Lombardia per gli Etruschi" Milano 24-25 Guigno 1986*.

The several points of contention that are bound to arise as a consequence of some of the material presented here and what has appeared in these recent studies will be addressed by this author in a forthcoming and detailed essay that deals with the literary and historical contexts in which Romano-Byzantine lip-blown signal instruments are mentioned. But what has been seen so far of the work just published by Meucci, Jovino and others, in no way obviates the principal arguments presented in this study, to the effect that metal lip-blown instruments have had an unbroken history of manufacture and use in Europe since antiquity and that it was both Franco-German as well as Byzantine craftsmen that perpetuated the trumpet after the collapse of the Roman Empire in the West.

