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Trumpet

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Trumpet

(Fr. *trompette*; Ger. *Trompete*; It. *tromba*).

A lip-vibrated aerophone. The term is used not only for the modern Western instrument and its ancestors, but also generically to denote some or all of the lip-vibrated wind instruments, depending on the system of classification.

See also [ORGAN STOP](#).

1. Terminology and systems of classification.

In the Hornbostel-Sachs classification system (1914), the term 'trumpet' is applied to any instrument in which 'the airstream passes through the player's vibrating lips, so gaining intermittent access to the air column which is to be made to vibrate'. This category is then divided into two subgroups; natural trumpets ('without extra devices to alter pitch') and chromatic trumpets ('with extra devices to modify the pitch'). Further subdivisions are made on the basis of body shape (conch shell or tubular) and method of playing (side-blown or end-blown) in the case of natural trumpets, and of pitch-alteration method (fingerholes, slides or valves) and shape of tubing (conical or cylindrical) in the case of chromatic trumpets.

Despite its apparent inclusivity, this system has serious shortcomings when dealing with non-Western trumpets. Although non-Western trumpets are found with fingerholes (for example, the *bās* of Madhya Pradesh, most chromatic trumpets are Western, leaving the rest of the world's trumpets categorized as 'natural'. Excluding conch-shell trumpets, a relatively small and distinctive subgroup, leaves an enormous variety of instruments in the 'tubular' category. Geneviève Dournon's 1992 modification of the system with subdivisions based on structure, shape and material, permits greater distinction between non-Western instruments. Useful as these classification systems are, they do not address issues of distribution and function. In many cultures trumpets have important functions that are symbolic or practical as well as, or instead of, musical.

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2. Geographic distribution and construction.

General observations regarding distribution are based on uneven geographical coverage and rarely take account of variant names of instruments or of the frequency with which particular specimens occur. Furthermore, early studies – many of which are still consulted because the ground has never been revisited or the instruments have become obsolete – range from first-hand research to studies based on secondary sources and museum collections. However, it can be broadly observed that trumpets are widespread in Africa and Europe, less so in South Asia, infrequently found in the Americas and are rare in East and South-east Asia.

Patterns emerge of geographic distribution by material type. Some patterns are a matter of common sense: it is hardly surprising that most trumpets made from gourd or ivory are found in Africa. Exceptions, when they occur, are instructive: the medieval *oliphant*, for example, a short, thick end-blown trumpet finely carved from an elephant tusk was probably a Middle Eastern instrument introduced to Europe during the Crusades. Instruments made from perishable materials like tree bark depend upon suitable climate and flora. In Scandinavia and Eastern Europe, spiral bark shavings are bound firmly into conical tubes, which can range in length from the Yugoslavian *borija*, made from willow or ash bark (about 50 cm), to the now-obsolete Latvian *tās* or *taure*, made from birch bark (up to 150 cm). In the hotter, more humid climate of the Amazonian rainforest, giant trumpets – up to four metres in length – are made from tightly coiled bark attached to supporting sticks that run along one or both sides to prevent sagging.

In other cases, distribution is so widespread that patterns are less easy to discern. For example, trumpets made from animal horn are most commonly found in Africa and rarely in the Middle East (with the exception of the Jewish ram's horn *shofar*), elsewhere in Asia and in Oceania. In Africa, where animal-horn trumpets are more often side-blown than end-blown, the rarity of a particular type of horn increases its value. For example, in Uganda, cow horns are only used when game horns or ivory tusks are unavailable or unaffordable. Wherever they occur, a horn, once selected, is boiled or otherwise softened and the interior is scraped out. Depending on the playing style, an aperture is created by sawing off the tip of the horn or by cutting a mouthhole, usually at the point where the tip of the horn ends and the bore of the tube begins. Many African side-blown animal horn trumpets also have a small fingerhole in the tip which gives an extra pitch.

Occasionally distribution patterns are surprising. While isolated examples of bamboo trumpets can be found in Africa and South America, there are virtually none in the bamboo-rich areas of East and South-east Asia. Here cultural ambivalence towards lip-vibrated instruments overrides the regional abundance of raw material. An unusual exception is the bamboo 'brass band' tradition of Sulawesi. Introduced to European brass bands by 19th-century Dutch missionaries but lacking the materials to reproduce instruments, local craftsmen began to make bamboo copies during the mid-1920s. Although they soon graduated to zinc replicas, there are some pockets, notably the Sangir Islands north of Minahassa, where bamboo 'brass' instruments can still be found. One might also expect wooden trumpets to be particularly widespread, but they appear predominantly in Africa, Europe and Australia. Often long, they range from straight cylindrical tubes, like the Scandinavian *lur* or the Australian *didjeridu*, to conical tubes with an upturned bell, like the European alphorn. Some are hollowed-out branches; others involve cutting the branch or tree trunk in half lengthwise before hollowing it out and rejoining both halves with whatever comes to hand: tar and osier (*lur*), putty and linen yarn (Lithuanian *daudyté*), animal hide (Ugandan *arupepe*), and bark or gut (alphorn).

The distribution patterns of both conch-shell and metal trumpets are historically illuminating. Shells used for trumpets include the *triton* (trumpet shell), *cassis* (helmet shell), and *strombus* (true conch). The spiral interior functions as tubing and a mouthhole is created either by breaking off the point of the shell (end-blown conch) or by boring a small hole in the body (side-blown conch). As might be expected from an instrument known since neolithic times, conch-shell trumpets are found almost everywhere, including inland areas like Tibet and Central Europe, where they support the existence of early trade routes. Particularly common throughout Oceania, conch-shell trumpets were formerly associated with religious, ceremonial, military and signalling functions. Today, however, they are often blown to announce mundane public events. For example, ensembles of up to nine *kele'a* are played at Tongan football matches to sustain general excitement. As sacred ritual instruments, end-blown conch-shell trumpets have retained their status better in South and East Asia. *Śankh* are blown by Brahmans in Hindu temples throughout South Asia. Known as *dung* in Tibet, *faluo* in China and *horagai* in Japan, the conch-shell trumpet travelled through Asia with the spread of Buddhism. The *horagai* was first mentioned in historical records during the Heian period (794–1185) but may well have reached Japan much earlier. Still used by Shugendō Buddhist sects, it is the only traditional lip-vibrated instrument found in Japan.

There were several types of ancient metal trumpets: the Egyptian *snb*, Israelite *ḥaṣṣerah*, Celtic *carnyx*, Greek *salpinx* and the Etrusco-Roman *cornu*, *lituus*, *tuba* and *buccina*. Long metal trumpets employed by Saracen armies made a great impact on European soldiers during the Crusades. It is possible that these trumpets ultimately derived from the Roman *tuba*. The distribution of long, straight metal trumpets in the non-Western world suggests a strong

connection with the world of Islam. In Africa, for example, end-blown metal trumpets are found only in Islamic areas such as Nigeria, Chad and Central Cameroon. Known as *kakaki* (among the Hausa) or *gashi* (in Chad) these trumpets are narrow cylindrical tubes, sometimes over two metres in length, with flared metal bells. At the other end of the Islamic world, the silver *nafiri* is one of only two trumpets found in Malaysia. Slightly less than one metre long, a single *nafiri* is present in each of the royal *nobat* ensembles maintained by the local sultans. As in Africa, these ensembles play for royal ceremonial occasions and on Islamic holidays. However, not all non-Western metal trumpets are long, straight or associated with Islam. South Asia has a great variety of metal trumpets of different shapes and sizes, ranging from the S-shaped *narsīgāo* of southern Bihar, the double U-shaped Rajasthani *bānkiā*, to the long, conical, telescopic Tibetan *dung-chen*.

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3. Use and function.

One of the most widespread and important functions of trumpets is the marking of power and status. In many parts of the world, trumpets and drums have been part of the regalia associated with kingship. This association continues to the present day: the British monarch, for example, is still heralded on state occasions by military trumpeters. Sometimes such instruments are more than symbolic regalia. In northern Nigeria, for example, the right to kingship itself was vested in the royal trumpets and kettledrums (*kakaki* and *tambari*); a coup d'etat could be effected simply by capturing them. The association between long metal *kakaki* trumpets and Islamic rulers in West Africa is clear, but using trumpets to generate power and mark status is neither limited to metal instruments nor to the Islamic world. Throughout Oceania, conch-shell trumpets were markers of chiefly status, rank and power. In Rarotonga, for example, the local term for conch was applied to chiefs, rulers and priests.

Power and status can also be marked in other contexts. There is often, for example, an association between trumpets and gender difference. Sachs and others have attributed it all to sex, specifically to the homology between instrument shape and the shape of sexual organs and to a correlation between aggressive (male) sounds and gentle (female) sounds. This argument confuses sex (a biological distinction) with gender (a culturally constructed distinction). Though it is true that in many parts of the world, trumpets are loud instruments reserved for outdoor use, the separation between male-dominated public and female-dominated private domains is equally widespread. It could be argued that trumpets are played by men because they are played outside, rather than that trumpets are played outside because they are played by men. This applies equally to the traditional associations with regalia, signalling and ritual, all of which mediate with the outside world in one form or another and thus fall into the public domain controlled, in most cultures, by men.

There are many ways in which trumpets are used to communicate, for example: European herdsmen use alphorns to call each other across the mountains; Latvian youths play goat-horn *āžrags* on summer evenings to announce their intention to marry; Bugandan hunters from Uganda sound their *eng'ombe* (side-blown animal horn trumpets) to ensure a successful hunt; fisherman from Aoba, Vanuatu, blow their conch-shell trumpets, *tapáe*, to summon assistance for bringing in their nets. Not all communication is so pastoral: from the Roman legion to the US Cavalry, trumpets have been an essential part of military life. Communication can also exceed the boundaries of the everyday world: the BaMbuti people of the Democratic Republic of Congo sound the *molimo* trumpet to wake up the spirit of the forest; Japanese Shugendo Buddhists imitate a lion's roar on the *horagai* to drive out evil spirits; and Fijian islanders use their *davui* conch-shell trumpets to invoke the presence of a god. The sound of trumpets can bridge the gap between temporal and spiritual worlds. In each case, a short loud sound, series of sounds or rhythmic pattern functions as a signal, a means of carrying a message or an instruction from one person or persons to others often a great distance away.

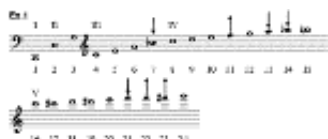
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4. The Western trumpet.

A member of the family of brass instruments, in its modern form the Western trumpet is a folded tube opening at the end into a bell, with a separate mouthpiece and (usually) three valves.

Trumpet playing normally involves overblowing to obtain various members of the harmonic series. [Ex.1](#) shows the harmonic series for a trumpet in 8' C (i.e. with approximately 8' (2.44 metres) of tubing; Roman numerals denote the beginning of each octave, Arabic the individual members). Certain partials, indicated in black, are distinctly sharp or flat (as shown by the direction of the arrows above them) in relation to their equivalents in the equal-tempered scale.

For example, the 11th partial is intermediate between f'' and $f''\sharp$ and the 13th partial intermediate between g'' and a'' . In performance, pitch can be adjusted slightly by lip technique.



Ex.1

The older 'natural trumpet' is able to produce only the notes of the harmonic series. In the modern valve trumpet the three valves add, in effect, extra lengths of tubing, thus enabling the pitch of 'open' notes to be lowered by a whole tone, a semitone or a minor 3rd respectively. Used in various combinations the valves can lower the pitch by as much as a diminished 5th, making available a chromatic scale from a diminished 5th below the 2nd partial up to the 10th partial or higher (see [VALVE \(I\)](#)). Trumpet parts are traditionally notated in the key of C; the actual pitch sounded depends on the length of the instrument (see [TRANSPOSING INSTRUMENTS](#)). Natural trumpets were commonly built to pitches between 6' F and 9' B \flat . In modern valve trumpets the tubing need be only half as long: 'trumpet in C' generally means 4' C, and c' is the 2nd partial, not the 4th (see also [ACOUSTICS, §IV](#)).

(i) Sizes and types.

The B \flat trumpet common in orchestras and bands today has a tube length of 130 cm and three piston valves. It consists of a tapered mouthpipe (Fr. *branche*; Ger. *Mundrohr*) 18 to 33 cm long into which the mouthpiece is inserted; a middle section of cylindrical tubing, including the tuning-slide (Fr. *coulisse d'accord*; Ger. *Stimmzug*) and the valves together with their associated tubing; and a conical bell section (Fr. *pavillon*; Ger. *Schallstück*) ending in a flare (Fr. *évasement*; Ger. *Schallbecher*, *Schalltrichter* or *Stürze*) about 12.5 cm in diameter. The cylindrical part of the bore is between 11.66 mm and 11.89 mm in diameter. Although the bore was traditionally about one-third conical and two-thirds cylindrical, modern manufacturers of piston-valve trumpets have increased the length of the conical section to improve intonation; in some modern trumpets the cylindrical tubing constitutes only about 20% of the total length.

The trumpet in 4' C, pitched a whole tone above the B \flat instrument, is also common in orchestral work. Indeed, modern trumpeters, because of the variety of musical styles in which they are required to play and the perfection demanded of them in broadcast and recorded performances, need at least three or four instruments, including ones pitched in B \flat and in C for regular work, in D/E \flat and in high B \flat /A (piccolo trumpet; Ger. *Hoch-B/A-Trompete*; Fr. *petite trompette en si-bémol/la aiguë*, *trompette piccolo*) for high parts and in Baroque music. The 'quick change' rotary valve which changes the pitch from B \flat to A, favoured by some orchestras at the beginning of the 20th century, is no longer in general use. A low E \flat trumpet is still used in military bands on the Continent, especially in Germany and Italy. It is the band counterpart of the old orchestral valve trumpet in 6' F.

The orchestral bass trumpet was designed to Wagner's specifications for the *Ring*. Wagner first visualized a huge trumpet pitched an octave below the ordinary 6' F valve trumpet of his day, with

the same length of tubing as a horn or tuba. He later suggested (to the Berlin maker C.W. Moritz) the construction of a four-valve trumpet in 8' C with crooks for B \flat and A. The resulting instrument has a tube length no greater than that of the 6' F trumpet played with its longest crooks, but it has a more mellow tone because of its wide bore and large mouthpiece. It is usually played by a trombonist. Wagner demanded of it a large compass, from G \flat to g \flat ", and gave it solo passages in every part of its range. Since Wagner, other composers – including Richard Strauss and Stravinsky – have been attracted to write for the bass trumpet.

After World War II piston-valve trumpets spread from France, England and the USA to most European orchestras, although rotary-valve trumpets, traditionally used in Germany and eastern Europe, remained in use in a few, such as the Berlin PO, the Leipzig Gewandhaus, Dresden Staatskapelle and the Vienna PO. In the 1980s many orchestras – including some in which they had never been employed – began to use rotary-valve trumpets for the German Classical and Romantic repertory. An instrument of this type has a mouthpipe only about 13 cm long; the valve section is usually inserted between mouthpipe and tuning-slide; the bell is some 13 to 14 cm in diameter.

(ii) History to 1500.



Trumpeter in a procession of soldiers at a festival: detail...

Most trumpets of antiquity were short straight instruments of wood, bronze or silver, used for both military and ceremonial purposes. The most ancient type – called *šnb* in hieroglyphic inscriptions – is that depicted in Egyptian art of Dynasty 18, accompanying marching soldiers (see [fig.1](#)). A scene in Amarna style (late Dynasty 18, from c1348 BCE) shows it might also be used to accompany the dance. One of Tutankhamun's trumpets (Egyptian Museum, Cairo; [fig.2](#)) is of silver and 58.2 cm long; the other is of bronze and 50.5 cm long; their bores expand from 1.7 cm at the narrow end to 8.2 cm at the bell. They have no detachable mouthpieces; the lips were applied directly to the narrow end. Their military purpose is confirmed by the

divine names inscribed on the instruments; the gods are those of Egyptian army divisions. Herodotus likened the sound of the ancient trumpet to the braying of an ass.

The Assyrians used a similar trumpet, as can be seen on a relief from the time of Sennacherib (reigned 704–681 BCE) showing the moving of a colossal bull statue, where two trumpeters stand on the statue, one playing, the other resting (Egyptian trumpeters were also often shown in pairs). The same instrument (*ḥaṣṣerah*) was known to the Hebrews. *Numbers* x.2 contains the divine command to Moses, 'Make thee two trumpets of silver, of a whole piece shalt thou make them: that thou mayest use them for the calling of the assembly, and for the journeying of the camps' (Authorized Version). Flavius Josephus (*Antiquities*, iii, §291) described the instrument as a little less than a cubit (about 45 cm) long. Such trumpets were part of the priestly insignia of the Temple from the earliest times; they are represented on the Arch of Titus; and mention of them persists in the Dead Sea Scrolls. They were used as signalling instruments also, in war, in peace and in royal processions; in the Temple three trumpet blasts accompanied the morning sacrifice, and at the end of a chant section indicated the moment when worshippers should prostrate themselves.

Other early trumpet-like instruments include the Greek (straight, with variable **SALPINX** bell-shapes) and the Roman **LITUUS** (in 'J' shape, *tuba* (long and straight; see [TUBA \(II\)](#)), **BUCCINA** (an animal horn) and **CORNU** (in 'G' shape); the Romans inherited all their brass instruments from the Etruscans. The Seleucids of the Middle East followed Macedonian practice by using the trumpet in their battle music, as did the Huns when fighting the Chinese Han Empire in the 3rd and 2nd centuries BCE. There is a late echo of the Temple trumpet at Dura Europus (now Qal'at as Sāliḥīyah, Syria) where David is shown with a lyre and trumpeters in a synagogue wall-painting dated after the Roman conquest 165 CE. It is interesting that in a 6th-century Sassanid military orchestra (rock relief; Tāq-e Bostān, nr Kermānshāh) the trumpeters are represented in pairs using an instrument similar to the Roman *tuba*.

According to Sachs, the trumpet disappeared from Europe after the fall of Rome and was not

reintroduced until the time of the crusades, when instruments were taken from the Saracens as war booty. Sachs attributed the long form and the shape of the bell to Arabian influence: a late 11th-century fresco in the church of S Angelo in Formis, near Capua, depicts four angels blowing long, conical, slightly curved trumpets, and is often cited as the first illustration of the imported form. Medieval illustrations of trumpeting angels, for example in the Trier Apocalypse manuscript (*D-TRs* 31, f.3v) have been shown to be part of an older pictorial tradition (see Seebass, B1973): the artists were following models derived from antiquity, rather than representing instruments in use in their time. Smithers's attempt (B1989) to show the 'unbroken history of manufacture and use' of metal trumpets in the West has been refuted by Meucci (B1991).

The Church Fathers, writing in Greek and Latin, used the terms 'salpinx' and 'tuba' respectively. In Western art before the crusades (in many depictions of the Last Judgment, for example), animal horns are generally shown. According to Meucci (1991) and Ibsen al Faruqi (1981), many Arabic words at various times indicated a straight trumpet. The generic term 'būq', occurring after 800 and describing instruments of both the trumpet and the horn type, may have been derived from the Latin 'buccina'. The *būq al-naḥr* was a large metal trumpet used in the military bands of the Abbasid period (750–1258) and later; in the 14th century it was as long as a man. The term *naḥr* connotes war. From the 11th century, as an instrument designation, it meant any long straight trumpet. Other Arabic words for trumpets in various shapes were, *qarnā* and *ḡar* (named in the Qur'an as the one to be used on Judgment day, probably the predecessor of the *naḥr*). The term 'buisine' was associated with various instrument forms, and was not always applied to a long, cylindrical instrument (as Bowles thought). By the 14th century, or perhaps as early as 1180, the *buisine* was sometimes made from an animal's horn; in 1240 it was smaller than a *trompe*. It is not certain when the French form of the word began to mean a long metal trumpet as well as the animal-horn type, nor whether the *buisine* more closely resembled the *būq* or the *naḥr*. Another instrument used in the West as a result of contact with the East was the *cor sarrazinois*, a long metal trumpet. The term 'trumba' occurred in Old High German and 'trumbono' in 8th-century Italian sources. The diminutive form 'trumbetta' is found for the first time in Dante's *Inferno* (xi.47), its German derivation 'Trum(m)et' in 1343. In England 'trompette' or 'trumbetta' seem to have meant a straight trumpet.

During the Middle Ages trumpeters played in the low register. Johannes de Grocheo wrote (*De musica*, c1300) that only the first four partials of the harmonic series were used, a fact corroborated by the earliest surviving trumpet music. Medieval trumpeters puffed out their cheeks when blowing and produced a tone that was described as airy and trembling, not unlike the vibrato produced by a boysoprano. Until about 1300 trumpeters and many other musicians were vagrants, but during the 14th and 15th centuries their social position gradually stabilized as they found employment as city musicians or, in the case of trumpeters, tower watchmen. Two kinds of ensemble using trumpets came to be differentiated: the shawm-trumpet ensemble (or *alta musica*, see [ALTA \(I\)](#); the trumpet was later replaced by a trombone) and the trumpet-kettledrum ensemble (the kettledrums appeared towards 1500). (Later, in Germany, these two groups developed respectively into the Stadtpfeifer and the courtly trumpet corps.) The shawm-trumpet ensemble first used the trumpet to play a drone bass (for examples of such music from the 13th and 14th centuries see Heyde, 1965, pp.163–4). The members of the trumpet-kettledrum ensemble performed in a genre named after the Roman *classicum*, an improvised mingling of various sounds, which by dint of sheer resonance was effective in encouraging troops and frightening the enemy. This type of ensemble became an élite corps of musicians, partly because of its military role in giving signals and performing courier duties. The oldest surviving medieval trumpet is the 'Billingsgate trumpet' from the 14th century, excavated in London in 1984; the four sections of a straight trumpet, including a bell and a section with integrated mouthpiece, could have belonged to a single instrument (although not necessarily).



(a) Philip the Good (reigned 1419–67) welcomed to Dijon, accompanied...

Around 1400 instrument makers learnt to bend the trumpet's tubing: first to an S-shape ([fig.3a](#)), soon afterwards with this S-shape folded back on itself to form a loop – a more compact arrangement that has since remained standard. The earliest illustration of an S-shaped trumpet is a wooden relief in the choir stalls of Worcester Cathedral; once dated 1397, it is now thought to have been carved c1379 (for a modern reproduction see Galpin, 4/1965, pl.49). A very short-lived form, the U-shaped trumpet, is depicted in a Parisian manuscript, the Hours of Charles the Noble (c1404, Cleveland Museum of Art CMA 64.40). The earliest illustration of the looped form is from the *Très Riches Heures* of Jean,

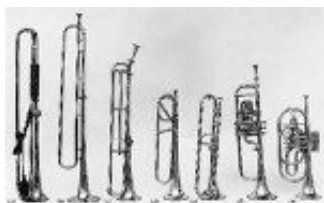
Duke of Berry (c1411/13–16; [fig.3b](#)). At about the same time the [SLIDE TRUMPET](#) was developed with a mouthpipe that telescoped inside the first length of tubing to enable the player to alter the instrument's length while playing. Downey (1984) questioned the existence of such an instrument at such an early date, but his view has been emphatically refuted by many scholars, including Duffin, Meucci, Myers, Polk and Welker. Tower watchmen adopted the slide trumpet to play chorales; it was also used in church music (but the natural trumpet continued to be used in the trumpet-kettledrum ensemble).

(iii) 1500–1820.



Trumpets and kettledrums at a tournament in the Marktplatz, Wittenberg,...

Renaissance sovereigns saw in their trumpet ensembles a symbol of their own importance – Matthias Corvinus had 24 trumpeters at his court; in 1482 there were 18 at the Sforza court. They staged tournaments, which the courtly trumpet-kettledrum corps accompanied at close range ([fig.4](#)). In 1548 (not 1528, an error deriving from Altenburg, 1795) the Emperor Charles V issued a decree putting trumpeters under the direct jurisdiction of the sovereign. From this time on the social distinction between trumpeters and other musicians was progressively widened.

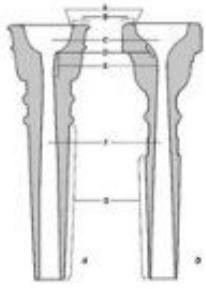


(a) Natural trumpet in D by Johann Leonard Ehe (iii),...

During the 16th century the trumpet's compass was extended upwards as far as the 13th partial. Within the trumpet-kettledrum ensemble certain players became responsible for specific registers. Towards the end of the century a five-part ensemble consisted of players capable of playing the following notes (on trumpets in 8' C): *basso*, c; *vulgano* or *vorgano*, g; *alto e basso* or *alter Bass*, g–c'–e'; *sonata*, quinta or (later) *principale*, c'–e'–g'–c''–(d''–e''); and *clareta*, *soprano* or *clarino*, from c'' (the 8th partial) upwards. Cesare

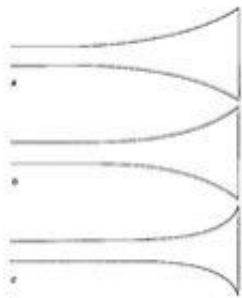
Bendinelli in his method of 1614 (the contents of which appear to derive from the 1580s) gave specific directions for improvising the upper parts in a five-part trumpet ensemble. This music has a distinctive style, which may go back to the Middle Ages: over a drone of tonic and dominant the upper three parts weave their counterpoint. During the same period the trumpet's form became more standardized. The body was usually made of brass, its tubing (with a bore of about 9.5–11.2 mm) rolled from brass sheet about 0.5 mm thick; heavy, ornate ceremonial trumpets were sometimes made of silver. The bell was rolled from brass sheet into a narrow cone, brazed and hammered out on an anvil to a thickness of only about 0.35 mm. The natural trumpet ([fig.4a](#)) thus comprised two sections of tubing or 'yards', two bends or 'bows', and a bell section. The yards and bows were not soldered but telescoped into each other, and were insulated by a non-permanent material such as beeswax; the joints were covered by an ornamental ferrule or 'garnish'. Circling the middle of the bell section was a round 'boss' or 'ball' (the ball did not cover another joint in the tubing; the bell section was in one piece up to the ferrule). The bell end was strengthened by an embossed rim or 'garland', usually inscribed with the maker's name, mark, town and sometimes the date. On German trumpets the mouthpipe yard and the bell section were separated from each other by a wooden block, with heavy woollen cord wound round block and tubing; on English trumpets the mouthpipe yard was girdled by an oversized 'ball'. Trumpets were also made in other forms, such as the coiled 'Italian trumpet', which may be identical with the 'Jäger Trommet' illustrated by Praetorius (1620).

In the 16th century Nuremberg began to emerge as the great centre of brass-instrument making and remained so throughout the Baroque period; members of the Neuschel and Schnitzer families were the earliest Nuremberg brass-instrument makers. There are, however, few extant 16th-century instruments. Two city trumpets made in 1578 by Jacob Steiger of Basle are in the Basle Historisches Museum.



Baroque (left) and modern trumpet mouthpieces: A – inner edge...

Extant Baroque trumpet mouthpieces differ from modern ones in several ways (fig.5). Their rims were flatter and wider, and there was a sharp edge between cup and throat. The throat, or bore, had a larger diameter, 4 to 6 mm. The shank was often longer and had a larger outside diameter. The sharp edge between cup and throat not only lent brilliance to the tone and enhanced the precision of the instrument's response, but in combination with the wide bore it also made it easier for trumpeters to 'lip' the out-of-tune partials into tune, or even to produce usable notes between the partials, a technique that is difficult if not impossible on a mouthpiece with a V-shaped cup, such as that of a horn. (Playing in tune was perhaps the most important prerequisite for the acceptance of the trumpet into ensembles of strings in the early 17th century.) As with the modern mouthpiece, a shallow cup facilitated playing in the high or CLARINO register; a deeper, wider one was more suitable for low or PRINCIPALE playing.



Three trumpet bells showing the gradual narrowing of the bell...

Throughout the 17th and early 18th centuries the form of the trumpet remained the same, although it is possible (see Wörthmüller, 1954–5) to distinguish between early, middle and late Baroque bell flares, as the bell throat became progressively narrower (fig.6). The best-known Nuremberg instrument-making families were Schnitzer, Neuschel, Hainlein, Kodisch, Ehe and especially Haas. The leading English makers of the time were William Bull, John Harris and, later, William Shaw. In Germany and England the standard pitch was D or E \flat , and the instrument was crooked down to play in lower keys. Independently of one another, both Mersenne (1636–7) and Altenburg (1795) gave the tube length as 224 cm (seven *pieds*, or four *Ellen*), which would yield a pitch slightly lower than modern D.

Fine tuning was effected by inserting tuning-bits (short prepared lengths of tubing) between the mouthpiece and the instrument or crook. A number of composers, including J.S. Bach, J.L. Bach, Telemann and Endler also wrote for the shorter F trumpet, called variously *clarino piccolo*, *tromba piccola* or *kurze Trompete*.

In 1623 an Imperial Guild of Trumpeters and Kettledrummers was formed in the Holy Roman Empire by virtue of an Imperial Privilege granted by Ferdinand II. The guild had a twofold function: to regulate instruction and thus limit the number of trumpeters, and to ensure the trumpet's exclusiveness by restricting where it could be played and by whom. The Elector of Saxony was named patron of the guild and arbiter of its disputes, and the articles of the guild were subsequently confirmed by every Holy Roman Emperor up to Joseph II (1767). Saxon mandates 'against the misuse of the trumpet' were issued in 1650, 1661, 1711, 1736 and 1804; revisions of the Imperial Privilege appeared in 1653 and 1747. Nuremberg brass-instrument makers formed a guild of their own in 1635 which was closely supervised by the city council. Although the organization of trumpeters into a guild of more than just local proportions was unique to the Holy Roman Empire, the trumpet enjoyed a similar status in other European countries.



Mounted kettledrum and trumpet players in a carousel: engraving by...

The medieval tournament gave way to the more stylized carousel or equestrian ballet, in which costumed participants formed intricate figures (fig.7). Since the music of the court trumpet corps was usually improvised, few examples survive. During the 17th century, however, the trumpet was accepted into 'art music', as shown by compositions from that time. In the Habsburg lands, the five-part trumpet choir was a symbol of *ecclesia militans* and of imperial power. Beginning perhaps as early as 1610, court composers such

as Reimundo Ballestra (*Missa conletronbe*, 1610–16), Giovanni Valentini (*Messa, Magnificat et Jubilate Deo*, 1621) and Christoph Straus (*Missae*, 1631) integrated the trumpet choir as a unit into vocal compositions (masses, magnificats and Vespers psalms); their example was followed by Bertali, J.H. Schmelzer, Biber and Fux, all of whom wrote large-scale *Messe con trombe*. Praetorius in his 1619 setting of *In dulci júbilo (Polyhymnia panegyrica et caduceatrix no.34)* used a six-part trumpet ensemble in a choral setting. One year later, in setting the same chorale (which had been one of the trumpeters' favourite Christmas sonatas in the late 16th century), Scheidt retained only the two *clarien* parts to perform elaborate divisions on the chorale melody.

Schütz's *Buccinate in neomenia tuba* of 1629 (*Symphoniae sacrae*, i, no.19) was probably the first piece to include a *c*^{'''} (the 16th partial) for trumpet.

The 'chamber' or 'concert trumpeter' increasingly distinguished himself from the members of the trumpet corps, and performed sonatas, concertos and church music with the court or municipal orchestras. During the century two styles of trumpet playing developed. Altenburg referred to them (pp.14 and 23) as *Feldstück-* or *Prinzipalblasen*, and *Clarinblasen*, comparing them directly to techniques used by the ancient Hebrews and known as *teruah* and *tekia*: Luther translated these as *schmettern* and *schlecht blasen* respectively, and the King James Bible as 'blowing an alarm' and 'blowing'. The former style was deemed appropriate for military signals and for the 'outdoor' music of the trumpet corps; the latter, softer style was associated with solo playing in the clarino register. In 1619 Praetorius advised that the trumpet group be separated from the other musicians when called on to play in church, so as not to drown them out. Altenburg wrote that a 'concert trumpeter is [often] spared the weekly playing at table, because through the blaring he would spoil the delicate and subtle embouchure [needed] for clarino [playing]'. 18th-century theorists praised players who were able to manage their instrument as softly as a flute.



Natural trumpet with banner by an anonymous Portuguese maker, 1769...

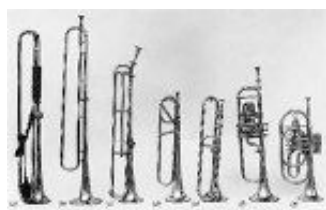
The most important centre of Baroque trumpet playing was Vienna, followed by Dresden, Leipzig, Weissenfels, Kremsier (now Kroměříž), Bologna, London and to a lesser extent Paris and Lisbon. Vienna's elaborate court protocol prescribed the use of trumpets in groups of four, two high (*clarini*) and two low (*trombe*). On the highest feast days, sacred and secular, the usual string orchestra was joined by a choir of trumpets, with two choirs being reserved for 'gala' days (i.e. the birthdays and namedays of the Emperor and Empress). In church music, a tradition of 'solemn sonatas' arose, many of them with trumpets, replacing the sequence of the mass, or, at coronations and similar highly ceremonial occasions, the gradual. In Kremsier, P.J. Vejvanovský, a court and field trumpeter as

well as a composer, wrote and played many sonatas. Other important composers for that court were Schmelzer and Biber. Biber, who like Torelli was also an important composer of violin music, was one of the most prolific composers for the trumpet; among his works are two magnificent sonatas for six- and eight-part trumpet ensembles with kettledrums and continuo. The Bologna composers Petronio Franceschini, Domenico Gabrielli and Giuseppe Torelli consistently wrote trumpet parts whose compass extended to the 16th partial. Starting with Maurizio Cazzati's op.35 of 1665, trumpet sinfonias, sonatas and occasionally concertos lent their splendour to festival celebrations of Mass in the Basilica of S Petronio. The leading Bolognese trumpeter was Giovanni Pellegrino Brandi. One or two trumpets were frequently used in Venetian opera towards the end of the century. There was already an important tradition of trumpet playing in Leipzig when Bach arrived there: his predecessors as Kantors of the Thomaskirche had thought well of the instrument, and J.C. Pezel had written and played some difficult trumpet parts. Bach composed much of his most splendid trumpet music for Gottfried Reiche, senior Stadtpfeifer until his death in 1734. But some of Bach's most virtuoso parts were not written for Reiche: Cantatas 31, 63, 147a and 172 were composed in Weimar and the second Brandenburg Concerto was composed at Cöthen. Two important composers for trumpet in lesser German courts were J.W. Hertel at Strelitz and J.M. Molter at Karlsruhe-Durlach; their trumpeters were Hoese and Pfeiffer. In London, Purcell relied on the trumpeters Matthias, William and John Shore, as Handel later relied on Valentine Snow. French trumpet music retained the heroic *Affekt* perhaps more consistently than did that of any other country; the preludes to *Te Deum* settings by Lully and Charpentier are among the most stirring and best-known examples. Lisbon's trumpet corps ('charamela real') consisted of 24 trumpeters and four kettledrum players, many of them German. A unique collection, containing 22 of their instruments and 26 partbooks (with 54 processional sonatas in 7 to 28 parts) survives in the Museu Nacional dos Côches, Lisbon (fig.8). Probably the greatest Baroque trumpeter was Johann Heinisch, active at the Viennese court from 1727 to 1750. He was said to have extended the playing range of the trumpet to include high notes that other trumpeters had never envisaged. Trumpet parts in the operas written for the Viennese court by Caldara, Fux and Georg von Reutter the younger for Heinisch and his colleagues ascend consistently as high as the 20th and sometimes the 24th partial.

The period between about 1720 and 1780 saw both the zenith and the decline of the Baroque trumpet. The technique of playing in the clarino register was developed to the fullest in Vienna and other centres including Salzburg and Fulda. Concertos in which the trumpet is asked to play in the

fourth and fifth octaves of its harmonic series were written by Michael Haydn, Reutter, F.X. Richter and Joseph Riepel. In the slow movement of Reutter's *Servizio di tavola* no.1 (1757) a single trumpeter performs a songlike solo ascending to *f*, while in the remaining movements the two trumpets play in the tutti-reinforcing style characteristic of the Classical period. Some of the latest concertos for the Baroque trumpet were written by Leopold Mozart (1762, presumably for the Salzburg court trumpeter J.A. Schachtner) and J.M. Sperger (1778–9, probably for Franz Faber, first trumpeter in Pressburg). By then, however, the trumpet concerto as a genre had become old-fashioned. New musical styles called for the less pompous virtuosity of violin, oboe and flute and did not use the trumpet in the old way. In addition, the accelerating decline of courts, hastened by the French Revolution, deprived the Imperial Guild of Trumpeters and Kettledrummers of its socio-economic foundation. The guild was finally dissolved in Prussia in 1810 by the same Friedrich Wilhelm III to whom the Berlin trumpeters had 'most respectfully' dedicated a suite for three trumpets and kettledrums in 1801; Saxony abolished the guild in 1831.

In the Classical style of Haydn, Mozart and Beethoven the trumpet was used mainly as a tutti instrument, although an occasional fanfare at the end of an *allegro* movement called attention to the trumpeters' surviving court function. However, it is wrong to maintain, as has been done, that trumpeters of the Classical period became less skilful: instead, new skills were required. Beethoven, for example, made great demands on endurance. Moreover, the technique of playing in the clarino register was not lost overnight.



(a) Natural trumpet in D by Johann Leonhard Ehe (iii),...

In the late 18th and early 19th centuries several attempts were made (before the invention of the valve trumpet) to enable the instrument to play a complete chromatic scale. One early device was the **KEYED TRUMPET** (fig.4d), for which Haydn and Hummel wrote their concertos. The stop trumpet (Ger. *Stoptrompete*) was usually made with two double bends in its tubing; thus the instrument was short enough for the player to insert his hand in the bell to lower the pitch of the harmonic partials by a semitone or a whole tone. Hand

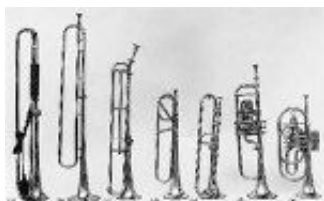
stopping was first used in horn playing (by A.J. Hampel, c1760), and was first applied to the trumpet about 1777, by Michael Wöggel of Karlsruhe. Karl Bagans, a German trumpeter of the early 19th century, showed that he knew of keyed trumpets but wrote that a stop trumpet could perform chromatic music even more satisfactorily. J.D. Buhl was the leading French performer on the stop trumpet, the French version of which was built in G and called the *trompette d'harmonie* – as opposed to the military trumpet in E♭ called the *trompette d'ordonnance* on which hand stopping was not used. In Germany the stop trumpet was usually made in G, with crooks to put the instrument into lower pitches. Some early stop trumpets were built in Nuremberg by Johann Leonhard Ehe (iii), but makers elsewhere, such as Michael Saurle in Munich, soon became more important and Nuremberg lost its pre-eminence in brass-instrument making. The *Inventionstrompette* was a stop trumpet with a tuning-slide in U-form, either in the middle of the instrument or in one of the bends (fig.4e). It too was derived from the horn; Hampel's first *Inventionshorn* was built in 1753/4 by J.G. Werner of Dresden. Wöggel's stop trumpet was itself a kind of *Inventionstrompette*; it was bent into a curved shape, like the instrument later known in France as the *trompette demilune* (introduced by Courtois Frères c1820). Improved *Inventionstrompeten* were built in the 1790s by A.F. Krause of Berlin. In England, a new type of **SLIDE TRUMPET** was invented about 1798, and was subsequently used throughout the 19th century (fig.4c).

The superiority of the valve system over other methods of making trumpets (and horns) chromatic became clear during the 19th century. The advantage of valves over keys was homogeneity of tone (though perhaps not with the first valved instruments): the advantage over the slide was facility. A valve horn was introduced in Berlin by Heinrich Stölzel in 1814. In 1818 a joint patent was taken out in Berlin by Stölzel and Friedrich Blühmel for both a tubular valve (then called *Röhrenschiebeventil*, now *Schubventil*) and a square piston valve, also known as a box valve (Ger. *Kastenventil*); the latter was applied to the trumpet in 1820.

The two types of valve in use today are the rotary valve and the piston valve. Dahlqvist (1980) has shown that J.F. Riedl of Vienna, working with the horn player Josef Kail, was assigned a five-year patent (later renewed another five years) for a rotary valve in 1835 (not 1832, as previously thought). The piston valve (Ger. *Pumpventil*) was patented by François Périnet of Paris in 1838 as an improvement on the tubular valve which had been Stölzel's invention. Another type of valve sometimes still used, the double-tube 'Vienna' valve (Ger. *Wiener Ventil*), had been developed in

1823 by Kail and Riedl as an improvement on an earlier double-tube valve produced by Christian Friedrich Sattler of Leipzig by 1819; this type of valve had been developed from Stölzel's original (double-tube) valve of 1814. Leopold Uhlmann of Vienna added cork buffers in 1830, also introducing the clock-spring return action (*Trommeldruckwerk*), one of two in use today on instruments with rotary valves (the other is the spiral spring action (*Spiralfederdruckwerk*), the origin of which is uncertain).

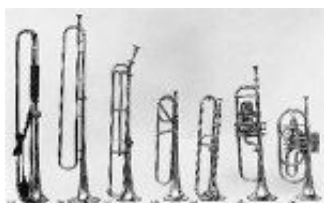
(iv) Since 1820.



(a) Natural trumpet in D by Johann Leonard Ehe (iii),...

The first champion of the valve trumpet was Kail, who in June 1826 became professor of trumpet and trombone (both with valves) at the Prague Conservatory. From 1827 he wrote or commissioned the earliest known works for solo valve trumpet (in low D, E \flat and F) with piano or orchestral accompaniment. Besides Kail (1827), composers included Lindpaintner (1829), Kalliwoda (1832), Höfner (1836), Conradin Kreutzer (1837), Friedrich Dionys Weber, C. Grimm and W. Smita (1855 and 1856). In Italy Raniero Cacciamani in

1853–5 and Domizio Zanichelli in 1857 published works for trumpet and piano, many of them based on popular opera themes. The valve trumpet was introduced into France in 1826, when Spontini, music director for the King of Prussia, sent a valve trumpet in F and a valve trombone made by Haltenhof to Buhl and Dauverné. The latter recognized the possibilities of the new instrument and immediately published several instruction books. The German prototype had had three tubular 'Stölzel' valves, a type that was improved on – but not invented, as is sometimes claimed – in 1827 by J.C. Labbaye. Halary later made more successful improvements, and on Dauverné's urging produced the first French valve trumpet, with only two valves, in 1828. Even well into the 19th century after valve trumpets had become relatively securely established, trumpeters played on either the valve or the stop trumpet, depending on the music to be performed. The first works in France to use valve trumpets were Chelard's *Macbeth* (1827), Berlioz's overtures *Les francs-juges* (1826) and *Waverley* (1827–8), Rossini's *Guillaume Tell* (1829) and Meyerbeer's *Robert le diable* (1831). Meyerbeer used both valve and natural trumpets, as did Wagner (*Rienzi*, 1842; *Lohengrin*, 1850). In Germany and England, valve trumpets were made in 6' F, rarely G, and were crooked down to C and sometimes B \flat ; French valve trumpets were first made in G ([fig.4f](#)), later in F. Trumpets with (tubular) valves had arrived in England in 1831 via Russia, where Prussian instruments had been copied as early as 1825.



(a) Natural trumpet in D by Johann Leonard Ehe (iii),...

A disadvantage of the three-valve system is that the instrument becomes progressively sharper when the valves are used in combination. On modern trumpets the third and often the first valve are usually provided with movable slides (actuated by finger-rings or triggers) which may be lengthened by the player as needed to compensate for this acoustical deficiency. 'Compensating systems', by which additional lengths of tubing are automatically brought into play when the valves are used in combination, were developed in

Paris as early as 1858; the most successful system, developed by D.J. Blaikley of Boosey & Co., London, in 1874, is still used on low brass instruments. Trumpets and cornets have also been constructed with similar types of compensating systems: J.-B. Arban experimented with them between 1883 and 1888 (after 1885 with the engineer L. Bouvet). (Various valve trumpets and cornets are shown in [figs.4](#) and [9](#).)

Wagner, Mahler and Richard Strauss notated their trumpet parts as much as possible in C, indicating the desired transposition above, thus leaving to the performer the question of which instrument to use. The trumpet's pitch could thus change every few bars, especially with Wagner's music, though in no case did trumpeters change crooks as frequently as notated, nor did composers expect them to. The increasing technical difficulty of parts written for the long F trumpet, however, influenced trumpeters to change to a shorter instrument, the 4½' B or the 4' C trumpet.



(a) Comet in B \flat , with 'Stölzel' valves, by Laberte Humbert,...

The introduction of the B \flat and C trumpets was also due to the influence of the B \flat cornet (fig.9a and b), which was invented around 1830 when Halary built a B \flat post horn with valves. The cornet's lowest crook, G, was the highest crook of the French valve trumpet. Because its tubing was shorter and more conical than that of the F or G trumpet, the B \flat cornet was considerably more agile than the trumpet; accordingly French composers came to orchestrate for a pair of cornets and a pair of trumpets. Arban's cornet method (1864) was used as a trumpet method and continued to influence trumpet playing throughout the 19th and 20th centuries. In the USA and especially in France towards the end of the 19th century and at the beginning of the 20th, the cornet even threatened to oust the trumpet from the orchestra. The cornet also introduced a different notation, according to which 'c' was no longer the 8th partial but the 4th. The consequent greater distance between adjacent partials (in any part of the register) reduced the chance of 'cracking', or hitting another note besides the one desired. Ex.2 shows the 'open' notes on the modern C trumpet (on the B \flat trumpet and cornet they sound a tone lower).



Ex.2

The transition from the long F to the shorter B \flat trumpet began in Germany, where A. Kühnert of Dresden was one of the first to recognize the possibilities of the shorter instrument, about 1850 to 1860. Teste, first trumpeter at the Paris Opéra, introduced the C (actually D/C) trumpet in France in 1874. By about 1890 the transition was complete. In England the F trumpet was reinstated at the Royal College of Music in 1910 and taught there for a few years, at the insistence of Walter Morrow, but the new generation of players returned to the B \flat instrument.

Around 1850, especially in France, England and the USA, brass-instrument making began to convert to modern industrial methods of manufacture. Some of the most important 19th-century manufacturers, and bitter competitors for the international market, were: Moritz (Berlin), Pelitti (Milan), Sax (Brussels and Paris), Besson (Paris), Červený (Königgrätz; now Hradec Králové), Boosey (London), Hawkes (London), Conn (Elkhart, IN) and Couesnon (Paris). An ideal situation existed before World War II in Neukirchen (now Markneukirchen) and Graslitz (now Kraslice), where specialized makers of bells, valve sections and other parts lived close together and sold their products to an assembler, whose name appeared on the finished product.



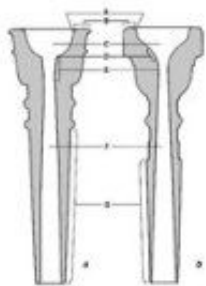
(a) Comet in B \flat , with 'Stölzel' valves, by Laberte Humbert,...

During the early 20th century small-bore instruments were popular in countries in which piston valve trumpets were used. The Conn 22B, widely used in American symphony orchestras, had a bore of 11.12 mm. The Thibouville-Lamy C trumpet, played in France before and just after World War I, had a bore of 11.2 mm (fig.9f), whereas

that of the contemporary French Besson B \flat trumpet, the prototype of modern American trumpets, was 11.61 mm. In the 1930s in the

USA, after World War II in England and after about 1960 in France, larger-bore trumpets were introduced in symphony orchestras to balance the larger volume of tone produced by the horn and trombone sections, which had already adopted large-bore instruments. Typical bore

measurements of B \flat trumpets in use today are: Vincent Bach medium large, 11.66 mm (fig.9e); Bach large, 11.74 mm; Schilke, 11.1 to 11.89 mm; and Yamaha, 10.5 to 11.76 mm. The most popular rotary-valve trumpets throughout most of the 20th century were the smaller-bore model (10.9 mm) used in Vienna and Dresden and made by Heckel, later Windisch, then Meyer, all of Dresden, and the larger-bore model (11.2 mm) used in Berlin and made by Josef Monke of Cologne. At the end of the 20th century a host of new names – Adaci, Baumann, Egger, Ganter, Kröger, Kürner, Lechner, Meyer, Peter, Scherzer, Syhre, Thein and Yamaha – were vying for the favour of players. American and German trumpets differ in other aspects of construction, which account for the characteristic difference in their sound and response. Besides their generally larger bore, American trumpets have more conical tubing than German ones; the bell is smaller; the mouthpiece cup medium large as compared with the German very large; and the beginning of the mouthpipe small (9.5 mm) as compared with the German (10 mm).



Baroque (left) and modern trumpet mouthpieces: A – inner edge...

Although mouthpieces were also standardized at the beginning of the 20th century, they vary widely in width and form of rim, shape and depth of cup, and width of throat, so that the selection of a proper mouthpiece is still an individual matter. Some mouthpieces have a 'double cup', the shoulder between cup and throat being constructed to include a smaller second cup between it and the throat proper. A short cylindrical section in the throat increases the sureness of attack but tends to make the upper register out of tune ([fig.5](#)).

Trumpet parts in modern orchestral works frequently reach the d'' first introduced by Mahler and Strauss. Some jazz musicians frequently play up to bb''' and even higher, but playing such notes with the required force would tend to deaden the 'classical' trumpeter's sensitivity in the middle and lower registers, where it is all-important. Ideal articulation today demands that every note receive exactly the same attack. Trumpeters have departed considerably from the unequal articulation that was the ideal of the Baroque period and from the manifold subtleties of attack described in most 19th-century methods. Double tonguing (*tu-ku tu*) is done for quick duplets, triple tonguing (*tu-tu-ku tu*, formerly *tu-ku-tu tu* – first applied to the cornet by Arban – and sometimes as in double tonguing *tu-ku-tu ku*) for quick triplets. Because the large-bore instruments in use today require more air, correct breathing and diaphragm support are central in modern instruction. A number of special effects once reserved almost exclusively for jazz are now used in chamber and symphonic music: for example, flutter-tonguing, performed by trilling the dental *R* (although this was used as early as Strauss's *Don Quixote*, 1897); vibrato of varying amplitude and speed, produced by the chin, the diaphragm or the motion of the right hand; glissandos (accomplished by depressing the valves only halfway); rips, similar to glissandos but with a rapid random action of the valves; singing and playing simultaneously, which results in various tones and beats being produced, best workable in the low register; producing an 'airy' tone, by tightening the lips more than usual and blowing with force so that part of the lip tissue does not vibrate; and even playing multiple notes, by tightening or relaxing the lips unduly and blowing between the partials.

Louis Armstrong (1901–71) was the most influential of early jazz trumpeters. He was the first to use the higher register to eb''' , and also set standards in jazz phrasing and 'inflection' – the varied attacks, timbres and vibratos common to jazz trumpeting. Other jazz trumpeters, such as Bubber Miley and Cootie Williams, excelled in growl and plunger-mute effects; trumpeters of the swing period, such as Henry 'Red' Allen and Roy Eldridge, explored high-register smears and rips. Virtuoso demands, already at a high level, were increased still further by the bop musicians Dizzy Gillespie and Clifford Brown, who cultivated special techniques such as half-valving; Miles Davis explored the more subdued timbres of the instrument. Avant-garde jazz trumpeting is represented by Don Cherry, who played a miniature instrument called the 'pocket trumpet', and Woody Shaw. The 'big band' style of orchestral jazz has produced a number of excellent high-note specialists, including Cat Anderson, Maynard Ferguson, Bill Chase, and, towards the end of the 20th century, the flamboyant and versatile James Morrison and Arturo Sandoval. The teaching of jazz at academic institutions has encouraged high-note trumpet methods (by Carlton MacBeth, Roger Spaulding, Claude Gordon and James Stamp) which are studied by trumpeters of all persuasions, and has furthermore produced a number of jazz players with classical training such as Allan Vizzuti and Wynton Marsalis. The jazz influence on orchestral music can also be seen in the use of new kinds of mute – cup mute, Harmon or 'wa-wa' mute, 'solotone' mute, felt hat and plunger mute – in addition to the traditional straight mute made of wood or metal (see [MUTE, §2](#)).

After the introduction of the B valve trumpet in the mid-19th century, even higher instruments were produced. The D trumpet, only half as long as the Baroque D trumpet, seems to have been used in works of Bach and Handel by 1861 in Brussels, and in Germany from about 1885; it appeared in England in a straight form in 1892 and was subsequently folded back on itself like a B trumpet (see also

Modern piccolo trumpets in B, showing the wide variety of...

[BACH TRUMPET](#)). Several 20th-century composers have made use of

the D trumpet (the instrument they intended had a narrower bore and a more penetrating tone than the kind generally made today); they include Ravel (*Boléro*), Stravinsky (*Rite of Spring*, *Petrushka*, *Symphony of Psalms*), Britten (*Peter Grimes*) and Peter Maxwell Davies (Sonata for D-trumpet and piano). Today, such orchestral parts are increasingly played on the piccolo trumpet in B \flat or A. The first piccolo trumpet in G was made by F. Besson for a performance by Teste of Bach's *Magnificat* in 1885. Besson subsequently constructed high trumpets in F/E \flat and E \flat /D. The piccolo B \flat was originally developed by Sax (as 'petit Sax-horn suraigu en ut ou en sib') in 1849 for the première of Berlioz's *Te Deum*, but was subsequently forgotten until 1905 or 1906, when Alexander of Mainz built one which A. Goeyens of Brussels used for performance of Bach's second Brandenburg Concerto, a work he had first performed in 1902 on a small F trumpet. (T. Charlier had been the first to perform this work on a high G trumpet, in 1898.) The first modern player to adopt the piccolo B \flat for D trumpet parts was Adolf Scherbaum, for whom Leistner of Hamburg constructed one with three different bells in 1951. Scherbaum & Göttnner, Schilke, Yamaha, Adaci and J. Monke have even made piccolo C trumpets, and Schilke has had an order for a piccolo D trumpet. A hindrance to making such tiny trumpets – besides the obvious acoustical difficulties – is the extreme shortness of the second valve slide, which is already of compromise length on the piccolo C trumpet and cannot be pulled out. [Fig.10](#) shows some of the great variety of shapes in which the piccolo B \flat trumpet is made.

Although England was slow to adopt the B \flat or C trumpet, by the 1970s a number of English players were among the most progressive in using an E \flat trumpet in place of the B \flat or C. Unfortunately this involved the loss of a certain fullness of tone, as at the beginning of this century when the B \flat trumpet – called the 'trumpetina' in England – replaced the long F trumpet.

A revival of the natural trumpet of the Baroque period took place in the 20th century. In 1931 Alexander of Mainz built three low-pitch D trumpets (a'= 415) after an original by J.J. Schmied (Pffendorf, 1767) for the Hoesch Collection (now dispersed); these were tested in concerts of the Kammermusikreis Scheck-Wenzinger, but with no particular success. Another design built by Alexander, in 8' pitch with two double bends and two valves, was presented by Werner Menke in 1934. In 1960 Otto Steinkopf, working with the instrument maker H. Finke, devised a trumpet with two vent holes and a transposing hole which not only correct the intonation of the 11th and 13th partials but also improve accuracy by artificially increasing the distance between the partials in the fourth (and fifth) octave. For example, when the hole covered by the ring finger of the right hand is opened, only the 8th, 10th, 12th, 14th and 16th partials can be sounded, the intervening odd-numbered ones being cancelled out. Walter Holy, first trumpeter of the Capella Coloniensis, used this instrument with great success in works of Bach and others. The Steinkopf-Finke trumpet was built in coiled form like the instrument held by Gottfried Reiche in the famous portrait by E.G. Haussmann (probably painted in about 1727). Meinel & Lauber (now E. Meinel) and Rainer Egger, working from 1967 with E.H. Tarr, produced trumpets both with and without the three holes after Hans Hainlein (1632), J.L. Ehe (ii) (c1700), J.L. Ehe (iii) (1746) and W.W. Haas; Michael Laird has since collaborated with various London makers on a model with four holes. Trumpets with vent holes should not be termed 'natural' (Tarr proposes the neutral term 'Baroque trumpet'). A class for both natural and vented trumpets was set up at the Schola Cantorum Basiliensis in 1973 and the instrument subsequently began to be taught in many institutions, notably in Cologne, Göteborg, London, Trossingen and Lyons.

In 1916 Merri Franquin, professor of trumpet at the Paris Conservatoire, developed a five-valve C trumpet with Jérôme Thibouville-Lamy. The fourth valve raised the pitch by a whole tone; the fifth lowered it by a major or minor 3rd, depending on the slide setting. Owing to the complexity of its operation, this instrument never enjoyed wide use. A four-valve trumpet by Franquin was more successful and was played by Roger Voisin during his career as first trumpeter of the Boston SO. The advantages of a whole-tone ascending valve in obtaining correct intonation were also recognized by Armando Ghitalla, Voisin's successor; he encouraged the maker Tottle (Boston) to rebuild Vincent Bach trumpets with a rotary whole-tone ascending valve placed in the middle of the tuning-slide. Renold Schilke's innovations include the tuning-bell, by which the tuning-slide is placed as far towards the bell end of the trumpet as possible, thus reducing internal turbulence and improving the response.

Since the early 19th century trumpeters have traditionally had to seek their livelihood in

orchestras. Although there have been cornet soloists and jazz trumpeters, only after World War II did the trumpet slowly come to be recognized again as a solo instrument in orchestral music. The first recordings of the Haydn concerto, performed by George Eskdale and Helmut Wobisch, were important in this revival. While the earlier soloists – Eskdale, Wobisch, Scherbaum, Voisin, Ghitalla, Roger Delmotte – were primarily orchestral musicians, some trumpeters are now active exclusively as soloists. The charismatic Maurice André has enjoyed an unparalleled career, and two of his pupils, Guy Touvron and Bernard Soustrot, were pursuing active solo careers at the end of the 20th century, as were Eric Aubier and Thierry Caens (France), Reinhold Friedrich and Markus Stockhausen (Germany), Håkan Hardenberger (Sweden), Ole Edvard Antonsen (Norway), Jouko Harjanne (Finland), Michael Brydenfelt (Denmark), John Wallace (Britain) and Stephen Burns (USA).

For further discussion of the use of the trumpet for signalling, see [SIGNAL \(I\)](#).

Edward H. Tarr

Bibliography

A General. B The Western trumpet.

A: General

Grovel ('Alphorn', A. Baines, 'Arupepe', K.A. Gourlay, 'Äžrags', 'Bänkiä', G. Dournon, 'Borija', 'Daudytė', A. Karaška, 'Davui', 'Didjeridu', T.A. Jones, 'Dung-chen', M. Helffer, 'Eng'ombe', 'Horagai', 'Lur, (2)', B. Kjellström, 'Nars'igā', C.M. Babiracki, 'Ndumbu', G. Kubik and D.K. Rycroft, 'Pū', M. McLean, 'Šankh', A. Dick, 'Tapáe', 'Taure', Trumpet [incl list of other types of Trumpet, §5, pp.652–3])

SachsH

E.M. von Hornbostel and C. Sachs: 'Systematik der Musikinstrumente', *Zeitschrift für Ethnologie*, xlv (1914/R), 553–90

K.G. Izikowitz: *Musical and Other Sound Instruments of the South American Indians* (Göteborg, 1934)

M. Trowell and K.P. Wachsmann: *Tribal Crafts of Uganda* (London, 1953)

C.M. Turnbull: *The Forest People* (New York, 1961)

P. Collaer: *Music of the Americas: an Illustrated Music Ethnography of the Eskimo and American Indian Peoples* (New York, 1973)

A. Baines: *Brass Instruments: their History and Development* (London, 1980)

K.A. Gourlay: 'Long Trumpets of Northern Nigeria in History and Today', *African Music*, vi/2 (1982), 48–72

R. Moyle: *Tongan Music* (Auckland, 1987)

R. Meucci: 'Roman Military Instruments and the *Lituus*', *GSJ*, xlii (1989), 85–97

D.L. Smithers: 'A New Look at the Historical, Linguistic and Taxonomic Bases for the Evolution of Lip-Blow n instruments from Classical Antiquity until the End of the Middle Ages', *HBSJ*, i (1989), 3–64

R. Boonzajer: 'The Minahassa Bamboo Brass Bands', *Brass Bulletin*, lxxvii (1992), 38–47

G. Dournon: 'Organology', *Ethnomusicology: an Introduction*, ed. H. Myers (London, 1992), 245–300

M. Ghouse Nasuruddin: *The Malay Traditional Music* (Kuala Lumpur, 1992)

Hajime Fukui: 'The *Hora* (Conch Trumpet) of Japan', *GSJ* xlvii (1994), 47–62

B: The western trumpet

MersenneHU

MGG1 (A. Berner)

PraetoriusSM

PraetoriusTI

VirdungMG

M. Agricola: *Musica instrumentalis deudsch* (Wittenberg, 1528, 2/1529/R, enlarged 5/1545)

C. Bendinelli: *Tutta l'arte della trombetta* (MS, 1614); facs. with commentary by E.H. Tarr in DM, 2nd ser., Handschriften-Faksimiles, v (1975); Eng. trans. (Nashville, TN, 1975)

G. Fantini: *Modo per imparare a sonare di tromba* (Frankfurt, 1638/R; Eng. trans., 1975)

D. Speer: *Grundrichtiger Kurtz-Leicht- und Nöthiger Unterricht der musikalischen Kunst* (Ulm, 1687, 2/1697/R)

J.E. Altenburg: *Versuch einer Anleitung zur heroisch-musikalischen Trumpeter- und Pauker-Kunst* (Halle, 1795/R; Eng. trans., 1974)

'Über die neuerlichen Verbesserungen der Trompete und der ihr ähnlichen Blasinstrumente', AMZ, xvii (1815), 633–8

F.-J. Fétis: 'Cors à pistons', ReM, ii (1828), 153–64

K. Bagans: 'On the Trumpet, as at Present Employed in the Orchestra', *American Musical Journal*, i (1834–5), 252–5

G. Weber: 'Ueber Ventilhorn und Ventiltrompete mit drei Ventilen', *Caecilia* [Mainz], xvii (1835), 73–105

H. Eichborn: *Die Trompete in alter und neuer Zeit* (Leipzig, 1881/R)

H. Eichborn: 'Girolamo Fantini, ein Virtuos des 17. Jahrhunderts und seine Trompeten-Schule', MMg, xxii (1890), 112–38

H. Eichborn: *Das alte Clarinblasen auf Trompeten* (Leipzig, 1894/R)

H. Pietzsch: *Die Trompete als Orchester-Instrument und ihre Behandlung in den verschiedenen Epochen der Musik* (Heilbronn, 1901, 2/1906/R, Ger. and Eng. texts)

V.C. Mahillon: *Instruments à vent*, iii: *La trompette* (Brussels, 1907)

F.W. Galpin: *Old English Instruments of Music* (London, 1910, rev. 4/1965/R by T. Dart)

A. Schering: 'Zu Gottfried Reiches Leben und Kunst', BJb 1918, 133–56

O. Mörtzsch: 'Die Dresdner Hoftrompeter', *Musik im alten Dresden* (Dresden, 1921), 35–98

F. Jahn: 'Die Nürnberger Trompeten- und Posaunenmacher im 16. Jahrhundert', AMw, vii (1925), 23–52

M. Franquin: 'La trompette et le cornet', EMDC, II/iii (1927), 1596–1637

H. Bouasse: *Instruments à vent* (Paris, 1929/R)

A. Werner: 'Johann Ernst Altenburg, der letzte Vertreter der heroischen Trompeter- und Paukerkunst', ZMw, xv (1932–3), 258–76

W. Menke: *Die Geschichte der Bach- und Handel-Trompete* (Leipzig, 1934; Eng. trans., 1934/R)

W.F.H. Blandford: 'The "Bach Trumpet"', MMR, lxv (1935), 49–52, 73–7, 97–101

G. Schünemann: 'Sonaten und Feldstücke der Hoftrompeter', ZMw, xvii (1935), 147–70

G. Schünemann, ed.: *Trompeterfanfaren, Sonaten und Feldstücke*, EDM, 1st ser., vii (1936)

J. Igarashi and M. Koyasu: 'Acoustical Properties of Trumpets', JASA, xxv (1953), 122–7

- W. Wörthmüller: 'Die Nürnberger Trompeten- und Posaunenmacher des 17. und 18. Jahrhunderts', *Mitteilungen des Vereins für Geschichte der Stadt Nürnberg*, xlv (1954), 208–325; xlvi (1955), 372–480
- F. Lesure: 'Le traité des instruments de musique de Pierre Trichet: les instruments à vent', *AnnM*, iii (1955), 283–387; iv (1956), 175–248
- F.W. Sternfeld: 'The Dramatic and Allegorical Function of Music in Shakespeare's Tragedies: the Symbolism of Trumpets', *AnnM*, iii (1955), 265–82
- C. Titcomb: 'Baroque Court and Military Trumpets and Kettledrums: Technique and Music', *GSJ*, ix (1956), 56–81
- Brass Quarterly* (1957–64)
- H. Bahnert, T. Herzberg and H. Schramm: *Metallblasinstrumente* (Leipzig, 1958, 2/1986)
- M.W. Riley: 'A Tentative Bibliography of Early Wind Instrument Tutors', *JRME*, vi (1958), 3–24
- C.L. Cudworth and F.B. Zimmerman: 'The Trumpet Voluntary', *ML*, xli (1960), 342–8
- E. Halfpenny: 'William Shaw's "Harmonic Trumpet"', *GSJ*, xiii (1960), 7–13
- E.A. Bowles: 'Unterscheidung der Instrumente Buisine, Cor, Trompe und Trompette', *AMw*, xviii (1961), 52–72
- H. Kirchmeyer: 'Die Rekonstruktion der "Bachtrompete"', *NZM*, Jg.122 (1961), 137–45
- M. Krivin: *A Century of Wind-Instrument Manufacturing in the United States: 1860–1960* (diss., U. of Iowa, 1961)
- E. Halfpenny: 'William Bull and the English Baroque Trumpet', *GSJ*, xv (1962), 18–24
- R. Hammerstein: *Die Musik der Engel, Untersuchungen zur Musikanschauung des Mittelalters* (Berne, 1962)
- F. Lesure: 'Pierre Trichet's *Traité des instruments de musique*: Supplement', *GSJ*, xv (1962), 70–81; xvi (1963), 73–84
- E. Halfpenny: 'Two Oxford Trumpets', *GSJ*, xvi (1963), 49–62
- F. Körner: *Studien zur Trompete des 20. Jahrhunderts* (diss., U. of Graz, 1963)
- J.M. Barbour: *Trumpets, Horns and Music* (East Lansing, MI, 1964)
- A.-E. Cherbuliez: 'Johann Ludwig Steiner, Stadttrompeter von Zürich', *Neujahrsblatt der Allgemeinen Musikgesellschaft in Zürich*, cxlviii (1964)
- Brass World* (1965–74)
- H. Heyde: *Trompete und Trompetebblasen im europäischen Mittelalter* (diss., U. of Leipzig, 1965)
- D. Smithers: 'The Trumpets of J.W. Haas: a Survey of Four Generations of Nuremberg Brass Instrument Makers', *GSJ*, xviii (1965), 23–41
- J. Wheeler: 'Further Notes on the Classic Trumpet', *GSJ*, xviii (1965), 14–22
- P. Bate: *The Trumpet and Trombone* (London, 1966, 2/1972/R)
- M. Byrne: 'The Goldsmith-Trumpet-Makers of the British Isles', *GSJ*, xix (1966), 71–83
- BWQ* (1966–9)
- K. Polk: 'Wind Bands of Medieval Flemish Cities', *BWQ*, i (1966–8), 93–117
- E. Halfpenny: 'Early British Trumpet Mouthpieces', *GSJ*, xx (1967), 76–88
- H. Heyde: 'Die Unterscheidung von Klarin- und Prinzipaltrompete: zum Problem des Klarinblasens', *BMw*, ix (1967), 55–9
- G. Bridges: *Pioneers in Brass* (Detroit, 1965, 2/1968)
- B. Štědroň: 'Landschafts-Trompeter und -Tympanisten im alten Brünn', *Mf*, xxi (1968), 438–58
- R.E. Eliason: *Brass Instrument Key and Valve Mechanisms made in America before 1875, with Special*

- Reference to the D.S. Pillsbury Collection in Greenfield Village, Dearborn, Michigan (diss., U. of Missouri, 1969)
- E. Halfpenny: 'Four Seventeenth-Century British Trumpets', *G SJ*, xxii (1969), 51–7
- K. Polk: 'Municipal Wind Music in Flanders in the Late Middle Ages', *BWQ*, ii (1969), 1–45
- A. Schnoebelen: 'Performance Practices at San Petronio in the Baroque', *AcM*, xli (1969), 37–55
- E.J. Enrico: *Giuseppe Torelli's Instrumental Ensemble Music with Trumpet* (diss., U. of Michigan, 1970)
- L.J. Plenckers: *Hoorn- en trompetachtige blaasinstrumenten*, Haags Gemeentemuseum: Catalogus van de muziekinstrumenten, i (Amsterdam, 1970)
- E.H. Tarr: 'Monteverdi, Bach und die Trompetenmusik ihrer Zeit', *GfMKB: Bonn 1970*, 592–6
- E.H. Tarr: 'Original Italian Baroque Compositions for Trumpet and Organ', *The Diapason*, lxi/5 (1970), 27–9
- T.F. Taylor: 'Jeremiah Clarke's Trumpet Tunes: Another View of Origins', *MQ*, lvi (1970), 455–62
- Brass Bulletin: International Brass Chronicle* (1971–)
- Sounding Brass* (1971–82)
- E. Halfpenny: 'Notes on Two Later British Trumpets', *G SJ*, xxiv (1971), 79–83
- D.L. Smithers: 'The Hapsburg Imperial *Trompeter* and *Heerpaucker* Privileges of 1653', *G SJ*, xxiv (1971), 84–95
- K. Pechstein: 'Die Merkzeichentafel der Nürnberger Trompeten- und Posaunenmacher von 1640', *Mitteilung des Vereins für Geschichte der Stadt Nürnberg*, lix (1972), 198–202
- E.H. Tarr: 'The Baroque Trumpet, the High Trumpet and the So-Called Bach Trumpet', *Brass Bulletin*, no.2 (1972), 30–34, 40–42; no.3 (1972), 44–8, 54–7
- K. Wogram: *Ein Beitrag zur Ermittlung der Stimmung von Blechblasinstrumenten* (diss., Technical Institute of Braunschweig, 1972)
- D. Altenburg: *Untersuchungen zur Geschichte der Trompete im Zeitalter der Clarinblaskunst 1500–1800* (Regensburg, 1973)
- A.H. Benade: 'The Physics of Brasses', *Scientific American*, ccxxix/1 (1973), 24–35
- T. Seebass: *Musikdarstellung und Psalterillustration im früheren Mittelalter* (Berne, 1973)
- D.L. Smithers: *The Music and History of the Baroque Trumpet before 1721* (London, 1973, 2/1988)
- H. Zorn: *Die Trompete in der deutschen Orchestermusik von ca. 1750 bis ins 20. Jahrhundert* (diss., U. of Innsbruck, 1973)
- P. Ciurczak: *The Trumpet in the Baroque Opera: its Use as a Solo, Ensemble, and Obligato Instrument* (diss., North Texas State U., 1974)
- A. Baines: 'The Evolution of Trumpet Music up to Fantini', *PRMA*, ci (1974–5), 1–9
- D. Altenburg: 'Zum Repertoire der Hoftrompeter im 17. und 18. Jahrhundert', *Fachtagung zur Erforschung der Blasmusik I: Graz 1974*, 47–60
- E.T. Chafe: *The Church Music of Heinrich Biber* (diss., U. of Toronto, 1975)
- N. Carnovale: *Twentieth-Century Music for Trumpet and Orchestra: an Annotated Bibliography* (Nashville, 1975, rev. 2/1994)
- R. Dahlqvist: *The Keyed Trumpet and its Greatest Virtuoso, Anton Weidinger* (Nashville, 1975)
- H. Heyde: *Katalog der Blasinstrumente des Musikinstrumentenmuseums der Karl-Marx-Universität Leipzig* (Leipzig, 1975)
- A. Baines: *Brass Instruments: their History and Development* (London, 1976/R)
- A. Benade: *Fundamentals of Musical Acoustics* (New York, 1976/R)
- Journal of the International Trumpet Guild* (1976–)

- J.-P. Mathez: *Joseph Jean-Baptiste Laurent Arban 1825–1889* (Moudon, 1977)
- P. Righini: 'Dalle trombe egizie per l' "Aida" alle trombe di Tut-Ankh-Amon', *NRMI*, xi (1977), 591–605
- D.L. Smithers: 'The Baroque Trumpet after 1721: some Preliminary Observations', *EMc*, v (1977), 177–83; vi (1978), 356–61
- E.H. Tarr: *Die Trompete* (Berne, 1977, 3/1994)
- H. Heyde: 'Zur Frühgeschichte der Ventile und Ventilinstrumente in Deutschland (1814–1833)', *Brass Bulletin*, no.24 (1978), 9–33; no.25 (1979), 41–50; no.26 (1979), 69–82; no.27 (1979), 51–9 [with Eng. and Fr. texts]
- E. Tarr and T. Walker: 'Bellici carni, festivo fragor: die Verwendung der Trompete in der italienischen Oper des 17. Jahrhunderts', *HJbMw*, iii (1978), 143–203
- J. Höfler: 'Der "trompette de ménestrels" und sein Instrument', *TVNM*, xxix (1979), 92–132
- S. Žak: *Musik als 'Ehr und Zier' im mittelalterlichen Reich: Studien zur Musik im höfischen Leben, Recht und Zeremoniell* (Neuss, 1979)
- C. Ziegler: *Les instruments de musique égyptiens au musée du Louvre* (Paris, 1979)
- D. Altenburg: 'Zum Repertoire der Türmer, Stadtpfeifer und Ratsmusiker im 17. und 18. Jahrhundert', *Alta Musica*, vi (1980), 9–32
- R. Dahlqvist: 'Some Notes on the Early Valve', *GSJ*, xxxiii (1980), 111–24
- M. Haine: *Adolphe Sax (1814–1894): sa vie, son oeuvre, et ses instruments de musique* (Brussels, 1980)
- H. Heyde: *Trompeten, Posaunen, Tuben*, Katalog: Musikinstrumenten-Museum der Karl-Marx-Universität Leipzig, iii (Leipzig, 1980)
- E.H. Tarr: 'Die Musik und die Instrumente der Charamela real in Lissabon', *Forum musicologicum: Basler Studien zur Interpretation der alten Musik*, ii (1980), 181–229
- P. Downey: 'A Renaissance Correspondence concerning Trumpet Music', *EMc*, ix (1981), 325–9
- L.I. al-Faruqi: *An Annotated Glossary of Arabic Musical Terms* (Westport, CT, 1981)
- P. Downey: *The Trumpet and its Role in Music of the Renaissance and Early Baroque* (diss., Belfast, 1983)
- L. Welker: "'Alta Capella": Zur Ensemblepraxis der Blasinstrumente im 15. Jahrhundert', *Basler Jb für historische Musikpraxis*, vii (1983), 119–65
- P. Downey: 'The Renaissance Slide Trumpet: Fact or Fiction?', *EMc*, xii (1984), 26–33
- ICTM Study Group on Music Archaeology: Conference II: Stockholm 1984*, ii: The Bronze Lurs
- T. MacCracken: 'Die Verwendung der Blechblasinstrumente bei J.S. Bach unter besonderer Berücksichtigung der Tromba da tirarsi', *BJb*, lxx (1984), 59–89
- C. Ahrens: *Eine Erfindung und ihre Folgen: Blechblasinstrumente mit Ventilen* (Kassel, 1986)
- D.L. Smithers, K. Wogram and J.M. Bowsher: 'Playing the Baroque Trumpet', *Scientific American*, ccliv/4 (1986), 108–15
- H. Heyde: *Das Ventilblasinstrument: seine Entwicklung im deutschsprachigen Raum von den Anfängen bis zur Gegenwart* (Leipzig, 1987)
- K. Polk: 'The Trombone in Archival Documents: 1350–1500', *Journal of the International Trombone Association*, xv/3 (1987), 24–31
- D. Smithers: 'Gottfried Reiches Ansehen und sein Einfluss auf die Musik Johann Sebastian Bachs', *BJb*, lxxiii/1 (1987), 113–50
- R. Dahlqvist: *Bidrag till trumpeten och trumpetspelets historia: från 1500-talet till mitten av 1800-talet, med särskild hänsyn till perioden 1740–1830* (diss., U. of Göteborg, 1988) [with Eng. summary; Eng. trans. in preparation]
- J. Sehnal: 'Trubači a hra na přirozenou trompetu na moravě v 17. a 18. století, 1. část' ('Naturtrompete und Trompeter in Mähren im 17. und 18. Jahrhundert, 1. Teil'), *Acta musei moraviae*, lxxiii (1988), 175–203

- J. Sehnaal: 'Die Trompete vom Barock bis zur Klassik', *Evropski glasbeni klasicizem in njegov odmev na Slovenskem/Der europäische Musikklassizismus und sein Widerhall in Slowenien: Ljubljana 1988*, 53–62 [with Ger. summary]
- G. Law son and G. Egan: 'Medieval Trumpet from the City of London', *GSJ*, xli (1988), 63–6
- J. Webb: 'The Billingsgate Trumpet', *GSJ*, xli (1988), 59–62
- Historic Brass Society Journal (HBSJ)* (1989–)
- F. Anzenberger: *Ein Überblick über die Trompeten- und Kornettschulen in Frankreich, England, Italien, Deutschland und Österreich von ca. 1800 bis ca. 1880* (diss., U. of Vienna, 1989)
- R.W. Duffin: 'The *trompette des ménestrels* in the 15th-Century *alta capella*', *EMc*, xvii (1989), 397–402
- H. Myers: 'Slide Trumpet Madness: Fact or Fiction?', *EMc*, xvii (1989), 383–9
- K. Hofmann: 'Johann Sebastian Bachs Kantate "Jauchzet Gott in allen Landen" BWV51: überlegungen zu Entstehung und ursprünglicher Bestimmung', *BJb*, lxxv (1989), 43–54
- K. Polk: 'The Trombone, the Slide Trumpet and the Ensemble Tradition of the Early Renaissance', *EMc*, xvii (1989), 389–97
- D.L. Smithers: 'A New Look at the Historical, Linguistic and Taxonomic Bases for the Evolution of Lip-Blow n Instruments from Classical Antiquity until the End of the Middle Ages', *HBSJ*, i (1989), 3–64
- D. Lasocki: 'A Bibliography of Writings about Historic Brass Instruments', *HBSJ* (1990–) [annual series]; also available online <http://www.music.indiana.edu/musicref/brassint.htm>
- D.L. Smithers: 'Bach, Reiche and the Leipzig collegia musica', *HBSJ*, ii (1990), 1–51
- B. Čížek: 'Josef Kail (1795–1871), Forgotten Brass Instrument Innovator', *Brass Bulletin*, no.73 (1991), 64–75; no.74 (1991), 24–9
- G. Law son: 'Medieval Trumpet from the City of London, II', *GSJ*, xliv (1991), 150–56
- M.H. Schmid: 'Trompeterchor und Sprachvertonung bei Heinrich Schütz', *Schütz-Jb* 1991, 28–55
- A. Hiller: *Trompetenmusiken aus drei Jahrhunderten (ca. 1600–nach 1900): Kompositionen für 1 bis 24 (Natur-)Trompeten mit und ohne Pauken*, 3 vols. (Cologne, 1991) (Eng. trans., 1993)
- R. Meucci: 'On the Early History of the Trumpet in Italy', *Basler Jb für historische Musikpraxis*, xv (1991), 9–34
- R.L. Barclay: *The Art of the Trumpet-Maker: the Materials, Tools, and Techniques of the Seventeenth and Eighteenth Centuries in Nuremberg* (Oxford, 1992)
- R. Dahlqvist: 'Pitches of German, French, and English Trumpets in the 17th and 18th Centuries', *HBSJ*, v (1993), 29–41
- E.H. Tarr: 'The Romantic Trumpet', *HBSJ*, v (1993), 213–61; vi (1994), 110–215
- R. Dahlqvist and B. Eklund: 'The Bach Renaissance and the Trumpet', *Euro-ITG Newsletter* (1995), no.1, pp.12–17
- R. Dahlqvist and B. Eklund: 'The Brandenburg Concerto No.2', *Euro-ITG Newsletter* (1995), no.2, pp.4–9
- A.P. Brown: 'The Trumpet Overture and Sinfonia in Vienna (1715–1822): Rise, Decline and Reformulation', *Music in Eighteenth-Century Austria*, ed. D.W. Jones (Cambridge, 1996), 13–69
- F. Keim: *Über dem hohen C* (Mainz, 1996)
- K. Hofmann: "'Grosser Herr, o starker König": Ein Fanfarenthema bei Johann Sebastian Bach', *BJb* 1997, 31–46
- K. Hofmann: 'Nochmals: Bach fanfurenthema', *BJb* 1997, 177–9
- R. Duffin: 'Backward Bells and Barrel-Bells: some Notes on the Early History of Loud Instruments', *HBSJ*, ix (1997), 112–29
- T. Herbert and J. Wallace, eds.: *The Cambridge Companion to Brass Instruments* (Cambridge, 1997)

