Cors audessus ne s'employent que dans les Simphonies, à cause de leur peu d'étendue et que de plus les Sons élevés n'en sont point agréables." (Choron p.45)

C-alto: 1772 (Francoeur) Not used owing to shrillness

ca.1789 (Vandenbroeck) Not used for several years

1807 (Domnich) Will give a piece "de la vivacité, du mouvement et de l'éclat".

1813 (Choron) " ... on ne s'en sert point parce que ses Sons trop aigus, sont très désagréables. Le Son de ce Cor, tient beaucoup de celui de la Trompette sans être le même absolument."

B flat alto: ca.1789 (Vandenbroeck) For a piece that is "bruiant".

ca.1795 (Vandenbroeck) (With the A and the G horns) "absolument proscrit pour donner les Solo au Cors à cause de la dureté des tons ... on ne doit se servir des tons de sol, la et si en haut que pour des morceaux d'effet à grand fracas."

1807 (Domnich) (With the A horn) "ne doivent être employés que pour de simples effets d'orchestre. Leur qualité de son est aigue et si perçante, que dans l'accompagnement d'un morceau doux et gracieux, les plus habiles maîtres n'en sauraient tirer parti."

A: ca.1795 (Vandenbroeck) See B flat above.

1807 (Domnich) See B flat above

G: ca.1795 (Vandenbroeck) See B flat above

1807 (Domnich) "Naturellement sonore, demande de la délicatesse. Il faut en user avec une sorte de réserve. Un chant facile sur ce ton peut néanmoins produire un bon effet."

F: 1807 (Domnich) (With E natural, E flat horns) "admettent tout ce qu'il est de possible d'exécuter sur le Cor, depuis l'accompagnement le plus simple, jusqu'au concerto le plus brillant ... "

1813 (Choron) (With D, E natural, E flat horns) "pour les Concerto ou les Solo travaillés."

E natural: ca.1795 (Vandenbroeck) "les Tons ut, ré, mi bémol, surtout ce dernier, sont les plus beaux, le ton mi dièze est bon aussi."

1807 (Domnich) See F above

1813 (Choron) See F above

E flat: ca.1795 (Vandenbroeck) See E above

1807 (Domnich) See F above

1813 (Choron) See F above

D: ca.1795 (Vandenbroeck) See E above

1807 (Domnich) "plus traitable que le Cor en ut: cependant ses contours sont encore trop nombreux pour qu'il se prête à l'exécution des mouvements légers ou des difficultés; mais un chant simple sur ce ton est susceptible d'un bon effet."

1813 (Choron) See F above

C basso: ca.1789 (Vandenbroeck) "(the key of C) .. n'est pas brillant pour le solo, il est trop bas pour les cors."

1807 (Domnich) "Le cor en ut est celui de tous qui exige le plus de vigueur, à cause de la multiplicité de ses contours. L'exécution devenant par là pénible et fatigante; le ton d'ut ne doit être employé que pour de simples effets d'orchestre. Un chant léger ou gracieux ne sera jamais bien rendu sur ce ton; les difficultés y sont impraticables."

1813 (Choron) "Trop doux et trop bas, et ne sont propres qu'aux morceaux d'Orchestre."

B flat: 1789 (Vandenbroeck) For quieter music

basso: 1807 (Domnich) Useful to impart "une couleur sombre, mélancolique ou religieuse". Difficult to manage for the same reasons as the horn in C basso.

A basso: 1812 (Crotch: Elements of Musical Composition) A scale is given in fundamentals for this instrument, which is not mentioned in any French work.

Vandenbroeck (p.21) asserts that horns in G, A and high B (flat) naturally tended to play sharp:

> "Il faut qu'à chacun de ces trois tons le Musicien tire la Coulisse plus ou moins ... c'est un défaut qui tient à l'instrument. Il n'est pas bien facile de donner du Cor juste sur ces trois tons ... "

Stopped notes

The origins and physical nature of hand-stopping have been well documented by historians. The illustration from Froelich[1] opposite page 184

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1) Froelich/SCHULE

shows very clearly the exact position of the right hand inside the bell. Although Morley-Pegge[1] is probably correct in ascribing the "first published information on stopping" to Vandenbroeck in his two books,[2] the necessity for flattening the natural sharpness of written f'' natural by partial hand-stopping had already been mentioned in Francoeur's general treatise of 1772.

Although it was too subtle an art to be mechanically categorised, hand-stopping may be considered for the present as falling into three chief divisions: the adjustment of open notes, the artificial production of notes a semitone below open notes, and the artificial production of notes a tone or more below open notes.

(a) The adjustment of naturally out of tune harmonics was a recognised part of performance technique by 1789. The effect on the notes concerned was to dampen their sound slightly.

> "Alors elles deviennent étouffées, c'est-à-dire, qu'elles n'ont plus ni le même éclat ni la même qualité de son que celles qui les précedent ou qui les suivent." (Choron p.36)

The note most concerned was the eleventh harmonic, written f'' natural, sounding too sharp. Although the seventh harmonic, written b' flat, is also not in tune with the diatonic scale of the fundamental the French writers do not specially mention its adjustment.

The thirteenth harmonic, written a'' natural, sounds too low and was one of the hardest notes to play in tune, according to Vandenbroeck and Domnich.[3] Domnich advises composers not to put it at the beginning of a piece, or to place it after a series of rests. For Choron (p.36), "on ne peut la rendre juste"; and for both the eleventh and thirteenth harmonics

> "il faut avoir grand soin d'éviter qu'ils ne fassent tenues et unisson avec quelqu'autres parties, surtout celle qui est trop basse."

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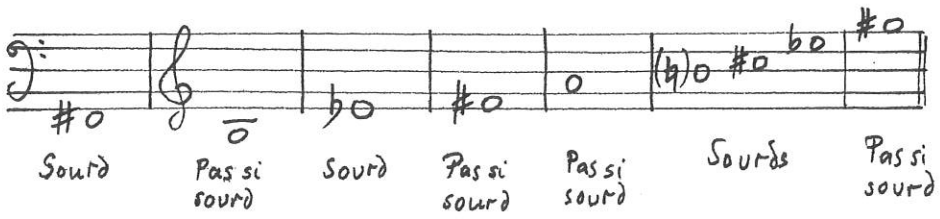
1) Morley-Pegge/HORN p.88 et seq.

2) Vandenbroeck/METHODE and TRAITE

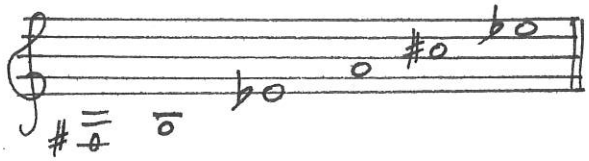
3) Domnich/METHODE p.10

Berlioz[1] found written a'' natural "dull".

(b) Notes a semitone below open notes and produced by stopping were, as a result, dampened in tone by varying degrees according to Vandenbroeck.

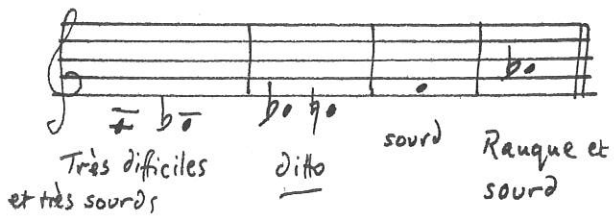


For Berlioz[1] the following stopped notes sounded the most acceptable of any:



Duvernoy[2] wrote that the first of the above notes was "très usité". Written f'' sharp was a difficult note to sound; it was as hard to produce as written a'' natural according to Domnich, and Berlioz found it "sourd".

(c) The more heavily stopped notes, less frequently needed in most music, were as a result not commented on individually. They were very noticeably muffled, and Berlioz[1] categorised the more common examples as follows:



Stopped notes in the orchestra

The opinion of John Marsh was that stopped notes "are of a very different quality of tone and much weaker than the natural notes".[3] This only applied in music of soft or moderate dynamic range. When played loudly they produced a quite different sound:

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1) Berlioz/TRAITE pp.172, 173
2) Duvernoy/METHODE p.24
3) Marsh/HINTS p.66

> "Depuis quelques années on a entièrement dénaturé les Cors et tous les instruments à vent. Aujourd'hui dans les Orchestres, on /n/ 'entend que du bruit fait par les Cors, et surtout on leur donne tous les semi tons qu'il est possible de donner aux autres instruments. Les tons bouchées au Cors dans les forte, font l'effet d'un son de cuivre ou bien de chaudron."
>
> (Vandenbroeck p.24)

At an average dynamic level stopped notes might be submerged by the other instruments:

> " ... dans les Tons mineurs ... il y auroient trop de notes à baisser, et que de plus, ces notes seroient trop sourdes pour des Tutti ... "
>
> (Choron p.42)

Softer solo or accompaniment work was therefore the most satisfactory setting:

> "Si on attaque fortement les notes bouchées elles ne rendent plus que des sons lugubres, et leur timbre acquiert une qualité désagréable. Ces notes ne sont très-bien placées que dans un chant suivi ou dans un accompagnement doux." 1)

Playing style of stopped notes

It is important to note that the aim of the French players who first made comprehensive use of stopped notes was to attain equality of timbre between these and open notes. The first concern was to make the horn as chromatically capable as possible, as if to place it on an equal footing with the other solo wind instruments. Expressive use of the timbre of stopped notes did not therefore pass into common use automatically with the natural horn before the advent of comparative chromaticism. The technique had to be evolved through musical example.

Some orchestral examples, such as the exceptional horn solo in Méhul's Mélidore et Phrosine of 1794 (see page 453), were obviously composed with a special effect in mind. But the majority would have been conceived for as uniform a horn tone as was then possible. The frequency with which scalic figures appear in horn solos is circumstantial evidence of this.

1) Domnich/METHODE p.14

Duvernoy[1] is the first to mention the aim for equality of tone. Open notes, he writes, should be scaled down to match stopped notes. Domnich[2] explains how this was done:

> "La main dans le pavillon doit seule y concourir en s'ouvrant sur les notes non bouchées le moins possible, c'est-à-dire assez pour que chaque note soit juste, pas assez pour qu'elle soit éclatante."

At the same time, Domnich remarks that the difference of timbre could never be completely eliminated:

> "On remarque entre les notes bouchées et celles qui ne le sont pas une différence de timbre qu'il est impossible de faire entièrement disparaître, parce qu'elle tient à la nature de l'instrument, mais qu'on peut du moins dissimuler assez que l'oreille n'en soit point blessé ... "

Choron (p.36), discussing the difficult notes such as written F natural, f'' and a'', warns against their use in concerted music. (See quotation above, p.189) He then turns to their possible use in solos; that is, in either orchestral or chamber music.

> "Il n'est pas de même pour les Solo; on peut sans trop de réserve employer ces trois notes surtout dans les chants doux et gracieux, parce qu'on peut mettre la main dans le pavillon: il est de plus, du talent de l'exécutant de les rendre justes, et de faire en sorte que leur qualité de son soit égale avec ceux qui les précèdent et qui les suivent."

Attainment of full chromatic range

The most dramatic secondary evidence for the emancipation of the natural horn from its primary compass of harmonics is provided by a chronological examination of the treatises and tutors available from the period concerned. Although appearing within only a few years of one another these show a consistent increase in the number of stopped or lipped artificial notes theoretically available. Between Francoeur's (1772) and Vandenbroeck's horn tutor (ca. 1789) fourteen new notes had been added to the range. By the appearance of Domnich's tutor (1807) a complete

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1) Duvernoy/METHODE p.14

2) Domnich/METHODE p.5

charomatic scale was theoretically possible from written GG to g'''. To show the extraordinary evolution of the horn's chromatic capabilities a concordance in chronological order of publi cation of theoretically available notes is given following page 156. For clarity the notes of the primary series have been omitted and only additional notes included. In this table the lowest notes of the compass, from FF sharp to BB natural (inclusive and also F natural, are factitious notes, produced by the lips only. C sharp to E natural (inclusive), on the other hand, are stopped notes, as is F sharp.

The following commentary elucidates the concordance by referring to the various authors' opinions concerning individual notes.

In his horn tutor of ca.1789 Vandenbroeck, like Francoeur, explains the necessity for stopping f'' natural; further on he goes through the chromatic scale note by note. There are omissions of the more unsatisfactory notes, principally those below c' and c' sharp. He explains that the very lowest notes (BB, AA, GG) are taken by relaxing the lips after first sounding C natural.

Much the same information is given in the same author's Traité Général (ca.1795), but here he explains the degree of dullness of each stopped note. He mentions the impracticability of a natural, and still omits a flat, b flat and c' sharp. Finally he claims that

> "on leur donne tous les semi tons qu'il est possible de donner aux autres instrumens".

The next horn tutor to appear, some two years later,[1] adds one note to the preceding scales, low AA flat, but otherwise covers Vandenbroeck's range precisely. Several important advances are to be noted in Duvernoy's tutor of 1802, summarised by the statement found in the section devoted to chromatic notes:

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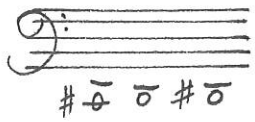
1) Hampl/METHODE

> "Toutes les notes de la gamme naturelle peuvent être précédées de dièses ou de bémols; il faut les savoir indistinctement. La main dans le Pavillon donne les moyens de faire la gamme naturelle et la gamme chromatique. Dans la première octave ... les dièses et les bémols sur les notes naturelles sont très peu usités, il y en a quelques-uns qui doivent être exceptés".

These latter notes he names as f sharp and a flat; the a flat is particularly interesting as it had not been mentioned by earlier writers, and was, despite this fact, a good note that could be played merely by raising lip pressure on the g immediately below it. Berlioz praises this note as follows:

> " ... le la Bémol surtout, produit en mainte occasion un excellent effet sur tous les tons plus aigus que le ton de ré". 1)

The other interesting note introduced by Duvernoy, low FF sharp, is of far lesser utility, but extends the theoretical downward range of the instrument. Duvernoy mentions the possibility of chromatic alteration of the very lowest notes (giving a possible GG sharp and AA sharp); but their existence in music was negligible, and he does not enlarge on them. But Berlioz names E natural as a very bad note, and the three preceding notes as completely impossible:



The tutor by Domnich represented the most thorough and articulate work in French on the horn published to date. Domnich gives a completely chromatic range for the horn from GG natural to g''' natural, but since this range had been postulated by Duvernoy five years before,[2] Domnich's information is more useful when it compares (i) range of notes <u>available</u>, with (ii) range of notes <u>suitable</u> for each type of horn. As shown in the table of ranges, he allots a greater number of upper partials to those horns with the longer lengths of tubing. The upper note in each case is for the best players in the best circumstances. The second highest note is the limit for "les simples parties d'accompagnement".[3]

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1) Berlioz/TRAITE p.172

2) Excepting the highest notes of all, which represent an extension of all the previous writers' ranges.

3) By the exceptionally high ranges given for the first and second horn, and by the greater individual range allotted to each, Domnich's insistence on the viability of the old technique, rather than <u>cor-mixte</u>, is seen.

Somewhat similar distinctions of range for differently keyed horns are made in Choron's treatise (p.41), where the top notes for any horn given are within a semitone either way of those given by Domnich for the "accompagnement" ranges of the first horn and the ideal ranges of the second.

Unlike earlier writers, Choron, in the same work, gives a compass and scale for "les Solo de Concerto et pour les points d'Orgue", (see Table) in which Domnich's high g''' is repeated together with a fully chromatic range from e'. Two additional low notes appear in the scale for "un Solo d'Adagio, ou pour faire basse à un Solo de 1er Cor", FF natural and EE natural.

A continuously widening technique from 1772 to 1813 is therefore demonstrable from the literature of musical pedagogy, at best a conservative corpus. The entire gamut, of course, would never have been practised by one player, but was only attainable by specialists in either the high, the middle or the low areas of the compass.

The following points of technique must also be noted:

(i) b' natural: easily obtained without risk of cracking (Vandenbroeck ca.1789)

(ii) g' sharp: can be taken by forcing the g' natural in slow pieces (Vandenbroeck ca. 1795 and Duvernoy p.24)

(iii) Trills: these were executed by lip control only (Duvernoy p.25)

"Cor-mixte" practice[1)]

As soon as orchestral playing rose in standard, segregated groupings of players into the cor-alto and the cor-basse range evolved. Towards the middle of the eighteenth century the cor-milieu or cor-mixte came into being, a class despised at first by teachers as an easier road, and then made the subject of virtuosity by Duvernoy (1765-1838) and his followers. The

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1) This has been documented in some detail by Coar, Morley-Pegge and others.

technique consisted in playing on certain crooks in the octave and a half in which the tone of open and stopped notes was most easily merged: written c' to g''. The ease of playing and brightness of tone of the E flat and F horns led to their special adoption by cor-mixte players, and to substitution of these for other horns asked for in music scores.

So far as the actual music was concerned, adoption of the cor-mixte range for horn solos in orchestral music was virtually a fait-accompli in 1790. Nevertheless, solos were not over-common in serious orchestral and operatic music, and composers probably had every right to complain at substitution in these works and in run-of-the-mill orchestral parts.

> " ... depuis un certain nombre d'années le Cor s'est divisé en trois parties savoir premier, second et Cor de milieu ... depuis que les premiers Cors ont adopté le genre de milieu ils ne montent pas si facilement ... "
>
> (Vandenbroeck p.2)

Duvernoy's contemporary and fellow professor at the Paris Conservatoire, Heinrich Domnich (1767-1844) was strongly opposed to the practice of cor-mixte playing. A long attack on it is contained in Réflexions Préliminaires to his horn tutor.[1] The arguments brought forward centre on the lack of technique needed, restriction of range, inability to perform parts in older scores, the falling into disuse of the horns in low C and B flat and substitution of horns in D, E flat and F for others asked for by the composer. The latter practice was blatantly to the detriment of the music since it involved the playing of stopped notes where open ones were asked for, and vice versa, and even octave transpositions by the second player with the attendant awkwardness of part-movement.

For our purposes it is important to note that Domnich claims that the fashion of the cor-mixte style had led to the inclusion of its adherents "dans presque tous nos orchestres". If the style was as popular as he

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1) Further details and quotations from the preface are to be found in Coar/VIRTUOSI

maintained, this may well have been the case. Duvernoy himself was a member of the orchestra of the Académie from 1796 until 1816, and official soloist there from 1799 onwards.

Generic uniqueness of the horn

The legacy of thought that placed instruments in families was still forcibly present in 1800. The initial treatment of the clarinet as a type of oboe, the association of the trumpet with the timpani, the still restricted employment of trombones all bear witness to certain preconceptions as to how orchestral instruments were to be employed in mutual relation. The singular and rapid expansion of the sound-vocabulary of the horn in this context made for changes of thought as to its position as an instrument. I have noted the variation in quality of different kinds of stopped notes, and the differences between their soft and loud production; the differences between the tone-quality of variously crooked horns; the extremely great range of compass of the instrument, and the inevitable contrast of sound from the bass to the treble region; the varying manoeuvrability of the instrument according to its crooking; and the emergence of different kinds of player specialising in certain areas of the compass.

No other instrument (except the pianoforte) had undergone such a transformation at the time, and indeed no other instrument could display such a wide range of aural possibilities. From holding a position as a limited orchestral voice closely allied to the trumpets and drums it had become a versatile and chromatic melody-instrument. It was obviously not of the woodwind family, yet approached no other group so closely. The horn, in short, came to be regarded as generically unique, and this uniqueness was the fundamental reason for its mystique and its popularity.

> "Le cor est l'instrument qui fait le plus d'effet dans un orchestre; car une Simphonie, sans Cor, ne dit rien: un Violon jouera, en cas de besoin, un solo de Flûte, de Hautbois ou de Clarinette, sans que le morceau en souffre beaucoup; mais nous n'avons d'instrument qui puisse prendre un Solo de Cor que le Basson ou la Quinte."
>
> (Vandenbroeck p.9)

When the Minister of the Interior made his speech on the occasion of the prizegiving at the Conservatoire on 31 December, 1801, he touched briefly on the subject of the progress of music, and of instruments in particular:

> "Mais c'est surtout par la perfection des instruments que la musique moderne a fait des progrès ... " 1)

The only wind instrument that he talked of individually was the horn; his remarks emphasise strikingly the contemporary attitude:

> "Que dirai-je du cor, destiné jadis à rassembler des chasseurs, à ramener des meutes égarées, à précipiter les pas des coursiers? Il prend aujourd'hui des inflexions plus douces que celles de la voix même; jamais les nobles passions n'eurent de plus puissant interprête; souvent il retentit en sons éclatants comme le clairon, et paraît aggrandir la scène en multipliant ses effets".

As with the clarinet, it is reasonable therefore to assume that horn playing took on more of a cantabile style towards the end of the eighteenth century. This is implied by the comparatively large number of horn concertos and sinfonia concertantes written and performed, and the emergence of cor-mixte players primarily interested in getting the best tone from the instrument. It is suggested also by the remarks quoted earlier on the desirability of matching the tone of open and stopped notes, and Domnich's observation[2] that of the two main styles formerly common in horn playing, only the "singing" style was practised, not the batteries du second cor (or accompanimental arpeggio figures).

Played with a strong tone, possibly with a vibrato to render it even more vocal, the horn was recognised for at least some of the qualities cherished by Weber's generation in the Paris of 1800 and before. It was expressive and its expression was inimitable; an instrument for melody, virtuosity, and yet essential in the orchestra.[3] It was one of the instru-

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1) Pierre/CONSERVATOIRE p.905

2) Domnich/METHODE p.vi

3) cf. Marsh/HINTS p.66: "The French horns are much mellower in their tone than the trumpets, and can be played piano and even pianissimo ... "

ments most closely sympathetic to French musical taste at the turn of the century.

(7) The Trumpet

There is a greater difference in size between the classical and the modern trumpet than between the past and present dimensions of any other instrument of the orchestra. The trumpet formerly consisted of a chiefly cylindrical, narrow-bore tube of between approximately six and nine feet long, sounding fundamentals from F to low BB flat.[1] The modern trumpet is half this length, with a slightly wider bore and a greater proportion of conical tubing. The mouthpiece of the old instrument was deeper than it is now, and possessed a broader rim. (Carse pp.226 et seq.)

The Diapason général of Francoeur and its revision in 1813 both list C, D, E flat and E natural as the commonly used keys of the trumpet;[2] the basic key of the instrument was E natural and crooks were added at the mouthpiece as necessary to lower the pitch. That the F instrument was a distinct type is undoubtedly indicated by the following passages from Choron:

> "Cet instrument [i.e. the trumpet in general] est ordinairement en E - si - mi - naturel. C'est communément son ton le plus haut. Il peut être d'un Ton plus élévé, mais ils sont fort rares ... je ne conseille pas d'en faire usage [i.e. the F trumpet], parcequ'il faudroit en faire faire exprès qui fussent plus courts ... " (p.62)

The special instrument in F is mentioned by P. Bate as follows:[3]

> "Shorter trumpets in E flat and F ... came into more general use in the time of Haydn and Mozart, when it was the common practice to furnish the F instrument with a semitone crook or shank to lower it to E natural."

F trumpets, probably on account of their bright tone (see below), were commonly written for in wind ensemble music in France from at least as early

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1) i.e. the same length as a B flat trombone, or alto B flat horn.

2) In 1816 Reicha named C, D and E flat as the usual keys, in COURS p.258

3) Bate/TRUMPET p.107. In England the case was slightly different: "Its highest key being F it cannot play in that of G ... " (Marsh/HINTS p.66)

as 1790 (Gossec's Te Deum, P.3). The only contemporary writer to mention the (low) B flat instrument was Vandenbroeck, who listed it without comment. Carse (p.230) states that two crooks would be combined for this key.

The slide trumpet

No specific instructions for the use of the slide trumpet appear in French music before 1810; Carse does not mention the instrument as existing in France in the eighteenth century. Two such instruments were however in the royal collection 9 years before the Revolution:

> "Deux trompettes à coulisses avec six paires de suplements à faire les tons de fa, de mi dièze, de mi bémolle, le delaré, le cesolut, et le bafacy ... " 1)

It is interesting that these instruments were built to accommodate playing in the key of F.

Musical evidence

As suggested by Francoeur and Reicha the trumpets in C, D and E flat occur the most commonly in scores. Trumpets in E natural, F, G and A were all nevertheless written for in varying degrees of frequency. The following table summarises this, the figures being drawn from the complete field of operatic and wind ensemble music examined. Of all the concertantes and symphonies seen, only Gossec's Symphonie à 17 parties had trumpets as high as F, and four concertos (Dumonchau's 2nd piano concerto, Rode's 2nd violin concerto, and Steibelt's 2nd and 3rd piano concertos) had trumpets as high as E natural. The figures in the table do not include repeated occurrences of any one trumpet within the same operatic work.

		Trumpet in:	E natural	F	G	A
Number of compositions:	1780-89		8	1	-	2
	1790-94		7	15	2	3
	1795-99		3	7	-	-
	1800-04		4	5	-	-
	1805-10		4	5	2	-

1) Marcuse/VERSAILLES

There was thus a definite general adoption of the F trumpet with the onset of the Revolution, and this in opera as well as wind ensemble music.[1] As in the case of the E trumpet, the F instrument became less popular from the Directory onwards but was still seen as a useful resource. These trumpets were not usually made to play above written g'' and generally remained on or below e''. Berton, however, gave the F trumpet written a'' natural in 1790 (Le nouveau d'Assas, p.9). The single early use of this trumpet was in Piccinni's 1781 Iphigénie en Tauride, where it is required four times and where, at least in the turbulent choruses on pp. 91, 79 and 90, the nature of the music seems to confirm that the composer was imagining a particular effect.

Trumpets in G and A are not in general admitted at all by the literature, but Carse p.230 says, "it is probable that one-and-half-tone and two-tone crooks were beginning to be used in the late 18th century" and recalls the rarity of old instruments higher than F. The G tuning, perhaps secured by crooking down a C instrument, was required in 1790 (Grétry's Pierre le Grand p.225) and 1793 (Jadin's Le siège de Thionville), where its highest note was written g''. Under the Empire Blangini used it in Nephtali (1806; pp.43, 229) and Le Sueur and Persuis in Le triomphe de Trajan (1807, act 2, f.250). The A trumpet, obtainable by combining two crooks (Carse, ibid.) appeared from 1783 to 1793 in works by Piccinni (Didon), Paisiello (Le roi Théodore), Kreutzer (Lodoiska) and Lemoyne (Nephté and Louis IX). Its presence in Nephté was confirmed by examination of the part-books at the Paris Bibliothèque de l'Opéra, and here its range was written g'' natural to middle c'. In all these cases the key of the particular movement was A or A minor. The contexts on the other hand were vocal, choral and instrumental.

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1) Carse p.230 suggests that making F trumpets "became usual" early in the 19th century. In France at least this must have happened earlier.

Tonal character

Trumpeters, like horn-players, had to adjust the most out of tune notes in the harmonic series, which were f'', (played either as natural or sharp) and a'' natural, a rare note. The two lowest notes, c and g natural, were "très sourds", and only to be used for "chants lugubres, et nullement chargés d'harmonie". (Francoeur)

Apart from the opinion that the tone of the F trumpet was "très brillant", (Francoeur, repeated by Choron) no writer distinguished between the tonal properties of the other and more commonly keyed instruments. The natural trumpet, although necessary to the orchestra, was generally regarded as "de tous les Instrumens à vent ... le plus ingrat et le plus borné". (Choron p.61) The fact that it was the only orchestral instrument (apart from the percussion) not possessing a chromatic compass did not mean that the trumpet was a necessarily brash instrument, even though its evocative property was so strong as to lead Vandenbroeck to say that "La Trompette n'accompagne aucune voix. On s'en sert dans des morceaux de Musique guerrière" (p.63). Similar remarks by Grétry, however, suggest that the instrument were better used tastefully, and not simply that its volume was notable; he is castigating abuse rather than use:

> "Les timbales et trompettes ne doivent être employées que dans les sujets héroiques; et quelques sons suffiroient dans l'ouverture, afin de ne point ressasier tout d'un coup les oreilles des spectateurs". 1)

From the differences in size and detail noted above, it is clear that the sound of an eighteenth-century instrument was not a little different to that of a modern trumpet. Bate[2] goes so far as to say of our present trumpets that

> "virtually a new orchestral colour appeared, firm and brilliant when well produced, yet without the 'clash' of the military trumpet".

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1) Grétry/MEMOIRES, Vol.I p.340

2) Bate/TRUMPET p.71

C. W. Monk says that "these (modern) instruments which have in turn displaced cornets in the orchestra are not in fact essentially so very different from them ... A certain amount of dignity and more of the old tone is lost by the shorter tube ... "[1] Forsyth likewise stresses this quality of the natural trumpet:

> " ... breadth of tone-colour, especially in its lower notes, and in the piano...[Old trumpet parts require a] massive unyielding tone-colour" 2)

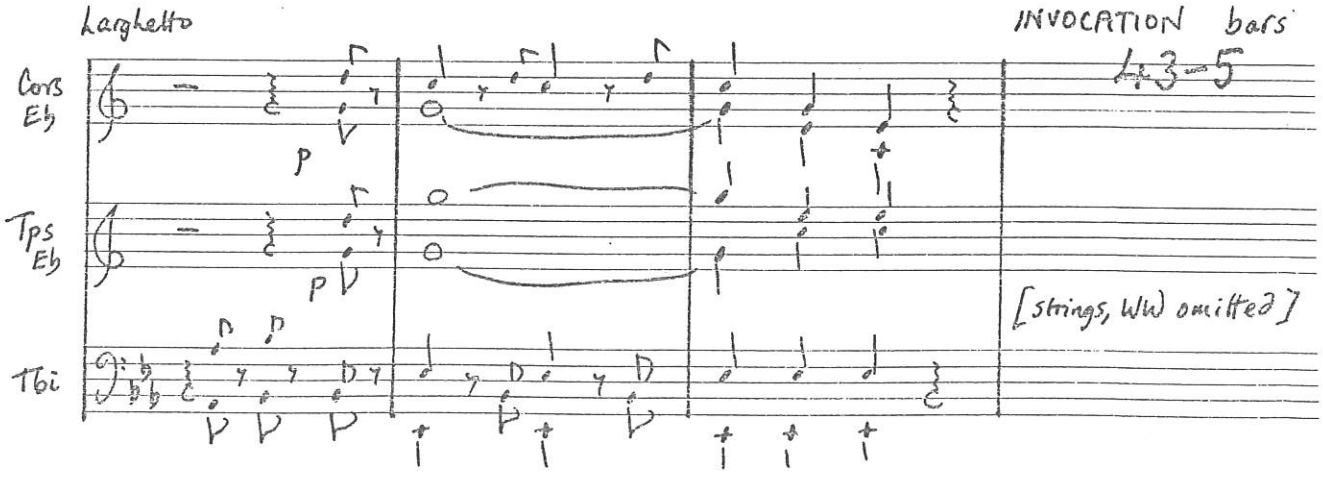
Speaking of clarino playing, C. W. Monk furnishes a clue as to the nature of the older instruments:

> "The vibrant modern instrument is difficult to subdue because it offers less resistance. The real trumpet (i.e. natural trumpet) is richer and softer in a way that prompts the player to a different style of playing." 3)

In the light of these various opinions we should be wary of assuming that the old trumpet always simply sounded, with the timpani, as

> "a corps de reserve, to augment the band and produce a grand fortissimo by way of contrast now and then ... " 4)

A phenomenon in French trumpet scoring such as that displayed in Gossec's Invocation (P.9, 1791) (see example below) should go far to modify such opinions as Marsh's that might be entertained.



1) C. W. Monk: "The older brass instruments" in Baines/INSTRUMENTS p.292
2) Forsyth/ORCH p.93
3) C. W. Monk, op. cit. pp.287-8
4) Marsh/HINTS p.66

(8) The Trombone[1]

The tenor trombone, sounding B flat with the slide fully closed and thus with a length of some nine feet was, like the trumpet, of narrower bore than our present instrument. During the eighteenth century the old sackbut shape of the trombone's bell became more flared[2] and the width of the tube was increased at the extreme end. The resulting appearance closely resembled that of the modern trombone (Carse p.256).

Laborde,[3] possibly following an unknown older source, named five sizes of trombone, but discarding the "canto" and "contre-basse" types, says:

"on ne s'est servi à l'Opéra de Paris que de l'Alto, Tenor et Basse". Vandenbroeck (p.55) gives ranges for the same three sizes. Choron wrote in 1813:

> "On a construit des trombones de différentes grandeurs, afin de pouvoir, par leur réunion, embrasser une plus grande Etendue de tons. On s'est arrêté à trois grandeurs que l'on désigne sous les noms de trombone-Basse, trombone-tenor, trombone-alto".

This would seem to be conclusive. However, both Vandenbroeck and Choron give a range of F to g' for their 'bass' trombone which, of course, conforms most nearly to what is now that for the tenor, i.e. E to b' flat. Reicha follows suit by quoting E as the lowest note for both the tenor and bass instruments.[4] On the other hand, modern writers have thought that the bass trombone, which descends either to C sharp, BB natural or AA natural according to manufacture, was used in France until "about 1830".[5] Bate, though, is unable to give any exact date for this change to the familiar nineteenth-century pattern of three tenors.[6] It is certain that the

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1) The so-called "Buccin", or trombone with a painted dragon's head instead of a bell, is mentioned elsewhere, chapter 5, p. 232, footnote 2.

2) In about 1740, according to Bate/TRUMPET.

3) Laborde/ESSAI, Vol.I p.279

4) Reicha/COURS p.259

5) Forsyth/ORCH p.134

6) Bate/TRUMPET p.140 and p.220. See also Kastner/SUPPLEMENT p.41: "En général, les compositeurs français ne se servent que du Trombone-Ténor qu'ils écrivent à trois parties, mais qu'ils continuent souvent d'indiquer par les dénominations de: Alto, Ténor et Basse ... "

trombonists and their instruments brought to Paris in 1774 and 1786[1] were German. Here the traditions of the instrument had persisted (Carse p.256) and this writer, without distinguishing countries, stated

> "The alto in E flat, the tenor in B flat, and the bass in either E flat or F remained the standard sizes early in the nineteenth century". (p.257)

Musical evidence

There is some evidence to suggest that Choron and Vandenbroeck, in giving their range for the bass trombone, were either deliberately quoting the generally most commonly adopted compass or writing from ignorance. I have found eight examples of trombone writing below E, as follows:

1786	Lemoyne	Phèdre p.39	D natural
1788	Cherubini	Démophoon f.40 (quoted in Ex.131)	C "
1789	Lemoyne	Nephté	D "
ca.1791	Gossec	Invocation (P.9)	C "
1794	Cambini	Hymne à la vertu (P.75)	E flat
1794	Jadin	Symphonie pour vents (P.2293)	D natural
1794	Devienne	Ouverture (P.2305)	C natural
1798	Boieldieu	Zoraime et Zulnar p.252	D natural

Only three of these could be checked against MS sources. Cherubini's example was in the copy full score at the Paris Bibliothèque de l'Opéra, and Lemoyne's example in Nephté was confirmed in the part-book in the same library. Gossec's was checked against the copied parts, Bibliothèque Nationale H^2 119. It is therefore very likely that a true bass instrument existed in Paris; perhaps it arrived in 1786 and received its christening in Phèdre.

Gluck's Iphigénie en Tauride calls for high f'' natural in act 2 scene IV; to my knowledge this is the only clear example[2] of writing for

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1) Lajarte/TROMBONE p.75

2) Apart from his Alceste, Ex.97, ascending to d♮". Cf. the c"♮ in Ex.157.

the alto trombone in French music to 1810. Although the term "trombone alto" is found elsewhere and the alto clef commonly used the repertoire suggests that two tenor instruments took the two upper parts, or at least were capable of doing so.

The mouthpiece: tone of the instrument

There is doubt concerning the shape of the mouthpiece at different times in history. It appears in general that the principally conical shape of the seventeenth century became shallow and cupped in the nineteenth. Speaking of the second half of the eighteenth century Bate says that the conical mouthpiece "seems to have given place to a deep curvilinear cup with a distinct 'throat', but even so we cannot afford to be dogmatic".[1]

The cupped form would have enhanced brilliance and ease of attack;[2] yet there are two factors that make any estimate of the trombone's playing style during the period under discussion extremely difficult. The narrow bore and small flare undoubtedly went originally with a smaller and more direct sound than we are used to. H. G. Farmer pointed out in 1912 that

> "it is the opinion of two well-known authorities (the Rev. F. W. Galpin and Mr. G. Case) that since its introduction into the military band, trombone playing has become coarse. Mr. Galpin recommends a return to the diapason tone, which was in vogue before the 'military' got hold of the instrument ... " 3)

C. W. Monk[4] recalls Mersenne's description of its gentleness and relates this to the vocal tone needed in Saul or Die Zauberflöte. Laborde probably meant this quality in writing,

> "Cet instrument fait le plus grand effet dans les marches funèbres et en général dans la Musique triste". 5)

Against this older aufführungspraxis stands the experience of outdoor wind ensemble music and of the trombone doubling the bass-line in the orchestra.

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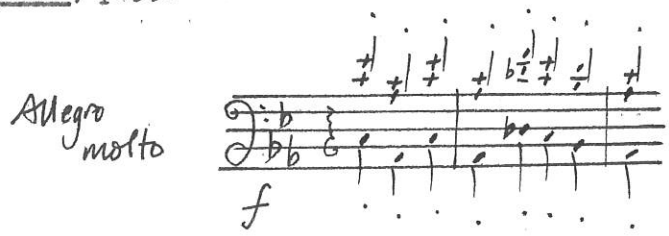
1) Bate/TRUMPET p.139. The 17th conical cup is fallacious. The change to conical cups took place in the 1740's. (Baines)
2) Forsyth/ORCH p.138
3) Farmer/RISE p.64 (footnote)
4) C. W. Monk: "The older brass instruments" in Baines/INSTRUMENTS p.285.
5) Laborde/ESSAI p.276

It is clear that there must have been an increase in volume when the instrument took to the streets at the hands of soldiers. Yet the style of its music in Revolutionary pieces bore much the same relationship to the ensemble as it had always done: emphasis, punctuation, sustaining. The doubling of the bass was not an invention of military music but was gradually adopted by it in varying degrees. Moreover it has been shown above that no ensemble, indoor or open-air, can ever have had more than three trombones at once, so far as records survive. Its weight and force were therefore limited.

Musical examples demonstrate that within these stylistic and numerary limits the trombone probably played forcibly where required. Exx.167 (1789) and 161 (1798) mean little without strong trombone support, and it is obvious that Choron is quite misleading in his description of the instrument:

> "leur jeu est extrêmement borné: ils ne peuvent, en général, servir que pour faire des notes longues ... Le caractère de cet Instrument est lugubre ... " (p.73)

Its new-found agility pioneered by Mariotti resulted in a technical expansion even at the Académie, betrayed in passages like the following from Spontini's Fernand Cortez, p.39.



Yet unaccompanied forcible unison or octave passages were not conceived by 1810; even more remote from the concepts of the age was the notion of trombones taking the melody in the tutti. Example 224 is the closest that Spontini came to adumbrating these aspects of the full "Romantic" orchestra in France, and this passage is indeed exceptional for its time. The "circus" rôle had not yet been discovered.

(9) The Timpani

The diameter of the head of the timpani, even in the seventeenth century, was not very different to that of the present day (between 20 and 28 inches) and the screw mechanism for altering the tension of the heads was likewise well established by the eighteenth century.[1] The bowls of the timpani, originally more hemispherical, became deeper as the use of the instrument in the orchestra became more firmly established. J. Blades mentions the use of better-quality vellums on the later eighteenth-century timpani.[2]

The number and type of tuning screws on different timpani is very difficult to estimate generally. On late seventeenth or early eighteenth-century instruments five to seven screws are found on the smaller timpani and six to eight on the larger. In the high classical period a greater number of screws is observed, possibly reaching ten on the smaller and thirteen on the larger drum.[3] There is even room for discussion concerning the date of the introduction of fixed handles to turn the tuning screws inste of the traditional separate handle; the old type made the re-tuning of the timpani cumbersome to carry out and was also noisy. Although "it was an era of experiments with mechanical contrivances to facilitate tuning"[4] the appearance of either the butterfly nut or the fixed T-shaped handle is not definitely established before 1810.

Without improvements in construction and the adoption of an increased size of instrument in the course of the eighteenth century enabling greater tension to be carried, the range of a fourth or fifth normally required of each drum at the beginning of the nineteenth century could not have existed.

There were no separate tutors for the timpani until Kastner's work,[5] and the general treatises by Vandenbroeck and Choron deal cursorily with

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1) Blades/PERCUSSION p.231

2) J. Blades: The Orchestral Instruments of Percussion, p.329 in Baines/INSTRUMENTS

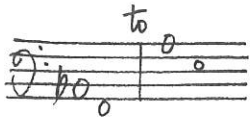
3) Blades/PERCUSSION p.231 and p.263 (footnote)

4) Blades/PERCUSSION p.269

5) Kastner/METHODE

this instrument; their advisory remarks extend only as far as a prescription for their supplying the tonic and dominant of the key and for their playing always in conjunction with horns and trumpets. This in no way reflects the considerable variety of treatment that the timpani enjoyed in Paris at the time.

As for range, Vandenbroeck (p.57) is inconsistent, giving



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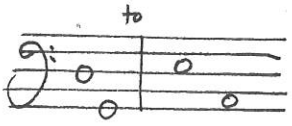
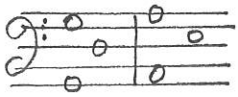
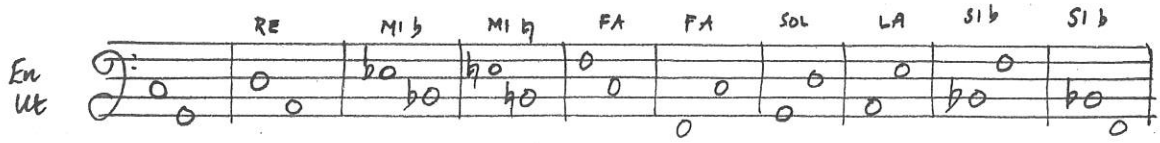


in written instruction. Choron (p.78) on the other hand gives extreme limits for G and A major as follows:



but says that the lower alternative in each case is preferable.

Reicha's section on the timpani is more informative. He gives the following table of tuning possibilities for each drum:



There is also one remark which indicates conclusively that the timpani, by 1816, could be regarded as able to give a true musical tone:

> "Les deux notes des Timballes doivent être employées comme notes réelles de l'harmonie". 1)

Marsh shows a greater appreciation of the capabilities of the timpani than do the French writers:

> "Being the most powerful instrument in the orchestra, it ought to be introduced but sparingly ... it is capable too of any degree

1) Reicha/COURS p.258

> of loudness or softness of tone ... and may therefore be made to produce a fine effect in a swell or diminuendo." 1)

The double-stroke

A technique of timpani playing that is not now generally employed but which was evidently common around 1800 and after was the use of both sticks on one drum at the same time, at the player's discretion. Marsh stresses the skills necessary in timpani playing, including

> "much attention to the accented and unaccented parts of the bar; at the former of which, double strokes (or with both sticks together) may be occasionally used ... " 2)

Kastner alludes to the same practice some forty years later:

> "Le compositeur négligeant presque toujours d'indiquer lorsque le coup doit être frappé avec les deux baguettes à la fois, c'est au Timbalier à suppléer cette omission, en consultant le gout, le degré d'intensité, la place des tems forts ... " 3)

This practice he called the "coup simple", and the implication is that it was a common feature, since "L'emploi simultané des deux baguettes n'est indispensable que dans le Forte ... dans le Mezzo forte ou le Piano, on peut le faire à une seule baguette". (p.29)

The music, however, reveals no written instructions to corroborate these writers. A few passages give double tails to timpani notes (see example below) which probably indicate the double-stroke. Berlioz specified this notation in the Grand Traité.

Musical evidence

(i) Tuning. The lowest note found was F natural, and the highest g natural. Normally, as Choron suggests, the lower G was used. Dalayrac wrote "Timballes renversées" in Roméo et Juliette (1792), f.451, when the upper was intended.[4] Other examples include the overture to the same composer's Le château de Monténéro (printed score) and the opening of act 3 of

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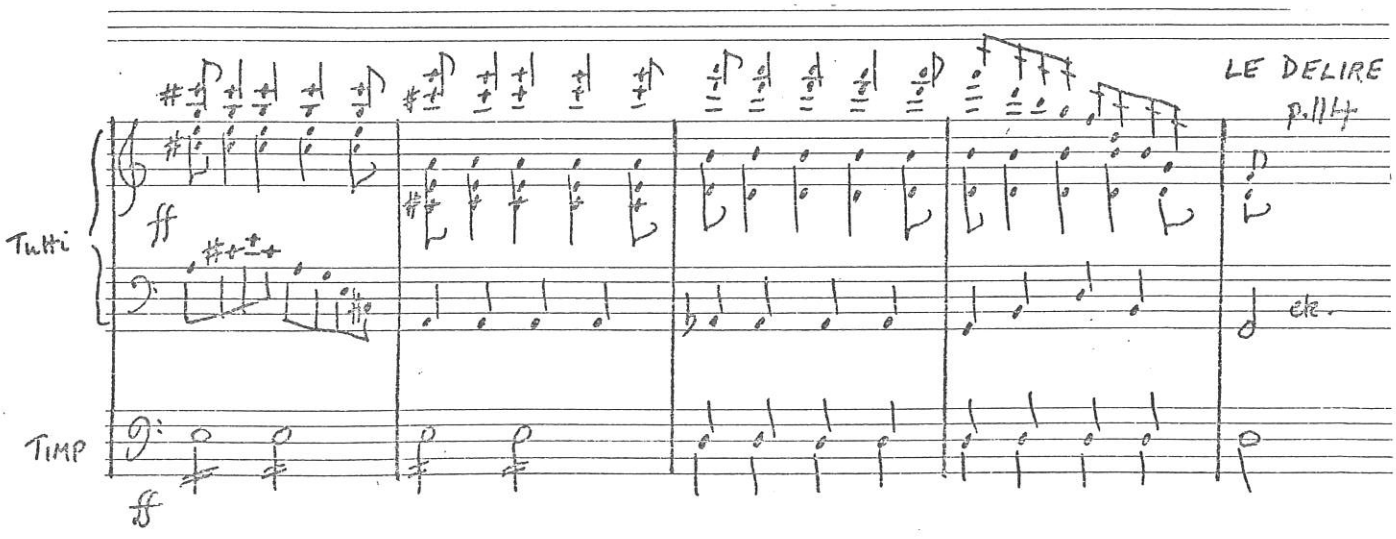
1) Marsh/HINTS p.67
2) Marsh/HINTS p.67
3) Kastner/METHODE p.37
4) B.N. D.2549

Spontini's La Vestale (autograph). Within these outer limits there were exceptional tunings. An isolated entry on d flat was required in Méreaux's Jocaste (1791), for which the MS states, "Petite timballe, accordez en Ré bémol".[1] Blangini required the unusual tuning F sharp - B natural for the B minor chorus of priests in Nephtali (1806), p.319. Tuning of a third, B flat and d natural, appeared throughout the Prologue of Salieri's Tarare (1787), and, briefly, of the tritone G flat and c natural in his Trofonio (Paris, 1790).[2] Both were associated with a supernatural context. No French composer appears to have imitated the tritone (long credited as Beethoven's innovation), but the major 3rd appears in Le Sueur's La mort d'Adam (see below) and major 2nd tunings occur in Nephté (Lemoyne, 1789) and Le délire (Berton, 1799). The part-book at the Bibliothèque de l'Opéra confirms that in the final movement of act 3 of Nephté the larger drum is re-tuned from A to d ("changez le La en Ré"), the smaller remaining on e natural. In Le délire Berton brings in the timpani at the climax of the work where the tuning, as in Tarare, responds to the free tonality of the passage.



1) B.N. M.S. 2349, act 3 scene VII

2) See the present writer's "Salieri's Timpani", MT, October 1971 p.961

The d in both Nephté and Le délire and in the high G tunings was therefore an upward extension of the normal range of the larger drum.

Less common uses of otherwise conventional tuning are found sporadically, such as F and c, or even B natural and e natural, in the context of C minor. They enabled composers to employ the timpani in chromatic and enharmonic chords, and for subdominant emphasis. But it would be valueless to catalogue such uses systematically because in the interests of dynamic stress timpani were often used in the "wrong" harmony; the ear accepts many such apparently unmusical combinations even with today's improved quality of timpani tone.

There is however proof that timpani writing was approaching Reicha's ideal of employing the instrument for its written pitch value. This proof lies in the few examples noted in which the timpanist changed the tuning in the course of a movement. This is first noted in the act 4 scena, "Roméo seul", in Dalayrac's opera. The MS is marked (f.619), "montés la timbale Ré à Mi". The reason for this change, to stress climactic chromatic harmony, was not lost on Steibelt. In the ensemble in D major beginning at p.108 of his own Roméo et Juliette, the lower timpani is re-tuned from A to G for the flat 6th climax on p.127. Example 116 also demonstrates the technique. Even the reputedly conventional Boieldieu incorporated re-tuning into his overture, Le calife de Bagdad; two changes are made. The usual A - d tuning for D major becomes A - e for the second subject tutti and then returns to its original arrangement. A parallel double change takes place in Catel's wind ensemble Ouverture, P.2313.

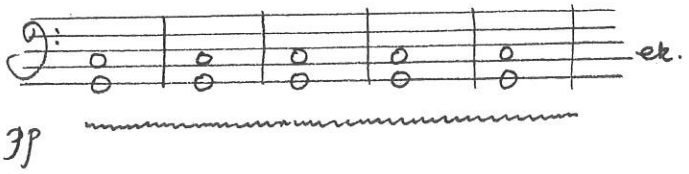
The time taken to re-tune a timpani can be reasoned approximately. Catel and Boieldieu above allowed 40 bars of 2/2 Allegro Animé and 30 bars of 4/4 Allegro respectively for each change. In Nephté Lemoyne allowed 70 bars to tune both instruments back from d - e to A - d. But in Nephtali, pp. 281-3, the composer left only 9 allegro bars to change both instruments

from B flat - e flat to G-c. The MS part-book at the Bibliothèque de l'Opéra remarks, "On n'a pas le temps de changer de ton".

(ii) Simultaneous timpani. Historians have been correct in ascribing this technique only to Martini's Sapho (1794) and to Le Sueur's Adam (1809). The former, produced at a minor theatre, obviously required only one player. The music (see Ex.208) depicts the heroine's suicide. Identical timpani writing is found on p.199 to accompany an oracular pronouncement but is now 13 bars long, pianissimo.

"Tremblement sur les deux"

Sapho, p.199



Le Sueur's example (Ex.264), written for the Académie, required two players. The object of both Exx.208 and 264 was noise.

Timpani sticks

Wood and ivory were the materials chiefly used for timpani sticks in the eighteenth century.[1] The Encyclopédie provides the following description:

> "Ce sont deux morceaux de bois de bouis, qui sont garnis par un bout de petites courroies capables de recevoir les deux doigts du milieu, et destinées à les manier commodément, dont le fût est partout à peu près de la même grosseur, et n'a pas plus de sept à huit pouces de longueur, et qui sont terminés chacun par une espèce de tête de l'épaisseur de trois à quatre lignes, du diametre de sept à huit, et de la forme d'un champignon plat et arrondi par les bords." 2)

Laborde describes timpani sticks as "en forme de marteau rond".[3]

For the most part, and certainly in military use, timpani sticks were not covered at the ends in the middle of the eighteenth century. Nevertheles

1) Blades/PERCUSSION p.249

2) ENCYCLOPEDIE, article "Baguettes"

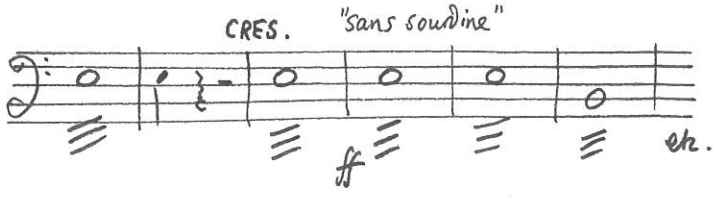
3) Laborde/ESSAI, Vol.I p.286

the use of covered ends was written about in some detail in 1738 in connection with funeral music; either the sticks could be covered with chamois leather, or a cloth bound round at the ends.[1] This suggests an impromptu solution to the problem of muffling the sound. (Specific attempts at muting the timpani will be dealt with in chapter 7.) But the presence of sticks possessing the seeming relics of more permanent covering and originating in eighteenth-century Vienna[2] points to an early seeking for a more permanently melodious tone than could be achieved through the use of hard ends. J. Montagu has written:

> "By the eighteenth century, leather covers and discs were in use ... " 3)

In the German-speaking areas of Europe where manuscripts were much more frequently used than printed scores and where instructions might be given to a timpanist verbally as to which sticks to use, no written indications of choice have yet come to light. No details are printed in the general instrumental treatises produced in Paris. Nevertheless I have traced two French instructions pertaining to timpani sticks in music from the first decade of the nineteenth century. The first is the inscription baguetes garnies on the first page of the printed full score of Dalayrac's Lina (1807, Ex.116), and the second is the inscription avec le bâton de sourdine which appears in the autograph manuscript and the printed full score (p.47) of Spontini's Fernand Cortez (1809 version).[4] The apparent difficulty which a player would have in changing back to normal sticks, if judged from the printed score:

(avec le bâton de sourdine) TIMPANI IN E - B♭



1) J. P. Eisel: Musicus Autodidaktos, Erfurt 1738, p.66, quoted in Blades/PERCUSSION p.250

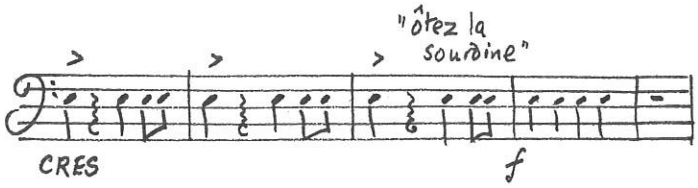
2) Noted by H. C. Robbins Landon

3) GALPIN p.69

4) This information was reproduced with the present writer's permission in Blades/PERCUSSION p.283 (footnote).

is explained by reference to the autograph, where the music is different at this point:

(avec le bâton de sourdine) TIMPANI IN E - B♭



Neither of these instances is connected with funeral music, and they both suggest that some type of permanently covered stick was accessible both at the Opéra-Comique and the Académie, the houses for which these operas were composed. Further instructions for the use of such a stick, since given verbally, must remain for us conjectural.

There remains the possibility that the sticks used on these occasions belonged to the bass drum, and were not constructed specially. There is definite evidence that bass drum sticks at this time in France had covered ends and also that at least some were made of whalebone, a material supposedly recommended by Berlioz.[1] The evidence is in the form of a bill to the Institut de Musique of October 1794 for the supply of

"Six baguettes en baleine et tampons pour les grosses caisses".[2]

If this were the case, the drum stick heads were probably of soft leather:

"Celui qui joue du gros tambour ... en frappe ... avec une forte baguette garnie d'une balle de peau, de la grosseur d'une orange".[3]

No further clues are given by Castil-Blaze, unless his avoidance of mention of covered sticks and description of the traditional dampening method using a cloth over the drum head implies that covered sticks had made no progress by 1825.[4]

By 1845 Kastner was able to name five kinds of timpani stick, four of which were covered. The choice of stick, even then, was the player's when the composer expressed no preference:

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1) According to Blades/PERCUSSION p.360. The author gives no source.

2) Quoted in Pierre/CONSERVATOIRE p.113

3) Castil-Blaze/DICTIONNAIRE, article "Baguettes"

4) Unlikely, since Berlioz asks for baguettes d'éponge in Huit scènes de Faust, composed September-November 1828. See N.B.E. p.90 bar 122. Four bars later baguettes de bois are asked for. Chapter 7 expands the argument.

> "un Timbalier change quelquefois, à plusieurs reprises, de baguettes, dans le cours d'un seul morceau." 1)

The wooden-headed sticks were fit only for

> "des coups violents et sont plutôt propres à faire du bruit qu'à rendre un son musical". 2)

Increasing exploration into the subtelties of orchestral colour would have invited experiments with any available soft-headed sticks from at least 1790 in Paris. Chapter 7 deals with the most notable contexts.

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1) Kastner/METHODE p.39

2) Kastner/METHODE p.68