

Why are we still using a double bass string instrument in Monteverdi's Vespers?

Before I start, best to say all pitches are indicated using Scientific Pitch Notation (also known as American Standard Pitch Notation).

Ascending octaves are indicated by rising numerals each time we return to C, eg; C₂ is C below the bass stave (cello C, if you like), middle C is C₄.

D₂ G₂ C₃ E₃ A₃ D₄ is how regular bass viol tuning would look.

D₁ G₁ C₂ E₂ A₂ D₃ sounds an octave lower - now often called "D violone".

G₁ C₂ F₂ A₂ D₃ G₃ sounds a fifth lower than usual bass viol tuning - an octave lower than tenor viol; Monteverdi's *contrabasso da gamba*, if I'm not mistaken. It's not a transposing instrument, just a bass viol in G.

E₁ A₁ D₂ G₂ is the tuning for what we call double bass in the UK. That low E₁ on a double bass was a big ask for strings of the day; we will see that it was not always achievable.

Note that both double bass and the "D violone" are transposing instruments; they sound an octave lower than the notes the player is reading. Double bass top string G₂ is **written** top space bass clef but **sounds** bottom line bass clef. This is sometimes called 16ft, after organ terminology: the rank of pipes starting from an 8ft pipe plays notes as they sound; the rank commencing with a 16ft pipe sound an octave lower.

Why am I writing this article?

Two and a half centuries have passed since instrumental ensemble bass lines began to be doubled an octave lower by large string double basses; by now listeners are pretty accustomed to the sound of a solid bass line doubled at the lower octave. Such instruments are still often used in performances of Monteverdi's Vespers; I find the sound such an ugly anachronism I may throw myself on my sword (bow, actually) rather than suffer it again.

What is said about instruments in 1610 Monteverdi Vespers' part set?

Claudio Monteverdi was 43 years old at the time of the publication of the *Sanctissimae Virgini Missa Senis Vocibus ac Vesperae* in 1610. He had another 33 years to live, and the position at S. Marco had yet to come his way; still keen to build on his reputation, he was surely hoping for sales when publishing this collection. The index of the publication itemises the following pieces:

<i>Missa in Illo Tempore</i>	à 6	
<i>Domine ad adiuvandum</i>	à 6	Specified instrumentation
<i>Dixit Dominus</i>	à 6	Unspecified instrumentation
<i>Laudate pueri Dominum</i>	à 8	
<i>Laetatus sum</i>	à 6	
<i>Duo Seraphim</i>	à 3	
<i>Nisi Dominus</i>	à 10	
<i>Audi coelum</i>	à 6	
<i>Lauda Jerusalem</i>	à 7	
<i>Sonata sopra Sancta Maria</i>	à 8	Specified instrumentation
<i>Ava maris stella</i>	à 8	Unspecified instrumentation
<i>Magnificat</i>	à 6	
<i>Magnificat</i>	à 7	Specified instrumentation

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Unspecified instrumentation - the un-texted ritornelli are clearly instrumental music yet instrument names are not assigned. The sequence of pieces performed as the 1610 Vespers starts at *Domine ad adiuvandum* and concludes with the 7 part *Magnificat*, not the 6 part alternative.

Very few pieces overall have instrumental parts at all. If you have heard many performances of the Vespers, that might come as a surprise. However the specified instrumentation for *Domine ad adiuvandum*, the *Sonata sopra Sancta Maria* & the *Magnificat à 7* is both lavish and detailed; organ registrations in the *bassus generalis* part make it plain that a large organ was expected. Additionally to the *bassus generalis* there are 7 part books - *Cantus*, *Altus*, *Tenor*, *Bassus*, *Quintus*, *Sextus* and *Septimus*. Therefore, more than one line for those pieces à 8 or à 10 must be accommodated in some part books; instrumental parts may not be where you expect them - for example, a treble clef *cornetto* part is in the otherwise mainly C clef *Tenor* book.

The *Sonata sopra Sancta Maria* is written for single instruments on each line except for one part in *Septimus*, marked *Trombone, overa Viuola da braccio*; this useful alternative provides for establishments only possessing 2 trombones - a *Viuola da braccio* can be used instead. By contrast *Domine ad adiuvandum* is a massive tutti with all lines doubled, save only *Altus* part book C clef marked solely *Viuola da braccio*; full employment guaranteed for all likely available forces. The *Tenor* book C clef instrumental line is assigned *Viuola da braccio*, & *Trombone* - now "and", not "or".

Bassus contains F clef instrumental line specifies *Trombone*, *Contrabasso da gamba*, & *Viuola da braccio*. This is the only time Monteverdi indicates *Contrabasso da gamba* in the 1610 publication at all; there is no indication for any of the three instruments named on that line of music to transpose the notes an octave lower at all.

Oliver Webber points out that the words *tutti li stromenti* appear on the *Sicut Erat* of the *Magnificat a 7* in the *Bassus Generalis* implying it is then time to pick up the low *gamba* again.

Any hints from elsewhere about this *Contrabasso da Gamba*?

In 1638 Monteverdi published *Madrigali guerrieri et amorosi (Libro VIII)*. It contains *Combat(t)imento di Tancredi et Clorinda* and this instrumentation appears in the preface: "*quattro viole da braccio, Soprano, Alto, Tenore, & Basso, et contrabasso da gamba, che continuerà con il Clavicembalo*" - "and contrabasso da gamba, which plays continuo with the harpsichord" [translated by Clifford Bartlett]. Received wisdom does not allow of bowed bass continuo in such early music yet inconvenient examples exist. This *contrabasso da gamba* must be an instrument playing at pitch with the harpsichord; playing an octave lower than the left hand of the keyboard is simply inconceivable.

It's this word *contrabasso* that leads some to think a double bass is indicated. Peter Holman points out that in that same book of madrigals *Altri canti d'Amor* has parts for *quattro viole e doi violini* [4 viols & 2 violins]. The topmost *viola* is labelled *Viola contrabasso*; it is an alto range part revolving around middle C, range G₃ - A₄. note 1 The other 3 *viole* are labelled *Viola da gamba*, *Viola da gamba* & *Viola contrabasso*; ranges respectively D₃ - E₄, D₃ - D₄ & D₂ - A₃. The *Viola contrabasso* almost never descends more than an octave lower than the other instruments and spacing is very much as you would expect from a consort of viols. In conversation, Peter described this as the "open and shut case" for the lowest of Monteverdi's string basses to be an instrument playing at pitch (and not an octave lower, like a double bass). It is, though it may not prevent unfortunate attempts to play this part 2 octaves lower than its nearest neighbour.

Why are we still using a double bass string instrument in Monteverdi's Vespers?

Peter Holman also pointed to the *Terzo Coro* of *Con che soavita* (Monteverdi's 7th book of madrigals); it also has a group of viols - this time three: *Viola da Braccio overo da Gamba*, *Basso da Braccia overo da gamba* and *Contrabasso + Basso Continuo per l'Organo*. The *Terzo coro* enters at the words *Che soave armonia fareste* with rich, low lying chords. The *Contrabasso* part descends to C₂ - NO string instrument of any kind whatsoever aspires to C an octave lower than C₂ for more than a century to come.

In Monteverdi's opera *Orfeo*, a quartet of instruments accompany *Orfeo's* words *Sol tu nobile Dio* after *Possente Spirito - tre Viola a braccio & un contrabasso de Viola*: using a 16ft bass this section starts and ends with a ludicrous two and a half octave gap between the two lowest parts. Opening G₂ is already low enough compared to D₄ above to create an impressive affect. That word *contrabasso* can make quite sensible people do really daft things! *Orfeo's* impassioned plea begins on a stark open chord - G₂ D₄ G₄ D₅. *Orfeo* enters and ends on G₃ between the *contrabasso* and 3rd *viola da braccio* though *Caronte* is unmoved (even though the 2nd *viola da braccio* offers him a beguiling major third at the cadence).

What tunings for a low gambas are recorded in the city states of the Italian peninsula at this time?

1592	range G ₁ to D ₄ <i>viola da gamba basso</i>	Zacconi - Venice note 2
	implies G ₁ C ₂ F ₂ A ₂ D ₃ G ₃ + range to 7th fret on top string, D ₄	
1607	"Il Violone come parte grave procede gravemente, sostenendo con la sua dolce risonanza l'armonia dell'altre parti, trattenendosi più che si può, nelle corde grosse"	Agazzari - Siena note 3
1609	G ₁ C ₂ F ₂ A ₂ D ₃ G ₃ <i>violone da gamba</i> D ₁ G ₁ C ₂ E ₂ A ₂ D ₃ <i>violone in contrabasso</i>	Banchieri - Bologna note 4
	Banchieri is frank that his information about string instruments came from Alfonso Pagani, a Bolognese musician working for the King of Pollonia 1601-09.	
1611	G ₁ C ₂ F ₂ A ₂ D ₃ G ₃ <i>viola da gamba, basso</i>	Banchieri - Bologna note 5
	no mention of <i>violone in contrabasso</i> this time	
1613	G ₁ C ₂ F ₂ A ₂ D ₃ G ₃ <i>vihuela da arco, baxo</i> A ₁ D ₂ G ₂ B ₂ E ₃ A ₃	Cerone - Naples note 6
1635 + 40	G ₁ C ₂ F ₂ A ₂ D ₃ G ₃ <i>violone da gamba</i>	Doni - Rome note 7

That is absolutely the lot until Bartolomeo Bismantova describes tunings for violin family contrabassi at the end of the century. **note 8** I'll come back to Banchieri's low D₁ in a moment; here is the first mention of E₁.

1694	E ₁ (or G ₁) A ₁ D ₂ G ₂ <i>contrabasso o violone grande</i>	Bismantova - Ferrara
	Originally written in 1677, Bettina Hoffman tells me the pages about contrabasso and violoncello were added in 1694. Duane Rosengard also dates this information to 1694. note 9	

Bismantova says the contrabasso is "*s'accorda in quarta*" [tuned in fourths] if you can get a "*corda troppo grossa. s'accordarebbe in E*" [string thick enough, tune to E] but if that fat string "*non può arivare bisogna accordare in G*" [if it's not thick enough, tune to G]. **note 10** In the clef that follows, the fingering stops at the 4th on the top string; that suggests only 5 frets - all you need to get from one string to another when tuned in 4ths:

4th (lowest) string - open G only

3rd string - open A, B 1st finger, C 2nd finger

Why are we still using a double bass string instrument in Monteverdi's Vespers?

2nd string - open D, E 1st finger, F 2nd finger

1st (top) string - open G, A 1st finger, B 2nd finger, C 3rd finger.

Not much sign of a double bass tuning until late in the 17th century, then?

You're dead right; Banchieri is the only one to reference the low tuning (aka D violone) but on page 51 of the *Appendici Banchieri* writes "*Et ben che io non professi il suono di tali stromenti da corde budellate, hò pero fatto ogni diligenza capire tali accordature, non solo per me sapere ma parimente per giouare ad altri, che di pratiche non hanno cognitione, & per giocare in sicuro, il tutto hò verduto in pratica da Alfonso Pagani Bolognese Musico in simile professione del Rè di Pollonia. & da me ordinata sotto gli qui infrascritti praticamenti.*"

"And although I do not play these gut-strung instruments by profession, I have nonetheless made every effort to understand their tunings, not only for my knowledge but equally to be of use to those who may be unaware of these practices, and to be certain, I have seen all of this in practice by Alfonso Pagani of Bologna, musician in a comparable post for the King of Poland, and I have arranged them under the instructions written below." Translated by Oliver Webber.

Alfonso Pagani worked for the King of Poland from 1601 to 1609. The Polish court had removed from Kraków to Warsaw in 1596. **note 11** Banchieri repeats the "G violone" tuning again in 1611 but does not repeat the lower tuning. It is the only reference to a "double bass viol" tuning that I know of South of the Alps at all.

Neat, huh? Too neat, of course. Rarely does social history follow neat lines and turn sharp corners in ordered sequence, rather it is a jumble of events strewn in disorderly fashion on the paths to what we think of as "now". 48 hours before I sent this article off, Oliver Webber dug a bit deeper in Banchieri's *Appendici* and discovered a description of a special mass to follow an annual procession in Verona. Banchieri, staying in Verona, was asked to compose a grand mass and obliged with a mass for 4 choirs:

- A. 3 violini da braccio, una voce in tenore
- B. 4 viole & an equal number of matching voices
- C. 4 viole da gamba & an equal number of matching voices
- D. 3 trombones and contralto voice

For the performance, these instruments were augmented by the "*organo grosso dolce & soave*" of the church (played by Giovanni Pietro Negri), "*2 Violoni continoi in contrabasso*", *2 clavicembali*, *3 liuti* and *2 chitarroni*. Altogether, a very grand affair. Oliver further relates that Banchieri goes on to explain it occurred to him that it would be a good idea to set down the tunings *of these instruments* used in the performance. Since he was there himself, it's not entirely clear why he needed the assistance of Alfonso Pagani. Thank you, Olly.

I'm not so mystified by that, having spent whole rehearsals & concerts playing with colleagues who were later utterly amazed to find I was playing on 3 and not 4 strings.

On face value, Banchieri's mass utilised two large *Violoni in contrabasso* for which he notes a tuning of D₁ G₁ C₂ E₂ A₂ D₃. But, I ask: why did he have to ask Pagani how they were tuned?; was Pagani at this performance or was he assuming the instruments that Banchieri was seeking information about were like instruments he [Pagani] had seen further North?; why did Banchieri omit this tuning when he wrote again 2 years later? These are known unknowns.

Why are we still using a double bass string instrument in Monteverdi's *Vespers*?

Does anybody else mention this tuning in the 17th century?

Yes, Michael Praetorius [1571-1621] does; and we are indebted to him for a clear idea of how very large the lowest viols need be in order to have a string length long enough for pitches below G₁. His beautiful drawings are accompanied by a scale, a unique source of data for later generations. **note 12** The "great viols" are over 8 Brunswick feet tall [Praetorius' scale], that's over 229cm/7ft 6inches tall; very big double basses indeed - 30.5cm/12 inches larger than the largest mostly played nowadays. Praetorius worked in Frankfurt, Wolfenbüttel and Dresden; not so near Warsaw actually [Dresden-Warsaw 519km/323 miles]. However, while it took Sebastian Bach something like 2 weeks to walk the 337km/210 miles [actual walking route maybe 400km+] from Arnstadt to Lübeck, it took Heinrich Schütz 10 weeks to get to Venice from Dresden in 1628.

Evidently, such a large instrument was still at the court of Johann Georg I, the Elector of Saxony & formerly Praetorius' employer, in 1648 when Schütz requested reimbursement for "a small bench for the great viol upon which one is able to stand". **note 13**

Is Praetorius the only other person to mention double bass viol tuning?

In the 17th century, yes. Not until Johann Philip Eisel published *Musicus Autodaktos* in Augsburg [1738] is it mentioned again. By this time, both the tuning and the number of strings seem improbable. Maybe he is displaying his knowledge of Praetorius' major work; no German musical theorist would have cared to seem ignorant of it, for sure. Augsburg is 362km/225 miles from Dresden where Praetorius worked and 423km/263 miles from Wolfenbüttel where *Syntagma Musicum* was published. Perhaps Eisel had seen a surviving example of these early 17th century giants.

Do any original 17th century double basses large enough to play so low survive?

I know of only one surviving instrument (that appears to date from the 17th century) of appropriate size for low D₁ tuning anywhere in world; Paul Brun records that a very large double bass by Pietro Zenatto of Treviso is to be found in the storage at the Musical Instrument Museum in Brussels. **note 14** It is 230cm tall - over 7.5 feet! - has 5 pegs and you can see a photo of it on page 130 of Raymond Elgar's "Looking at the Double Bass". **note 15**

Sadly, it is a fake that dates from the 19th century. Pietro Zenatto? "this name is known primarily from labels found in 8 of 21 viols in the Brussels Musical Instruments Museum". Even "the museum's website describes them as of unknown authorship and nowadays they are widely considered to have been made in the 19th rather than the 17th century". The American Viola da Gamba Society goes on to say these instruments have "been made with an intent to deceive the unwary purchaser". **note 16**

Peter McCarthy's *Rough Guide to Old String Instruments* has three helpful hints on this subject:

A. "it was made in the 17th century" - it was made in the 18th century.

B. "it was made in the 18th century" - it was made in the 19th century.

C. "it's Italian" - ah, you paid too much for it.

Do other large early 17th century instruments still exist, even if subsequently altered?

In the preface to his book on Cremonese double basses Duane Rosengard has more to say of alterations to very early basses. He draws a very clear distinction between the earliest Brescian basses and those instruments developed much later in the 17th century, apparently specifically as doubling instruments and very much the precursor of our modern "double bass".

Why are we still using a double bass string instrument in Monteverdi's Vespers?

He observes that "most if not all large basses made before 1650 have lost their necks and heads". He finds this particularly surprising in relation to those instruments attributed to Gasparo da Salo, in view of the "generally excellent state of preservation of the bodies of these highly prized instruments". He highlights three aspects of these early instruments:

- A. greater width between the f holes to accommodate a wide bridge
- B. greater width at the root of the neck for a neck and fingerboard that will take more than 4 strings
- C. the possibility that they were originally fitted with shorter necks.

Mr. Rosengard goes on to observe "these heads and necks were deemed useless, and consequently discarded, suggest that at some point they were rendered obsolete". To adapt these acoustically satisfactory bodies to later requirements, ie. as a "contrabasso" for 18th century ensembles, it was easier to fit them with a complete new neck and head. He does not suggest that these instruments were low transposing double basses in their first incarnation.

Two famous examples have often been copied and tuned as "D violoni"; the Ventura Linarol in the Vienna Kunsthistorische Museum & the "Dolmetsch" Maggini. Neither of these instruments comes anywhere near the size required for a low D₁ string at any performing pitch from A392 to A465. They can only have been tuned a 4th higher. Copies of these instruments need to be made with disproportionately long necks (creating a longer string length), to achieve pitches as low as D₁. Even through museum glass it's quite clear the Linarol has had a new belly fitted, more difficult to say what of the neck and scroll has survived over 400 years. The Dolmetsch "Maggini" is now in storage and no longer on public display at the Horniman museum but can be inspected by appointment. I have and I can say with absolute assurance that it might possibly be quite old; Italian?, maybe.

The "Maggini" does have double purfling and consulting my Rough Guide again I find three more basic instructions:

- A. a very odd shape, it's a Gasparo [anecdotally common practice in the 19th century]
- B. the belly is slab cut & the workmanship a little rough, it's a Testore
- C. old and double purfled, must be a Maggini.

Forgive me if I sound a little cynical.

What do contemporary sources tell us of early Italian "double basses"?

In 1608 Thomas Coryat reported from Venice that "*sometimes sixteene played together upon their instruments, ten Sagbuts, foure Cornets, and two Violdegamboes of an extraordinary greatness*" (at a Chapel near San Rocco, not San Marco). Coryat's information is of limited value without some sort of scale. **note 17**

Weren't people very small then?

Average height for Northern Europe at the time of the Norman Conquest (1066) wasn't so much less than it is today - 173.4cm/5ft 8¹/₄ inches. It took a dip by the 17th century to 165.8cm/5ft 5¹/₄ inches before gradually rising again to present day norms. **note 18** The Linarol "violone" in the Vienna Kunsthistorisches Museum is 174cm tall overall. If Coryat was of average height, such an instrument would have seemed very big (though still not capable of functioning as a "double bass"). An Italian G bass viol would in any case appear very large to an observer used to English bass viols.

Why are we still using a double bass string instrument in Monteverdi's Vespers?

What about other contemporary records?

Eleanor Selfridge-Field has noted that both *Violone* and *Violone Contrabasso* appear in the registers of San Marco 1614. **note 19** Bearing in mind the variety of sizes of both violins and violas at this time, without more evidence it's a leap in the dark to be sure it was a low transposing instrument but the existence of the following instrument might suggest it could be a double bass violin.

Professor Stephen Bonta has identified a double bass type of instrument recorded in some detail in the annals of Bergamo cathedral, nestling in the very foothills of the Alps, and his excellent study details the changing name for this instrument in the well preserved archive of the church. **note 20**

- 1597 *violone doppio* consigned to Pietro Antonio Carrara at S. Maria Maggiore.
- 1614 Gioseffo Dalmasoni detto il Moro rehired by S. Maria Maggiore. Previously employed in 1602 to play "*il violino, il basso*", now expected to play *violone grande* as well. Stephen Bonta was convinced by his search of surviving documents that Dalmasoni considered the instrument to be a contrabass violin, not contrabass viol.
- 1632 Giovanni Battista Moresco signs for "*quattro instrumenti da archetto*" at S. Maria Maggiore including *violone grosso*, named *violone grande* again in another document in 1633. No new purchase of a large string bass is recorded between 1597 & 1633; terminology had changed but the instrument remained the same.
- 1653 The large contrabass violin at S. Maria Maggiore is repaired by Lazzaro Norsini who refers to it as *contrabasso*, the church bookkeeper notes it as *violone*. Maurizio Cazzati, now maestro at S. Maria Maggiore uses the term *contrabasso* as well.
- 1657 Ottavio Mazza succeeds Cazzati at S. Maria Maggiore; he prefers to call it *violone grosso*.
- 1679 S. Maria Maggiore purchases a new instrument - *violon grande contrabasso*. A carpenter submits a bill for a case for the *nuovo Violone!*

Bonta makes the point that at no time is the suffix *da gamba* employed at S. Maria Maggiore; that one can be reasonably certain string instruments in use are violin family instruments and not viols. In fact he points out that the sole use of *contrabasso da gamba* in a 17th century Italian print of church music is Monteverdi's 1610 Vespers.

The instrument-of-many-names at Bergamo would seem to be a different sort of instrument: how many strings did it have - we don't know; how was it tuned - we don't know that either. Not much to go on but, as a violin family instrument, it most likely had 4 strings; the bottom string tuned only as low as available strings allowed. Unless it was of commensurate size to Praetorius' giant basses, that lower limit would be around G₁/A₁. Lack of higher strings would prevent it from playing at pitch above the middle of the bass clef making octave transposition (when possible) a certainty. As the crow flies it's 180km/112 miles from Ferrara (where Bismantova wrote) to Bergamo. Perhaps the new *contrabasso* made for Bergamo in 1679 was the very instrument he was writing about? Pure guesswork; we shall never know.

Bergamo is 186.6km [116 miles] from Bologna but Banchieri was apparently unaware of the large contrabass violin in use so near, though alert to news of a double bass viol from much further North, related to him by Pagani.

So, what does this all add up to?

One itinerant Englishman saw a large viol in Venice in 1607 but we have no means of knowing how large it was.

One person South of the Alps had heard about a contrabass viol tuning in D from a colleague who had been working 1116km/694 miles North for the previous 8 years, and may have worked with a pair of such instruments in Verona prior to 1609.

Why are we still using a double bass string instrument in Monteverdi's *Vespers*?

One scholar has identified what may have been a large supporting string bass, *violone contrabasso*, in Venice in 1614. Difficult to say if this instrument was a viol or violin family instrument.

A second scholar has traced the history of a double bass violin - judging from the terminology - at Bergamo Cathedral from a surprisingly early period. Such an instrument not otherwise reported until the end of the 17th century.

Note that all these instruments were at large and wealthy institutions. Personal ownership of such expensive items is not in the least likely - speaking of bass violins in the German states, Gyongy Erosi says their "market price was equivalent to the cost of about forty pigs in 1614, thus it fell outside the purchasing range of most musicians". **note 21**

I must say that the very simple bass line of *Domine ad adiuvandum* is just what an early double bass might be capable of but Monteverdi's terminology *da gamba* does not in the least suggest such an instrument.

In 1661 *contrabasso* appears as a noun rather than qualifying adjective (as it does in the Bergamo archive in 1653) in two notarial documents from Cremona (one signed by Nicolo Amati) concerning the estate of Alessandro Lodi and enumerating "*di strumenti ad arco*" including "*violini, violoni, viole da braccio*" and "*un contrabasso*". Douane Rosengard, op. cit.

There is little evidence for double bass viols in the Italian states during the first decades of the 17th century at all but plenty for a low bass viol in G sounding at pitch. There is strong evidence of growing interest in double bass violins beginning with a single early example in Bergamo, and the possibility of another violin double bass in Venice in 1614 at the wealthy Basilica on the Piazza S. Marco. In 1676 Michele Todini claimed to have "constructed and introduced the *violone grande* or *contrabasso* to Roman music" **note 22** and in 1694 Bismantova describes the tuning of these instruments.

It is ironic that we have created an instrument, the "D violone", in a form which never existed before the 20th century (ie. a small or medium sized double bass with 6 strings tuned from low D₁) while paying little attention to the G bass viol - an instrument that should be of very real interest to viol players everywhere.

Hang on, Peter. I've seen you play the *Vespers* and you play a lot more than *Domine ad adiuvandum* and the final *Sicut erat*!

It's a fair cop but society is to blame; my excuse is this - organ registrations in the *bassus generalis* indicate a large organ was expected (the main church organ, I guess) but we almost always use a small portable organ. The bass of these instruments is very weak; I play along under the sections with multiple voices to support the organist's left hand.

Bearing in mind the paucity of evidence for low 16ft string basses at the beginning of the 17th century in the Italian states, the burden of proof lies with those who would use such an instrument, not with those of us who would not.

Peter McCarthy, August 2018

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1. Holman, Peter "*Col nobilissimo esercito della vivuola*": Monteverdi's String Writing Early Music, Vol. 21. No. 4 Monteverdi I (November 1993) pp.576-590

Why are we still using a double bass string instrument in Monteverdi's Vespers?

2. Zacconi, Ludovico *Prattica di Musica* Venice 1592
3. Agazzari, Agostino *Del Sonare sopra'l Basso* Siena 1607. Ephraim Segerman writes that "Agazzari's stated criterion for choice was putting higher notes down an octave but playing lower notes as written" *The Development of Western String Instruments* NRI Manchester 2006
A long way North, Heinrich Schütz has something similar to say in his instructions to the violon player in the preface to *Musicalisches Exequien* 1636. When a high clef is used, play an octave lower; in essence, one need not play above the frets. It is obvious, should it need to be said, that Schütz can only be intending the 5/6 string bass viol in G [playing at pitch] - as Monteverdi must for *Il Combattimento di Tancredi e Clorinda* 1624, written 4 years before Schütz' 2nd trip to Venice.
4. Banchieri, Adriano *Conclusioni nel suono dell'organo* Bologna 1609 "no theorist after Banchieri ever refers to the violone as a viol" [Italy] Stephen Bonta 'From violone to violoncello: a question of strings' p.76 n37 However, Doni adds the suffix da gamba to violone for G bass viol tuning
5. Banchieri, Adriano *L'organo suonarino* Venice 1611
6. Cerone, Pedro *El Mellopeo y Maestro* Naples 1613
7. Doni, Giovanni Battista *Annotazioni sopra il Compendio della Musica* Rome 1640
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