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VIOL-MAKING IN ENGLAND C.1580-1660

by

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Submitted July 2001

For the degree of Doctor of Philosophy

Department of Music

Faculty of Arts

The Open University

Volume 2

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ABOUT THE ILLUSTRATIONS

N.B. Illustrations, both of whole instruments and of details, are not all given at the same scale, and only those few identified as such are life-size.

Unedited front views of all viols are shown first (after the bibliography), with numbers F01-F38 depicting viols VME01-VME38 respectively. All other illustrations have a number starting 'L'. The 'F' photographs were taken with the camera close to perpendicular to the centre of the belly in order to minimise and regularise any distortion. In addition, several viols are shown as silhouettes and also as semi-silhouettes (i.e. the centreline is made vertical and the background is replaced by a plain, neutral colour). I derived silhouettes and semi-silhouettes from my photographs using Photoshop software which enables the semi-mechanised selection of edges by colour, adjusted manually at a single pixel level to take account of photographic artefacts, shadows, dust, etc. All the silhouettes are derived from frontal views. Please note that the angular or squared section at the top of silhouettes should be ignored because it is not part of the outline of the viol body but is part of the neck and/or fingerboard. VME37 is the only VME viol that retains its original fingerboard.

In order to aid comparisons of shape, silhouettes are given at approximately the same size as each other, and are not to the same scale. There is no objective unit of similarity, and observers of all the images presented will make their own judgements about how similar or different they are, in detail and as a whole. In particular, the perceptions of observers with extensive experience of looking critically at such shapes will reflect this experience. Unfortunately, idiosyncratic beliefs in the presence or absence of similarities or shapes can lead to the erroneous perception of features or relationships, as discussed in Chapter 1. I have therefore presented shapes and data with minimal comment so that observers can approach them independently and make their own judgements, although it is certain that not all observers' perceptions and judgements will be congruent with mine.

For superimposition comparisons of middle bout outlines (explained in illustrations L04 and L05) and soundholes, the silhouettes are adjusted by scaling and rotation. Their strict reflection about the centre of the instrument would show much greater disparities than is visible in these illustrations. Treble soundholes are often damaged during adjustment or replacement of soundposts. Such damage is generally easy to disregard and has been maintained in the silhouettes. However, the length and orientation of soundholes is manipulated in the comparisons in order to maximise the closeness of matches. The centre section of VME21 (illustration L52) demonstrates clearly why this is necessary. See also illustrations L44 and L45. No significance should be attached to any of the colours used in superimpositions. The colours of several photographs are inaccurate.

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L96	Some labels subject to questionable reading.
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DETAILS OF ILLUSTRATIONS OMITTED FROM *VME CD-ROM*

Illustration title/description is followed by {source} where known.

For full references of short titles, see bibliography.

- L01 Simpson, *Division-Violist*, (1659), p.1. {Oxford, Bodleian Library, Wood 657(1)}
- L02 Simpson, *Division-Violist*, (1659), p.2. {Oxford, Bodleian Library, Wood 657(1)}
- L60 Label of a viol altered to a violin by Barak Norman. {M.Heale}
- L61 Violins made from the wood of viols. {König, *Viola da gamba*, p.15. Sotheby's (London) 7 April 1983, Lot 63. Sotheby's (London) 3 April 1985, Lot 73.} Pythagoras conceiving musical intervals after hearing smiths' hammers of different sizes. {Probably engraved by Sebastian Furck (c.1600-1655), the background copied from an engraving by Frans Hogenberg, the foreground after a design by Daniel Meisner, published in *Thesaurus philo-politicus*, (Frankfurt am Main, 1626)}
- L62 Alteration of instruments as an image transfers between media: The trio of musicians from the *Lyfe of Man* print. {British Museum, Sloane Collection, E.4-34.37} The same passage in a painting based on the print. {Sotheby's, (London) 13 November 1991, lot 85.}
- L63 *Lyfe of man*. Painting based on the *Lyfe of man* (Tabula Cebetis) print. Detail showing a plucked instrument. {Sotheby's, (London) 13 November 1991, lot 85.}
- L64 Viols in the Unton painting. Details of the viols in the Unton memorial picture. (Painter unknown, c.1596): Viol consort. Broken consort. {London, National Portrait Gallery 710}
- L65 *The Papist Powder Treason*, print and painting. Engraving by Richard Haydocke, *The Papist Powder Treason*, (c.1606-1613). {Huntingdon Library, San Marino, California} Painting by John Percivall (1630), based on this print. {New College, Oxford. (photo: K.Hearn)}
- L66 Details of *The Papist Powder Treason* print and painting. Top right of the print showing viols, one with a striped back. The same passage of the painting. Top left of the print showing a violin or treble viol. {sources as for L65}
- L67 Possibly the earliest English painting of a viol (third quarter of the sixteenth century). Detail of a wall painting from a house in Thame, Oxfordshire. {Oxfordshire County Museum Service, Accession No.5989}
- L68 A ceiling painting, a festooned mute violin, and a chest with a musical carving. *Melpomene* on a ceiling in Crathes Castle, Scotland (before 1596). {photo: T.Hermanides} Seventeenth century festooned English mute violin. {Edinburgh University Collection of Historical Musical Instruments 329} A seventeenth century chest at Corsham Court, Wilts, and a detail of the lutenist on it. {photos: J.Methuen-Campbell}
- L69 Musical imagery. Detail of a wall painting (c.1632) from Hilton Hall, Huntingdonshire showing a female lutenist. The design is derived from a set of prints by Jan Barra depicting the *Five Senses*. Hind, *Engraving in England*, vol.iii, p.95. Griffiths, *Stuart Prints*, p.316. {V&A Picture Library} Musical details on a fireplace in Bolsover Little Castle (c.1615). A food mould shows Orpheus charming animals. {Wechsberg, *Cooking of Vienna*, p.180}
- L70 Musical instrument swags, carved on a stair post at Herstmonceaux {photo: P.Forrester} and from *Panoplia*, a series of engravings by Hans Vredeman de Vries, 1572. {HollsteinD 337 and 338}
- L71 Details of three tapestries that include viols. A courtly outdoor scene. {London, Victoria & Albert Museum T.136-1991} *Prodigal Son*. {Chatsworth House, Derbyshire} *Hearing* from a series of the *Five Senses*. {Haddon Hall, Derbyshire}

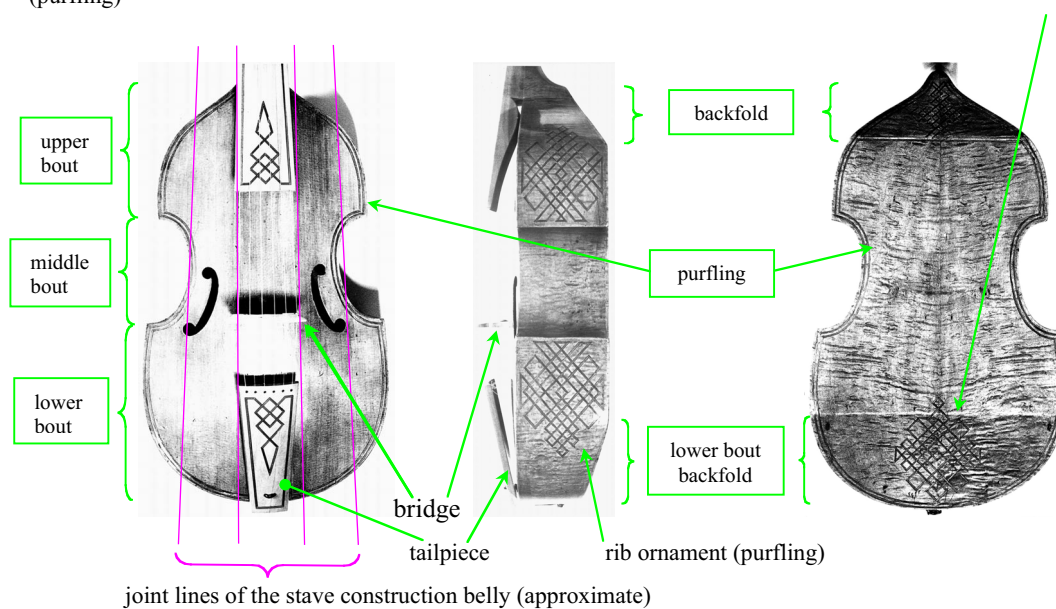
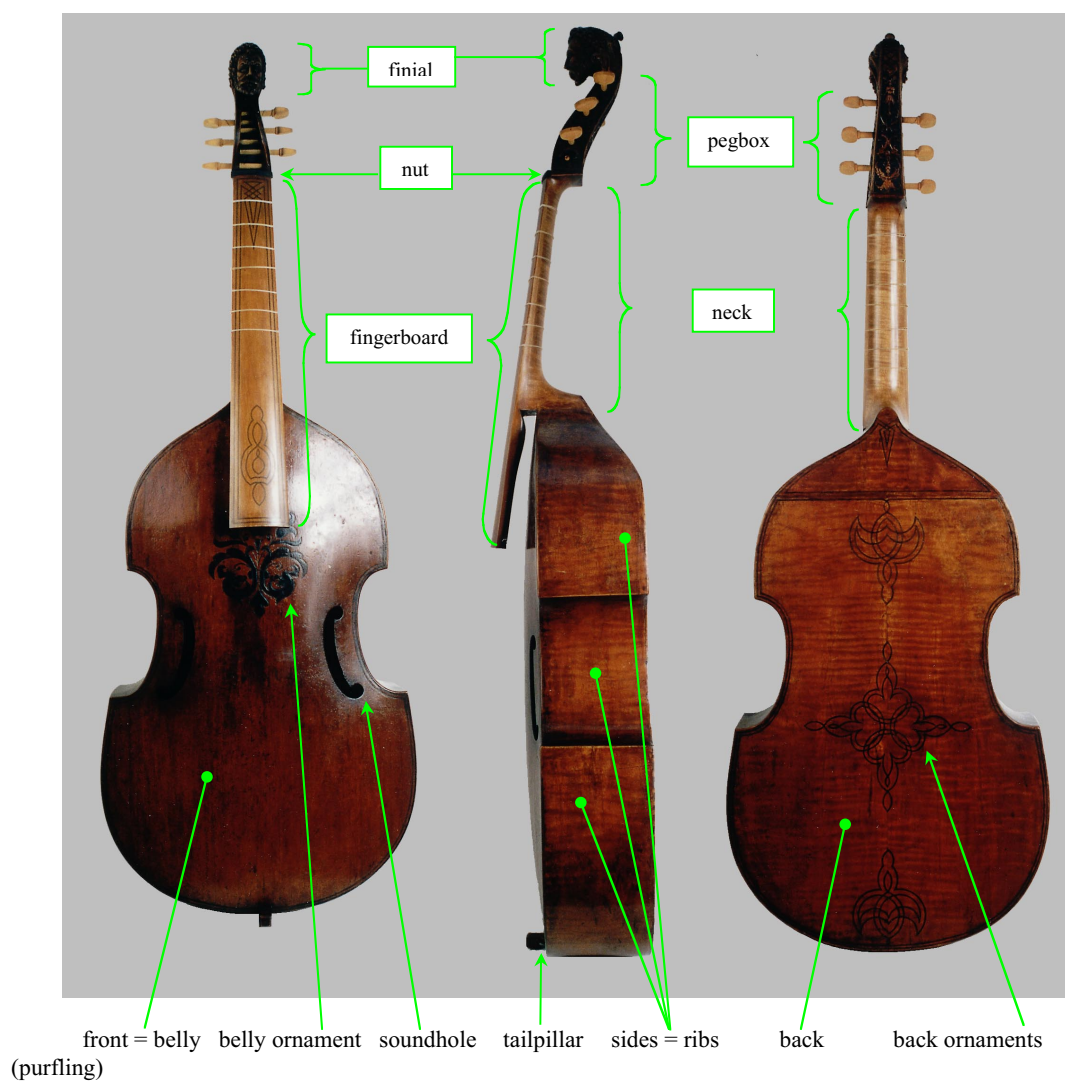
- L74 Items in the Great High Chamber, Hardwick Hall, Derbyshire. The Eglantine Table. {photo: M.Fleming} Print pasted on the wall and incorporated into the decorative scheme. {photo: ??}
- L76 Changes to depictions of instruments during transfer between media. Alabaster overmantel at Hardwick Hall (formerly at Chatsworth). {Wells-Cole, *Art and Decoration*, p.253} The *Apollo and the Muses* engraving used as a basis for the overmantel. {Wells-Cole, *Art and Decoration*, p.252 (see also *ibid*, n.14)}
- L77 Instruments altered when an image is used in different media. Giorgio Ghisi, *Apollo and the Muses*. Engraving (*Bartsch* 406.58). {Landau&Parshall, *Renaissance Print*, p.291} The print's adaptation for another purpose includes changes to the instruments. Furniture plaque by Martial Reymond (d.1599). {RIdIM/RCMI Inventory No.7, p.10}
- L78 Ornaments in the same style as the inlaid belly decoration on VME33. Detail of a ceiling painting from Thame (3rd quarter of 16th century). {From Oxfordshire County Museums Service, Accession Nos. 5989-5992} Four of the twenty-eight plates from *Morysse and Damashin renewed and encreased very profitable for Goldsmynes and Embroiderars by Thomas Geminus at London Anno 1548*. {Hind, *Engraving in England*, vol.I, plates 26, 27}
- L80 *Boni et Mali*. *Boni et Mali*, a series engraved and published by Jan Sadeler after Maarten de Vos (Antwerp, 1583). Title page. *HollsteinD* (de Vos), 24. {M.Fleming} Tubalcain in his forge. {*HollsteinD* (de Vos), 36.}
- L82 Instrument-makers' workshops. A detail from a print of Bolognese trades by Francesco Curti after Gio. M.Tamburini (Bologna, 1633), with a variety of instruments hanging out of a window advertising the work of the instrument-maker, or possibly drying the varnish. {Dept of Western Art, Ashmolean Museum} A woodcut by Jost Amman, showing an instrument-maker in his workshop. {Jost Amman & Hans Sachs, 'Der Lautenmacher', *Ständebuch*, (Frankfurt, 1568). Dover reprint as *Book of Trades*, (New York, 1973), p.111} A reversed, smaller (145 x 105 mm) copy of Sadeler's engraving of Jubal (illustration L81), engraved possibly by a member of the Merian family over a century later. {M.Fleming}
- L83 Viol labels (see Appendix 9) from Hill, *English Makers*. George Gibbs, 1598? John Shaw, 1673. Henry Smith, 1629 and 1631.
- L90 Freedom of London for Jaye and the Barnards. Document admitting Thomas Barnard, Floris Bernard and Henry Jaye to the Freedom of the City of London in the Company of Fletchers, on payment of 6s 8d each. {London, CLRO REP 27, fol.313}
- L91 V&A overmantel. Large carved wooden overmantel including a bowed string instrument resembling those on the Hardwick alabaster overmantel (illustration L76). See also the violin in illustration L94. Sixteenth century English or possibly French. {London, Victoria & Albert Museum A12-1924} Virgil Solis woodcut used in England. A woodcut from Virgil Solis, *Biblishe Figuren*, (Frankfurt, 1562) as used (with a new border) in a bible published in London, 1567. {M.Fleming}
- L92 *Parthenia Inviolata*, engraved by William Hole probably between 1620-1629. Title page, and detail of the viol. {Facsimile, (New York, 1961)}
- L93 Tenor viol by William Bowcleffe. (Three views. For Bowcleffe see appendix 9). {photos: M.Fleming} A painting of a similar viol. Guido Reni, *Coronation of the virgin*, c.1607 {London, National Gallery NG214}
- L94 The Bolsover *auditus* and its origin, showing how not all instrument details are preserved during transfers between media.. Detail of a painted lunette in the Pillar Room at Bolsover Castle showing a Bowcleffe-like viol. {photo: Paine and Stewart} Engraving (by Cornelis Cort after Frans Floris) on which the above painting is based. {Moens, *Muziek*, p.59} The Bowcleffe viol might follow such a print. The lunette proves this print was used in Jacobean England.
- L97 The *Heaven* ceiling at Bolsover Little Castle, and detail of the viol. {photo: English Heritage A9404/14}

GLOSSARY OF TERMS USED TO REFER TO PARTS OF VIOLS.

See also explanatory diagrams on p.247

- Back The piece or pieces of wood comprising the back of the instrument.
- Belly The piece or pieces of wood comprising the front of the instrument.
- Body The assembly comprising the belly, back and ribs.
- Bout Viols are commonly discussed in terms of three sections which reflect the rib construction. The middle bout is that part which usually includes the soundholes and bridge. The lower bout extends from the bottom of the instrument up to the middle bout. The upper bout extends from the middle bout to the neck. In the case of a festooned instrument such as VME33, the extra bulges in the outline can be described as bouts but there is no universal agreement about this.
- Bridge A piece of wood that fixes the spacing of one end of the sounding part of the strings. It is not glued or jointed to the viol and is held in place only by the pressure of the strings.
- Finial The decorative termination of the neck above the pegbox, usually carved either into the form of a scroll or a human or animal head.
- Fold The back is first made flat and is then cut almost right through its thickness along a line not far from the widest part of the upper bout, enabling the maker to crease the back along this line. This may be done so that the top edge of the back is less intrusive for the player. Folds in the lower bout are thought to facilitate their use as violas, i.e. played on the shoulder.
- Front The piece or pieces of wood comprising the front (belly) of the instrument.
- Head One type of finial, the other common form being a scroll or volute.
- Mould A piece or construction of wood which the ribs are bent to match and which supports parts of the instrument during assembly.
- Neck The part which includes the nut and pegbox and separates them from the body. On new viols the finial, pegbox and neck are one piece of wood, but all these parts can be replaced independently. Old viols have often had several replacement necks.
- Nut A small piece of wood, bone or ivory over which the strings pass from the pegbox to the bridge. It defines one end of the sounding length of the strings.
- Ornament Any decoration, but usually a pattern of inlaid purfling. These are often geometric ‘knots’, and curved passages may be darkened with stain or stripes scorched with a hot needle.

Patination	The patina on many old viol bodies results from centuries of dirt and cleaning. It includes human secretions (sweat), environmental dirt and rosin dust, and often renders the surface opaque so that the wood is not clearly visible.
Pegbox	That part of the neck where the pegs are mounted.
Plates	The back and front of the instrument are sometimes called plates.
Purfling	An inlaid strip, sometimes single, but usually comprising three thinner strips. Made of a variety of woods, most commonly an inner strip of white, with the two outer strips dyed black. Apart from the purfling which is on and parallel with the edges of the belly (which is considered to have other functions), it is ornamental.
Rib	The piece or pieces of wood comprising the sides of the instrument.
Rose	A hole cut in the belly near the end of the fingerboard and usually filled with a pierced inlay of wood in a gothic design, backed with parchment.
Shoulder	The part of the neck where it joins the body.
Side	The rib/s.
Stringlength	The length of string from the nut to the bridge.
Soundhole	Holes cut in the belly for acoustic reasons. On most of the VME viols they are C-shaped (they are often called ‘C-holes’), but on violins they are usually <i>f</i> -shaped.
Stave	One form of belly construction involves forming the arching (which is convex overall) by bending of strips of wood called ‘staves’ to nearly the desired curvature before gluing them together along their thin edges. This is typical among the VME viols. The bellies of violins and non-English viols are usually made from two pieces of wood with a central glue joint, the arching being formed entirely by carving.
Tailpiece	A piece of wood at the bottom of the viol, which holds one end of the strings. It is usually held on a tailpillar, unlike on violins where it is usually held with a tailgut passing around a button mounted in the bottom of the ribs.
Tailpillar	A pillar of wood glued at the bottom of the viol, on which the tailpiece is usually mounted.



(top) Bass viol by John Shaw, 1673.
 (bottom) Treble viol by John Hoskins, 1609.
 Diagrams showing nomenclature of viol parts.

Appendix 1.

Some books and articles that recognise or discuss geometric/proportional design schemes for viols or violins

Creators of these analyses do not generally deal with why their schemes are incompatible with one another. A 1994 scheme for violins was ‘found to be true’, according to its author.¹

Sacconi, *Stradivari*, p.28.

Smith, ‘apparent geometry’.

Mark M.Smith, ‘Keeping Geometrical Analysis in Proportion’, *FoMRHIQ*, 52, (July 1988), pp.40-43.

Woodrow, *Shape of Violins*. [also: D.B.R.Woodrow, *The Lute of Pythagoras*, (a geometrical scheme for designing violins, unpublished but distributed at Dartington Violin Conference, 1991)]

Michael Heale, ‘The Proportions of bass viols’, *GSJ*, vol.xxxix (1986), pp.131-33.

Ephraim Segerman, ‘A Theory of Viol Design 1. Geometry of the Instrument-Strings Relationship’, *FoMRIQ*, 18, (January 1980), pp.33-39.

Booth, ‘Violins’ describes the attitudes of some contemporary violin makers.

The following are cited in Emile Leipp, *Le Violon*, (Paris, 1965), chapter 2:

Carl Schulze, *Stradivaris Geheimnis*, (Berlin, 1901).

Adolf Beck, *Die proportionale Konstruktion der Geige*, (Leipzig, 1923).

Max Möckel, *Das Konstruktionsgeheimnis der alten italienischen Meister*, (Berlin, 1925).

K.Steiner ‘Die Geometrische Konstruktion der Geigenform von Stradivari’ in *Instrumentenbau Zeitschrift* 9, (1949).

Herbert Heyde, *Musik-instrumentenbau*, (Leipzig, 1986), pp.139-145 illustrates geometric schemes for the construction of violin outlines by Alfred Stelzner (1891), Anton Schneider (1903) and others.

The following are cited in Dmitry Badiarov, ‘On the early violin bridge position’, *FoMRHIQ*, 92, (July 1998):

Tulio Pigoli, ‘La tracciatura degli strumenti ad arco’, *Liutera* 1981 No.3, and 1985 No.13.

Tulio Pigoli, ‘Evoluzione delle curve di bombatura’, *Liutera* 1984 No.10.

Tiziano Zanisi, ‘Disegno...’, in *Atti della giornata di studio di cultura liutaria*, (Cremona, 1987).

Further works mentioned in Regazzi, *Luthier’s Library*:

Ernest Cowell, *Violin and Viola Designs of the Old Italian Masters*, (Romford, [c.1988]).

Cicero Kjellgren, *Fiolens*, (Svanskog, 1982).

Esben Navne, *The Art of Violin Design*, (Kalundborg, 1979).

A.Rojdestvenskij, *Postroenie konturnych krivych skripki*, (Moscow, 1926).

¹ Ekwall, ‘Patience’, p.168.

Appendix 2.

Auction catalogue definitions of attribution terms.

These definitions are given in catalogues of musical instrument auctions in London, 1999, at Bonham's (W. & F.C. Bonham & Sons Limited), Christie's (Christie, Manson and Woods Limited), Phillips (Phillips Son and Neale), and Sotheby's.

Abbreviations:

IOO	'in our opinion'
B	Bonham's
C	Christie's
P	Phillips
S	Sotheby's

Catalogue Term	Definition
<i>By [or name]:</i>	The instrument is IOO the work of the named maker.. [B, P, S] IOO a work by the maker.. [C]
<i>Attributed to:</i>	IOO, probably a work by the maker in whole or in part. [C] A traditional attribution as to the identity of the maker or date of manufacture of an instrument with which we do not necessarily agree. [S] The instrument is believed to be by the named maker in the opinion of the ... authorities ... whose literature or certificates are referred to... . IOO the instrument is not necessarily the work of this period or from the period of this maker. [B, P]
<i>Ascribed to:</i>	A work traditionally regarded as by the maker. [C] The instrument is believed to be by the named maker in the opinion of the ... authorities ... whose literature or certificates are referred to... . IOO the instrument is not necessarily the work of this period or from the period of this maker. [S] A traditional attribution with which we do not necessarily agree. [B, P]
<i>School of:</i>	IOO a work by a follower of the maker or in the style of works associated with the place. [C] IOO by a follower of the maker indicated, or is in the style of instruments associated with the area indicated. [B, P]
<i>Workshop of:</i>	IOO the instrument was probably executed by an unknown hand on the premises of and under the direct supervision of the named maker. [S] IOO the instrument is executed in the basic style of the maker and possibly under his direct supervision. [B, P]
<i>Circle of:</i>	IOO, the instrument was executed by a contemporary of the named maker and exhibits his characteristics. [S]
<i>Follower of:</i>	IOO the instrument bears the characteristics of the named maker but may not be from the period of this maker. [S]
<i>In the manner of:</i>	IOO the instrument is after the style of but substantially later than the work of a named maker. [S]

The terms *labelled*, *stamped*, *branded*, and *inscribed* are treated as purely descriptive and not expressive of any opinion regarding authorship, age, date, etc.. They sometimes imply rejection of what the mark indicates [B, P].

Appendix 3a.

Comparison of published viol measurements

The inconsistencies exemplified in the following four tables are to support the discussion of the reliability of sources in Chapter 2. The tables compare dimensions as published in a range of sources including books and plans issued by the museums and private owners who possess the viols. All four instruments are by, or attributed to, Henry Jaye.

Notes

- All measurements are given in millimetres.
- All my measurements of the belly are taken over the arching. Measurements taken with calipers would mostly be slightly smaller.
- Unless stated, measurements are those given on drawings to supplement the image.
- ‘Length of body’ is taken to mean length of belly.
- ‘Width of instrument’ is taken to mean width of belly.
- Depth of ribs is given for the bass side unless stated otherwise. Published sources do not specify a side unless they give measurements for both sides.

Abbreviations used in footnotes:

Draw. = measurement taken from the drawing

Dim. = dimension given on or with the drawing

Appendix 3a Table 1. <u>VME02</u>				
dimension		source		
		Fleming	Edmunds	Tourin
total length		656 ²	640 ³	the viol is recorded as being in the Galpin Society Exhibition in London, (1951) but no measurements are given
length of belly [or body]		327	330 ⁴	
width of belly [instrument]	upper bout	161	161 ⁵	
	middle bout	117	115 ⁶	
	lower bout	194	195 ⁷	
width of back	upper bout	156	159 ⁸	
	middle bout	112	115 ⁹	
	lower bout	192	194 ¹⁰	
depth of rib	neck joint	47.1	47 ¹¹	
	middle bout	71.2	71 ¹²	
	lower bout	70.8	71 ¹³	

Sources:

- Fleming: Measurements taken for this study.
- Edmunds: Martin Edmunds (1981). Measured by M.Edmunds and J.Pringle (1980).
- Tourin: *Viollist*.

² Including tailpiece.

³ Excluding tailpiece and tailpillar.

⁴ Draw. Dim.: 328.

⁵ Draw. [no Dim. given]

⁶ Draw. [no Dim. given]

⁷ Draw. [no Dim. given]

⁸ Draw. [no Dim. given]

⁹ Draw. [no Dim. given]

¹⁰ Draw. [no Dim. given]

¹¹ Draw. (treble side) [no Dim. given]

¹² Draw. (treble side) [no Dim. given]

¹³ Draw. (treble side) [no Dim. given]

Appendix 3a Table 2. <u>VME17</u>						
dimension		source				
		Fleming	Pringle	Baines	König	Tourin
total length		795 ¹⁴	772 ¹⁵	780	780	780 ¹⁶
length of belly [or body]		432	433 ¹⁷	440	442	440
width of belly [instrument]	upper bout	203	201 ¹⁸	210	204	210
	middle bout	150	147 ¹⁹	150	149	150
	lower bout	258	259 ²⁰	260	260	260
width of back	upper bout	203	207 ²¹			
	middle bout	145	147 ²²			
	lower bout	258	261 ²³			
depth of rib	neck joint	56.8	56 ²⁴			
	middle bout	91.0	89.5 ²⁵			
	lower bout	90.9	90 ²⁶			
depth of body [or ribs]				100	90	100

Sources:

- Fleming: Measurements taken for this study.
- Pringle: Drawing by John Pringle published by the Victoria & Albert Museum, (1979).
- Baines: Baines, *V & A Catalogue*.
- König: König, *Viola da gamba*.
- Tourin: *Viollist*.

¹⁴ Including tailpiece.

¹⁵ End of finial to end of body [hookbar slot is filled]. *Dim.*: 774.

¹⁶ The fact that this and all the other dimensions are identical with those given in the 1978 catalogue implies that they were copied from it rather than measured independently, although it is stated that the information came from a visit in 1977.

¹⁷ *Dim.*: 434

¹⁸ *Dim.*: 203

¹⁹ *Dim.*: 149

²⁰ *Dim.*: 259.5

²¹ *Draw.* [no dimension given]

²² *Draw.* [no dimension given]

²³ *Draw.* [no dimension given]

²⁴ Also on drawing.

²⁵ *Dim.*: 90

²⁶ *Dim.*: 91

Appendix 3a Table 3. <u>VME24</u>								
dimension		source						
		1	2 ²⁷	3	4	5	6	7
total length		1170	1153 ²⁸	1160	1135		1200	
length of belly [or body]		627	623	603 ²⁹	630	626	604	628
width of belly [instrument]	upper bout	289	293	291	290	290	292	290
	middle bout	220	215	210	210	210	210	215
	lower bout	356	357	357	356	356	356	355
width of back	upper bout	289	293					
	middle bout	210	212					
	lower bout	354	358					
depth of rib	neck joint	74.0	72 ³⁰					
	middle bout	115.5	115					
	lower bout	115.5	115.5					
depth of body				114	115	114		116

Sources:

1. Fleming: Measurements taken for this study.
2. Drawing by P.Jaquier, (Paris, 1978).
3. König, *Viola da gamba*.
4. Tourin, *Viollist*.
5. Guy Derat. Information on file at the museum (Paris, Cité de Musique).
6. Pierre Dumoulin. Information on file at the museum.
7. John Pringle and Robert Eyland. Information on file at the museum.

²⁷ All these dimensions are measurements of the drawing.

²⁸ No tailpillar.

²⁹ König gives '60,3 cm'. I would assume this to be a typographical error for 630 were it not for Dumoulin's measurement, which suggests these two measured from a different point from other measurers.

³⁰ Ribs are measured on the treble side.

Appendix 3a Table 4. <u>VME37</u>						
dimension		source				
		Fleming	Pringle	Monical	König	Tourin
total length		1340 ³¹	1295 ³²		1300	1295
length of belly [or body]		721	716 ³³	721	720	717
width of belly [instrument]	upper bout	340	340 ³⁴	340.5	343	341
	middle bout	248	245 ³⁵	248.5	242	248
	lower bout	398	398 ³⁶	398	400	399
width of back	upper bout	336	337 ³⁷			
	middle bout	240	244 ³⁸			
	lower bout	397	401 ³⁹			
depth of rib	neck joint	76.9	77 ⁴⁰	77		
	middle bout	140.1	138 ⁴¹	139		
	lower bout	138.1	138 ⁴²	137.5		
depth of body [or ribs]					138	140

Sources:

1. Fleming: Measurements taken for this study.
2. Pringle: Drawing by John Pringle published by D.M.Kessler (1984).
3. Monical: Monical, *Shapes*. The source of the measurements is not specified.
4. König, *Viola da gamba*.
5. Tourin, *Viollist*.

The only measurement given for this viol in Baines, *European and American*, p.18, is 130 cm for the overall length.

~~~~~

<sup>31</sup> Including tailpiece.

<sup>32</sup> Includes hookbar but not tailpiece.

<sup>33</sup> Dim.: 719.5

<sup>34</sup> Dim.: 341

<sup>35</sup> Dim.: 246

<sup>36</sup> Dim.: 399

<sup>37</sup> Draw: [no Dim. given]

<sup>38</sup> Draw: [no Dim. given]

<sup>39</sup> Draw: [no Dim. given]

<sup>40</sup> Dim.: 76

<sup>41</sup> Dim.: 140

<sup>42</sup> Dim.: 138

## Appendix 3b.

### Violin mould measurements

- All measurements are mm.
- The moulds numbers (MS) are those applied to the moulds at the Museo Stradivariano, Cremona.
- These moulds are often referred to by the following markings written on them: MS1=MB; MS6=PB; MS11=T; MS21=PG; MS28=SL; MS49=G.

## Appendix 3b, Table 1.

### Measurements of six Stradivari violin moulds taken by three people.

**Key:** Dip = Dipper; Sac = Sacconi; Pol = Pollens.

|      | length |       |       | max. width of upper bout |       |       | min width of centre bout |       |       | max. width of lower bout |       |       |
|------|--------|-------|-------|--------------------------|-------|-------|--------------------------|-------|-------|--------------------------|-------|-------|
|      | Dip    | Sac   | Pol   | Dip                      | Sac   | Pol   | Dip                      | Sac   | Pol   | Dip                      | Sac   | Pol   |
| MS1  | 343    | 346   | 339   | 155                      | 156   | 155.5 | 101.5                    | 102.0 | 101.5 | 193.2                    | 194.5 | 193.5 |
| MS6  | 348.0  | 350   | 342   | 161.0                    | 161.5 | 161   | 103.0                    | 102.0 | 101   | 200                      | 198.0 | 196   |
| MS11 | 340.0  | 343.0 | 334   | 151.0                    | 151.5 | 151   | 98.0                     | 96.5  | 96.5  | 190                      | 191.0 | 189.5 |
| MS21 | 348.0  | 350   | 344.5 | 161.0                    | 161.6 | 161   | 106.0                    | 102.6 | 102   | 200                      | 200.5 | 200   |
| MS28 | 350    | 353   | 344   | 154                      | 155   | 154   | 100.0                    | 99.4  | 99    | 195.0                    | 194.7 | 193   |
| MS49 | 350.4  | 353.5 | 347   | 161.0                    | 162.0 | 161   | 103.8                    | 103.0 | 103   | 201.0                    | 202.0 | 201   |

## Appendix 3b, Table 2.

### Differences between three measurers' measurements of six Stradivari violin moulds.

**Key:** range = difference between smallest and largest of the three measurements  
 % = range expressed as a percentage of the mean of three measurements.

| mould | Length of mould |      | Width upper bout |      | Width middle bout |      | Width lower bout |      |
|-------|-----------------|------|------------------|------|-------------------|------|------------------|------|
|       | range           | %    | range            | %    | range             | %    | range            | %    |
| MS 1  | 7.0             | 2.04 | 1.0              | 0.64 | 0.5               | 0.49 | 1.0              | 0.52 |
| MS 6  | 6.0             | 1.73 | 0.5              | 0.31 | 2.0               | 1.96 | 4.0              | 2.02 |
| MS 11 | 6.0             | 1.77 | 0.5              | 0.33 | 1.5               | 1.55 | 1.5              | 0.79 |
| MS 21 | 5.5             | 1.58 | 0.6              | 0.37 | 4.0               | 3.86 | 0.5              | 0.25 |
| MS 28 | 7.0             | 2.01 | 1.0              | 0.65 | 1.0               | 1.01 | 2.0              | 1.03 |
| MS 49 | 6.5             | 1.86 | 1.0              | 0.62 | 0.8               | 0.77 | 1.0              | 0.50 |

## Appendix 3b, Table 3.

## Ranking of violin mould measurements

Key:

*L* = largest measurement

*M* = middle measurement

*S* = smallest measurement

*Dip* = Dipper

*Sac* = Sacconi

*Pol* = Pollens

| <i>mould</i> | <i>length of mould</i> |            |            | <i>max. width of upper bout</i> |            |            | <i>min width of centre bout</i> |            |            | <i>max. width of lower bout</i> |            |            |
|--------------|------------------------|------------|------------|---------------------------------|------------|------------|---------------------------------|------------|------------|---------------------------------|------------|------------|
|              | <i>Dip</i>             | <i>Sac</i> | <i>Pol</i> | <i>Dip</i>                      | <i>Sac</i> | <i>Pol</i> | <i>Dip</i>                      | <i>Sac</i> | <i>Pol</i> | <i>Dip</i>                      | <i>Sac</i> | <i>Pol</i> |
| <i>MS 1</i>  | M                      | L          | S          | S                               | L          | M          | S=                              | L          | S=         | S                               | L          | M          |
| <i>MS 6</i>  | M                      | L          | S          | S=                              | L          | S=         | L                               | M          | S          | L                               | M          | S          |
| <i>MS 11</i> | M                      | L          | S          | S=                              | L          | S=         | L                               | S=         | S=         | M                               | L          | S          |
| <i>MS 21</i> | M                      | L          | S          | S=                              | L          | S=         | L                               | M          | S          | S=                              | L          | S=         |
| <i>MS 28</i> | M                      | L          | S          | S=                              | L          | S=         | L                               | M          | S          | L                               | M          | S          |
| <i>MS 49</i> | M                      | L          | S          | S=                              | L          | S=         | L                               | M          | S          | M                               | L          | S          |

### Appendix 3c.

| Effect of environmental variation on wood dimensions                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RH variations cause wood to expand or contract significantly perpendicular to the grain, but by a negligible amount in the direction of the grain. <sup>43</sup>                                                                                                                             |
| Woods expand and contract by substantially different amounts radially and tangentially, <sup>44</sup> and the amount of this difference varies between species. <sup>45</sup> For both hardwoods and softwoods, shrinkage is typically twice as much tangentially as radially. <sup>46</sup> |
| Temperature variations cause very small dimensional changes in comparison with RH variation. <sup>47</sup>                                                                                                                                                                                   |
| Every viol is made of more than one species of wood, <sup>48</sup> each with its own response to environmental factors. <sup>49</sup>                                                                                                                                                        |
| The grain of adjacent parts of a viol do not all run in the same direction and therefore respond differently to environmental variations.                                                                                                                                                    |

<sup>43</sup> Hoadley, 'Dimensional Response', p.2.

<sup>44</sup> Wilson & White, *Wood*, pp.173-175.

<sup>45</sup> Thompson, *Museum Environment*, p.224, table 34.

<sup>46</sup> Hoadley, 'Wood as a Physical Surface', p.13.

<sup>47</sup> Thompson, *Museum Environment*, p.223.

<sup>48</sup> There are instruments where the belly is made of similar hardwood to the rest of the body but these are highly abnormal (as are instruments made of ceramic, metal or other eccentric materials), and none fall within the purview of this study.

<sup>49</sup> 'Variability among woods and variation within wood almost defies generalisation'. Hoadley, 'Dimensional Response', p.1.

### Appendix 3d.

| Sources of differences between published viol measurements                              |
|-----------------------------------------------------------------------------------------|
| Measurements are taken from different points on an instrument. <sup>50</sup>            |
| Dimensional change of viols in response to environmental factors. <sup>51</sup>         |
| Uncritical copying from faulty publications. <sup>52</sup>                              |
| Measurements taken from drawings are subject to the instability of paper. <sup>53</sup> |
| Typographical errors.                                                                   |
| Variations in accuracy, calibration or use of measuring equipment.                      |

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<sup>50</sup> This could be eliminated by rigorous application of the Protocol, following detailed guidance.

<sup>51</sup> See Appendix 3c.

<sup>52</sup> See Appendix 5b.

<sup>53</sup> Paper, like wood, changes size according to humidity. 'Machine made paper expands more across the machine direction. Typical figures for a drawing paper for a 10%RH change in the middle of the range are 0.30% across and 0.05% along.' Thompson, *Museum Environment*, p.225. The reproduction of drawings regularly leads to inconsistencies. Fleming, 'Viol Drawings', p.34. 'An unforeseen pitfall, but one once identified soon rectified, was the remarkable degree to which humidity can affect the dimensions of paper, and therefore of recorded image.' Coates, *Lutherie*, p.24.

### **Appendix 3e.**

#### **Sample Data Collection Form**

The following two pages show an example of the Viol Data Protocol (VDP) data collection form. I used varieties of format during the research, depending mainly on whether data was being recorded directly into a computer or if it was being written on paper. When the amount of information to be recorded for an item would not fit into the space visible here, the space increases automatically on the computer, and I wrote elsewhere on the paper if necessary.

# VDP: data entry form

Date of inspection

27/3/2000

Maker  ☐ Maker questionable?

Place of manufacture

Country/region of manufacture

Date of Manufacture  x ☐ Year questionable?

Size  ☐ questionable? Body length

Str. num  String length

Shape  Total length

Body Width Front Back

upper bout

middle bout

lower bout

Label HENRY • IAYE • IN •  
SOVTHWARKE •  
• 1627 •

Label description; e.g. written?

Bridge

Bridgemark distance from neck min  max

## All measurements in millimetres

Ribs material /description

Ribs number

Rib Height Treble Bass

top block

fold

upper bout

middle bout

lower bout

bot. block

Front Back

wood species

number of pieces

grain / figure / description / quartering

Arching

Soundhole shape  description

length distance from edge top bottom width

bass

treble

distance from bot of inst

Neck Original neck? ☐ y pegbox ☐ y finial ☐ y neck width at nut  length of pegbox plus finial

width at shoulder top  width at shoulder bottom

Finial description

length neck nut to shoulder

Purfling front number  description

back number  description

Belly rose  inlay

other decoration

Back inlay  other decoration

Rib decoration

Fingerboard description  length  max width  min width

Tailpiece description  length  max width  min width

Pegs number  description



# VDP: data entry form

Date of inspection

27/3/2000

Top block very fine grain spruce; English shape with large crudely cut chamfers at sides; 2 handmade nails; 'centreline'

Bottom block thin and wide, braod grained pine

Liners sections of original linen but mostly modern

Plates on back numerous support and repair braces; s/post plate broad grained spruce c.6cm wide, goes right to ribs.

Corner reinforcement linen n/o

Neck fit method nails

Bass bar possibly original? tapers to nothing;

Hookbar planed level with ribs - ebony

Tailpiece fitting h; saddle and hole for button

Varnish dark red-brown; medium clear; very uneven especially on back and ribs; lots, possibly all, not original.

Comments on overall level of originality

pegbox altered with fillet to widen it to fit 7-strings; length of neck altered.

Comments on overall condition and damage

cracks on all surfaces, some wide open; little evidence of worm; corners of plates well preserved, no half-edging

Current Location F, Paris

Owner's ID / catalogue No. E.73 [ex C.171]

Country France

Tourin Identification PARIS 6

City Paris

Tourin's comments

Collection Musée de la Musique

Private owner?

n

Anonymity requested?

n

Provenance

Other decoration

Instrument examined by MF

Information supplied by

Published Literature

Published photographs

Comments Small (2x3) filled oval hole in belly 130 from bottom - remnant of construction? None visible at top. No tool marks on inside of ribs or any sign of bending. Some cut marks visible at mitres in purfling around rose.

Unpublished information

MF extra information

## Appendix 3f.

### Equipment used for this study.

#### Hardware

- Nikon EM SLR camera with Nikon Series E 50 mm lens and Teleplus MC7 Macro Converter (2X - giving an effective focal length of 100 mm).
- Sunpak Auto 134 flash unit.
- Tripod
- Inspection mirrors and torch.
- FUJI Superia 200 ASA colour print film.
- A cloth tape measure is used for measurements greater than 150 mm because metal tools are unwelcome in museums and other conservation-sensitive situations. The tape was checked before and after use to confirm that it was accurate to <1 mm in a metre.
- For measurements <150 mm, plastic vernier callipers accurate to 0.05 mm are used. My general principal is to measure as accurately as practical, and all the measuring equipment is capable of greater accuracy than would be meaningful in the circumstances.
  
- Apple Power Macintosh G4 [desktop computer]
- RM NoteBook [laptop computer]
- Hewlett Packard LaserJet 2100M [laser printer]
- Epson Stylus Colour 680 [inkjet printer]
- Linotype-Hell Jade II [flatbed scanner].
- Minolta Dimâge Scan Dual II [film scanner].

#### Software

- Microsoft Office 2001 (Word and Excel). [Word processing, tables, graphs]
- Adobe Photoshop v.5.5 + DS Dual2 plugin. [image processing and scanning]
- Heidelberg LinoColor Easy v.2.0.1. [scanning]
- Claris FileMaker Pro v.4.0. [database]



## **Appendix 4.**

### **Tabulated data from viol examinations**

*See the page facing each of the following tables for the explanation.*

- *All dimensions are given in millimeters, apart from Appendix 4e.*
- *In all tables, 'n/o' means the component is not original.*

## Appendix 4a: Identity.

This table presents the identity of viols as described by the range of sources available to me before I started to examine the instruments. Most are accepted but revised identities for some viols, based on information accumulated during my research, is included in the next table **Appendix 4b**.

### KEY

- |     |                     |                                                                         |
|-----|---------------------|-------------------------------------------------------------------------|
| 1.  | VME Number          | overall ordering based on belly length                                  |
| 2.  | Violist reference   | identity given to instruments which appear in <i>Violist</i>            |
| 3.  | Maker               | name supplied in <i>Violist</i> or by current owner                     |
| 4.  | Maker questionable? | ‘x’ indicates that datum 3 may be misleading                            |
| 5.  | Year                | year of manufacture supplied in <i>Violist</i> or by current owner      |
| 6.  | Year questionable?  | ‘x’ indicates that datum 5 may be misleading                            |
| 7.  | Size                | size name supplied in <i>Violist</i> or by current owner                |
| 8.  | Size questionable?  | ‘x’ indicates that datum 7 may be misleading                            |
| 9.  | Where examined      | location at time of inspection (privately owned instruments are mobile) |
| 10. | Private owner?      | ‘n’ indicates the viol is in a public collection                        |

| APPENDIX 4a: Identity |                                                                               |                     |          |                  |                    |   |  |
|-----------------------|-------------------------------------------------------------------------------|---------------------|----------|------------------|--------------------|---|--|
| 1 VME                 | questionable traditional description : 4 Maker 6 Year 8 Size 10 Private owner |                     |          |                  |                    |   |  |
| 2 Viollist ID         | 3 Maker                                                                       | 5 Year              | 7 Size   | 9 Where examined |                    |   |  |
| 01                    |                                                                               | George Gill         | 16..     | treble?          | UK, London         | n |  |
| 02                    | GAL 4                                                                         | Henry Jaye          | 1630     | treble           | UK, London         | y |  |
| 03                    |                                                                               | Henry Jaye x        | 1620 x   | treble           | UK, Surrey         | y |  |
| 04                    | BAINE 1                                                                       | Henry Jaye x        | c.1611 x | treble           | UK, Oxfordshire    | y |  |
| 05                    | GALP 1                                                                        | unknown             | c.1580 x | treble           | UK, London         | y |  |
| 06                    | BENT 1                                                                        | Henry Jaye          | 1620     | treble           | UK, Oxford         | y |  |
| 07                    |                                                                               | unknown             | 16..     | treble           | UK, London         | y |  |
| 08                    | CALD 20                                                                       | William Turner      | 1652     | treble           | USA, Oberlin OH    | y |  |
| 09                    | DOLM 4                                                                        | Richard Meares ? x  | c.1668 x | alto x           | UK, London         | n |  |
| 10                    |                                                                               | William Turner      | 1656     | treble           | Austria, Vienna    | y |  |
| 11                    |                                                                               | Henry Jaye          | 16..     | treble           | UK, London         | y |  |
| 12                    | BAINE 2                                                                       | Henry Jaye x        | c.1611 x | tenor x          | UK, London         | y |  |
| 13                    | BAINE 3                                                                       | Henry Jaye x        | c.1611 x | tenor x          | UK, London         | y |  |
| 14                    |                                                                               | William Turner      | 1647     | treble           | Austria, Vienna    | y |  |
| 15                    |                                                                               | unknown             | 16..     | treble           | UK, Surrey         | y |  |
| 16                    | FOLGER 1                                                                      | John Strong         | c.1590 x | treble           | USA, Washington DC | n |  |
| 17                    | VIC 2                                                                         | Henry Jaye x        | 1667     | tenor x          | UK, London         | n |  |
| 18                    |                                                                               | unknown (Jaye ?)    | 16..     | tenor            | UK, London         | y |  |
| 19                    |                                                                               | John Rose x         | 1595 x   | tenor            | France, Paris      | n |  |
| 20                    | ASHMOL 5                                                                      | John Rose           | 1598     | lyra x           | UK, Oxford         | n |  |
| 21                    | ASHMOL 6                                                                      | Richard Blunt x     | 1605 x   | lyra x           | UK, Oxford         | n |  |
| 22                    | MFA 3                                                                         | William Addison x   | c.16..   | bass x           | USA, Boston MA     | n |  |
| 23                    |                                                                               | unknown             | ?        | bass             | France, Paris      | n |  |
| 24                    | PARIS 6                                                                       | Henry Jaye          | 1624 x   | bass             | France, Paris      | n |  |
| 25                    | METRO 7                                                                       | Henry Smith         | 1629     | bass             | USA, New York NY   | n |  |
| 26                    |                                                                               | John Rose           | <1611    | bass             | UK, London         | y |  |
| 27                    |                                                                               | William Turner      | 16..     | bass             | USA, Boston MA     | y |  |
| 28                    | ABON 1                                                                        | William Turner      | 1650 x   | bass             | France, Nice       | n |  |
| 29                    |                                                                               | John Rose (attr.) x | <1611    | bass             | USA, Oberlin OH    | y |  |
| 30                    | ROBIN 1                                                                       | unknown             | 1649     | bass             | UK, Cardiff        | y |  |
| 31                    |                                                                               | Henry Smith         | 1637     | bass             | UK, Surrey         | y |  |
| 32                    | BAINE 4                                                                       | Henry Jaye          | 1611 x   | bass             | UK, London         | y |  |
| 33                    | ASHMOL 4                                                                      | John Rose (attr.) x | 1600 x   | bass             | UK, Oxford         | n |  |
| 34                    | VIC 1                                                                         | John Rose           | c.1560 x | bass             | UK, London         | n |  |
| 35                    | CALD 15                                                                       | John Rose           | 1584 x   | bass             | USA, Oberlin OH    | y |  |
| 36                    |                                                                               | Petter Hackings x   | 1621 x   | bass             | France, Lille      | n |  |
| 37                    | KESSLR 1                                                                      | Henry Jaye          | 1619     | bass             | UK, London         | y |  |
| 38                    |                                                                               | Henry Jaye          | 1621     | bass             | UK, Surrey         | y |  |

## Appendix 4b: Identity (revised).

This table presents revised identity information about the viols alongside summary original information.

### KEY

- VME Number ordering based on length of belly
- VME Maker attribution based on all available evidence
- VME year year of manufacture based on all available evidence
- VME size standardised size name

### Traditional description

- Maker name supplied in *Viollist* or by current owner
- Year year supplied in *Viollist* or by current owner
- Size size supplied in *Viollist* or by current owner
- Viollist reference identity given to instruments in the *Viollist*

‘partly’ signifies that a significant part or parts are not original.

‘?’ signifies remaining uncertainty about any datum. Many remain very uncertain, e.g. for VME33 it is uncertain that it was made by John Rose, and if it was, whether it was the father or the son, of whose dates only the death date of the son is known with good certainty, as discussed in Chapter 5. Therefore if it was made by Rose, the date could be anything between c.1550 and 1611.

## APPENDIX 4b: Identity (revised)

| VME number |                          | Traditional description |              |                         |      |         |             |
|------------|--------------------------|-------------------------|--------------|-------------------------|------|---------|-------------|
|            | VME maker                | VME year                | VME size     | Maker                   | Year | Size    | Viollist ID |
| 01         | George Gill ?            | 16..                    | pardessus?   | George Gill             | 16.. | treble? |             |
| 02         | Henry Jaye               | 1630                    | treble       | Henry Jaye              | 1630 | treble  | GAL 4       |
| 03         | Henry Jaye, partly       | <i>unknown</i>          | treble       | Henry Jaye              | 1620 | treble  |             |
| 04         | Henry Jaye, partly       | <1641                   | treble       | Henry Jaye              | 1611 | treble  | BAINÉ 1     |
| 05         | <i>unknown</i>           | <i>unknown</i>          | treble       | <i>unknown</i>          | 1580 | treble  | GALP 1      |
| 06         | Henry Jaye               | 1620                    | treble       | Henry Jaye              | 1620 | treble  | BENT 1      |
| 07         | <i>unknown</i>           | <i>unknown</i>          | treble       | <i>unknown</i>          | 16.. | treble  |             |
| 08         | William Turner           | 1652                    | treble       | William Turner          | 1652 | treble  | CALD 20     |
| 09         | William Turner           | c.1650                  | treble       | Richard Meares ?        | 1668 | alto    | DOLM 4      |
| 10         | William Turner           | 1656                    | treble       | William Turner          | 1656 | treble  |             |
| 11         | Henry Jaye, partly       | <1641                   | treble       | Henry Jaye              | 16.. | treble  |             |
| 12         | Henry Jaye, partly       | <1641                   | treble       | Henry Jaye              | 1611 | tenor   | BAINÉ 2     |
| 13         | Henry Jaye, partly?      | <1641                   | treble       | Henry Jaye              | 1611 | tenor   | BAINÉ 3     |
| 14         | William Turner           | 1647                    | treble       | William Turner          | 1647 | treble  |             |
| 15         | <i>unknown</i>           | <i>unknown</i>          | treble       | <i>unknown</i>          | 16.. | treble  |             |
| 16         | John Strong ?            | <i>unknown</i>          | treble       | John Strong             | 1590 | treble  | FOLGER 1    |
| 17         | <i>unknown</i> (Jaye?)   | 1667                    | treble/tenor | Henry Jaye              | 1667 | tenor   | VIC 2       |
| 18         | <i>unknown</i>           | 16..                    | tenor        | <i>unknown</i> (Jaye ?) | 16.. | tenor   |             |
| 19         | John Rose I or II        | 1595 ?                  | tenor        | John Rose               | 1595 | tenor   |             |
| 20         | John Rose I or II        | 1598                    | tenor        | John Rose               | 1598 | lyra    | ASHMOL 5    |
| 21         | Richard Blunt            | 1605 ?                  | tenor        | Richard Blunt           | 1605 | lyra    | ASHMOL 6    |
| 22         | Richard Blunt            | c.1605 ?                | tenor        | William Addison         | 16.. | bass    | MFA 3       |
| 23         | <i>unknown</i>           | <i>unknown</i>          | bass         | <i>unknown</i>          | ?    | bass    |             |
| 24         | Henry Jaye               | 1627                    | bass         | Henry Jaye              | 1624 | bass    | PARIS 6     |
| 25         | Henry Smith              | 1629                    | bass         | Henry Smith             | 1629 | bass    | METRO 7     |
| 26         | John Rose I or II        | <1611 ?                 | bass         | John Rose               | 1611 | bass    |             |
| 27         | William Turner           | c.1650                  | bass         | William Turner          | 16.. | bass    |             |
| 28         | William Turner           | 1650                    | bass         | William Turner          | 1650 | bass    | ABON 1      |
| 29         | <i>unknown</i> (Rose?)   | <1611 ?                 | bass         | John Rose (attr.)       | 1611 | bass    |             |
| 30         | <i>unknown</i>           | 1649                    | bass         | <i>unknown</i>          | 1649 | bass    | ROBIN 1     |
| 31         | Henry Smith              | 1637                    | bass         | Henry Smith             | 1637 | bass    |             |
| 32         | Henry Jaye               | 1614                    | bass         | Henry Jaye              | 1611 | bass    | BAINÉ 4     |
| 33         | <i>unknown</i> (Rose?)   | <1611 ?                 | bass         | John Rose (attr.)       | 1600 | bass    | ASHMOL 4    |
| 34         | John Rose I or II        | <1611 ?                 | bass         | John Rose               | 1560 | bass    | VIC 1       |
| 35         | John Rose I or II        | 1584 ?                  | bass         | John Rose               | 1584 | bass    | CALD 15     |
| 36         | Petter Hackings, partly? | >1683 ?                 | bass         | Petter Hackings         | 1621 | bass    |             |
| 37         | Henry Jaye               | 1619                    | bass         | Henry Jaye              | 1619 | bass    | KESSLER 1   |
| 38         | Henry Jaye               | 1621                    | bass         | Henry Jaye              | 1621 | bass    |             |



## Appendix 4c: Structural originality.

Distinctions between these gradings, and their application, are to some extent arbitrary.

### KEY

VME Number

belly pieces

- The number indicates the number of pieces of wood from which the belly is constructed, not including the bassbar or minor edge pieces. This can be difficult to establish because joints are approximately or exactly parallel with the lines of the annual rings, (a good joint can be invisible) and on many bellies the surface is obscured by varnish and dirt. ? indicates uncertainty, ?? indicates that the surface is too obscured for a judgement to be meaningful. 'c' indicates that there is a joint at or close to the centreline of the viol. The centreline is a notional line joining the centre of the finial with the centre of the tailpillar and bisecting the belly (on an exactly symmetrical instrument).

Belly

- original: indicated as y[es], n[o] or ? (uncertain)
- unaltered: 'y' indicates that the original shape is probably not deliberately altered other than as a result of minor repairs
- undamaged: 'y' indicates the absence of damage apart from minor knocks, scrapes, woodworm infestation

Back

- original: indicated as y[es], n[o] or ? (uncertain)
- unaltered: 'y' indicates that the original shape is probably not deliberately altered other than as a result of minor repairs
- undamaged: 'y' indicates the absence of damage apart from minor knocks, scrapes, woodworm infestation

Ribs

- original: indicated as y[es], n[o] or ? (uncertain)
- unaltered: 'y' indicates that the original depth is probably not deliberately altered other than as a result of minor repairs
- undamaged: 'y' indicates the absence of damage apart from minor knocks, scrapes, woodworm infestation

Neck

- original: indicated as y[es], n[o] or ? (uncertain)
- unaltered: 'y' indicates that the original length is probably not altered
- undamaged: 'y' indicates the absence of damage apart from minor knocks, scrapes, woodworm infestation.

| VME                                 |           |    |   |   |           |           |   |           |           |   |           |           |   |  |
|-------------------------------------|-----------|----|---|---|-----------|-----------|---|-----------|-----------|---|-----------|-----------|---|--|
| APPENDIX 4c: Structural Originality |           |    |   |   |           |           |   |           |           |   |           |           |   |  |
| belly pieces                        |           |    |   |   |           |           |   |           |           |   |           |           |   |  |
| BELLY:                              |           |    |   |   | BACK:     |           |   | RIBS:     |           |   | NECK:     |           |   |  |
| unaltered                           |           |    |   |   | unaltered |           |   | unaltered |           |   | unaltered |           |   |  |
| original                            | undamaged |    |   |   | original  | undamaged |   | original  | undamaged |   | original  | undamaged |   |  |
| 01                                  | 6 c       | y  | n | n | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 02                                  | 7         | y  | y | y | y         | n         | n | y         | n         | y | n         | -         | - |  |
| 03                                  | 1?        | y? | y | y | n         | -         | - | n         | -         | - | n         | -         | - |  |
| 04                                  | 7         | n  | - | - | y         | n         | n | n         | -         | - | n         | -         | - |  |
| 05                                  | 3-7       | y  | y | n | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 06                                  | 7         | y  | y | n | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 07                                  | 2 c       | y  | y | y | y         | y         | y | n         | -         | - | n         | -         | - |  |
| 08                                  | 7         | y  | n | n | y         | y         | n | y         | y         | n | ?         | -         | - |  |
| 09                                  | 3         | y  | y | y | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 10                                  | 2 c       | y  | y | y | y         | y         | y | y         | n?        | n | n         | -         | - |  |
| 11                                  | 7?        | y  | y | n | y         | y         | n | n         | -         | - | n         | -         | - |  |
| 12                                  | 2 c       | n  | - | - | y         | y         | n | y         | ?         | y | n         | -         | - |  |
| 13                                  | 4 c       | y  | y | y | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 14                                  | 7         | y  | y | n | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 15                                  | 5         | y  | n | n | n         | -         | - | n         | -         | - | n         | -         | - |  |
| 16                                  | 4 c       | y  | y | y | y         | y         | y | y         | ?         | y | n         | -         | - |  |
| 17                                  | 7         | y  | y | n | y         | n         | n | y         | n         | n | y         | n         | n |  |
| 18                                  | 6 c       | y  | y | y | y         | y         | y | y         | y         | y | ?         | ?         | y |  |
| 19                                  | 2 c       | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 20                                  | 2 c       | n  | - | - | y         | y         | y | y         | y         | y | n         | -         | - |  |
| 21                                  | 5         | y  | y | y | y         | y         | y | y         | y         | y | n         | -         | - |  |
| 22                                  | ??        | y  | y | n | y         | y         | n | y         | y         | n | ?         | ?         | n |  |
| 23                                  | ?? c      | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 24                                  | 7         | y  | y | n | y         | y         | n | y         | y         | n | y         | n         | n |  |
| 25                                  | 7         | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 26                                  | 7         | y  | y | y | y         | y         | y | y         | y         | y | n         | -         | - |  |
| 27                                  | 2 c       | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 28                                  | 5         | y  | y | n | y         | y         | y | y         | y         | n | ?y        | ?         | ? |  |
| 29                                  | 7?        | y  | y | n | y         | y         | y | y         | y         | n | n         | -         | - |  |
| 30                                  | 3         | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 31                                  | 7?        | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 32                                  | 7?        | y  | n | n | y         | n         | n | y         | n         | n | n         | -         | - |  |
| 33                                  | 7         | y  | y | y | y         | y         | y | y         | y         | y | n         | -         | - |  |
| 34                                  | 5         | y  | y | n | y         | y         | n | y         | y         | n | y         | n         | n |  |
| 35                                  | 7         | y  | y | n | y         | y         | n | y         | y         | n | n         | -         | - |  |
| 36                                  | 2 c       | n? | y | n | y         | n         | n | y         | y         | n | n         | -         | - |  |
| 37                                  | 7         | y  | y | y | y         | y         | y | y         | y         | y | y         | y         | y |  |
| 38                                  | 7         | y  | n | n | y         | n         | n | y         | n         | n | n         | -         | - |  |

#### **Appendix 4d: Dimensions 1 (mm).**

This table presents the principal gross measurements of the viols. Belly length is the maximum distance from the side of the tailpillar to the top of the belly. All measurements are taken over the arching, so measurements taken with callipers would often be slightly smaller. Where ribs and plates do not match because of damage, shrinkage, distortion etc., the measurement refers to the plate. The measurements show that the direction of difference between bellies and backs is not consistent. Although the measurement over the belly should be larger because of the arching, it is sometimes the same or smaller than the measurement over the back. This reflects the greater vulnerability to damage of softwood, and also perhaps that it is more affected by permanent distortion as a consequence of significant RH variations (see Chapter 2).

#### **KEY**

1. VME Number
2. Maximum length of belly
3. maximum width of upper bout measured across belly
4. maximum width of upper bout measured across back
5. minimum width of middle bout measured across belly
6. minimum width of middle bout measured across back
7. maximum width of lower bout measured across belly
8. maximum width of lower bout measured across back

| 1 VME          |     | APPENDIX 4d: Dimensions 1 (mm) |     |          |     |         |     |
|----------------|-----|--------------------------------|-----|----------|-----|---------|-----|
| 2 Belly Length |     | WIDTH OF BOUTS                 |     |          |     |         |     |
|                |     | Belly                          |     | Back     |     |         |     |
|                |     | 3 upper                        | 4   | 5 middle | 6   | 7 lower | 8   |
| 01             | 312 | 157                            | 153 | 116      | 107 | 191     | 184 |
| 02             | 327 | 161                            | 156 | 117      | 112 | 194     | 192 |
| 03             | 362 | 174                            | 171 | 119      | 115 | 206     | 204 |
| 04             | 362 | 172                            | 171 | 122      | 116 | 215     | 213 |
| 05             | 370 | 182                            | 180 | 132      | 125 | 213     | 209 |
| 06             | 376 | 181                            | 180 | 131      | 127 | 221     | 219 |
| 07             | 383 | 188                            | 186 | 133      | 129 | 230     | 227 |
| 08             | 400 | 184                            | 173 | 135      | 126 | 231     | 226 |
| 09             | 401 | 194                            | 193 | 146      | 140 | 239     | 233 |
| 10             | 403 | 197                            | 195 | 146      | 144 | 240     | 242 |
| 11             | 405 | 198                            | 192 | 140      | 137 | 243     | 240 |
| 12             | 411 | 207                            | 201 | 152      | 146 | 251     | 241 |
| 13             | 412 | 185                            | 183 | 131      | 128 | 229     | 232 |
| 14             | 412 | 187                            | 182 | 136      | 132 | 234     | 238 |
| 15             | 420 | 197                            | 193 | 143      | 137 | 235     | 232 |
| 16             | 426 | 195                            | 193 | 141      | 139 | 240     | 238 |
| 17             | 432 | 203                            | 203 | 150      | 145 | 258     | 258 |
| 18             | 537 | 267                            | 266 | 196      | 194 | 316     | 315 |
| 19             | 538 | 260                            | 253 | 184      | 180 | 317     | 313 |
| 20             | 551 | 256                            | 254 | 180      | 179 | 321     | 319 |
| 21             | 555 | 266                            | 268 | 195      | 195 | 312     | 316 |
| 22             | 560 | 271                            | 267 | 195      | 188 | 329     | 315 |
| 23             | 621 | 302                            | 300 | 223      | 219 | 362     | 358 |
| 24             | 627 | 289                            | 289 | 220      | 210 | 356     | 354 |
| 25             | 643 | 308                            | 308 | 232      | 225 | 371     | 373 |
| 26             | 645 | 313                            | 306 | 238      | 225 | 380     | 371 |
| 27             | 674 | 319                            | 317 | 249      | 242 | 394     | 391 |
| 28             | 683 | 325                            | 320 | 235      | 230 | 385     | 380 |
| 29             | 683 | 323                            | 312 | 251      | 238 | 387     | 374 |
| 30             | 686 | 326                            | 319 | 240      | 235 | 400     | 395 |
| 31             | 692 | 312                            | 319 | 231      | 236 | 380     | 387 |
| 32             | 703 | 335                            | 341 | 246      | 247 | 404     | 405 |
| 33             | 704 | 318                            | 318 | 251      | 246 | 400     | 398 |
| 34             | 710 | 331                            | 324 | 245      | 236 | 401     | 398 |
| 35             | 710 | 343                            | 339 | 240      | 240 | 411     | 411 |
| 36             | 712 | 329                            | 323 | 232      | 223 | 400     | 394 |
| 37             | 721 | 340                            | 336 | 248      | 240 | 398     | 397 |
| 38             | 766 | 360                            | 354 | 267      | 260 | 421     | 421 |

#### **Appendix 4e: Dimensions 2 (inches).**

This presents the same data as the previous table **Appendix 4d** but the metric measurements are converted to inches. English viol-makers of the sixteenth and seventeenth centuries would have worked in inches. These data show that they were not restricted to the use of whole number or simple divisions of the units, and suggest that measurements were made by scaling from individual workshop standards rather than rulers, possibly made anew for each instrument.

#### **KEY**

1. VME Number
2. Maximum length of belly
3. maximum width of upper bout measured across belly
4. maximum width of upper bout measured across back
5. minimum width of middle bout measured across belly
6. minimum width of middle bout measured across back
7. maximum width of lower bout measured across belly
8. maximum width of lower bout measured across back

| 1 VME          |       | APPENDIX 4e: Dimensions 2 (inches) |       |          |       |         |       |
|----------------|-------|------------------------------------|-------|----------|-------|---------|-------|
|                |       | WIDTH OF BOUTS                     |       |          |       |         |       |
|                |       | Belly                              |       | Back     |       |         |       |
| 2 Belly Length |       | 3 upper                            | 4     | 5 middle | 6     | 7 lower | 8     |
| 01             | 12.28 | 6.18                               | 6.02  | 4.57     | 4.21  | 7.52    | 7.24  |
| 02             | 12.87 | 6.34                               | 6.14  | 4.61     | 4.41  | 7.64    | 7.56  |
| 03             | 14.25 | 6.85                               | 6.73  | 4.69     | 4.53  | 8.11    | 8.03  |
| 04             | 14.25 | 6.77                               | 6.73  | 4.80     | 4.57  | 8.46    | 8.39  |
| 05             | 14.57 | 7.17                               | 7.09  | 5.20     | 4.92  | 8.39    | 8.23  |
| 06             | 14.80 | 7.13                               | 7.09  | 5.16     | 5.00  | 8.70    | 8.62  |
| 07             | 15.08 | 7.40                               | 7.32  | 5.24     | 5.08  | 9.06    | 8.94  |
| 08             | 15.75 | 7.24                               | 6.81  | 5.31     | 4.96  | 9.09    | 8.90  |
| 09             | 15.79 | 7.64                               | 7.60  | 5.75     | 5.51  | 9.41    | 9.17  |
| 10             | 15.87 | 7.76                               | 7.68  | 5.75     | 5.67  | 9.45    | 9.53  |
| 11             | 15.94 | 7.80                               | 7.56  | 5.51     | 5.39  | 9.57    | 9.45  |
| 12             | 16.18 | 8.15                               | 7.91  | 5.98     | 5.75  | 9.88    | 9.49  |
| 13             | 16.22 | 7.28                               | 7.20  | 5.16     | 5.04  | 9.02    | 9.13  |
| 14             | 16.22 | 7.36                               | 7.17  | 5.35     | 5.20  | 9.21    | 9.37  |
| 15             | 16.54 | 7.76                               | 7.60  | 5.63     | 5.39  | 9.25    | 9.13  |
| 16             | 16.77 | 7.68                               | 7.60  | 5.55     | 5.47  | 9.45    | 9.37  |
| 17             | 17.01 | 7.99                               | 7.99  | 5.91     | 5.71  | 10.16   | 10.16 |
| 18             | 21.14 | 10.51                              | 10.47 | 7.72     | 7.64  | 12.44   | 12.40 |
| 19             | 21.18 | 10.24                              | 9.96  | 7.24     | 7.09  | 12.48   | 12.32 |
| 20             | 21.69 | 10.08                              | 10.00 | 7.09     | 7.05  | 12.64   | 12.56 |
| 21             | 21.85 | 10.47                              | 10.55 | 7.68     | 7.68  | 12.28   | 12.44 |
| 22             | 22.05 | 10.67                              | 10.51 | 7.68     | 7.40  | 12.95   | 12.40 |
| 23             | 24.45 | 11.89                              | 11.81 | 8.78     | 8.62  | 14.25   | 14.09 |
| 24             | 24.69 | 11.38                              | 11.38 | 8.66     | 8.27  | 14.02   | 13.94 |
| 25             | 25.31 | 12.13                              | 12.13 | 9.13     | 8.86  | 14.61   | 14.69 |
| 26             | 25.39 | 12.32                              | 12.05 | 9.37     | 8.86  | 14.96   | 14.61 |
| 27             | 26.54 | 12.56                              | 12.48 | 9.80     | 9.53  | 15.51   | 15.39 |
| 28             | 26.89 | 12.80                              | 12.60 | 9.25     | 9.06  | 15.16   | 14.96 |
| 29             | 26.89 | 12.72                              | 12.28 | 9.88     | 9.37  | 15.24   | 14.72 |
| 30             | 27.01 | 12.83                              | 12.56 | 9.45     | 9.25  | 15.75   | 15.55 |
| 31             | 27.24 | 12.28                              | 12.56 | 9.09     | 9.29  | 14.96   | 15.24 |
| 32             | 27.68 | 13.19                              | 13.43 | 9.69     | 9.72  | 15.91   | 15.94 |
| 33             | 27.72 | 12.52                              | 12.52 | 9.88     | 9.69  | 15.75   | 15.67 |
| 34             | 27.95 | 13.03                              | 12.76 | 9.65     | 9.29  | 15.79   | 15.67 |
| 35             | 27.95 | 13.50                              | 13.35 | 9.45     | 9.45  | 16.18   | 16.18 |
| 36             | 28.03 | 12.95                              | 12.72 | 9.13     | 8.78  | 15.75   | 15.51 |
| 37             | 28.39 | 13.39                              | 13.23 | 9.76     | 9.45  | 15.67   | 15.63 |
| 38             | 30.16 | 14.17                              | 13.94 | 10.51    | 10.24 | 16.57   | 16.57 |

#### **Appendix 4f: Rib Dimensions.**

The measurements given refer to the ribs themselves and do not include the thickness of the back or belly. Many of these dimensions are misleading as they vary by several millimetres between the points where measurements were taken, and because the points where measurements are taken are damaged. Also, some are cut or only partly original, having been made up during restoration, so do not give a meaningful indication of their original dimensions.

#### **KEY**

1. VME Number
2. Height of treble rib at top block
3. Height of treble rib at fold
4. Height of treble rib at upper bout
5. Height of treble rib at middle bout
6. Height of treble rib at lower bout
7. Height of treble rib at bottom block
8. Height of bass rib at top block
9. Height of bass rib at fold
10. Height of bass rib at upper bout
11. Height of bass rib at middle bout
12. Height of bass rib at lower bout
13. Height of bass rib at bottom block

‘~’ signifies that this dimension typically varies by more than 1 mm on the viol.

| 1 VME |  | APPENDIX 4f: Rib Dimensions |     |     |     |     |     |                  |     |     |     |     |     |
|-------|--|-----------------------------|-----|-----|-----|-----|-----|------------------|-----|-----|-----|-----|-----|
|       |  | Rib height: Treble          |     |     |     |     |     | Rib height: Bass |     |     |     |     |     |
|       |  | 2                           | 3   | 4   | 5   | 6   | 7   | 8                | 9   | 10  | 11  | 12  | 13  |
| 01    |  | 38                          | 58  | 56  | 61  | 55  | 57  | 36               | 57  | 57  | 61  | 55  | 56  |
| 02    |  | 47                          | 70  | 71  | 71  | 71  | 70  | 47               | 70  | 71  | 71  | 71  | 69  |
| 03    |  | 43                          | 79  | 78  | 80  | 79  | 79  | 41               | 80  | 77  | 80  | 80  | 80  |
| 04    |  |                             |     | n/o |     |     |     |                  |     | n/o |     |     |     |
| 05    |  | 51                          | 74  | 74  | 74  | 72  | 75  | 52               | 75  | 73  | 75  | 75  | 74  |
| 06    |  | 45                          | 51  | 50  | 51  | 50  | 50  | 44               | 49  | 48  | 50  | 50  | 51  |
| 07    |  |                             |     | n/o |     |     |     |                  |     | n/o |     |     |     |
| 08    |  | 45                          | 66  | 66  | 66  | 66  | 66  | 46               | 63  | 63  | 63  | 65  | 65  |
| 09    |  | 52                          | 66  | 64  | 65  | 65  | 65  | 53               | 65  | 63  | 62  | 66  | 66  |
| 10    |  | 48                          | 63  | 61  | 64  | 64  | 47  | 47               | 64  | 61  | 64  | 64  | 47  |
| 11    |  |                             |     | n/o |     |     |     |                  |     | n/o |     |     |     |
| 12    |  | 45                          | 60  | 60  | 58  | 58  | 59  | 45               | 61  | 59  | 60  | 59  | 50  |
| 13    |  |                             |     | n/o |     |     |     |                  |     | n/o |     |     |     |
| 14    |  | 52                          | 75  | 76  | 77  | 78  | 48  | 51               | 75  | 72  | 74  | 74  | 47  |
| 15    |  |                             |     | n/o |     |     |     |                  |     | n/o |     |     |     |
| 16    |  | 40                          | 52  | 53  | 53  | 54  | 55  | 41               | 53  | 54  | 54  | 55  | 56  |
| 17    |  | 57                          | 91  | 92  | 91  | 90  | 54  | 57               | 91  | 90  | 91  | 91  | 54  |
| 18    |  | 58                          | 99  | 98  | 100 | 96  | 97  | 58               | 98  | 98  | 100 | 98  | 97  |
| 19    |  | 64                          | 112 | 111 | 113 | 112 | 112 | 62               | 112 | 109 | 113 | 112 | 113 |
| 20    |  | 70                          | 113 | 113 | 114 | ~   | 114 | 69               | ~   | 112 | ~   | ~   | 116 |
| 21    |  | 68                          | 104 | 103 | 104 | 105 | 105 | 69               | 102 | 101 | 104 | 105 | 104 |
| 22    |  | 71                          | 106 | 104 | 104 | 105 | 105 | 70               | 106 | 104 | 104 | 105 | 106 |
| 23    |  | 78                          | 115 | 116 | 118 | 119 | 118 | 76               | 118 | 116 | 119 | 118 | 118 |
| 24    |  | 73                          | 115 | 116 | 116 | 115 | 117 | 74               | 115 | 114 | 116 | 11  | 117 |
| 25    |  | 79                          | 122 | 121 | 121 | 121 | 121 | 80               | 122 | 121 | 120 | 121 | 122 |
| 26    |  | 73                          | 123 | 122 | 122 | 120 | 120 | 72               | ~   | 120 | 120 | 121 | 120 |
| 27    |  | 80                          | 110 | 109 | 113 | 112 | 112 | 79               | 112 | 111 | 114 | 112 | 112 |
| 28    |  | 82                          | 118 | 118 | 118 | 119 | 116 | 82               | 120 | 118 | 120 | 121 | 118 |
| 29    |  | 85                          | 116 | 116 | 114 | 115 | 115 | 86               | 117 | 116 | 116 | 115 | 115 |
| 30    |  | 79                          | 134 | 132 | 135 | 132 | 133 | 80               | 133 | 131 | ~   | 133 | 134 |
| 31    |  | 92                          | 123 | 123 | 123 | ~   | 122 | 92               | 123 | 122 | 123 | 123 | 124 |
| 32    |  | 80                          | 123 | 122 | 124 | 124 | 124 | 80               | 123 | 123 | 125 | 125 | 124 |
| 33    |  | 93                          | 123 | 123 | ~   | ~   | 126 | 92               | 123 | 123 | ~   | 125 | 125 |
| 34    |  | 78                          | 126 | 121 | 127 | 126 | 128 | 79               | 127 | 12  | 127 | 125 | 129 |
| 35    |  | 70                          | 134 | 134 | 134 | 132 | 136 | 68               | 131 | 131 | 131 | 134 | 135 |
| 36    |  | 86                          | 119 | 115 | 120 | ~   | 125 | 85               | 119 | 117 | 119 | ~   | 126 |
| 37    |  | 76                          | 139 | 137 | 140 | 137 | 140 | 77               | 140 | 137 | 140 | 138 | 140 |
| 38    |  | 93                          | 138 | 138 | 139 | 138 | 139 | 93               | 137 | 137 | 138 | 138 | 139 |



## Appendix 4g: Soundholes.

Measurements of soundholes and their distances from the edge often give a misleading impression of accuracy because the soundholes have damaged and very uneven edges which cannot accurately be expressed by a single figure. This can be seen in some of the front views of the viols and in some of the soundhole comparison silhouettes.

### KEY

1. VME Number
2. Shape
3. Distance to bottom of the viol. The distance to the bottom of the viol is an approximate measure from the centre of an imaginary line joining the lowest extremity of the two soundholes to the notional lowest extremity of the belly (which is usually occupied by the tailpillar).

### Treble soundhole

4. maximum width
5. maximum length
6. shortest distance between top hole and edge of belly
7. shortest distance between bottom hole and edge of belly

### Bass soundhole

8. maximum width
9. maximum length
10. shortest distance between top hole and edge of belly
11. shortest distance between bottom hole and edge of belly

| 1 VME |         |                           | APPENDIX 4g: Soundholes |        |           |       |        |        |           |        |
|-------|---------|---------------------------|-------------------------|--------|-----------|-------|--------|--------|-----------|--------|
|       | 2 shape | 3<br>to bottom<br>of viol | TREBLE                  |        |           |       | BASS   |        |           |        |
|       |         |                           | 4 wide                  | 5 long | from edge |       | 8 wide | 9 long | from edge |        |
|       |         |                           |                         |        | 6 top     | 7 bot |        |        | 10 top    | 11 bot |
| 01    | C       | 125                       | 7.8                     | 62.7   | 11.0      | 12.6  | 7.5    | 62.5   | 11.8      | 11.1   |
| 02    | C       | 128                       | 7.1                     | 61.7   | 12.3      | 12.7  | 6.6    | 61.7   | 12.9      | 12.4   |
| 03    | n/o     |                           |                         |        |           |       |        |        |           |        |
| 04    | n/o     |                           |                         |        |           |       |        |        |           |        |
| 05    | C       | 138                       | 9.8                     | 67.9   | 15.0      | 21.4  | 9.8    | 67.7   | 15.4      | 19.3   |
| 06    | C       | 156                       | 8.5                     | 73.4   | 13.3      | 13.2  | 8.2    | 73.3   | 13.3      | 13.7   |
| 07    | C       | 152                       | 7.9                     | 82.2   | 13.3      | 12.0  | 7.9    | 81.7   | 12.9      | 11.6   |
| 08    | C       | 158                       | 9.5                     | 71.7   | 13.5      | 14.7  | 9.5    | 74.8   | 14.9      | 16.7   |
| 09    | C       | 161                       | 10.8                    | 67.7   | 14.0      | 17.6  | 10.5   | 67.9   | 15.4      | 19.6   |
| 10    | C       | 151                       | 8.4                     | 69.7   | 15.3      | 17.0  | 9.7    | 68.5   | 15.3      | 17.1   |
| 11    | C       | 166                       | 8.0                     | 76.0   | 10.0      | 15.0  | 8.0    | 76.0   | 11.0      | 14.0   |
| 12    | C       | 154                       | 9.1                     | 81.8   | 11.2      | 16.7  | 7.5    | 81.7   | 12.1      | 15.5   |
| 13    | C       | 164                       | 7.4                     | 74.1   | 11.5      | 15.3  | 9.9    | 73.9   | 9.2       | 11.4   |
| 14    | C       | 176                       | 7.6                     | 72.8   | 11.0      | 14.5  | 7.6    | 74.3   | 13.2      | 16.2   |
| 15    | C       | 164                       |                         | 79.5   | 15.5      | 15.6  | 9.0    | 78.5   | 15.5      | 14.3   |
| 16    | flame   | 156                       |                         |        |           |       | 8.9    | 76.1   | 29.7      | 13.6   |
| 17    | C       | 173                       | 8.5                     | 80.3   | 12.7      | 12.5  | 7.5    | 81.1   | 13.0      | 12.6   |
| 18    | C       | 200                       |                         | 9.5    | 15.0      | 17.0  | 20.0   | 99.0   | 14.0      | 18.0   |
| 19    | C       | 220                       | 11.7                    | 96.1   | 15.6      | 17.0  | 12.1   | 95.6   | 17.3      | 17.6   |
| 20    | n/o     |                           |                         |        |           |       |        |        |           |        |
| 21    | C       | 198                       | 11.3                    | 100.9  | 10.5      | 20.6  | 13.1   | 100.0  | 10.4      | 20.5   |
| 22    | C       | 206                       | 13.8                    | 101.7  | 5.9       | 29.6  | 13.8   | 99.7   | 11.3      | 26.9   |
| 23    | C       | 244                       | 12.9                    | 108.5  | 13.3      | 14.1  | 11.7   | 109.8  | 15.1      | 14.3   |
| 24    | C       | 253                       | 12.0                    | 105.2  | 18.1      | 20.0  | 10.8   | 105.1  | 18.5      | 20.5   |
| 25    | C       | 279                       |                         | 109.0  |           | 20.8  | 12.6   | 106.8  | 21.5      | 18.8   |
| 26    | C       | 269                       | 12.6                    | 157.0  | 19.1      | 17.9  | 12.6   | 156.0  | 19.5      | 19.4   |
| 27    | C       | 285                       | 11.1                    |        |           | 24.7  | 13.4   | 109.7  | 15.9      | 18.9   |
| 28    | C       | 255                       | 15.0                    | 130.0  | 15.0      | 48.0  | 16.0   | 128.0  | 15.0      | 48.0   |
| 29    | flame   | 240                       |                         |        |           |       |        | 155.0  | 34.0      | 22.0   |
| 30    | C       | 269                       | 15.4                    | 124.5  | 14.5      | 26.7  | 15.4   | 124.5  | 19.0      | 26.5   |
| 31    | C       | 281                       | 12.0                    | 128.3  | 14.3      | 19.5  | 12.0   | 126.3  | 12.9      | 15.8   |
| 32    | C       | 285                       | 14.0                    | 129.0  | 13.1      | 13.2  | 12.9   | 128.4  | 13.7      | 12.7   |
| 33    | flame   | 268                       | 15.4                    | 134.6  | 46.4      | 22.4  | 15.4   | 129.0  | 45.1      | 22.6   |
| 34    | C       | 280                       | 15.5                    | 125.9  | 14.7      | 20.0  | 15.1   | 126.5  | 16.7      | 19.1   |
| 35    | C       | 297                       |                         |        |           |       | 13.6   | 127.6  | 22.8      | 23.4   |
| 36    | C       | 278                       | 12.9                    | 127.7  | 14.9      | 19.2  | 12.5   | 129.4  | 17.5      | 17.7   |
| 37    | C       | 293                       | 13.0                    | 129.2  | 18.9      | 16.2  | 13.0   | 128.8  | 17.1      | 15.7   |
| 38    | C       | 324                       |                         |        |           |       | 15.0   | 139.0  | 12.0      | 13.0   |

## Appendix 4h: Ratios 1.

This and the following tables of ratios present comparisons of the viols which strongly suggest that while overall approximate relationships between parts are common, there are no strongly favoured ratios and there is no pattern of particular numerical relationships which are characteristic of any maker. Successive tables rank the instruments according to each of the ratios examined here, and show that individual instruments and makers are not found consistently in the same part of each ranking.

Viols are ordered according to their belly length.

### KEY

1. VME Number
2. VME Maker
3. Body length
4. Ratio of upper bout width to body length
5. Ratio of middle bout width to body length
6. Ratio of lower bout width to body length
7. Ratio of upper bout width to lower bout width

| APPENDIX 4h: Ratios 1 |                          |               |                       |                        |                       |                           |
|-----------------------|--------------------------|---------------|-----------------------|------------------------|-----------------------|---------------------------|
| 1 VME                 | 2 Maker                  | 3 Body length | 4 upper bout / length | 5 middle bout / length | 6 lower bout / length | 7 upper bout / lower bout |
| 01                    | George Gill ?            | 312           | .49                   | .343                   | .59                   | .832                      |
| 02                    | Henry Jaye               | 327           | .477                  | .343                   | .587                  | .813                      |
| 03                    | Henry Jaye, partly       | 362           | .472                  | .318                   | .564                  | .838                      |
| 04                    | Henry Jaye, partly       | 362           | .472                  | .32                    | .588                  | .803                      |
| 05                    | unknown                  | 370           | .486                  | .338                   | .565                  | .861                      |
| 06                    | Henry Jaye               | 376           | .479                  | .338                   | .582                  | .822                      |
| 07                    | unknown                  | 383           | .486                  | .337                   | .593                  | .819                      |
| 08                    | William Turner           | 400           | .433                  | .315                   | .565                  | .765                      |
| 09                    | William Turner           | 401           | .481                  | .349                   | .581                  | .828                      |
| 10                    | William Turner           | 403           | .484                  | .357                   | .6                    | .806                      |
| 11                    | Henry Jaye, partly       | 405           | .474                  | .338                   | .593                  | .8                        |
| 12                    | Henry Jaye, partly       | 411           | .489                  | .355                   | .586                  | .834                      |
| 13                    | Henry Jaye, partly?      | 412           | .444                  | .311                   | .563                  | .789                      |
| 14                    | William Turner           | 412           | .442                  | .32                    | .578                  | .765                      |
| 15                    | unknown                  | 420           | .46                   | .326                   | .552                  | .832                      |
| 16                    | John Strong ?            | 426           | .453                  | .326                   | .559                  | .811                      |
| 17                    | unknown (Jaye?)          | 432           | .47                   | .336                   | .597                  | .787                      |
| 18                    | unknown                  | 537           | .495                  | .361                   | .587                  | .844                      |
| 19                    | John Rose I or II        | 538           | .47                   | .335                   | .582                  | .808                      |
| 20                    | John Rose I or II        | 551           | .461                  | .325                   | .579                  | .796                      |
| 21                    | Richard Blunt            | 555           | .483                  | .351                   | .569                  | .848                      |
| 22                    | Richard Blunt            | 560           | .477                  | .336                   | .563                  | .848                      |
| 23                    | unknown                  | 621           | .483                  | .353                   | .576                  | .838                      |
| 24                    | Henry Jaye               | 627           | .461                  | .335                   | .565                  | .816                      |
| 25                    | Henry Smith              | 643           | .479                  | .35                    | .58                   | .826                      |
| 26                    | John Rose I or II        | 645           | .474                  | .349                   | .575                  | .825                      |
| 27                    | William Turner           | 674           | .47                   | .359                   | .58                   | .811                      |
| 28                    | William Turner           | 683           | .469                  | .337                   | .556                  | .842                      |
| 29                    | unknown (Rose?)          | 683           | .457                  | .348                   | .548                  | .834                      |
| 30                    | unknown                  | 686           | .465                  | .343                   | .576                  | .808                      |
| 31                    | Henry Smith              | 692           | .461                  | .341                   | .559                  | .824                      |
| 32                    | Henry Jaye               | 703           | .485                  | .351                   | .576                  | .842                      |
| 33                    | unknown (Rose?)          | 704           | .452                  | .349                   | .565                  | .799                      |
| 34                    | John Rose I or II        | 710           | .456                  | .332                   | .561                  | .814                      |
| 35                    | John Rose I or II        | 710           | .477                  | .338                   | .579                  | .825                      |
| 36                    | Petter Hackings, partly? | 712           | .454                  | .313                   | .553                  | .82                       |
| 37                    | Henry Jaye               | 721           | .466                  | .333                   | .551                  | .846                      |
| 38                    | Henry Jaye               | 766           | .462                  | .339                   | .55                   | .841                      |

## **Appendix 4i: Ratios 2.**

Viols are ordered according to the ratio of upper bout width to belly length.

### **KEY**

1. VME Number
2. VME Maker
3. Body length
4. Ratio of upper bout width to body length
5. Ratio of middle bout width to body length
6. Ratio of lower bout width to body length
7. Ratio of upper bout width to lower bout width

| APPENDIX 4i: Ratios 2 |                          |               |                       |                        |                       |                           |
|-----------------------|--------------------------|---------------|-----------------------|------------------------|-----------------------|---------------------------|
| 1 VME                 | 2 Maker                  | 3 Body length | 4 upper bout / length | 5 middle bout / length | 6 lower bout / length | 7 upper bout / lower bout |
| 08                    | William Turner           | 400           | .433                  | .315                   | .565                  | .765                      |
| 14                    | William Turner           | 412           | .442                  | .32                    | .578                  | .765                      |
| 13                    | Henry Jaye, partly?      | 412           | .444                  | .311                   | .563                  | .789                      |
| 33                    | <i>unknown</i> (Rose?)   | 704           | .452                  | .349                   | .565                  | .799                      |
| 16                    | John Strong ?            | 426           | .453                  | .326                   | .559                  | .811                      |
| 36                    | Petter Hackings, partly? | 712           | .454                  | .313                   | .553                  | .82                       |
| 34                    | John Rose I or II        | 710           | .456                  | .332                   | .561                  | .814                      |
| 29                    | <i>unknown</i> (Rose?)   | 683           | .457                  | .348                   | .548                  | .834                      |
| 15                    | <i>unknown</i>           | 420           | .46                   | .326                   | .552                  | .832                      |
| 20                    | John Rose I or II        | 551           | .461                  | .325                   | .579                  | .796                      |
| 24                    | Henry Jaye               | 627           | .461                  | .335                   | .565                  | .816                      |
| 31                    | Henry Smith              | 692           | .461                  | .341                   | .559                  | .824                      |
| 38                    | Henry Jaye               | 766           | .462                  | .339                   | .55                   | .841                      |
| 30                    | <i>unknown</i>           | 686           | .465                  | .343                   | .576                  | .808                      |
| 37                    | Henry Jaye               | 721           | .466                  | .333                   | .551                  | .846                      |
| 28                    | William Turner           | 683           | .469                  | .337                   | .556                  | .842                      |
| 17                    | <i>unknown</i> (Jaye?)   | 432           | .47                   | .336                   | .597                  | .787                      |
| 19                    | John Rose I or II        | 538           | .47                   | .335                   | .582                  | .808                      |
| 27                    | William Turner           | 674           | .47                   | .359                   | .58                   | .811                      |
| 03                    | Henry Jaye, partly       | 362           | .472                  | .318                   | .564                  | .838                      |
| 04                    | Henry Jaye, partly       | 362           | .472                  | .32                    | .588                  | .803                      |
| 11                    | Henry Jaye, partly       | 405           | .474                  | .338                   | .593                  | .8                        |
| 26                    | John Rose I or II        | 645           | .474                  | .349                   | .575                  | .825                      |
| 02                    | Henry Jaye               | 327           | .477                  | .343                   | .587                  | .813                      |
| 22                    | Richard Blunt            | 560           | .477                  | .336                   | .563                  | .848                      |
| 35                    | John Rose I or II        | 710           | .477                  | .338                   | .579                  | .825                      |
| 06                    | Henry Jaye               | 376           | .479                  | .338                   | .582                  | .822                      |
| 25                    | Henry Smith              | 643           | .479                  | .35                    | .58                   | .826                      |
| 09                    | William Turner           | 401           | .481                  | .349                   | .581                  | .828                      |
| 21                    | Richard Blunt            | 555           | .483                  | .351                   | .569                  | .848                      |
| 23                    | <i>unknown</i>           | 621           | .483                  | .353                   | .576                  | .838                      |
| 10                    | William Turner           | 403           | .484                  | .357                   | .6                    | .806                      |
| 32                    | Henry Jaye               | 703           | .485                  | .351                   | .576                  | .842                      |
| 05                    | <i>unknown</i>           | 370           | .486                  | .338                   | .565                  | .861                      |
| 07                    | <i>unknown</i>           | 383           | .486                  | .337                   | .593                  | .819                      |
| 12                    | Henry Jaye, partly       | 411           | .489                  | .355                   | .586                  | .834                      |
| 01                    | George Gill ?            | 312           | .49                   | .343                   | .59                   | .832                      |
| 18                    | <i>unknown</i>           | 537           | .495                  | .361                   | .587                  | .844                      |

### **Appendix 4j: Ratios 3.**

Viols are ordered according to the ratio of middle bout width to belly length.

#### **KEY**

1. VME Number
2. VME Maker
3. Body length
4. Ratio of upper bout width to body length
5. Ratio of middle bout width to body length
6. Ratio of lower bout width to body length
7. Ratio of upper bout width to lower bout width

| APPENDIX 4j: Ratios 3 |                          |               |                        |      |                           |      |
|-----------------------|--------------------------|---------------|------------------------|------|---------------------------|------|
| 1 VME                 |                          | 3 Body length | 5 middle bout / length |      | 7 upper bout / lower bout |      |
|                       | 2 Maker                  |               | 4 upper bout / length  |      | 6 lower bout / length     |      |
| 13                    | Henry Jaye, partly?      | 412           | .444                   | .311 | .563                      | .789 |
| 36                    | Petter Hackings, partly? | 712           | .454                   | .313 | .553                      | .82  |
| 08                    | William Turner           | 400           | .433                   | .315 | .565                      | .765 |
| 03                    | Henry Jaye, partly       | 362           | .472                   | .318 | .564                      | .838 |
| 14                    | William Turner           | 412           | .442                   | .32  | .578                      | .765 |
| 04                    | Henry Jaye, partly       | 362           | .472                   | .32  | .588                      | .803 |
| 20                    | John Rose I or II        | 551           | .461                   | .325 | .579                      | .796 |
| 16                    | John Strong ?            | 426           | .453                   | .326 | .559                      | .811 |
| 15                    | unknown                  | 420           | .46                    | .326 | .552                      | .832 |
| 34                    | John Rose I or II        | 710           | .456                   | .332 | .561                      | .814 |
| 37                    | Henry Jaye               | 721           | .466                   | .333 | .551                      | .846 |
| 24                    | Henry Jaye               | 627           | .461                   | .335 | .565                      | .816 |
| 19                    | John Rose I or II        | 538           | .47                    | .335 | .582                      | .808 |
| 17                    | unknown (Jaye?)          | 432           | .47                    | .336 | .597                      | .787 |
| 22                    | Richard Blunt            | 560           | .477                   | .336 | .563                      | .848 |
| 28                    | William Turner           | 683           | .469                   | .337 | .556                      | .842 |
| 07                    | unknown                  | 383           | .486                   | .337 | .593                      | .819 |
| 11                    | Henry Jaye, partly       | 405           | .474                   | .338 | .593                      | .8   |
| 35                    | John Rose I or II        | 710           | .477                   | .338 | .579                      | .825 |
| 06                    | Henry Jaye               | 376           | .479                   | .338 | .582                      | .822 |
| 05                    | unknown                  | 370           | .486                   | .338 | .565                      | .861 |
| 38                    | Henry Jaye               | 766           | .462                   | .339 | .55                       | .841 |
| 31                    | Henry Smith              | 692           | .461                   | .341 | .559                      | .824 |
| 30                    | unknown                  | 686           | .465                   | .343 | .576                      | .808 |
| 02                    | Henry Jaye               | 327           | .477                   | .343 | .587                      | .813 |
| 01                    | George Gill ?            | 312           | .49                    | .343 | .59                       | .832 |
| 29                    | unknown (Rose?)          | 683           | .457                   | .348 | .548                      | .834 |
| 33                    | unknown (Rose?)          | 704           | .452                   | .349 | .565                      | .799 |
| 26                    | John Rose I or II        | 645           | .474                   | .349 | .575                      | .825 |
| 09                    | William Turner           | 401           | .481                   | .349 | .581                      | .828 |
| 25                    | Henry Smith              | 643           | .479                   | .35  | .58                       | .826 |
| 21                    | Richard Blunt            | 555           | .483                   | .351 | .569                      | .848 |
| 32                    | Henry Jaye               | 703           | .485                   | .351 | .576                      | .842 |
| 23                    | unknown                  | 621           | .483                   | .353 | .576                      | .838 |
| 12                    | Henry Jaye, partly       | 411           | .489                   | .355 | .586                      | .834 |
| 10                    | William Turner           | 403           | .484                   | .357 | .6                        | .806 |
| 27                    | William Turner           | 674           | .47                    | .359 | .58                       | .811 |
| 18                    | unknown                  | 537           | .495                   | .361 | .587                      | .844 |



#### **Appendix 4k: Ratios 4.**

Viols are ordered according to the ratio of lower bout width to belly length.

#### **KEY**

1. VME Number
2. VME Maker
3. Body length
4. Ratio of upper bout width to body length
5. Ratio of middle bout width to body length
6. Ratio of lower bout width to body length
7. Ratio of upper bout width to lower bout width

| APPENDIX 4k: Ratios 4 |                          |               |                       |                        |                       |                           |
|-----------------------|--------------------------|---------------|-----------------------|------------------------|-----------------------|---------------------------|
| 1 VME                 | 2 Maker                  | 3 Body length | 4 upper bout / length | 5 middle bout / length | 6 lower bout / length | 7 upper bout / lower bout |
| 29                    | unknown (Rose?)          | 683           | .457                  | .348                   | .548                  | .834                      |
| 38                    | Henry Jaye               | 766           | .462                  | .339                   | .55                   | .841                      |
| 37                    | Henry Jaye               | 721           | .466                  | .333                   | .551                  | .846                      |
| 15                    | unknown                  | 420           | .46                   | .326                   | .552                  | .832                      |
| 36                    | Petter Hackings, partly? | 712           | .454                  | .313                   | .553                  | .82                       |
| 28                    | William Turner           | 683           | .469                  | .337                   | .556                  | .842                      |
| 16                    | John Strong ?            | 426           | .453                  | .326                   | .559                  | .811                      |
| 31                    | Henry Smith              | 692           | .461                  | .341                   | .559                  | .824                      |
| 34                    | John Rose I or II        | 710           | .456                  | .332                   | .561                  | .814                      |
| 13                    | Henry Jaye, partly?      | 412           | .444                  | .311                   | .563                  | .789                      |
| 22                    | Richard Blunt            | 560           | .477                  | .336                   | .563                  | .848                      |
| 03                    | Henry Jaye, partly       | 362           | .472                  | .318                   | .564                  | .838                      |
| 08                    | William Turner           | 400           | .433                  | .315                   | .565                  | .765                      |
| 24                    | Henry Jaye               | 627           | .461                  | .335                   | .565                  | .816                      |
| 05                    | unknown                  | 370           | .486                  | .338                   | .565                  | .861                      |
| 33                    | unknown (Rose?)          | 704           | .452                  | .349                   | .565                  | .799                      |
| 21                    | Richard Blunt            | 555           | .483                  | .351                   | .569                  | .848                      |
| 26                    | John Rose I or II        | 645           | .474                  | .349                   | .575                  | .825                      |
| 30                    | unknown                  | 686           | .465                  | .343                   | .576                  | .808                      |
| 32                    | Henry Jaye               | 703           | .485                  | .351                   | .576                  | .842                      |
| 23                    | unknown                  | 621           | .483                  | .353                   | .576                  | .838                      |
| 14                    | William Turner           | 412           | .442                  | .32                    | .578                  | .765                      |
| 20                    | John Rose I or II        | 551           | .461                  | .325                   | .579                  | .796                      |
| 35                    | John Rose I or II        | 710           | .477                  | .338                   | .579                  | .825                      |
| 25                    | Henry Smith              | 643           | .479                  | .35                    | .58                   | .826                      |
| 27                    | William Turner           | 674           | .47                   | .359                   | .58                   | .811                      |
| 09                    | William Turner           | 401           | .481                  | .349                   | .581                  | .828                      |
| 19                    | John Rose I or II        | 538           | .47                   | .335                   | .582                  | .808                      |
| 06                    | Henry Jaye               | 376           | .479                  | .338                   | .582                  | .822                      |
| 12                    | Henry Jaye, partly       | 411           | .489                  | .355                   | .586                  | .834                      |
| 02                    | Henry Jaye               | 327           | .477                  | .343                   | .587                  | .813                      |
| 18                    | unknown                  | 537           | .495                  | .361                   | .587                  | .844                      |
| 04                    | Henry Jaye, partly       | 362           | .472                  | .32                    | .588                  | .803                      |
| 01                    | George Gill ?            | 312           | .49                   | .343                   | .59                   | .832                      |
| 07                    | unknown                  | 383           | .486                  | .337                   | .593                  | .819                      |
| 11                    | Henry Jaye, partly       | 405           | .474                  | .338                   | .593                  | .8                        |
| 17                    | unknown (Jaye?)          | 432           | .47                   | .336                   | .597                  | .787                      |
| 10                    | William Turner           | 403           | .484                  | .357                   | .6                    | .806                      |

## **Appendix 4l: Ratios 5.**

Viols are ordered according to the ratio of upper bout width to lower bout width.

### **KEY**

1. VME Number
2. VME Maker
3. Body length
4. Ratio of upper bout width to body length
5. Ratio of middle bout width to body length
6. Ratio of lower bout width to body length
7. Ratio of upper bout width to lower bout width

| APPENDIX 4I: Ratios 5 |                          |               |                       |                        |                       |                           |
|-----------------------|--------------------------|---------------|-----------------------|------------------------|-----------------------|---------------------------|
| 1 VME                 | 2 Maker                  | 3 Body length | 4 upper bout / length | 5 middle bout / length | 6 lower bout / length | 7 upper bout / lower bout |
| 08                    | William Turner           | 400           | .433                  | .315                   | .565                  | .765                      |
| 14                    | William Turner           | 412           | .442                  | .32                    | .578                  | .765                      |
| 17                    | unknown (Jaye?)          | 432           | .47                   | .336                   | .597                  | .787                      |
| 13                    | Henry Jaye, partly?      | 412           | .444                  | .311                   | .563                  | .789                      |
| 20                    | John Rose I or II        | 551           | .461                  | .325                   | .579                  | .796                      |
| 33                    | unknown (Rose?)          | 704           | .452                  | .349                   | .565                  | .799                      |
| 11                    | Henry Jaye, partly       | 405           | .474                  | .338                   | .593                  | .8                        |
| 04                    | Henry Jaye, partly       | 362           | .472                  | .32                    | .588                  | .803                      |
| 10                    | William Turner           | 403           | .484                  | .357                   | .6                    | .806                      |
| 30                    | unknown                  | 686           | .465                  | .343                   | .576                  | .808                      |
| 19                    | John Rose I or II        | 538           | .47                   | .335                   | .582                  | .808                      |
| 16                    | John Strong ?            | 426           | .453                  | .326                   | .559                  | .811                      |
| 27                    | William Turner           | 674           | .47                   | .359                   | .58                   | .811                      |
| 02                    | Henry Jaye               | 327           | .477                  | .343                   | .587                  | .813                      |
| 34                    | John Rose I or II        | 710           | .456                  | .332                   | .561                  | .814                      |
| 24                    | Henry Jaye               | 627           | .461                  | .335                   | .565                  | .816                      |
| 07                    | unknown                  | 383           | .486                  | .337                   | .593                  | .819                      |
| 36                    | Petter Hackings, partly? | 712           | .454                  | .313                   | .553                  | .82                       |
| 06                    | Henry Jaye               | 376           | .479                  | .338                   | .582                  | .822                      |
| 31                    | Henry Smith              | 692           | .461                  | .341                   | .559                  | .824                      |
| 26                    | John Rose I or II        | 645           | .474                  | .349                   | .575                  | .825                      |
| 35                    | John Rose I or II        | 710           | .477                  | .338                   | .579                  | .825                      |
| 25                    | Henry Smith              | 643           | .479                  | .35                    | .58                   | .826                      |
| 09                    | William Turner           | 401           | .481                  | .349                   | .581                  | .828                      |
| 15                    | unknown                  | 420           | .46                   | .326                   | .552                  | .832                      |
| 01                    | George Gill ?            | 312           | .49                   | .343                   | .59                   | .832                      |
| 29                    | unknown (Rose?)          | 683           | .457                  | .348                   | .548                  | .834                      |
| 12                    | Henry Jaye, partly       | 411           | .489                  | .355                   | .586                  | .834                      |
| 03                    | Henry Jaye, partly       | 362           | .472                  | .318                   | .564                  | .838                      |
| 23                    | unknown                  | 621           | .483                  | .353                   | .576                  | .838                      |
| 38                    | Henry Jaye               | 766           | .462                  | .339                   | .55                   | .841                      |
| 28                    | William Turner           | 683           | .469                  | .337                   | .556                  | .842                      |
| 32                    | Henry Jaye               | 703           | .485                  | .351                   | .576                  | .842                      |
| 18                    | unknown                  | 537           | .495                  | .361                   | .587                  | .844                      |
| 37                    | Henry Jaye               | 721           | .466                  | .333                   | .551                  | .846                      |
| 22                    | Richard Blunt            | 560           | .477                  | .336                   | .563                  | .848                      |
| 21                    | Richard Blunt            | 555           | .483                  | .351                   | .569                  | .848                      |
| 05                    | unknown                  | 370           | .486                  | .338                   | .565                  | .861                      |

## Appendix 4m: Ratios 6.

This table emphasises the inconsistency of these ratios in the viols examined. There is no detectable evidence that any particular ratios were favoured or used.

Viols are ordered differently, according to three principal ratios.

### KEY

- VME number
- VME maker
- ratio of middle bout width to belly length
- VME number
- VME maker
- ratio of lower bout width to belly length
- VME number
- VME maker
- ratio of upper bout width to lower bout width

## APPENDIX 4m: Ratios 6

| middle bout / length |                     |      | lower bout / length |                     |      | upper bout / lower bout |                     |      |
|----------------------|---------------------|------|---------------------|---------------------|------|-------------------------|---------------------|------|
| VME                  | Maker               |      | VME                 | Maker               |      | VME                     | Maker               |      |
| 13                   | Henry Jaye, partly? | .311 | 29                  | unknown (Rose?)     | .548 | 08                      | William Turner      | .765 |
| 36                   | Petter Hackings,    | .313 | 38                  | Henry Jaye          | .55  | 14                      | William Turner      | .765 |
| 08                   | William Turner      | .315 | 37                  | Henry Jaye          | .551 | 17                      | unknown (Jaye?)     | .787 |
| 03                   | Henry Jaye, partly  | .318 | 15                  | unknown             | .552 | 13                      | Henry Jaye, partly? | .789 |
| 14                   | William Turner      | .32  | 36                  | Petter Hackings,    | .553 | 20                      | John Rose I or II   | .796 |
| 04                   | Henry Jaye, partly  | .32  | 28                  | William Turner      | .556 | 33                      | unknown (Rose?)     | .799 |
| 20                   | John Rose I or II   | .325 | 16                  | John Strong ?       | .559 | 11                      | Henry Jaye, partly  | .8   |
| 16                   | John Strong ?       | .326 | 31                  | Henry Smith         | .559 | 04                      | Henry Jaye, partly  | .803 |
| 15                   | unknown             | .326 | 34                  | John Rose I or II   | .561 | 10                      | William Turner      | .806 |
| 34                   | John Rose I or II   | .332 | 13                  | Henry Jaye, partly? | .563 | 30                      | unknown             | .808 |
| 37                   | Henry Jaye          | .333 | 22                  | Richard Blunt       | .563 | 19                      | John Rose I or II   | .808 |
| 19                   | John Rose I or II   | .335 | 03                  | Henry Jaye, partly  | .564 | 16                      | John Strong ?       | .811 |
| 24                   | Henry Jaye          | .335 | 08                  | William Turner      | .565 | 27                      | William Turner      | .811 |
| 17                   | unknown (Jaye?)     | .336 | 24                  | Henry Jaye          | .565 | 02                      | Henry Jaye          | .813 |
| 22                   | Richard Blunt       | .336 | 05                  | unknown             | .565 | 34                      | John Rose I or II   | .814 |
| 07                   | unknown             | .337 | 33                  | unknown (Rose?)     | .565 | 24                      | Henry Jaye          | .816 |
| 28                   | William Turner      | .337 | 21                  | Richard Blunt       | .569 | 07                      | unknown             | .819 |
| 11                   | Henry Jaye, partly  | .338 | 26                  | John Rose I or II   | .575 | 36                      | Petter Hackings,    | .82  |
| 06                   | Henry Jaye          | .338 | 30                  | unknown             | .576 | 06                      | Henry Jaye          | .822 |
| 35                   | John Rose I or II   | .338 | 32                  | Henry Jaye          | .576 | 31                      | Henry Smith         | .824 |
| 05                   | unknown             | .338 | 23                  | unknown             | .576 | 26                      | John Rose I or II   | .825 |
| 38                   | Henry Jaye          | .339 | 14                  | William Turner      | .578 | 35                      | John Rose I or II   | .825 |
| 31                   | Henry Smith         | .341 | 20                  | John Rose I or II   | .579 | 25                      | Henry Smith         | .826 |
| 30                   | unknown             | .343 | 35                  | John Rose I or II   | .579 | 09                      | William Turner      | .828 |
| 02                   | Henry Jaye          | .343 | 25                  | Henry Smith         | .58  | 15                      | unknown             | .832 |
| 01                   | George Gill ?       | .343 | 27                  | William Turner      | .58  | 01                      | George Gill ?       | .832 |
| 29                   | unknown (Rose?)     | .348 | 09                  | William Turner      | .581 | 29                      | unknown (Rose?)     | .834 |
| 33                   | unknown (Rose?)     | .349 | 19                  | John Rose I or II   | .582 | 12                      | Henry Jaye, partly  | .834 |
| 26                   | John Rose I or II   | .349 | 06                  | Henry Jaye          | .582 | 03                      | Henry Jaye, partly  | .838 |
| 09                   | William Turner      | .349 | 12                  | Henry Jaye, partly  | .586 | 23                      | unknown             | .838 |
| 25                   | Henry Smith         | .35  | 02                  | Henry Jaye          | .587 | 38                      | Henry Jaye          | .841 |
| 32                   | Henry Jaye          | .351 | 18                  | unknown             | .587 | 28                      | William Turner      | .842 |
| 21                   | Richard Blunt       | .351 | 04                  | Henry Jaye, partly  | .588 | 32                      | Henry Jaye          | .842 |
| 23                   | unknown             | .353 | 01                  | George Gill ?       | .59  | 18                      | unknown             | .844 |
| 12                   | Henry Jaye, partly  | .355 | 07                  | unknown             | .593 | 37                      | Henry Jaye          | .846 |
| 10                   | William Turner      | .357 | 11                  | Henry Jaye, partly  | .593 | 22                      | Richard Blunt       | .848 |
| 27                   | William Turner      | .359 | 17                  | unknown (Jaye?)     | .597 | 21                      | Richard Blunt       | .848 |
| 18                   | unknown             | .361 | 10                  | William Turner      | .6   | 05                      | unknown             | .861 |

## Appendix 4n: Purfling.

N.B. Due to fading, damage and accretions of dirt it is often impossible to be certain of the nature of the purfling. Its irregular fitting means that measurements of its position can often be no more than indicative.

~ indicates that a measurement is approximate or variable

~~ indicates that a measurement is very variable

### KEY

1. VME Number
2. Number of lines of purfling around the periphery of the belly
3. Nature of the inlay. bwb = black-white-black, etc.
4. width of belly purfling
5. distance of outer line of purfling to belly edge
6. distance of inner line of purfling to belly edge
7. Number of lines of purfling around the periphery of the back
8. Nature of the inlay. bwb = black-white-black, etc.
9. width of belly purfling
10. distance of outer line of purfling to back edge
11. distance of inner line of purfling to back edge

| 1 VME |       |        | APPENDIX 4n: Purfling |         |         |      |            |         |          |       |  |
|-------|-------|--------|-----------------------|---------|---------|------|------------|---------|----------|-------|--|
|       | Belly |        |                       |         |         | Back |            |         |          |       |  |
|       | 2     | 3      | 4                     | 5       | 6       | 7    | 8          | 9       | 10       | 11    |  |
| 01    | 1     | bwb    | 2~                    | 4       |         | 0    |            |         |          |       |  |
| 02    | 2     | bwb    | 2.1                   | 3.6     | 6.7     | 2    | wbw        | 2.0     | 3        | 6.2   |  |
| 03    | 2     | bwb    | 1.4                   | 3~      | 6.5~    | 0    |            |         |          |       |  |
| 04    | 2     | n/o    |                       |         |         | 0    |            |         |          |       |  |
| 05    | 1     | bwb~   | 1.7                   | 6.5     |         | 1    | bwb~       | 1.7     | 7+       |       |  |
| 06    | 2     | bwb    | 1.5-1.8               | 4.5     | 8       | 0    |            |         |          |       |  |
| 07    | 2     | bwb    | 1.4~                  | 4~~     | ~~      | 2    | bwb        | 1.4~    | 4~~      | ~~    |  |
| 08    | 1     | black  | 1.7-2.2               | 5~      |         | 1    | black      | 1.7-2.2 | 5~       |       |  |
| 09    | 1     | black  | 2.0~                  | 7.5     |         | 1    | black      | 2.0~    | 6.5      |       |  |
| 10    | 1     | n/o    |                       |         |         | 1    | n/o        |         |          |       |  |
| 11    | 2     | bwb    | 1.1                   | 3       | 6       | 2    | bwb        | 1.1     | 3        | 6     |  |
| 12    | 1     | bwb    | 1.5                   | 1.5~~   |         | 0    |            |         |          |       |  |
| 13    | 2     | bwb    | 1.5                   | 5.2~    | 9.5~    | 2    | wbw        | 1.5     | 4.5      | 7.5   |  |
| 14    | 1     | black~ |                       |         |         | 1    | black~     | 2       | 4~       |       |  |
| 15    | 2     | bwb    | 2.2                   | 2?~     | 7?~     | 2    | bwb        | 2.2     | 2?~      | 7?~   |  |
| 16    | 2     | bwbwb  | 2.4                   | 4.6     | 10.5    | 2    | wbwbw      |         | 4.6      | 10.5  |  |
| 17    | 2     | bwb    | 1.6                   | 2.5     | 5.3     | 2    | wbw        | 1.6     | 4        | 7.5   |  |
| 18    | 2     | bwb    | 1.8                   | 2.5     | 7       | 2    | wbw        | 1.8     |          |       |  |
| 19    | 2     | bwb    | 1.8~                  | 4.5     | 7.6     | 2    | bwb        |         |          |       |  |
| 20    | 2     | n/o    |                       |         |         | 2    | bwb        | 1.8     | 4.0      | 7.2   |  |
| 21    | 2     | bwb?   | 2.0                   | 4.7~    | 10~     | 2    | bwb        | 2.0     | 4.7~     | 10~   |  |
| 22    | 2     | bwb    | 1.5-2.1               | 3+~     | 7.5+~   | 2    | bwb        | 1.5-2.1 | 3+~      | 7.5+~ |  |
| 23    | 2     | ???    | 1.4-2.2~              | 4.9~~   | 8.2~~   | 0    |            |         |          |       |  |
| 24    | 2     | bwb    | 1.8                   | 3.5-4.5 | 6.7-8.5 | 2    | wbw        | 2.0~    | 3.9~     | 6.9~  |  |
| 25    | 2     | bwb    | 1.7                   | 3.9~    | 8.0~    | 2    | bwb        | 1.7     | 3.9~     | 7.5~  |  |
| 26    | 2     | bwb    | 1.7                   | 4.5~    | 8~      | 2    | bwb        | 1.7     | 4.5~     | 8~    |  |
| 27    | 1     | black? |                       |         |         | 1    | black?     |         |          |       |  |
| 28    | 1     | black  |                       |         |         | 1    | black      |         |          |       |  |
| 29    | 2     | bwb    | 1.8-2.2               | 3.5     | 8~      | 2    | bwb        | 1.8-2.2 | 3.5      | 8~    |  |
| 30    | 2     | bwb    | 1.9                   | 4.3~    | 7.4~    | 2    | bwb        | 1.9     | 4.3~     | 7.4~  |  |
| 31    | 1     | bwb    | 2.2                   | 3.5-4+  |         | 1    | bwb        | 2.2     | 3.5-4+   |       |  |
| 32    | 2     | bwb    | 1.8~                  | 4.5~    | 7~      | 0    |            |         |          |       |  |
| 33    | 2     | bwbwb  | 2.1                   | 2.7     | 6.4     | 2    | wbwbw      |         | 2.5      | 6.6   |  |
| 34    | 2     | bwb    | 1.8                   | 4       | 7.8     | 0    |            |         |          |       |  |
| 35    | 2     | black  | 2                     | 1-3.8~  | ~~      | 0    |            |         |          |       |  |
| 36    | 1     | bwb    | 2.1                   | 3       |         | [0]  | paint/scr. | 2.1     | 3        |       |  |
| 37    | 2     | bwb    | 1.5                   | 2.5-3.5 | 6.5~    | 2    | bwb        | 1.5     | 2.5-3.5~ | 6.5~  |  |
| 38    | 2     | bwb    | 1.8                   | 3.3     | 7       | 2    | bwb        | 1.8     | 3.3      | 7     |  |



## Appendix 4o: Ornament.

An indication of decorative and ornamental features.

### KEY

- |     |                    |                                                                                                                                                                                                                                                                                                        |
|-----|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | VME Number         |                                                                                                                                                                                                                                                                                                        |
| 2.  | Body shape         | The instruments examined were all either what is considered the normal viol shape, here described as 4pc (four plain corners), or fest (festooned), but chapter 3 argues that these are not necessarily representative of the most common sorts made.                                                  |
| 3.  | Rose               | Where present these are either oval or heart-shaped. The belly of VME23 has a double-purfling oval inlaid at the point where a rose would be set but no wood is cut out for the insertion of a rose.                                                                                                   |
| 4.  | Belly              | This records inlaid purfling patterns. 'fk/hn' = a floral type of pattern, usually with enclosed areas darkened by striping with a hot needle. 'pf@rs' = purfling around the rose. 'pf@sh' = purfling around the soundholes. VME33 is the only one of the viols examined which had painted decoration. |
| 5.  | Back               | 'gk' = geometrical inlaid purfling knot. 'pf' = purfling around sections of the back other than the perimeter.                                                                                                                                                                                         |
| 6.  | Ribs               | 'gk' = geometrical inlaid purfling knot. 'pf' = purfling around the perimeter.                                                                                                                                                                                                                         |
| 7.  | Finial originality | As the neck is usually n/o it is usually impossible to be certain whether finial and pegbox were made for a particular instrument.                                                                                                                                                                     |
| 8.  | Finial type        | 'ss' = solid scroll. 'ps' = pierced scroll. 'hh' = human head. 'ah' = animal head.                                                                                                                                                                                                                     |
| 9.  | Pegbox originality | (see finial originality, above)                                                                                                                                                                                                                                                                        |
| 10. | Pegbox decoration  | 'rc' = relief carving. 'pf' = perimeter purfling.                                                                                                                                                                                                                                                      |
| 11. | other              | other decorative features such as carving or fancy wood. 'str' = stripes of contrasting wood.                                                                                                                                                                                                          |

| APPENDIX 4o: Ornament |              |        |                  |           |        |        |    |        |    |                 |
|-----------------------|--------------|--------|------------------|-----------|--------|--------|----|--------|----|-----------------|
| 1 VME                 |              |        |                  |           |        |        |    |        |    |                 |
|                       | 2 Body shape |        |                  |           |        | Finial |    | Pegbox |    |                 |
|                       |              | 3 Rose | 4 Belly          | 5 Back    | 6 Ribs | 7      | 8  | 9      | 10 | 11 Other        |
| 01                    | 4pc          | -      | fk/hn            | gk        | gk     | n      | -  | n      | -  |                 |
| 02                    | 4pc          | -      | -                | gk; pf    | -      | n      | -  | n      | -  |                 |
| 03                    | 4pc          | -      | -                | -         | -      | n      | -  | n      | -  |                 |
| 04                    | 4pc          | -      | -                | -         | -      | y?     | hh | n      | -  | str             |
| 05                    | 4pc          | -      | -                | pf        | -      | y?     | hh | n      | -  |                 |
| 06                    | 4pc          | oval   | -                | -         | -      | n      | -  | n      | -  |                 |
| 07                    | 4pc          | -      | -                | gk        | -      | n      | -  | n      | -  |                 |
| 08                    | 4pc          | -      | -                | -         | -      | y      | ss | y      | pf |                 |
| 09                    | 4pc          | heart  | pf@rs            | gk        | -      | n      | -  | n      | -  |                 |
| 10                    | 4pc          | heart  | pf@rs; pf@sh     | gk; pf    | -      | n      | -  | n      | -  |                 |
| 11                    | 4pc          | -      | fk/hn; pf@sh     | gk        | gk     | n      | -  | n      | -  |                 |
| 12                    | 4pc          | -      | -                | -         | -      | n      | -  | n      | -  | str             |
| 13                    | 4pc          | -      | -                | -         | -      | n      | -  | n      | -  |                 |
| 14                    | 4pc          | heart  | -                | pf        | -      | y?     | hh | n      | -  |                 |
| 15                    | 4pc          | -      | -                | -         | -      | n      | -  | n      | -  |                 |
| 16                    | fest         | -      | fk/hn            | -         | -      | n      | -  | n      | -  | burr wood       |
| 17                    | 4pc          | oval   | pf@rs; pf@sh     | pf        | -      | y      | ps | y      | rc |                 |
| 18                    | 4pc          | -      | -                | pf        | pf     | ?      | ah | ?      | pf | str             |
| 19                    | 4pc          | -      | -                | -         | pf     | y?     | ps | y?     | n  |                 |
| 20                    | 4pc          | -      | -                | gk        | gk; pf | y      | hh | y      | rc |                 |
| 21                    | 4pc          | -      | -                | -         | -      | y      | hh | y      | rc |                 |
| 22                    | 4pc          | -      | -                | -         | -      | n      | -  | y      | rc |                 |
| 23                    | 4pc          | pf     | -                | -         | -      | n      | -  | n      | -  |                 |
| 24                    | 4pc          | oval   | pf@sh            | gk; pf    | -      | y      | ps | y      | rc |                 |
| 25                    | 4pc          | oval   | pf@rs            | gk; pf    | -      | -      | -  | -      | -  |                 |
| 26                    | 4pc          | oval   | pf@rs            | pf        | -      | n      | -  | n      | -  |                 |
| 27                    | 4pc          | heart  | pf@rs; pf@sh     | gk; pf    | -      | ?      | ps | ?      |    |                 |
| 28                    | 4pc          | -      | pf@sh            | perimeter | -      | ?      | hh | ?      |    |                 |
| 29                    | fest         | -      | fk/hn            | gk; pf    | gk; pf | n      | -  | n      | -  | cv pillar       |
| 30                    | 4pc          | -      | -                | -         | -      | n      | -  | n      | -  |                 |
| 31                    | 4pc          | oval   | gold             | pf        | -      | y      | hh | y -    | rc | pegbox pierced  |
| 32                    | 4pcR         | -      | -                | -         | -      | n      | -  | n      | -  | str             |
| 33                    | fest         | -      | fk/hn; paint     | gk        | gk; pf | n      | -  | n      | -  | cv pillar; burr |
| 34                    | 4pc          | -      | -                | -         | -      | y      | ps | y      | -  |                 |
| 35                    | 4pc          | -      | -                | -         | -      | n      | -  | n      | -  |                 |
| 36                    | 4pc          | -      | -                | -         | -      | ?      | hh | n      | -  |                 |
| 37                    | 4pc          | -      | fk/hn; gk; pf@sh | gk; pf    | gk; pf | y      | hh | y      | rc | fingerboard gk  |
| 38                    | 4pc          | -      | fk/hn            | n         | n      | -      | -  | n      | -  |                 |

## Appendix 4p.

### Decimal equivalents of all the whole number ratios from 1:1 to 1:12 (to four decimal places)

|        |   |       |   |       |   |      |   |      |   |      |   |      |   |     |      |
|--------|---|-------|---|-------|---|------|---|------|---|------|---|------|---|-----|------|
| 1.0000 | = | 1:1   | = | 2:2   | = | 3:3  | = | 4:4  | = | 5:5  | = | 6:6  | = | 7:7 | etc. |
| 0.9167 | = | 11:12 |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.9091 | = | 10:11 |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.9000 | = | 9:10  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.8889 | = | 8:9   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.8750 | = | 7:8   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.8571 | = | 6:7   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.8333 | = | 5:6   | = | 10:12 |   |      |   |      |   |      |   |      |   |     |      |
| 0.8182 | = | 9:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.8000 | = | 4:5   | = | 8:10  |   |      |   |      |   |      |   |      |   |     |      |
| 0.7778 | = | 7:9   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.7500 | = | 3:4   | = | 6:8   | = | 9:12 |   |      |   |      |   |      |   |     |      |
| 0.7273 | = | 8:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.7143 | = | 5:7   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.7000 | = | 7:10  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.6667 | = | 2:3   | = | 4:6   | = | 6:9  | = | 8:12 |   |      |   |      |   |     |      |
| 0.6364 | = | 7:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.6250 | = | 5:8   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.6000 | = | 3:5   | = | 6:10  |   |      |   |      |   |      |   |      |   |     |      |
| 0.5833 | = | 7:12  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.5714 | = | 4:7   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.5556 | = | 5:9   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.5455 | = | 6:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.5000 | = | 1:2   | = | 2:4   | = | 3:6  | = | 4:8  | = | 5:10 | = | 6:12 |   |     |      |
| 0.4545 | = | 5:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.4444 | = | 4:9   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.4286 | = | 3:7   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.4167 | = | 5:12  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.4000 | = | 2:5   | = | 4:10  |   |      |   |      |   |      |   |      |   |     |      |
| 0.3750 | = | 3:8   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.3636 | = | 4:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.3333 | = | 1:3   | = | 2:6   | = | 3:9  | = | 4:12 |   |      |   |      |   |     |      |
| 0.3000 | = | 3:10  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.2857 | = | 2:7   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.2727 | = | 3:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.2500 | = | 1:4   | = | 2:8   | = | 3:12 |   |      |   |      |   |      |   |     |      |
| 0.2222 | = | 2:9   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.2000 | = | 1:5   | = | 2:10  |   |      |   |      |   |      |   |      |   |     |      |
| 0.1818 | = | 2:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.1667 | = | 1:6   | = | 2:12  |   |      |   |      |   |      |   |      |   |     |      |
| 0.1429 | = | 1:7   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.1250 | = | 1:8   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.1111 | = | 1:9   |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.1000 | = | 1:10  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.0909 | = | 1:11  |   |       |   |      |   |      |   |      |   |      |   |     |      |
| 0.0833 | = | 1:12  |   |       |   |      |   |      |   |      |   |      |   |     |      |

## Appendix 5a.

### Repairs and alterations

Apart from those requiring electrical equipment or novel substances, repair techniques have changed very little for hundreds of years. Weisshaar & Shipman, *Restoration* is the grandest and most authoritative statement of the dominant modern interventionist practice, particularly in the USA, although there are some instrument-makers who espouse minimalist intervention.<sup>1</sup> The recent restoration in Italy of an old viol is reported in Vettori, *Analysis*. Comparable techniques were used in the nineteenth century but most makers and repairers develop their own techniques. The development of a separate range of techniques for conservation is a relatively recent innovation.

When a repair involves the replacement or addition of wood, the repaired instrument can be either smaller or larger than before. This is most common on the belly at the sides of the upper and lower bouts. Bellies are usually made from softwood whose structure involves parallel lines of relatively hard and soft material; the wood splits and splinters easily along these lines.<sup>2</sup> Early English viol-makers typically used wood with 8-30 lines per inch (c.3-12 lines per cm).<sup>3</sup> The sort of wear which belly edges usually experience results in the softer parts being eroded,<sup>4</sup> leaving exposed points of hard lines which are very vulnerable to, for example, snagging on clothing. The conventional remedy for wear or damage is to cut away enough wood to leave a sound surface onto which new wood is glued. Original wood adjacent to the repair is used to guide the shaping of the new piece.

The disassembly of a violin is achieved by forcing a knife into the glue joint between belly and ribs.<sup>5</sup> This is much more difficult and hazardous on a viol than a violin because violin plates overhang the ribs and provide a convenient and partially concealed point to attack. When instruments are old it is usual for this to have been carried out many times, but the underside of a belly is particularly vulnerable to the operation. Fragments of wood are lost during serial disassemblies, and eventually the edge of the belly requires reinforcement. Two approaches to this are common. One is the removal of damaged material followed by the gluing on of replacement wood.<sup>6</sup> Alternatively, there is a procedure called half-edging where the edge of the plate is systematically reduced in thickness by planing until there is a broad flat surface onto

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<sup>1</sup> Tolbecque, *Luthier*, pp.206-250. Salabue, *Observations*. Sibire, *Chélonomie*.

<sup>2</sup> These lines are longitudinal sections through the annual growth rings. See the explanation and discussion of dendrochronology above in Vol I, pp.50-53.

<sup>3</sup> The full range is much greater, even within a two-inch passage of one piece wood.

<sup>4</sup> Especially where the instrument is held on the leg of the player.

<sup>5</sup> This standard procedure is described in numerous books about violin repairing, e.g. Heron-Allen, *Violin-Making*, p.306; Alton, *Violin Building*, p.117. See also Weisshaar & Margaret Shipman, *Restoration*, pp.5, 9.

<sup>6</sup> Weisshaar & Shipman, *Restoration*, pp.69-74.

which a support piece is grafted.<sup>7</sup> In both procedures the new wood is glued on oversize and then cut back to the final shape. Purfling is theoretically inlaid at a fixed distance from the edge of the instrument<sup>8</sup> and, as it usually lies at least 3 mm from the edge, it is less liable to damage than the edge itself. It is therefore often used as a guide for recreating a damaged or missing edge. However, the wide variation in accuracy of fitting purfling means is not always a reliable guide.

Repairs following wear or other damage do not always mean that extant dimensions are smaller than the original. The final shape that is achieved during repair is determined by the skill of the person carrying out the work and the opinions of the person supervising it. Not all people hold the same opinions about an original shape and how close to it the re-worked instrument should be. The end result is indicated by an original shape, but not fixed by it, so the shape achieved is to some extent arbitrary. Although in most cases the final shape does not depart by a large amount<sup>9</sup> from the original, it is not a reliable indicator, within the limits of meaningful measurement, of the original shape of a viol outline.

Several parts of viols become worn during ordinary use because of contact with the player's hands and clothes. There is often wear on the upper treble bout at the point where the hand rests while playing in high positions. The normal viol hold leads to wear in the areas where the lower bout treble rib joins the back and where the lower bout bass rib joins the belly and weakens the glue joints that hold them together. The player is also in constant contact with the instrument's neck, but this is generally a thick piece of wood with no joints at the point of contact. Although the player is not in direct contact with the fingerboard, the action of pressing the strings down onto the frets both wears out the frets (which, like the strings, are consumables) and can affect the fingerboard.<sup>10</sup> The act of tuning causes the pegs and pegholes to become worn which leads to stress on the pegbox. Nuts can wear out and bridges<sup>11</sup> are often replaced because of warping or breaking, or because the belly sinks which makes the bridge too low.

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<sup>7</sup> Weisshaar & Shipman, *Restoration*, pp.58-64.

<sup>8</sup> This is traditional in violin making and was probably usual among viol-makers. Alton, *Violin Building*, p.45 and Fig.20. The exact manner of fitting purfling in the corners where the middle bouts meet the upper and lower bouts is used to identify violin makers.

<sup>9</sup> E.g. 5 mm for the lower bout of a bass viol.

<sup>10</sup> On violins, 'Often it will be found that the fingerboard is deeply grooved under the strings'. Alton, *Violin Building*, p.101.

<sup>11</sup> Fleming, 'Bridge to the Past', pp.235ff.

## Appendix 5b

### Data reliability tables

| <b>Data Reliability Table 5b.1</b><br><i>Information that identifies the instrument.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>datum</i>                                                                             | <i>comments about the reliability of the information</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| DRT-A1<br><i>Viollist number</i>                                                         | Problems may result from the way that the Viollist was assembled. As the intention was to be comprehensive, information was taken from wide variety of sources including visits to instruments, museum catalogues, auction catalogues and exhibition catalogues. Some instruments appear in several of these sources but such duplications were not eliminated from the Viollist. Especially with early records, which often comprise descriptions that have been revised subsequently, it is difficult to track instruments and to be certain whether or not two similar records refer to a single instrument. <sup>12</sup> |
| DRT-A2<br><i>Name of maker</i>                                                           | Relies on the label <sup>13</sup> and on comparison with other instruments which may or may not be securely identified. Attribution is subject to commercial and other pressures which discourage anonymity. Information supplied by museums, owners and purveyors often gives a maker and/or country, and usually an estimate of date. The very varied sources for these suggestions include the unsupported assertions of previous owners, sale catalogue entries, and traditional opinions. Dates which rely on labels can be deceptive as old labels are often barely legible. <sup>14</sup>                              |
| DRT-A3<br><i>Place of manufacture</i>                                                    | The country is never stated on viol labels. Some labels give the address where the maker works or where instruments are sold, others a district of London. No labels from any other cities are known. For reliability, see DRT-A2.                                                                                                                                                                                                                                                                                                                                                                                            |
| DRT-A4<br><i>Date of manufacture</i>                                                     | Many labels do not give a date. For their reliability, see DRT-A2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

(continued on next page)

<sup>12</sup> In some cases instruments can be traced with confidence, such as the 'alto' by Henry Jaye, 1667 which appears in *Viollist* both as KENS 6 (from the catalogue of the 1872 exhibition in South Kensington) and VIC 2 (from the 1968 catalogue of the Victoria & Albert Museum).

<sup>13</sup> Labels in violins have been known to be unreliable at least since the seventeenth century. Harvey, *Violin Fraud*, p.10. A viol was once catalogued as seventeenth century because its label was thought to say '16..', but when opened, this was found to be no more than 'an accidental grouping of dust particles'. Hayes, *Viol*, p.48.

<sup>14</sup> Illustration L96.

| Data Reliability Table 5b.1                                    |                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Information that identifies the instrument. (continued)</i> |                                                                                                                                                                                                                                                                                                                                                                                                             |
| <i>datum</i>                                                   | <i>comments about the reliability of the information</i>                                                                                                                                                                                                                                                                                                                                                    |
| DRT-A5<br><i>Size</i>                                          | Possibilities for confusion arise from international variations in terminology, <sup>15</sup> and from controversy about the range of instruments within a nominal size. <sup>16</sup> Some instruments may function as different nominal sizes in various circumstances. <sup>17</sup> The nature of some types of instrument remains controversial and the use of size names reflects this. <sup>18</sup> |
| DRT-A6<br><i>Location</i>                                      | Viols in private ownership are sometimes lent to players who live and work in places other than where the owner lives.                                                                                                                                                                                                                                                                                      |
| DRT-A7<br><i>Provenance</i>                                    | Public collections can usually identify the source of their acquisitions, but their records often lack earlier provenance information. Private owners are often unsure about provenance, and are sometimes reluctant to communicate it. Auction houses never disclose the identity of buyers, <sup>19</sup> and rarely of sellers. <sup>20</sup>                                                            |
| DRT-A8<br><i>Published literature</i>                          | Instruments can be mis-identified in publications, either due to an ambiguous description of the instrument (see DRT-A5), or because of printing errors.                                                                                                                                                                                                                                                    |

<sup>15</sup> For example, German writers sometimes refer to viols of a size called 'Bass' in England as 'Tenor', to 'Tenor' as 'Alt', and to 'Treble' as 'Discant'.

<sup>16</sup> Fleming, 'Piece of String'.

<sup>17</sup> Harwood, 'Double standards'.

<sup>18</sup> Boyden, *Hill Collection* follows Baines, *European and American* in describing two instruments in the Ashmolean Museum as 'Lyra' viols. Lyras are usually considered as the smallest species of Bass. There are, however, good reasons for considering these two instruments as tenor viols. Some authors assert that consort viols fall into four categories, viz. treble, alto, tenor and bass, but while 'alto' may be useful in designating a musical function, it has not been proved to refer to a distinct size of instrument in England.

<sup>19</sup> They may be willing to pass on enquiries to the buyer.

<sup>20</sup> This information is usually only included in the catalogue when it is likely to encourage high bids, such as when the seller is some sort of celebrity. The sale at Christie's, South Kensington on 16 June 1999 was called 'Musical Instruments from the Von Rothschild Collection'. Many lots attracted bids several times larger than their estimates.

| <b>Data Reliability Table 5b.2</b><br><i>Measurements.</i> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>datum</i>                                               | <i>comments about the reliability of the information</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| DRT-B1<br><i>Length of belly</i>                           | Because viol bellies <sup>21</sup> are arched and not flat, a measurement taken along the surface is longer than a straight line joining the extremities. The amount of difference depends on how highly-arched the instrument is, but is typically in the order of 3mm along the length of a bass viol or across the centre bout of a treble viol. It is conventional to measure belly length along the surface. <sup>22</sup> Another common problem is access to the extremities; the top end of the belly is often obscured by the fingerboard and the other end by the tailpiece. The tailpiece is sometimes virtually touching the belly, making it impossible for the ruler or tape to be in contact with the lower extremity of the belly, and it can be difficult to ensure the measurement starts at the optimal point under the fingerboard. |
| DRT-B2<br><i>Length of back</i>                            | Violins backs are conventionally measured to a point at the side of the button, but on extant viols the button usually curves smoothly into the upper bout.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| DRT-B3<br><i>Width of bouts</i>                            | The effect of measuring over a curved surface also applies to measurements of bout widths over the belly. The upper and lower bout sidemost extremities, especially the points where the ribs join the plates, are among the parts most subject to wear because when an instrument is lain on its side, they are the points in contact with the floor. They are also subject to wear from contact with the leg of the player. <sup>23</sup> See DRT-B6.                                                                                                                                                                                                                                                                                                                                                                                                 |

(continued on next page)

<sup>21</sup> It is not uncommon to find old viols which also have their backs arched by carving, but none have been seen that were definitely made in England before 1660. Christopher Simpson seems to have favoured the resonant sound of cello-shaped viols and these may have had carved backs. Such instruments would have been regarded as ideal candidates for converting into cellos. Some instruments that survive in this state (as cellos) may have been created as viols. Stradivari used the same moulds for members of both the viol and violin families. Pollens, *Violin Forms*, pp.10ff.

<sup>22</sup> Viols are conventionally measured along the curved surfaces.

<sup>23</sup> See Appendix 5a.



| <b>Data Reliability Table 5b.2</b><br><b><i>Measurements. (continued)</i></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>datum</i></b>                                                           | <b><i>comments about the reliability of the information</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| DRT-B4<br><i>Depth of ribs</i>                                                | The effect of repair work on the original dimensions of ribs is discussed above. Treble and tenor viols sometimes have the depth of their ribs reduced so that they may be used as violas. This leaves no trace of the original dimension, so restorations are speculative and unreliable. Catalogues do not usually state whether their measurements of ‘depth’ indicate the size of the ribs themselves or the maximum height of the edge of the viol. A rib’s depth often varies by 5 mm or more, measured at different points along its length.                                                                               |
| DRT-B5<br><i>Soundhole dimensions and position</i>                            | Soundholes are often altered to move them to another position on the belly or to effect minor or major changes to their shape, such as from C-shaped to <i>f</i> -shaped. Nicks (which are used to indicate bridge position) may be added or moved. The treble soundhole is the point of access for fitting or adjusting the soundpost and is often damaged by clumsiness. This is common on English viols as their edges are often fragile due to undercutting (thought to have been done in order to give an appearance of lightness).                                                                                          |
| DRT-B6<br><i>Purfling</i>                                                     | Purfling <sup>24</sup> is very variable in quality, even within the work of a single maker. The width is not always constant, although variations are generally smaller than the error of measurement when it is in situ. The inlaying of purfling requires considerable skill which is not always apparent at the most difficult points, including where the purfling crosses the annual rings of belly wood at a shallow angle. The unevenness of the purfling line means both that measurements of its distance from the edge vary, and also that it is not always a reliable reference from which to recreate a damaged edge. |

(continued on next page)

<sup>24</sup> Purfling is believed always to have been made in-house, as no records of it being stocked or sold are known.

| <b>Data Reliability Table 5b.2</b><br><b><i>Measurements. (continued)</i></b> |                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>datum</i>                                                                  | <i>comments about the reliability of the information</i>                                                                                                                                                                                                                                                                                                                                            |
| DRT-B7<br><i>Neck,<br/>pegbox,<br/>and finial</i>                             | Very few relevant viols retain their original neck, and of these, only one or two are unaltered. <sup>25</sup> In most cases where the original pegbox and finial survives, the neck has been either replaced because of worm damage or other reasons, shortened by cutting and splicing, <sup>26</sup> reset 'à la François', <sup>27</sup> or cut for use as a cello. <sup>28</sup>               |
| DRT-B8<br><i>Fingerboard<br/>and tailpiece</i>                                | Although frets protect viol fingerboards from some of the wear to which cello fingerboards are subject, they need to be replaced after extensive use. They may also become lost if an instrument falls into disuse, <sup>29</sup> and replaced by something that departs from the original form, and they are subject to alteration, destruction or replacement when viols are converted to cellos. |
| DRT-B9<br><i>Fittings: pegs<br/>bridge<br/>strings</i>                        | These consumables are routinely replaced as they degrade through use and would only be preserved in exceptional circumstances. <sup>30</sup> The position of the bridge on the belly is of great interest, but in the absence of the original bridge the only indication of its position is marks on the belly. If present, they cannot be confirmed as indicating the original bridge placement.   |

<sup>25</sup> VME37, VME18, VME22 and a treble attributed to Jaye [Leipzig, Inv.800] which I have not seen. It is sometimes extremely difficult to tell whether a neck is original or not.

<sup>26</sup> E.g. VME17.

<sup>27</sup> Rousseau, *Traité*. See p.42.

<sup>28</sup> E.g. VME34.

<sup>29</sup> E.g. viols belonging to the Duke of Newcastle, 1636. Hulse, 'Newcastle'.

<sup>30</sup> Such circumstances have never been demonstrated for these parts of an English viol made before 1660.

| <b>Data Reliability Table 5b.3</b><br><b><i>Qualitative observations.</i></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>datum</i></b>                                                           | <b><i>comments about the reliability of the information</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| DRT-C1<br><i>Wood species</i>                                                 | Most relevant viols are made of hardwood from the family <i>Aceraceae</i> <sup>31</sup> for the back, ribs and neck, and softwood for the belly. Yew ( <i>Taxus</i> ), a softwood, is sometimes seen on the backs of viols. <sup>32</sup> Fruitwoods, beech and other hardwoods are used for structural purposes, and many woods are used for decoration. The accurate identification of species even in freshly cut new wood can be extremely difficult, and is complicated in old viols by damage, varnish and patination. Both catalogues and professional instrument appraisers commonly make statements that are no more than conventional, especially in their description of belly wood as ‘spruce’, ‘fir’ or ‘pine’. <sup>33</sup> |
| DRT-C2<br><i>Quality of work</i>                                              | A subjective matter because there is no universal agreement about assessment criteria or the relative importance as indicators of workmanship of features such as symmetry, the neatness of mitre joints, purfling, or finish (including varnish).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| DRT-C3<br><i>Working methods</i>                                              | Traces of working methods, particularly toolmarks, can be obvious to experts. Inexperienced assessors need appropriate preparation to alert to them to signs such as the stripes which indicate the use of a tothing plane, nails fixing the neck to the top block, or gouge marks on the underside of the belly. Whether toolmarks are original is not always certain.                                                                                                                                                                                                                                                                                                                                                                    |
| DRT-C4<br><i>Damage and repairs</i>                                           | Repairs are usually intended to be undetectable, so their visibility is related to the skill with which they are executed, the experience of the observer and the conditions for inspection. It is often unclear whether departures from symmetry and neat workmanship were on the viol when it was made, or result from later damage and subsequent work.                                                                                                                                                                                                                                                                                                                                                                                 |

(continued on next page)

<sup>31</sup> Maple is usual but the ‘birds-eye’ figure found in several species of maple, especially *Acer saccharum* and *Acer nigrum*, is less common in English than continental instruments. Wilson & White, *Wood*, p.187.

<sup>32</sup> E.g. VME04, VME32.

<sup>33</sup> Dealers and stockists of new wood for musical instrument making are unable to identify reliably the numerous species of the families *Picea* or *Pinus*.

| <b>Data Reliability Table 5b.3</b><br><b><i>Qualitative observations. (continued)</i></b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><i>datum</i></b>                                                                       | <b><i>comments about the reliability of the information</i></b>                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DRT-C5<br><i>Originality<br/>of<br/>components</i>                                        | Some components may have been altered soon after the instrument was made. Non-original components or alterations are difficult to identify in proportion to the time since the instrument was made, and can often be impossible to detect.                                                                                                                                                                                                                                                   |
| DRT-C6<br><i>Internal<br/>features</i>                                                    | Only a very limited view is possible without special equipment. The normal provision (dental inspection mirror and torch) requires skill, especially for the examination of the underside of the belly and the areas around the top and bottom blocks. If the inside of an instrument has been subject to very few repairs or alterations, the likelihood that features of interest have been preserved is increased, but so is the likelihood that they are obscured by accretions of dirt. |

## Appendix 6.

### Are there any remnants of viol-making?

Apart from ‘working tooles’, workshop equipment and books or patterns are rarely mentioned in wills. Could this be a sign of how unimportant they were considered, or a reflection of the decrepitude of testators? I have seen no wills or inventories of English instrument-makers, carpenters or joiners that mention any papers, drawings, drafts, patterns, or moulds.

It has been shown in Chapter 4 that most artificers were unable to read Latin or even English books. Only two of the many joiners’ inventories that I have seen mentioned any books, including bibles (one Burford joiner had four books, two of which were of a religious nature and another had two unspecified books).<sup>34</sup> The inventory of Henry Jenkins’s dwelling and workshop includes no books or papers.<sup>35</sup>

No English publication from 1580-1660 is known to discuss or even mention viol-making. However, knowledge or design ideas need not have been in print, they could have been in manuscript. Scribal transmission was almost exclusively the method by which viol consort music was disseminated, and all areas of formal university scholarship were reliant on manuscript transmission of texts,<sup>36</sup> but there is very little evidence that art theory or craft knowledge was circulated in this manner.<sup>37</sup>

In contrast to woodworkers, the wills and inventories of painters and similar artistic artificers sometimes mention pictures (other than unsold stock or furniture), that might represent preparation for future work, although it is not common.<sup>38</sup> A painter in York named W. Martone left some ‘paper pictures’ (probably prints) in 1540.<sup>39</sup> Andrew Wright, ‘Citizen and Paynter-Stayner’ of London, left work stuff pertaining to the manufacture of the pigment ‘pynck’ to his son, and barrels of pynck to his wife, but no images, papers or tools.<sup>40</sup> The masons William Cure and Nicholas Stone bequeathed ‘plots<sup>41</sup> and models’ and ‘all my bookes manuscripts draughtes designes instrumentes and other thinges thereunto belonging...’ to their sons in 1579 and 1640, respectively.<sup>42</sup> In 1615 Charles Anthony ‘Chief Graver of the King’s Majesty’s Mint and of his Seals’ left to his eldest son ‘all my goldsmith’s tools, work presses, patterns and prints of seals, and all my books and papers thereunto belonging’.<sup>43</sup> The painter

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<sup>34</sup> ‘1 old Bible, 1 practice of pietie, 2 other small bookes 5s.’ Inventory of Edmund Appleton, 1643. Oxford Archives 113/1/44. Two books belonged to Miles Denton, 1671. Oxford Archives 18/4/2.

<sup>35</sup> Also true of his wife. The inventories are transcribed in Ashbee, *Jenkins*, pp.317ff.

<sup>36</sup> Love, *Scribal Publication*, p.219.

<sup>37</sup> Woudhuysen, *Circulation of Manuscripts*, pp.134ff.

<sup>38</sup> Sometimes they may be invisible because of being classed as ‘other goods’.

<sup>39</sup> Borthwick Institute, York. R.I.28.182.

<sup>40</sup> Will 15 March 1543 (PCC 20 Spert). Nichols, ‘Successors of Holbein’, p.27.

<sup>41</sup> Designs, plans or drawings.

<sup>42</sup> Esdaile, *Refugee Sculptors*, p.256. Spiers, ‘Stone’, p.145.

<sup>43</sup> Edmond, ‘Hilliard’, p.125.

Rowland Lockey ‘Citizen and Gouldsmith of London’ left ‘to my brother Nicholas Lockey all my Italian Printes and all my plasters...’ in 1616.<sup>44</sup> Nicholas Hilliard’s son Laurence bequeathed (1640/1) to his son ‘my book of drawings in several masters’ hands’.<sup>45</sup>

Edward Norgate was both an artist and instrument-maker (Keeper of the Organs) at court. He bequeathed books in Latin, French and Italian to his son Thomas, and ‘my unfinisht pictures, draweings, prints, Coullers, bookes of that Arte’ to his son Arthur (his successor at court), but his will mentioned nothing pertaining to instrument-making or maintenance.<sup>46</sup> Wills which detail items specific to instrument-making are almost unknown in England but that of William Buck, organmaker, mentions tools as well as materials and stock or work in progress:

And I will that willm Rendall my sonne in lawe shall have a paier of Orgaines all my mettall orgeyn pypes and all my shopp gere asteach and my towles and the tymber w<sup>ch</sup> is in the shopp and the borde bothe in the shoppe and in the stabill.<sup>47</sup>

Inventories are more helpful than wills but rarely go into detail. Many tools used for instrument-making are standard woodworking equipment so it is probable that in most cases they would simply have been called ‘toolles’ or ‘his working toolles’ or one of many catch-all expressions such as ‘odd stuff’, ‘other lumber’, ‘appurtenances’ and so on.<sup>48</sup> Saws, planes and chisels<sup>49</sup> are quite often mentioned in inventories but as they are common to most occupations that involve woodwork, they are not indicative of instrument-making.

In contrast, highly specific instrument-making resources are found in continental European inventories. Sixteenth-century Italian lute-makers had vast amounts of instruments and parts, and Moisé Tieffenbrucker is recorded as having at least forty lute and guitar moulds.<sup>50</sup> A 1649 inventory shows the Leiden violin-maker Hendrick Asseling had normal woodworking tools but also trade-specific equipment including ‘twelve forms to cast heads for citterns’ ... ‘a press for making purfling’ ... ‘hundred patterns for various instruments’ ... ‘twelve lute and mandora forms [i.e. moulds]’ ... ‘twenty four forms for viols’ and ‘nine forms to make cittern and violin cases’.<sup>51</sup> Even

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<sup>44</sup> Will, 15 February 1615/16 (PCC, 26 Cope) cited in correspondence from Erna Auerbach, *Burl.* vol.xcix, (1957), p.60.

<sup>45</sup> Edmond, ‘Hilliard’, p.187.

<sup>46</sup> *BDECM*, p.836.

<sup>47</sup> 5 April 1567. *BDECM*, p.204.

<sup>48</sup> Fleming, ‘Other lumber’. Benet Pryme, the mid-sixteenth century Cambridge wait and instrument-maker (including viols) had only ordinary woodworking tools. I.Payne, personal communication.

<sup>49</sup> These and other tools belonged to an Elizabethan virginal-maker. Boston, ‘Tools’, p.3.

<sup>50</sup> Ongaro, ‘Tieffenbruckers’, p.49. See also *Ibid*, p.54, n.24.

<sup>51</sup> Bolink, *Violinmaking*, p.49.

larger stocks of old, new and unfinished instruments are found in early eighteenth-century France.<sup>52</sup>

A wide range of quite sophisticated tools were available to woodworkers of the time,<sup>53</sup> and instrument-making would require very few additions. Moulds and other items specific to viol-making might not appear in inventories either because the assessors did not know what they were or did not recognise them as significant, or because they were unable to value them. However, nothing more detailed than ‘working tooles’ were mentioned when Richard Read appraised the workshop of Robert Mallet,<sup>54</sup> and only an instrument-maker would be more of an expert on instruments than Read. A romantic organologist might suggest that moulds were such a personal expression of striving towards an expression of the individual’s conceptions of ideal instruments that they would be deemed useless for anyone else and would be destroyed when the originator had finished with them. However, this is unsustainable in the light of (a) how common it was to adapt instruments, (b) the wide range of design sources used by artificers, and (c) the demonstrable alteration and adaptation of his moulds by Antonio Stradivari.<sup>55</sup>

Whether or not moulds were out of the ordinary range of tools or standard equipment, they are likely to have been mentioned in probate inventories, just as the moulds of Edward Isake, a papermaker of Woodburn, Bucks were mentioned in his (1612).<sup>56</sup> The most likely reason for why specialist viol-making equipment such as moulds are not identified is that they did not exist. If the techniques of English viol-makers did not involve moulds, then even the most detailed inventory made by a fellow instrument-maker would not record them. As this study shows, viol-making was commonly not an artificer’s main activity, so it would be difficult to justify the considerable amount of work required to make a mould, and techniques that avoided them would be preferred.

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<sup>52</sup> Milliot, *Luthiers parisiens*, pp.127ff.

<sup>53</sup> Goodman ‘Elizabethan Woodworkers’, passim. Heine, ‘wire drawing bench’.

<sup>54</sup> 2 July 1612. Fleming, ‘Points arising’, p.303.

<sup>55</sup> Pollens, *Violin Forms*, passim.

<sup>56</sup> ‘ij paire of mouldes’. Probate inventory 12 September 1612. Bucks Record Office. Wf/19/197.

## Appendix 7a.

### Coats of Arms on Viols.

Coats of arms were ubiquitous as decorative components in many media. They are found, for instance, displayed on the bindings of music,<sup>57</sup> painted on interior walls such as at Gilling Castle, and they form part of innumerable book illustrations, decorative textiles, and stone, wood or plasterwork screens, tombs and overmantels.<sup>58</sup> Many of Inigo Jones's designs include heraldic components.<sup>59</sup> The setting of an owner's coat of arms on viols and other musical instruments sits comfortably within this tradition.

A violin mentioned in 1685<sup>60</sup> on which the Howard family coat of arms was inlaid may have had to be reported to Ralph Agutter because he had made it or because he had executed the inlay.<sup>61</sup> In the Victoria and Albert Museum is a violin (by Agutter), whose elaborate carved back decoration includes the royal Stuart coat of arms.<sup>62</sup> Long before Agutter was born, '6 Vialles hauinge the Kinges Armes' were recorded in the inventory of Henry VIII's instruments made in 1547.<sup>63</sup> Later, Matthew Caldicott, a manservant of the third Earl of Dorset, possessed a 'chest of violles with the armes of my late Lord [Richard Sackville or a predecessor]', and mentioned it in his will.<sup>64</sup>

On 15 April 1663 the Lord Chamberlain wrote to Richard Hudson, 'Keeper of his Majesty's lutes and viols':

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<sup>57</sup> Hulse, *Patronage*, p.104, n.1.

<sup>58</sup> See: Apted, *Painted Ceilings*; Mowl, *Style*; and Wells-Cole, *Art and Decoration*, passim.

<sup>59</sup> Anderson, 'Architecture', p.257. See also further discussion of heraldry in *Ibid.*, and chapters 15 and 16 of Peacham, *Compleat Gentleman*, (1634).

<sup>60</sup> 'Lost upon May the 26<sup>th</sup> last in Tonbridge Road ... a black leather Violin Case, with a Violin in it, that is all Inlaid on the sides, with Grey-Hounds and Birds; and within it a Printed inscription in Latin, of the place where it was made, and on the finger board engraven on Mother of Pearl, the Howards Coat of Arms'. There was a reward for bringing tidings to 'Mr. Ralph Agguther Violin-Maker' or 'Mr. William Thompson Vintner'. *London Gazette*, 11 June 1685, cited in Hill, *English Makers*, vol.i, p.2.

<sup>61</sup> According to *British Violin*, p.33, the violin was made by Stradivari. The only known Stradivari instrument whose decoration includes greyhounds and birds, the *Greffuhle* violin, was made nearly a quarter of a century later in 1709, but Stradivari did occasionally repeat decorations, e.g. between the *Sunrise* (1677) and *Hellier* (1679) violins. Agutter could have made a violin decorated with dogs and birds independently, as they were common decorative motifs in prints and paintings, e.g. Thurley, *Palaces*, pl.281; Hume, *The First Part of Ayres...*, (1605), 'To the understanding Reader'. Or if Agutter saw one that Stradivari made with this decoration in 1685 or earlier, he could have copied the decoration.

<sup>62</sup> Museum No.34-1869. Baines, *V & A Catalogue*, p.16. Dilworth, 'English Sophistication', p.264.

<sup>63</sup> *RECM*, vol.vii. p.396.

<sup>64</sup> Will: Public Record Office, PROB 11, 202/4. Dated 5 July 1628, proved six days later. I am grateful to L.Hulse for drawing this to my attention.



Whereas divers of his Ma<sup>ties</sup> musitians have bought both Violls, violins and Lutes for his Ma<sup>ties</sup> service for which they have receaved Warrants to be paid considerable summes of money. These are therefore to require you to take the said Instruments into your Custody and to cause his Ma<sup>ties</sup> Armes to be cut in Mother of Pearl and inlayd in the finger boards of the seaverall instruments as hath beene usually done heretofore...<sup>65</sup>

It is not known whether ‘usually done heretofore’ refers to relatively recent times or to a tradition, which could have been continuous since the early sixteenth century. Hudson was principally a musician<sup>66</sup> so it is likely that he would have asked an instrument-maker to carry out this sort of work,<sup>67</sup> but he may have been capable of doing it himself, as a warrant was also issued to pay him for ‘mending and altering several of the said instruments [lutes, viols and violins] being broken on removes... Also for ...mending instruments on his Majesty’s removes to Salisbury and Oxford.’<sup>68</sup> Unfortunately, there is nothing which shows whether he was entitled to this payment for carrying out the work or because he organised someone else to do it.

As an alternative to inlay, arms could be painted on musical instruments, as were the Somerset arms on the festooned bass viol in the Ashmolean Museum (VME33), or marked with indented prick marks as was a violin by Christopher Wise, 1665.<sup>69</sup>

Similar practices occurred in continental Europe. Several instruments by Andrea Amati (Cremona, c.1505-1577) have royal or noble coats of arms painted on the back.<sup>70</sup> In Moisé Tieffenbrucker’s workshop (Venice, 1581) there were thirty lutes with coats of arms inlaid in ivory.<sup>71</sup> The ‘Medici Tenor’ viola, 1690, which is the only one of over 700 surviving Stradivari violins to retain its original set-up and fittings, has its owner’s arms inlaid in ivory on the fingerboard.<sup>72</sup>

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<sup>65</sup> *RECM*, vol.i, p.43 and vol.v, p.141.

<sup>66</sup> *BDECM*, p.602f.

<sup>67</sup> Not Ralph Agutter, who was almost certainly too young in 1663, but it might have been done by Christopher Wise, who is known to have made decorated instruments, or John Shaw who was active at this time. See Appendix 9.

<sup>68</sup> *RECM*, vol.i, p.68.

<sup>69</sup> Hill, *English Makers*, vol.ii, p.140. For VME33 see above, e.g. pp.221ff.

<sup>70</sup> Witten & Mosconi, *Amati*, passim.

<sup>71</sup> Ongaro, ‘Tieffenbruckers’, p.49.

The examples given above all concern the arms of the owner of an instrument, but an alternative sign of ownership (which would also be available to non-armigerous owners) is the initials of the owner's name. These were very often used in other media.<sup>73</sup> I do not know any viols that demonstrate this possibility, but the viol- and violin-maker Barak Norman, who worked in the late seventeenth and early eighteenth centuries, often inlaid a purfling knot which incorporated his own initials.<sup>74</sup>

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<sup>72</sup> Beare, *Stradivari*, p.82ff.

<sup>73</sup> On book bindings, for example, and Elizabeth Shrewsbury's initials in pierced stonework on top of Hardwick Hall.

<sup>74</sup> A typical example is illustrated in *British Violin*, p.19.

## Appendix 7b.

### Emblems

Allegorical devices were only a minor component of most English paintings,<sup>75</sup> but ‘devices’, allegory, and symbolism were common elsewhere, and were essential to emblem books<sup>76</sup> and heraldry. Emblems are usually recognised as symbolic images accompanied by a pithy statement (motto) and explanatory prose or verse, but it was the text that was prime. This is shown by many emblem books which have more sections in words than are accompanied by pictures<sup>77</sup> and by those which are entirely text,<sup>78</sup> whereas the reverse is rare. Gombrich’s essay *Icones Symbolicae*<sup>79</sup> explains comprehensively how emblematic images are intended to work as metaphors and not to picture reality. In England too<sup>80</sup> there was an assumption that pictures were to be taken as allegorical rather than naturalistic.

The amount of interest and attention generated by emblems<sup>81</sup> does not mean that they tell us anything useful about English viols. Over one thousand emblem books were published and many manuscript collections assembled, but ‘the extent of their impact on the visual arts seems to have been markedly less than that of other types of printed image, particularly figurative and ornament prints.’<sup>82</sup>

Henry Peacham thought that his and Whitney’s books were the first of their kind in English, but at least seven were published in England before his.<sup>83</sup> The fact that a writer and keen promoter of emblem books was so unaware shows that their distribution must have been limited. Peacham promoted music as a desirable activity

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<sup>75</sup> Fleming, ‘Viols in English Paintings’, p.11.

<sup>76</sup> Whitney, *Emblemes*; Peacham, *Minerva Britannia* and numerous others.

<sup>77</sup> E.g. the first illustrated edition of Cesare Ripa, *Iconologia*, (1603). Neither the first edition (Rome, 1593) nor the second were illustrated.

<sup>78</sup> A manuscript version of Whitney, *Emblemes* is later than the publication but is unillustrated. Daly & Silcox, *English Emblem*, p.98.

<sup>79</sup> Gombrich, *Images*, pp.123-191.

<sup>80</sup> Freeman, *Emblem Books*, p.18 and passim. Gombrich focuses principally on Italy but see *Images*, p.135 for the primacy of text in mediaeval England.

<sup>81</sup> E.g. continuing contributions to *FoMRHIQ*, including communications 1551, 1571, 1612, 1702. Emblems have attracted detailed discussion and explanation since their earliest appearances. In 1599 at Whitehall Palace Thomas Platter admired a ‘chamber... hung all round with emblems and mottoes (emblematicus)’, some of which he copied out, describing both image and motto. *Platter’s Travels*, p.164. A correspondent (1614) of Ben Jonson mentions many emblems or *impresa* in works by Mary Queen of Scots, giving their meaning and references. Zulueta, *Embroideries*, p.5f.

<sup>82</sup> Wells-Cole, *Art and Decoration*, p.x.

<sup>83</sup> Daly & Silcox, *English Emblem*.

for gentlemen,<sup>84</sup> yet *Minerva Britanna* contains very few pictures of musical instruments, and none of viols. *Minerva Britanna* and other emblem books (including continental publications), are found in the libraries of wealthy, noble and culturally advanced people,<sup>85</sup> but none are known to have been owned by instrument-makers, joiners or carpenters.

Books are ideal for the communication of ideas, enabling a purchaser to point out an illustration to a viol-maker, saying ‘I want one like that’. However, the few examples of viols in emblematic book illustrations are of little value as sources for the study of English viols because the illustrations are small scale, lack detail and are of a style which generally represents an idea rather than a real object. They would therefore not be of much use to makers, and as most prints are of foreign origin, they do not necessarily represent instruments in use in England. Some examples of emblem book illustrations used as patterns are given in Appendix 7f.

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<sup>84</sup> Peacham, *Compleat Gentleman*, p.100.

<sup>85</sup> See, for example, McKitterick, *Knyvett*; Hassal, *Coke*; Jayne & Johnson, *Lumley*. Many Cambridge residents had emblem books, and the master of Peterhouse had ‘rounde frames of emblemes’. Leedham-Green, *Books in Cambridge*, passim and p.422. However, few such works appeared in a broad study of book collections: Jayne, *Library Catalogues*. Many examples of emblems’ use are given in Digby, *Embroidery*. Mary Queen of Scots made considerable use of emblem books for her embroidery around 1570. Jourdain, ‘Stuart Embroideries’. Inigo Jones used emblem books including Ripa’s *Iconologia* for his masque designs. Harris, Orgel & Strong, *Arcadia*, p.68.

## Appendix 7c.

### The re-use, transformation, and migration of images.

The following examples typify the mobility of images between different publications and countries, and the way they were often intended to be understood as indicative or nominal rather than literal.

- The Nuremberg Chronicle<sup>86</sup> uses only 72 woodcut ‘portraits’, with different captions, to illustrate 596 important people, and the same image of a walled city portrays numerous places in different countries.
- Some woodcuts are used to illustrate different stories within Ovid’s *Metamorphoses* and also some of Aesop’s Fables.<sup>87</sup>
- Images first used for Ovid’s *Metamorphoses* are used to illustrate the Bible.<sup>88</sup>
- The same title letter blocks are used for many different sixteenth- and seventeenth-century music publications from different publishers, over many years.<sup>89</sup>
- It was standard practice to re-use decorative borders (which often include viols and other instruments) for different images or for the title pages of works of different composers.<sup>90</sup>
- Christophe Plantin’s entire stock of 2,766 botanical woodcuts was hired to provide illustrations for the 1633 revised edition of Gerard’s *Herbal*.<sup>91</sup>
- Woodcuts from Virgil Solis’s *Biblische Figuren ...*, (Frankfurt am Main, 1562) were used in a bible printed in London, 1567.<sup>92</sup>
- In emblem illustrations, where the meaning of the images is of great importance, the same images are used for different mottos within a set, and in separate publications. Those used for Whitney, *Emblemes* (1586), for instance, were printed from blocks that had already been used to illustrate Alciati and other emblem writers,<sup>93</sup> and those used in 1635 for Wither’s *Emblemes* were first produced by the Antwerp engraver Crispijn de Passe in 1613 for different verses by Rollenhagen.<sup>94</sup>
- The English painter William Larkin, whose patrons included the Earl of Pembroke, the Duke of Buckingham and the Cecil family, frequently repeats clothing, carpet and curtain details in portraits.<sup>95</sup>
- Many paintings exist in multiple versions and/or copies.<sup>96</sup>
- For the title page of *Parthenia*, engraved c.1613 by William Hole, the figure of the virginalist is copied precisely from a print of *St Cecilia* by Jacob Matham c1588 after Hendrick Goltzius, but the organ is changed to a virginal.<sup>97</sup> Hole did not use a pre-existing pattern for *Parthenia Inviolata*.<sup>98</sup>

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<sup>86</sup> Hartman Schedel, *Liber chronicarum*, (Nürnberg, 1493). See Steinberg, *Printing*, p.71.

<sup>87</sup> See for example the works of Virgil Solis in *Illustrated Bartsch*, vol.xix, Part 1. 9.25 *Mercury visits the Muses*, from Reusner’s *Emblemata...* is identical to 7.61 *Minerva visits the Muses*, from Ovid’s *Metamorphoses* and the same design is used for 174 *Venus* from a series of the Seven Planets.

<sup>88</sup> Steinberg, *Printing*, p.71.

<sup>89</sup> E.g. publications for Thomas Morley, John Browne and William Barley in the late sixteenth and early seventeenth centuries and also for the Playfords in the late seventeenth century.

<sup>90</sup> Many examples are illustrated in Kinsky, *Music in Pictures* and Fraenkel, *Music Title Pages*. William Barley was one of the English publishers who did this.

<sup>91</sup> Griffiths, *Stuart Prints* p.31.

<sup>92</sup> E.g. *Illustrated Bartsch*, vol.xix, Part 1. 1.26 shows exactly the same as illustration L91 (from the English bible) with a different border. The woodblocks must have come to England.

<sup>93</sup> Freeman, *Emblem Books*, p.56 and n.1.

<sup>94</sup> Griffiths, *Stuart Prints* p.18.

<sup>95</sup> Strong, *English Icon*, p.20. Hearn, *Dynasties*, passim. Rosci, *Baschenis* has many examples of multiple copies of still lives which include musical instruments.

<sup>96</sup> E.g. Lewis, *More Family*. Larsen, *van Dyck*.

<sup>97</sup> For Hole see Hind, *Engraving in England*, vol.ii, pp.335ff and pl.210. The *St Cecilia* is *HollsteinD* 151, illustrated in Vignau-Wilberg, *Music*, p.149.

<sup>98</sup> For *Parthenia Inviolata* see illustration L92 and Thurston Dart’s introduction to the facsimile edition (New York, 1961). The viol’s treble strings are thicker than the bass but this is not because the design does not allow for reversal during printing, as the harpsichord is the right way round.

# Appendix 7d.

## The permanence of images in different media.

| <i>Vehicle</i>                                                   | <i>Medium</i>                                | <i>Mount</i>                                                      | <i>Mobility</i>                                          | <i>Permanence</i>                               |
|------------------------------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------|
| painting                                                         | oil, tempera                                 | canvas, copper, wood panels                                       | easily movable except when very large                    | good, but vulnerable to poor care               |
| drawing                                                          | pen, chalk, etc.                             | paper or vellum                                                   | easily movable                                           | easily damaged                                  |
| prints: engraving; etching; woodcut                              | printing ink                                 | paper; vellum; fabric e.g. silk                                   | easily movable, except when glued to wall or ceiling     | poor: easily damaged when disbound or unmounted |
| building decoration                                              | plasterwork, tempera, oil, distemper, etc.   | on canvas or wood panels, <i>or</i> directly on a wall or ceiling | usually fixed, but canvas and wooden panels can be moved | various, depending on medium and location       |
| inlay e.g. in furniture or instruments                           | wood, ivory, mineral etc.                    | wood, metal, etc.                                                 | usually easily movable                                   | generally good                                  |
| Sculpture; relief carving; castings                              | wood, metal, ivory, stone, etc.              | free standing or part of a larger structure                       | varies                                                   | generally good; less so outdoors                |
| incised work (engraving)                                         | monumental brass or stonework                | wall, floor or other stone such as gravestones                    | usually unmoved                                          | good unless defaced; less so outdoors           |
| tapestry, embroidery, painted cloth                              | linen, wool, silk; woven, dyed, painted etc. | part of a hanging or cover e.g. cushion, or self-mounted          | movable but may be regarded as semi-permanent decoration | fair, apart from colour                         |
| other: - stained glass; enamel; stained wood; painted stone etc. | various                                      | various                                                           | often movable                                            | varies from permanent to fugitive               |

## Appendix 7e.

### Lyfe of Man

*The image of the lyfe of man...*, a woodcut print in the British Museum (Sloane Collection, E.4-34.37),<sup>99</sup> is an example of an image type known as *Tabula Cebetis*. These trace their origin to a painting by Apelles which shows a heavenly city outside whose walls are ‘vices that can lure the traveller from the true path’.<sup>100</sup> Many examples of *Tabula Cebetis* include musical scenes.<sup>101</sup> Prints of this large size<sup>102</sup> would normally be pasted to a wall where they could be seen by many people.<sup>103</sup> Some, such as Dürer’s *Great Column*,<sup>104</sup> were designed to be pasted directly onto the walls as part of the decoration. As this prevents them from being removed intact, survivals are very rare.<sup>105</sup> The example considered here was probably cut in the Netherlands c.1560, and although it was registered in London by Thomas Warren in 1656,<sup>106</sup> the date when its woodblocks arrived in England is not known, and could be shortly after they were cut.

A large painting which was offered at auction not long ago<sup>107</sup> is clearly a *Tabula Cebetis* and enough of its details are close to the *lyfe of man* to suggest strongly that the painting was based on this particular print. The auction catalogue describes the painting as ‘Anglo-Flemish School, mid-sixteenth century’. It was probably painted in England which implies that an impression of the print, if not the blocks themselves, was in the country soon after it was made. Instruments shown in the print and the painting make for an interesting comparison because, like the copies of Holbein’s painting of *Sir Thomas More and his family*,<sup>108</sup> they might be more representative of the situation of the derivative artist than that of the original.

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<sup>99</sup> Illustrated in O’Connell, *Popular Print*, p.46.

<sup>100</sup> O’Connell, *Popular Print*, p.47.

<sup>101</sup> E.g. Schleier, *Tabula Cebetis*, illustrations 7, 12, 13, 14, 16, 35, 38, 67, 110. Some of these are copies of others.

<sup>102</sup> Nine constituent woodblocks, total size 930 x 1562 mm.

<sup>103</sup> Smaller prints were commonly kept in albums or folders, but if displayed, they were pasted to the wall if they were not pinned or held with sealing wax. The display of prints in frames was rare before the second half of the seventeenth century.

<sup>104</sup> Bartsch 129. There are no viols on the *Great Column* but the enormous (3570 mm x 2950 mm) *Triumphal Arch* print (Bartsch 138) which Dürer made for Emperor Maximilian in 1515 has viol-like instruments at the base of two of its constituent columns. Charles I had a copy of this, described as ‘a verie bigg and verie larg print’. Millar ‘van der Doort’, p.174.

<sup>105</sup> Bartrum, *German Prints*, p.54. Other examples of large display prints that include viols are: Hans Burgkmair, *Triumphs of Maximilian* (1516-18) [HollsteinG 552-618]; Sebald Beham, *Parable of the Prodigal Son* (1530s?) [Bartsch 128]; and possibly Monogrammist AP, *The consequences of drunkenness*, illustrated in Jongh, *Mirror*, p.168. See Illustration L74 for a rare surviving example of a print pasted on a wall.

<sup>106</sup> O’Connell, *Popular Print*, p.45.

<sup>107</sup> London, Sotheby’s, 13 November 1991, lot 85. Size 1765 x 3135 mm. Illustration L63.

<sup>108</sup> Discussed above, Vol.1, p.82f.

A group of musicians in the print use a wind instrument and two bowed instruments.<sup>109</sup> The treble is played *a braccio* like a violin or *lyra da braccio*, and the bass rests on the ground. Both are fretless and three-stringed. Although the print-maker was clearly not aiming for *trompe l'oeil* accuracy, aspects of the instruments' shapes are comparable to other depictions. The straight-sided bouts<sup>110</sup> of the treble instrument are echoed in numerous images including a painting by Hans Wertinger,<sup>111</sup> Pieter Breugel's painting *Triumph of Death*,<sup>112</sup> a wooden bench-end in the Church of St Nonna, Altarnun,<sup>113</sup> a woodcut by Dirck Volkertsz. Coornhert after Maarten van Heemskerck, an engraving and etching by Coornhert,<sup>114</sup> an engraving of the Muses by Hendrick Hondius,<sup>115</sup> and an anonymous engraving after Adriaen van de Venne.<sup>116</sup> The curved lower bout and pointed upper bout of the bass are strongly reminiscent of a design Holbein made in England.<sup>117</sup> These are all sixteenth-century images apart from the engraving after van de Venne, which was published in 1632.

In the *Tabula Ceбетis* painting, the trio's instruments are changed to three stringed instruments which differ in design from those in the *lyfe of man* print. The treble is still played *a braccio* but its shape resembles the bass on the print, with a plain lower bout and a long upper bout tapering into the neck at some indecipherable point. The other two are large three-bouted basses whose upper bouts are very short and middle bouts large, as is seen in several early German images. The number of strings is unclear on the reproductions I have seen. This painting is significant insofar as it represents an important phenomenon - the adaptation of images when they are re-used. Although it is impossible to establish the extent to which artistic freedom is responsible for such changes, it is probable that the revised form of instruments shown in the secondary example are connected with instrument forms familiar to the artist. The two sources of this familiarity are other images, and instruments. It is therefore possible that the viols in this painting are based on instruments used in late sixteenth-century England, and they are further evidence of the dominance of round shouldered upper bouts.

<sup>109</sup> Illustration L62. There are also singers and a plucked instrument player. Illustration L63.

<sup>110</sup> Other instruments have straight sides without central bouts, e.g. the *Mary Rose* fiddles, a painting by Ambrosius Benson (Verona, Museo di Castelvecchio), a woodcut by Burgkmair [*HollsteinG* 743], and probably Nicoletto da Modena's engraving *Orpheus and the animals*.

<sup>111</sup> Illustrated in Rasmussen, 'Grünwald', p.65.

<sup>112</sup> Painting in the Prado, c1562, detail illustrated in Jongh, *Mirror*, p.157.

<sup>113</sup> Remnant, *English Bowed Instruments*, pl.146. There are other straight-sided instruments in *Ibid*.

<sup>114</sup> *Illustrated Bartsch*, vol.IV, pp.144, 236.

<sup>115</sup> *HollsteinD* 25.

<sup>116</sup> *HollsteinD* 263.

<sup>117</sup> See p.82 n312.



## Appendix 7f.

### Some Instruments in Carved and Plaster Decorations

- A mid to late sixteenth-century plaster overmantel in the State Bedroom at Haddon Hall, Derbyshire shows Orpheus charming the animals with his lyre. The design is almost certainly based on a print, with the personalising addition of a peacock, the symbol of the property's owners (the Manners Family).<sup>118</sup>
- An alabaster relief at Knole House, Kent shows a sea monster playing a bowed lute? following a print by Herman Muller after Jacob Floris (1564).<sup>119</sup>
- An alabaster overmantel at Burton Agnes is based on a print by Philips Galle after Pieter Breugel. A companion print shows several instruments.<sup>120</sup>
- The joiner Adrian Gaunt who was active at Longleat may have made the *Apollo and the muses* alabaster overmantel for Chatsworth.<sup>121</sup>
- A plaster ceiling (1623) at Boston Manor, Brentford, Middlesex shows *Auditus* after Nicholas de Bruyn, 1597.<sup>122</sup>
- Sections of a plaster ceiling at Blickling Hall, Norfolk are based on emblems from Peacham, *Minerva Britanna*, including one with a lutenist.<sup>123</sup>
- A plaster *Auditus* overmantel at Langleys, Great Waltham, Essex shows a lady tuning a lute (source unidentified).<sup>124</sup>
- *Orpheus* (lyra da braccio) and *Arion* (harp) from a series of *The Elements* by Crispin de Passe (Cologne, 1602) are on the Hunwick overmantel, Co.Durham.<sup>125</sup>
- Musicians with a lute and violin are carved on a stone fireplace at Audley End, Essex, where there is also a swag of instruments in the library.<sup>126</sup>
- An overmantel (c1640) from Newcastle, now at Chipchase Castle, has a design based on a *Triumph* of Maarten van Heemskerck, and other elements based on prints by Adriaen Collaert after Maerten de Vos. A lutenist is possibly based on a print of *The Senses* by Collaert after de Vos.<sup>127</sup>
- At Longford Castle, Wiltshire, there is a carved stone relief derived from a print by Collaert after Jan Snellinck depicting *Apollo charming the beasts, surrounded by the Muses*. The section showing *Polyhymnia* holding a viol is not used on this occasion.<sup>128</sup>
- The title page border of Tallis and Byrd's *Cantiones Sacrae*, (1575) was carved on the wooden hall screen in Cuckfield Park, Sussex in 1581. Details show that the carver used this publication and not Orlando di Lasso, *Primus Liber Modulorum*, (Paris, 1571) on which the title page design was based, so the screen does not show the four viols which appear in the Paris publication.<sup>129</sup>

<sup>118</sup> A picture is reproduced on p.26 of the booklet offered to visitors.

<sup>119</sup> Wells-Cole, *Art and Decoration*, p.54

<sup>120</sup> Moens, *Muziek*, p.78. Wells-Cole, *Art and Decoration*, p.183.

<sup>121</sup> Wells-Cole, *Art and Decoration*, p.169ff. Illustration L76.

<sup>122</sup> Beard, *Plasterwork*, pl.16.

<sup>123</sup> Beard, *Plasterwork*, pl.11.

<sup>124</sup> Wells-Cole, *Art and Decoration*, pp.165, 167.

<sup>125</sup> Wells-Cole, *Art and Decoration*, p.188.

<sup>126</sup> Peter Forrester, personal communication.

<sup>127</sup> Wells-Cole, *Art and Decoration*, p.192f

<sup>128</sup> Wells-Cole, *Art and Decoration*, p.146.

<sup>129</sup> Wells-Cole, *Art and Decoration*, p.128f.

## Appendix 7g.

### Fabrics with Musical Elements in their Designs

Tapestries in the 1980 Victoria & Albert Museum catalogue<sup>130</sup>

| <i>catalogue number</i> | <i>origin</i> | <i>date</i>                                      | <i>music / instrument/s</i>           |
|-------------------------|---------------|--------------------------------------------------|---------------------------------------|
| 2                       | Arras?        | second quarter 15 <sup>th</sup> century          | wind                                  |
| 4                       | Arras?        | second quarter 15 <sup>th</sup> century          | wind                                  |
| 18                      | Tournai       | 1500-1510                                        | wind                                  |
| 21                      | Brussels      | first quarter 16 <sup>th</sup> century           | lute                                  |
| 24                      | Brussels      | 1500-1510                                        | wind                                  |
| 29                      | Brussels      | first quarter 16 <sup>th</sup> century           | lute                                  |
| 41                      | Flemish       | first half 16 <sup>th</sup> century              | legible music book                    |
| 42                      | Brussels?     | mid 16 <sup>th</sup> century                     | harp, plucked/bowed instruments, wind |
| 44                      | Brussels?     | mid 16 <sup>th</sup> century                     | [same as above]                       |
| 47                      | Oudenarde     | late 16 <sup>th</sup> century                    | mainly wind                           |
| 50                      | Flemish       | 2 <sup>nd</sup> half of 16 <sup>th</sup> century | triangle; wind                        |
| 57                      | Flemish       | last quarter 16 <sup>th</sup> century            | lute, violin (2)                      |
| 58                      | Flemish       | late 16 <sup>th</sup> -17 <sup>th</sup> century  | lute, wind                            |
| 60                      | Oudenarde     | 1601                                             | lute, singers                         |
| 61                      | Oudenarde     | c1600                                            | organ, singers, lute (2)              |
| 64                      | French        | mid 16 <sup>th</sup> century                     | lute, harp, wind                      |
| 73                      | English       | early 17 <sup>th</sup> century                   | bagpipes                              |

### Fabrics in the Irwin Untermeyer collection<sup>131</sup>

| <i>catalogue figure</i> | <i>origin</i>     | <i>date</i>                             | <i>music / instrument/s</i>        |
|-------------------------|-------------------|-----------------------------------------|------------------------------------|
| 23                      | England           | last quarter 16 <sup>th</sup> century   | lute, flute, singer?               |
| 28                      | England or France | c1600                                   | lute, viol or violin               |
| 35                      | England or France | last quarter 16 <sup>th</sup> century   | lute, cittern, flute, bass viol(?) |
| 37                      | England           | c1625                                   | lyre                               |
| 81                      | England           | third quarter 17 <sup>th</sup> century  | lute (2)                           |
| 82                      | England           | second quarter 17 <sup>th</sup> century | lute                               |

<sup>130</sup> Digby, Tapestry. A later acquisition includes a viol. Illustration L71.

<sup>131</sup> Hackenbroch, *Untermeyer*.

## Appendix 8a.

### Issues covered in a typical set of English guild ordinances

- Protection of the trade from ‘strangers’, ‘foreigners’, ‘aliens’ and members of other companies, i.e. certain work was specified as the right of that guild.<sup>132</sup>
- Regulation of apprentices and apprenticeship.
- Maintenance of the standard of work<sup>133</sup> and the reputation of the guild.<sup>134</sup>
- Support for members in financial difficulty.<sup>135</sup>
- Control of rates of remuneration.<sup>136</sup>
- Control of resources.<sup>137</sup>
- The power of ‘search’ to ensure compliance with regulations.<sup>138</sup>

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<sup>132</sup> This was the most fundamental activity of most companies and guilds. See, for example, Rappaport, *Worlds*, 104f, 111. Sometimes foreigners would be allowed to trade after paying certain fees. The Doncaster Shoemakers’ Guild Regulations 1582 stated: ‘Item that every ffariner or stranger of the said occupat[i]on of shoemakers coming to the Markett of the said Towne to sell his or their Wares shall pay to the Wardens of the said Company of shoemakers yearly towards the Bringing forth of the said pagiant or the amendm[en]t of the pave[me]nts & high wayes about the said Towne foure pence of lawful English money.’ Yorkshire, DRO AB2/1/1, fol.286.

<sup>133</sup> Many companies required new entrants to demonstrate an adequate level of skill. The provision of a proof-piece [i.e. masterpiece] started in the sixteenth century and became common in the seventeenth century. Unwin, *Gilds and Companies*, p.265. However, masterpieces seem to have been neither difficult nor costly to produce, so they confirmed a minimum standard of competence rather than demonstrating exceptional skill. Rappaport, *Worlds*, p.248. Some regulations emphasised the importance of searches of ‘shops, warehouses and other places [including houses]’ to uncover ‘defects of workmanship’. *Norwich Ordinances*, p.17. The Bowyers separated from the Fletchers when they wanted to forbid working at night because it ‘led to inferior workmanship’. Oxley, *Fletchers*, p.13. ‘...that much badd worke is Constantly done aswell by Strangers as by Natives, by drawinge and Counterfettinge of the Effigies of greate and noble Persons...’ British Library, Harl.1099, fol.79.

<sup>134</sup> Carpenters had to be of good repute to be admitted to their company, and would be expelled if they became ‘of euil fame’ or ‘of euel name as thef ...’ *Carpenters’ Ordinances*, p.10.

<sup>135</sup> Carpenters had to make financial contributions to support sick or impoverished members or bury them. *Carpenters’ Ordinances*, p.8f. As well as supporting their members, Companies were compelled to make loans to the Crown, a practice started by Henry VIII and enforced ‘to a most oppressive extent’ by Queen Mary in 1557. Herbert, *Livery Companies*, p.118. They were also made to contribute manpower as well as arms and munitions for the defence of the city. *Ibid.*, p.125ff.

<sup>136</sup> These could also be controlled by regional or national authorities, such as some rates published in 1651 ‘According to a Statute made 29 Eliz.’: Master Carpenter 12d; Servants and Apprentices [carpenters] above the age of fourteen and under eighteen 6d; Master Joyner or Carver 10d; Servants or apprentices [of joiners or carvers] above eighteen and under twenty-four 8d; Servants or apprentices above fourteen and under twenty-four 6d; The Mowing of one Acre of grass 20d; Sawing Board the Hundred 2s 6d; Riving Lath the hundred 2s 6d. etc. *Rates and Wages*.

<sup>137</sup> The Gild of Joiners and Carpenters (in Worcester) required of its freemen that if suitable wood came to the city and one of them acquired it, he must sell up to a third of it at the purchase price to other freemen of the guild. Smith, *English Gilds*, p.210.

<sup>138</sup> The Joiners demanded authority to ‘search and survey’ the trades of Coachmakers, Trunkmakers, Gunstock Flask and Touchbox makers as they felt this work fell ‘within the compass of their skill and judgement’. Phillips, *Joiners*, p.15. Wardens of companies could be fined for failing to carry out regular and efficient searches. *Norwich Ordinances*.

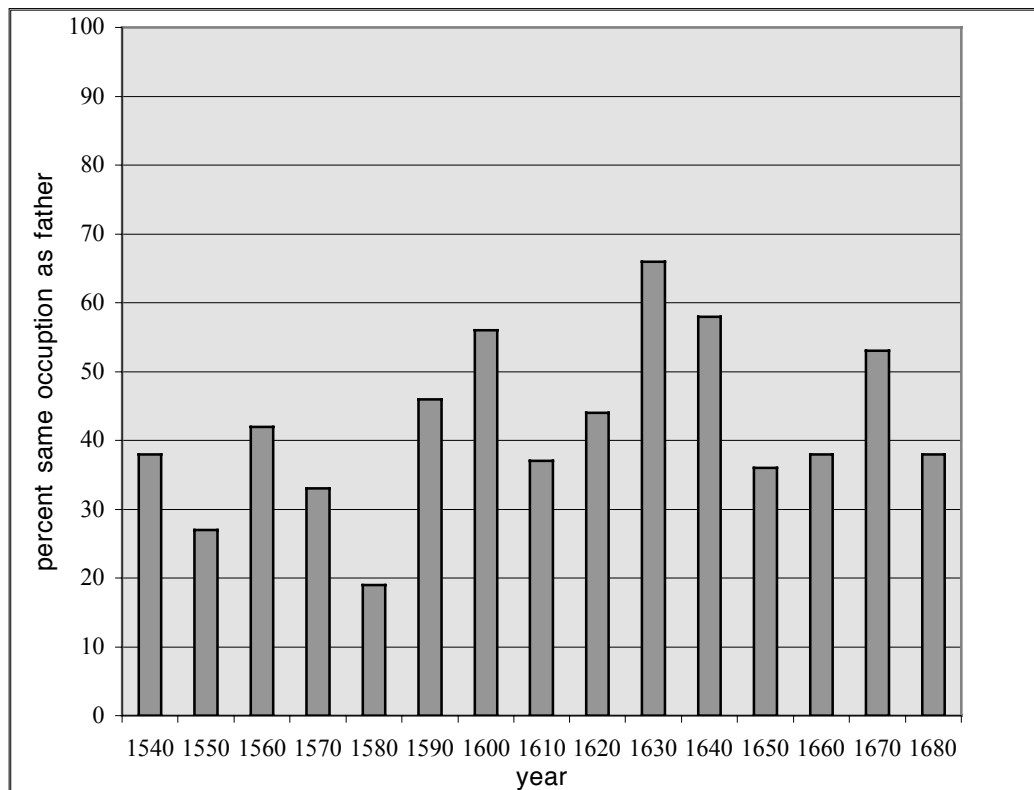
## Appendix 8b.

### Admissions to the freedom of the City of York

| <i>year</i>         | <i>number of admissions</i> | <i>same occupation as father</i> | <i>%</i>            |
|---------------------|-----------------------------|----------------------------------|---------------------|
| 1540                | 16                          | 6                                | 38                  |
| 1550                | 26                          | 7                                | 27                  |
| 1560                | 26                          | 11                               | 42                  |
| 1570                | 12                          | 4                                | 33                  |
| 1580                | 16                          | 3                                | 19                  |
| 1590                | 26                          | 12                               | 46                  |
| 1600                | 34                          | 19                               | 56                  |
| 1610                | 19                          | 7                                | 37                  |
| 1620                | 18                          | 8                                | 44                  |
| 1630                | 18                          | 12                               | 66                  |
| 1640                | 33                          | 19                               | 58                  |
| 1650                | 11                          | 4                                | 36                  |
| 1660                | 24                          | 9                                | 38                  |
| 1670                | 17                          | 9                                | 53                  |
| 1680                | 29                          | 9                                | 38                  |
| <b><i>total</i></b> | <b><i>325</i></b>           | <b><i>139</i></b>                | <b><i>42.8%</i></b> |

(above) Analysis of all admissions to the freedom of the City of York by Patrimony, sampled at 10 year intervals, showing the proportion who followed the same occupation as their father.

(below) Graphic presentation of the same data.



## Appendix 9.

### Provisional list of English viol-makers working 1580-1660.

This list contains supplementary information about viol-makers discussed in chapters 4 and 5, and summary information about others. It has been a fundamental principle of this study to focus strictly on viol-making that took place during the specified period and not outside it, however close. Makers are therefore included in this list if they are known to have worked between 1580 and 1660, but excluded if all their known work falls outside these limits, although whether an individual should be included often remains uncertain.

The most tantalising maker from this point of view is one of the most admired English viol-makers of the seventeenth century, Richard Meares.<sup>139</sup> A very fine and well-preserved bass viol by Meares has been published as ‘ca. 1660’.<sup>140</sup> This dating was provided by its owner, a leading authority on viols, not because of any specific indication, but because the viol is believed to be the earliest surviving work by Meares, and this was thought to be approximately when he started.<sup>141</sup>

The *Viollist* as published in 1979 records a bass viol made by Meares in 1657.<sup>142</sup> However, more recent information<sup>143</sup> gives the wording of its label as

Richard Meares without  
Bishops-gate, near to Sir  
Paul Pinders, London  
Fecit 1677

with the comment that the label is printed, apart from ‘77’; the first 7 of which is written over a printed 5. This is the only indication that Meares might have made instruments before 1660. I have recently seen a digitised photograph which confirms the wording as

Richard Meares without  
Bishops-gate, near to S[ir]  
Paul Pinders, Lond[on]  
Fecit 16[??]

The last two digits of the date are indecipherable, and it is not possible on this reproduction to trace which marks are original and which are alterations. As there are other possible explanations for a pre-1660 date (such as erroneous printing), and because Meares’ work seems more part of the post-Restoration manner than earlier work, he has been excluded from this study.<sup>144</sup>

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<sup>139</sup> Richard Meares had a son of the same name who was a partner in his publishing business. Humphries & Smith, *Publishing*. The son was too young to make viols before 1660.

<sup>140</sup> Monical, *Shapes*, p.16.

<sup>141</sup> D.Kessler. Personal communication.

<sup>142</sup> Museum of Fine Arts, Boston, USA. Catalogue No.1981.748.

<sup>143</sup> T.G.MacCracken. Personal communication.

<sup>144</sup> A treble viol formerly attributed to Meares is reattributed here to William Turner (see below).

## Format of the List

*In order to locate information about a maker, readers should find his name in the listing below. This does not repeat information in the main text of the thesis, as page references are given which point to all mentions of each name, including full references to dating information. N.B. Categories are omitted when I have no information and when all the information has already been given in the main thesis text (Chapters 1-5).*

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### Forename SURNAME

[alternative spellings]

References to thesis text pages.

#### 1. Dates

- Dates of activity indicated by examinable documents are given, with the earliest and latest dates suggested in the literature.

#### 2. Place lived/worked

- Based on labels in instruments if no other information is available.

#### 3. Literature (published information)

- The earliest appearance (after 1850) of information is presented where possible. Sources which only repeat information published previously are generally omitted.

#### 4. Instrument activities

- Other than viol-making.

#### 5. Extant instruments

- Known and attributed instruments are identified (not always comprehensively).

#### 6. Other / Comment

- Other data or comment which may cast light on the maker, including information which is not or cannot be confirmed as applying to the viol-maker named, or can help to individuate the maker from similarly-named contemporaries.

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Full details of sources are given in the bibliography.  
The sources cited most frequently in the following list are:

| <i>list title</i> | <i>bibliography short title</i>   | <i>date</i>   |
|-------------------|-----------------------------------|---------------|
| <i>BDECM</i>      | <i>BDECM.</i>                     | 1998          |
| <i>Boalch</i>     | <i>Boalch.</i>                    | 1995          |
| <i>BV</i>         | <i>British Violin</i>             | 2000          |
| Hart              | Hart, <i>The Violin.</i>          | 1880          |
| Harvey            | Harvey, <i>Violin Family.</i>     | 1995          |
| Hill              | Hill, <i>English Makers.</i>      | c.1900-c.1970 |
| Henley            | Henley, <i>Dictionary.</i>        | 1973          |
| <i>RECM</i>       | <i>RECM.</i>                      | 1986-1996     |
| Lütgendorff       | Lütgendorff, <i>Geigenmacher.</i> | 1922-1990     |
| Morris            | Morris, <i>British Makers.</i>    | 1920          |
| Poidras           | Poidras, <i>Dictionary.</i>       | 1928          |
| S&F               | Sandys & Forster, <i>Violin.</i>  | 1864          |
| Vannes            | Vannes, <i>Dictionnaire.</i>      | 1979          |

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## William ADDISON

### 1. Dates

- Earliest date suggested is 1650. [Henley, probably following Morris]

### 2. Place lived/worked

- 'Long Alley over against Moorfields', London. [labels in violins]

### 3. Literature

- London, 1670. [Hart]
- 'Period unknown but probably 1650-75. It is not certain whether or not he made violins, but he made viols.' [Morris]
- 1665, 1670. 'Eine Liraviole von ihm befindet sich in der Sammlung Galpin'. [Lütgendorff] (This is VME22).
- Towards 1680. Imitator of Amati. [Poidras]
- Made several viols, also a few Amatese violins. [Henley]

### 4. Instrument activities

- Violin-maker.

### 5. Extant instruments

- Several violins are known. At least two extant viols have been attributed to Addison. A bass (1670) in San Francisco is correctly attributed, but another in Boston, Museum of Fine Arts, is re-attributed here to Richard Blunt, VME22 (see below). This re-attribution has been accepted by the museum. [D.Kuronen, (curator), personal communication]

### 6. Other / Comment

- 17 February 1675/6. The Lord Chamberlain issued a 'Warrant to pay £6 1s 6d to William Addis for repairing and amending several of his Majesty's musical instruments since 30 June 1673'. [*RECM*, vol.i, p.158]
- 3 Feb 1679. Francis Nicholson was apprenticed to a carpenter called William Addison. [Marsh, *Records of Carpenters*] This could be the instrument-maker.
- No positive evidence that Addison was working before 1660.

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## Thomas ALDRED

See frontispiece, pp.166, 179, 197.

### 1. Dates

- 1560 [Hart]. 1612, 1613 [Hulse transcriptions]. 1643 [Hulse, *Patronage*].

### 2. Place lived/worked

- Holborn, London. [label]

### 3. Literature

- Aldred and Bolles 'seem to be the last of their race as musical instrument makers'. [S&F]
- One of the earliest makers in England, who possessed a considerable reputation. [Hart]
- 'A maker of viols about the middle of the sixteenth century. His instruments were very celebrated in the seventeenth century, and much in demand.' [Morris]
- 'Einer der guten englischen Geigenbauer des 17.Jahrhunderts, der schon um 1560 gearbeitet haben soll.' [Lütgendorff]
- 'Very scarce make, little known.' [Poidras]

#### 4. Instrument activities

- Made and repaired viols and chest. Supplied bandora.

#### 6. Other / Comment

- Henry Aldred was a Gentleman of the Chapel Royal. [BDECM]
- Henry Aldred [son of the latter?] was groom, then yeoman of the vestry. [BDECM]
- 'vestry yeamen dyed ... Alldred'. [1642] [RECM, vol.viii, p.333]
- No indication that any of these were involved with viols or instrument-making.

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### John BAKER

#### 1. Dates

- 1660 [Baines, *European and American*]

#### 2. Place lived/worked

- Oxford

#### 5. Extant instruments

- Treble viol, 1660, belly 41 cm. Labelled 'Exon'. Ornament on belly. Now in Japan. [Violist; Baines, *European and American*]
- Bass viol, belly 68.5 cm. Labelled 'Jno. Baker / Oxon 1688'. Ornament on belly. Converted to cello. V&A No.171-1882. [Baines, *V & A Catalogue*]

#### 6. Other / Comment

- This is an extremely common name. A John Baker was translated from the Company of Joiners to the Woodmongers in London, 4 November 1606. [CLRO REP 27, fol.292v]
- The treble viol was formerly in the Dolmetsch Collection and has a typical Dolmetsch neck/pegbox. Its maker's association with Oxford was suggested by Baines [*European and American*, no.105, p.18], based on the treble's label, which I have not seen. John could have been related to William Baker who made viols and violins in Oxford after 1660, but the name Baker was common in seventeenth-century Oxford. A wireworker called John Baker has been proposed as the maker of the bass, but died earlier than the date on the label. [Fleming, 'Points arising', p.304f and n.16] It is therefore not certain that the treble was made in Oxford, that the two viols mentioned above are by the same maker, or that any John Baker made viols before 1660.

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### Thomas and Floris BARNARD/BERNARD

See pp.193, 195, 196, 210ff, appendix 10a.

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### Arthur (1547-1624), Mark Anthony (1546 or 1547-1599), Jeronimo (1559-1635), and Andrea (1554-1626) BASSANO

See pp.2, 85, 211.

#### 6. Other / Comment

- The instrument making, repairing and dealing of the Bassano family, who first came to England during the reign of Henry VIII, seems mostly to have involved wind and keyboard instruments, but some lutes and viols made by the Bassanos in London were offered for sale in 1571. It remains possible that Bassanos made viols later, but there is no evidence of string instrument making after 1580, and their 'rabbits feet' trademark has not been found on any string instrument. [BDECM. Lasocki, *Bassanos*, pp.217ff.]



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## ? BISHOP

### 2. Place lived/worked

- Oxford. [Anthony Wood]

### 4. Instrument activities

- ‘yong Mr. Bishop’ mended Anthony Wood’s viol (25 December 1656 and 18 February 1657/8), and his violin (15 January 1658/9). [Anthony Wood] He might have made viols.

### 6. Other / Comment

- William Bishop was apprenticed to John Wild, joiner, 3 November 1638 [Hanaster L.5.2, Fol.315]. William’s master could be John Wild the elder who did work ‘altering the Rales’ for the Oxford Music School in 1656. [Bellingham, ‘Anthony Wood’, p.57f] Wild the elder’s probate inventory (16 February 1675/6. *Oxford Archives*, W.I.156/2/44) included wood, tools and three pictures but no indication of any musical interests. Among the other joiners employed at the Music School, (paid *inter alia* for ‘sawing of boordes and Carriage of same’) was John Hayward. [Bellingham, ‘Anthony Wood’, p.58f] Hayward was also paid for repairing the organ and for work on the harpsichord. This is another example of a genuine joiner (i.e. not just a member of the Joiners’ Company) who was an instrument-maker. [See *Boalch* p.84]
- Seven children of John Bishop were baptised, and four buried, 1654-1675. One child of George Bishop was baptised in 1661 and one was buried in 1678. [*Oxford Archives*, All Hallows (= All Saints’) Parish Register]
- Administration was granted in 1701 to Richard Bishop for the estate of widow Ann Bishop. [*Oxford Archives* Bd.I.77/3/22]. Ann’s husband’s forename and trade are not stated but her probate inventory was made by a joiner (Hartly Boxly) and a carpenter (William Collisson), which suggests he was a joiner or carpenter.

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## Jasper BLANCKARD

Blanke; Blanckerd [RECM] Blackard [James, *Keyboard*, p.29] Blanckart [Boalch]

### 1. Dates

- Came from Flanders, 1566. [Boalch]
- Independent virginal-maker 1582. [James, *Keyboard*, p.29]

### 2. Place lived/worked

- Aldgate. [James, *Keyboard*, p.64]
- Born Germany, lived Christ Church parish, London. [RECM, vol.viii, pp.28, 29]

### 3. Literature

- Servant to the court instrument maker William Treasurer. [RECM, vol.viii, p.25]

### 6. Other / Comment

- Inconsistent reports of his origin may result from confusion between ‘Dutch’ and ‘Deutsch’.
- 14 October 1584 ‘To Jesper that mends instruments for his quarter’s waiges due Mighelmas laste at xls. a yere xs.’ Not one of the musicians of the household. [Adams, *Dudley Accounts*, p.184.] This might be the same man.
- Only the lack of specificity of his instrument work after 1582 suggests that Blanckard might have been involved with viols.

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## **Richard BLUNT**

See pp.71f, 207ff.

### *1. Dates*

- 1591-1605 [labels]

### *2. Place lived/worked*

- Holborn, and Fetter Lane, London. [labels]

### *3. Literature*

- Label 'Richard Blunt/ Dwelling in Holborn/ in London./ 1605'. 'Richard Blunt/ Dwelling in London/ in Fetter Lane/ 1605.' [Another] MS label in a six stringed Gamba with carved head (man's face) no fluting, but cheeks and back of head stippled with a leaf design. Top of back canted, and ffs [as tracing], back and belly flush with sides; sloping shoulders from base of neck, which is the original shewn us by Miss Oliphant, 56 Holmwood Road, Brixton Hill' [entry dated 2 July 1914] [added in biro...] 'later ours C.642 and in Ashmolean Collection'. [Hill]
- 'According to Thurston Dart, who followed earlier indications of the museum, the maker's name is Richard Blanke, but there seems to be no evidence for this attribution.'. [Boyden, *Hill Collection*]
- 'London early seventeenth-century.' [*Vannes*]

### *5. Extant instruments*

- Bass viol, 1591. Zurich. [Konig, *die Viola da Gamba*, p.88-9]
- Tenor viol, 1605. Hill Collection No.6, VME21. [Boyden, *Hill Collection*]
- Tenor viol (previously attributed to William Addison) in Boston, Museum of Fine Arts, VME22. Attributed here to Blunt because of the similarity of body shape, pegbox decoration and wood. Illustrations F21, F22, L26, L27, L52. This instrument also shares an unexplained feature with bass viols by Henry Jaye. Like VME37 there are two wooden 'acorns' on the tailpillar. Illustration 32. No function for these is known and their obvious vulnerability to accident means that they may be lost from numerous instruments, leaving no trace when the original tailpillar and/or bottom block is absent. VME38 has plugged holes which probably indicate similar features. [Soubeyran, 'Restoration', pp.29, 31].

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## **? BOLLES**

See frontispiece, pp.179, 189ff, 199.

### *1. Dates*

- 'Old' [Mace, *Musick's Monument*].
- 1600-1620 [Lütgendorff; Vannes]

### *2. Place lived/worked*

- London. [Lütgendorff]

### *3. Literature*

- Mace's praise of 'Bolles' is quoted or referred to by many later authors.
- Made Lutes and Viols. [Hart; Vannes]

### *6. Other / Comment*

- A Flanders-born merchant called Jacob Bolle had lived in London (Billingsgate Ward) for forty-five years in 1618, at which time the Mayor was Sir George Bolles. [Cooper, *Foreign Protestants*, p.64] I have no information about their families.

- Anthony Harrison, minor canon at St George's Chapel, Windsor, d.1621/2, was replaced by Philip Boles. [*BDECM*, p.549]
- Thomas Bowles, citizen and barbersurgeon of London received payment on behalf of Robert Kindersley (a Lute and Voice at court) [*RECM*, vol.iii, pp.187, 194, 209] and was sole executor and heir when Kindersley died in 1634. [*BDECM*, p.648]

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## William BOWCLEFFE

### 3. Literature

- The name was 'written inside an Early English Tenor Viol or Gamba (small). Bought at sale at Wimbledon, 1 Feb. 1912'. '[added in biro] B722'. [Hill].

### 5. Extant instruments

- One tenor viol [illustration L93], now in a private collection in southern Europe. For many years it was on display in Hall's Croft, Stratford-upon-Avon until it was sold at auction c.1990.

### 6. Other / Comment

- As so many features of this instrument are unusual for viols known to be made in England 1580-1660 and there is no independent record of the maker, the attribution to this maker and to England must be treated with caution. Its unusual features include: two-piece belly; single purfling (of unusual design and material); finial carving untypical for English instruments; unidentified wood for back and ribs; unmatched body length, depth and shape. Although no similar English viols are known, the body shape is not evidence that the instrument is not English, and it is the shape that Chapter 3 would suggest as likely to be the most common in England and elsewhere.
- Similar viols appear in many pictures including: the *Auditus* panel at Bolsover, Gentileschi's *Allegory of Peace and Arts*, [for these two, see Chapter 3, p.87, n.348, p.91 and illustration L94], Guido Reni's *Coronation of the Virgin*, c.1607 (London, National Gallery 214) [illustration L93], and several of Abraham Bosse's mid-seventeenth century drawings illustrating Denis Gaultier, *Rhetorique des Dieux* [illustration L95].

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## Robert CUTHBERT

See p.7, and p.139, n.650.

### 1. Dates

- 1650-1670. [Henley]
- 1690. [Lütgendorff; Vannes]

### 2. Place lived/worked

- Russell Street, London. [labels]

### 3. Literature

- 'chiefly a maker of viols and is not supposed to have made many violins' [Morris]
- Made viols and violins. [Hart; Lütgendorff]
- 'Ses violons sont assez recherchees ainsi que ses violes.' [Vannes]
- May have been a music seller in 1702. [John Basford, 'The Violins of Robert Cuthbert', *NBVMA* 20, (Summer 2000), p.35]
- Advert (*Daily Courant* 18 May 1714) for instruments and music 'Also some single and double Cases made by old Mr Cuthbert'. [Hill] Harvey questions whether this is the same man.

### 5. Extant instruments

- Earliest known violin is dated 1676, latest is 1690.
- No viols known.

#### 6. *Other / Comment*

- No supporting evidence for Henley's claim that Cuthbert was working before 1660.

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### **Peter EDNEY**

See pp.213, 219, 227.

#### 1. *Dates*

- Flute at court from 1592 until he died in 1620. [BDECM]

#### 2. *Place lived/worked*

- London. [BDECM]

#### 3. *Literature*

- 1605. 'Mr Edney' supplied a bass viol to William Baron Cavendish (also other supplies such as music paper and strings). [Chatsworth, Hardwick MS 23]

#### 4. *Instrument activities*

- Supplied instruments including viols.

#### 6. *Other / Comment*

- 1617. Edney's debt of £13 was forgiven in the will of Thomas Giles [who might be a relative of John Gilles?]. [BDECM p.485]
- Edney was probably a supplier, not a maker.

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### **Daniel FARRANT**

See pp.10, 213f.

#### 2. *Place lived/worked*

- Greenwich. [BDECM]

#### 6. *Other / Comment*

- Apart from '6 Artificiall Instruments', there is no record of Farrant's involvement in the supply or manufacture of instruments. It is not certain that he made any.

---

### **George GIBS**

#### 1. *Dates*

- 1598 [label]. 1698 [Monical, *Shapes*, p.20f]

#### 2. *Place lived/worked*

- London. [label]

#### 3. *Literature*

- The viol was the property of Emile Francais (summer 1964). [Hill]
- 'probably taken to France in the first quarter of the 18<sup>th</sup> century for conversion to a 7 string instrument'. [Monical, *Shapes*]

#### 5. *Extant instruments*

- Bass viol in the collection of Lloyd Smith. [Monical, *Shapes*]

6. *Other / Comment*

- ‘george gibs/ London fecit/ 15988’ [sic]. [photograph of manuscript label, Hill]. The position of the label is unlikely to be original, and the label may not belong with the instrument. It does not appear to be written in an Elizabethan hand. The only reason to read the second digit of the date as a 6 is that the instrument appears more likely to have been made at that time. Illustration L83.

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**Andrew GILL**

See p.220.

6. *Other / Comment*

- As he seems to have been the brother of a viol-maker, and described himself as an instrument maker, Andrew may well have made viols.

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**George GILL**

See pp.127, 210, 219ff, 227ff.

5. *Extant instruments*

- Treble? viol in London (Horniman Museum 15.10.48 / 35). VME01.

6. *Other / Comment*

- ‘this day ...George Gill shalbe admitted into the freedome of this Citty by redempcon in the Company of Clothworkers paying to Mr Chamblen to the Cittys use the some of xlvjs viijd’. 6 November 1634. CLRO, REP 49.12. Unlikely to be the instrument-maker.

---

**John GILLES**

See p.212f.

1. *Dates*

- 1617 [YAS MS. DD56/J/3/3, fol.171].
- 1618 [RECM, vol.iv, p.102].

2. *Place lived/worked*

- Perhaps London as he repaired instruments for the court, but possibly also Yorkshire, as he provided strings for Slingsby of Yorkshire. These might not be the same man.

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**Arthur GREGORY**

Gregorie?

See pp.220, 234.

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**Petter HACKINGS**

See pp.65, 69f.

1. *Dates*

- 1621. [label]

2. *Place lived/worked*

- London. [label]

### 3. Literature

- 'Très bel exemplaire de la facture anglaise du début de XVII<sup>e</sup> siècle'. No.C.146, *Catalogue of the Hel Collection, Musée de l'Hospice Comtesse*, (Lille, 1989).

### 5. Extant instruments

- One bass viol in Lille. [VME36](#).

### 6. Other / Comment

- Dendrochronology proves that at least the front of this instrument was made later than the date on the label, the youngest ring being dated to 1680. [John Topham, personal communication] It is possible that the front was a replacement made much later than the rest of the instrument, but the parts are of consistent style.
- The whole instrument, including the format and spelling of the label, seems very uncharacteristic of English viols made c.1621.
- This viol may represent an attempt by a late seventeenth-century continental maker to 'cash in' on the high reputation of English viols.

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#### **Arthur HINTON**

Henton

See p.174f.

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#### **Thomas Alfred HOSBORN**

See p.197.

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#### **John HOSKINS**

See p.198 and p.188, n.916.

### 6. Other / Comment

- No definite information apart from one treble viol in the Shrine to Music Museum, South Dakota, USA, labelled 'John Hoskin 1609', illustrated in the terminology diagram p.247.
- A treble viol was in the probate inventory (1625) of George Hoskenes, a yeoman of Axmouth, Devon. [W.G.Hoskins, *Old Devon*, (1966), p.50.] However, Hoskins is a common name and no connection has been established.
- In view of the many relationships between artistic and musical families, it is possible that the viol-making John Hoskins might be related to the limner of the same name, but no connection is known. [For the limner, see Edmonds, 'Limners', pp.118ff.]

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#### **Edward ILSBERY**

Ilberye, Ilbery, Yelburye, Yeldbury, Yelberie, Ildburye, Ilbury

See pp.167f, 170f, 173ff and n.436. Illustrations L84, L86, L87, L88, L89.

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#### **James JASBERY**

### 1. Dates

- seventeenth-century, or earlier.

### 2. Place lived/worked

- Label: 'Fetter Lane, London'.

### 3. Literature

- ‘A small English viol’ de Gamba with six strings, of small pattern, with table of pine and carved sound-hole in the centre, with purfling and perforations, with neck, sides and body of maple, carved peg-box and small flowers carved in bass-relief surmounted by a lion’s head. Six pegs of maple and bridge of white wood, with purfling in the black finger-board, with serpentine bow and a manuscript label in the interior bearing the following inscription James Jasbery in Fetter Lane London.’ This information came from an unpublished seventeenth-century inventory [No.1117 Florence] of His Serene Highness Prince Edward Ferdinand of Tuscany, according to Signor Gio. Livi Director of the Archives, Bologna. In the same inventory was a viol by Wise. [Hill, *English Makers*, vol.ii, p.173]

#### 5. *Extant instruments*

- Whether the above viol still exists and, if so, where, is unknown.

#### 6. *Other / Comment*

- Richard Blunt worked in the same road.
- The label could be read as Jasberg. [David Hill. Personal communication]
- Might this be a relative of the Oxford viol-maker Edward Ilsbery (see above), variations of whose name could be read as Jasbery/Jasberg? Like his brother Edward, James Ilsbery was apprenticed to their father, a joiner. [1582. Hanaster A.5.3, fol.314v]

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### **Henry JAY/E (possibly father and son of the same name)**

See frontispiece, pp.171, 177, 188, 192ff, 210, 212, 216, 221, 230, and many references to extant viols in Chapter 2.

#### 5. *Extant instruments*

- Over 20 extant viols have been attributed to Jaye, including [VME02](#), [VME03](#), [VME04](#), [VME06](#), [VME11](#), [VME12](#), [VME13](#), [VME17](#), [VME18](#), [VME24](#), [VME32](#), [VME37](#) and [VME38](#).
- I have seen photographs (for which I am grateful to B.Hebbert) of a small festooned bass viol (Royal Northern College of Music V2) which is claimed to have been repaired by Jaye. It has suffered very extensive repairs and alterations, but bears what may be an authentic Jaye label dated 1615. My assessment of the instrument, based only on the photographs, is that it appears more likely to be of Germanic than English origin. [Details are on the *RNCM CHMI* website]

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### **Henry JENKINS**

See p.127, 218f.

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### **Henry JONES**

See p.174.

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### **William KIMBERLY**

See p.175.

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### **John LOOSEMORE**

#### 1. *Dates*

- 1613? – 1681 [*DNB*]

2. *Place lived/worked*

- Bishop's Nympton, Devon, and Exeter. [DNB]

3. *Literature*

- [DNB][Grove]

4. *Instrument activities*

- 1644 repaired a viol for the fifth Earl of Bath. [Hulse, *Patronage*, p.120]
- Organ builder. [DNB]

5. *Extant instruments*

- Keyboard instruments only. [Boalch, pp.120, 492]

6. *Other / Comment*

- Singer or Lay Clerk at Exeter Cathedral. Younger brother of Henry Loosemore, organist & composer. [DNB]
- Only a slight possibility he made viols.

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**George and Alexander MASHROTHER**

[numerous spellings]

See pp.200ff., 216, 236.

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**George MASSETER**

See p.202f.

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**? MUSKETT**

See pp.166, 198.

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**Richard MEARES (father and son of the same name)**

See the introduction to this list, above, p.320.

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**Thomas MILLER**

**Maller, Mallard**

See p.64f and illustration L31.

6. *Other / Comment*

- The only instrument-maker recorded in Cooper, *Foreign Protestants* is 'Thomas Miller alias Maller, of the parishe of St.Androwes in Holborne, Dutchman, by profession and instrument maker, and noe denizen (as himselfe reporteth)...' (p.6). No connection with any other Millers mentioned here has been established, nor does it seem likely that there was one. Elsewhere he was described as a lutemaker [1635. *RECM*, vol.viii, p.114] so the non-specificity of the above quotation is the only indication that he might have made viols.
- 8 March 1630: 'Item this day upon the humble peticon of Hudson Miller sonne of Thomas Miller late Citizen and Musicon of London deceded thereby shewing that the petconers said father was bonnd an apprentice unto one John Almond Citizen and Musicon of London for eight yeres in Anno 1597 and served this said Terme truly according to the Custome of this Citty but tooke not his freedome untell Anno 1613 w<sup>ch</sup> was three yeres after the berth of the said peticoner by reason whereof he cannot obteyne his freedome by patrimony.' CLRO REP 45.190. No instrument-making



activities by Hudson Miller or this Thomas Miller are known. No connection with George Miller has been established.

- Thomas Mellor was ‘keeper of his Highness’ lutes, viols and musick books’ for Charles (as both Prince of Wales and King), having previously done the same job for Prince Henry [*RECM*, vol.iv, p.220 etc.]. From 1628 Mellor shared this place with John Taylor, son of Robert Taylor. [*RECM*, vol.iii, p.29f] He was also Serjeant of the Vestry from 1625 until his death in 1636. [*RECM*]. However, he seems to be unconnected with any of the above.

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### ? PARKEL

#### **Parkes, Parker, Baker?**

See pp.172f, n.831, n.1038

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### **Jacob RAYMAN**

See n.1073, n.1104

#### *1. Dates*

- before 1596 – after 1658. [*BV*, p.20f]

#### *2. Place lived/worked*

- Southwark, London. [labels]

#### *5. Extant instruments*

- Violins, violas and at least one cello.

#### *6. Other / Comment*

- Likely to have made viols, but there is no direct evidence of this.

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### **John ROSE (father and son of the same name)**

#### **Ross, Rosse, Rosa, Roos etc.**

See frontispiece, and pp.51f, 93, 111, 127, 144, 157, 177f, 180ff, 217, 222f, 232, and n.893, plus numerous references to his extant viols in Chapter 2. See also p.183, n.889 for Rosseter.

#### *5. Extant instruments*

- At least 10 extant instruments, mostly viols, have been attributed to Rose, including VME20, VME26, VME29, VME33, VME34 and VME35.
- VME19 (Paris, Musée de la Musique E.980.2.394. The curator informs me this viol came from the collection of Madame de Chambure. It matches in detail the illustration published in Pringle, ‘Founder’ (p.510) as of ‘Howard Head’s’ instrument in 1930. I am confident the photographs are of the same instrument, although the Head viol is given as 1598 and the Paris one as 1595. If the latter dating relies on the label it is insecure as the label is practically indecipherable. Illustration L96. The forename might be John, but no other points on the label match other Rose labels. However, none of the other labels match one another either in hand or wording. Maybe this indicates mercantile activities with several different makers supplying instruments with imperfectly standardised labels?

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### **William SABIN / SABYN**

See pp.174, 226 and Appendix 10a.

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**John SHAW**

See pp. 165, 215 and n.1059, and diagram illustrating viol terms, p.247.

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**Henry SMITH**

See frontispiece, pp.179, 187f, 230 plus references to extant viols in Chapter 2, and Appendix 10a.

*2. Place lived/worked*

- London. 'against Hatton House in Holborn' [label]

*3. Literature*

- London, 1629. A maker of viols. [Hart]
- 1627, 1633. [Lütgendorff]
- c.1630. A maker of viols. [Morris]
- London circa 1650. Viols. [Poidras]
- Around 1630. Mainly viols. [Vannes]

*5. Extant instruments*

- At least three surviving viols: Haslemere (VME31), New York (VME25), and Kilmarnock. T.G.MacCracken tells me that the name of Henry Smith has arisen in discussion of another bass viol in the USA, but my impression of this instrument is that it more closely resembles German work of the second half of the seventeenth-century.

*6. Other / Comment*

- Henry Smith, a violinist at court (d. soon after 1670) lived in the parish of St Margaret, Westminster in 1663. [*BDECM*, p.1025] No evidence he was a viol-maker.
- Also no evidence that Henry Smith, Gentleman of the Chapel Royal (d.1688) was a viol-maker. [*BDECM*, p.1024f]
- Vannes mentions: 'Smith. Luthier Anglais. Vivait à la fin du XVII<sup>me</sup> siècle à Whitchurch', who made Amatese violins. Evidence for this is unknown.

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**John STRONG**

See pp.111, 222, 225ff

*1. Dates*

- 15.. [*Viollist*]
- c.1580 [Hayes, *Viol*]
- c.1640 [Tourin's comment in *Viollist*]
- seventeenth-century [Poidras]

*3. Literature*

- 'Somersetshire: c.1650. An old viol maker'. [Morris]
- 'this viol certainly belongs to Elizabethan days' [Hayes, *Viol*, p.48]
- 'On suppose qu'il fut le constructeur d'une basse de gambe attribuée a Lord Sommerset.' [Vannes]

*5. Extant instruments*

- At least one surviving viol, VME16.

## 6. Other / Comment

- Among the seventeenth-century Strongs of Oxfordshire were quarry owners and masons, including Edward (2), Thomas and Timothy. The Oxford University ‘stonecarver’ John Jackson had ‘two vialls and gittern’ valued at 10s 4d in his hall, and ‘Six bookes & Instrumts [viols?] in the Studdy £1 6s 8d’, when he died in 1663. [*Oxford Archives*, 136/4/9]. This shows that stonecarving is compatible at least with viol-playing, if not viol-making.

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## William TURNER

See p.216f, and n.1073 plus numerous references to extant viols in Chapter 2.

### 1. Dates

- Worked 1647–1656. [labels]

### 2. Place lived/worked

- Aldgate, London. [label]

### 3. Literature

- ‘London, 1650. A viol-maker.’ [Morris]
- ‘In einer sehr schönen Viola di Bordone der Sammlung Gautier fand sich der folgende Zettel: William Turner at ye / Hand and crown in / gravelle lane neare / Aldgate London 1650’. [Lütgendorff]
- ‘Made very attractive viols, beautiful in workmanship, wood and varnish.’ Two violins are reported but his authorship of them is doubtful. [Henley]

### 5. Extant instruments

- At least 7 treble and bass viols, including [VME08](#), [VME10](#), [VME14](#), [VME27](#) and [VME28](#).
- [VME09](#). A treble viol formerly in the Dolmetsch collection and now in London (Horniman Museum, M19-1983) is attributed to Richard Meares in *Viollist* (DOLM 4). There seems no good reason for this, and in view of its similarities to other viols by Turner (body outline, heart-shaped rose, single wide dark purfling) it is here classed as by Turner.

## 6. Other / Comment

- There is a heart-shaped belly rose on several of the instruments. Illustration L29.
- William Turner of Towthorpe (just north of York) moved to York between 1627 and 1630 and died there in 1665. One of his sons was baptised William in 1631/2. Neither of these is likely to have been an instrument-maker, certainly not the one in London, but Christiana, a daughter of Turner of Towthorpe, married Samuel Cooper and thereby became connected with circles of musicians and artists in London. [Edmond, ‘Limners’, pp.98, 102f.]
- 23 September 1606. ‘W<sup>m</sup> Turner [and six other men] Carmen free of the Carpenters... were w<sup>th</sup> consent of the Wardens of the severall Companies of Carpenters and Woodmongers... translated from the sayd Companie of Carpenters to the Woodmongers’. [CLRO REP 27: 268v]. No evidence this William Turner made viols.

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## Christopher WISE (father and son of the same name)

See pp.207 and n.1018.

### 1. Dates

- Christopher son of Tho & Debora Wise, baptised at St Botolphs, April 1st, 1632. [Hill]

- 1654-1660 [Henley]
- 1650-1668 [BV]

## 2. *Place lived/worked*

- Vine Court, and Half Moon Alley without Bishopsgate, London. [labels]

## 3. *Literature*

- Thirteen baptisms at St Botolphs, London, 1629-1664 show that there were at least two Thomas Wises and five Mrs Thomas Wises. Christopher and Rebecca Wise had five children one of whom was called Christopher (bapt. 1664). The last baptism recorded there is Mary, daughter of Thomas & Katherine Wise, on 24 November 1664. [Hill]
- Lay Subsidy Rolls. Hearth Tax Accounts of St Botolph Without precinct. East Side. Christopher Wise and George Miller 4 Hearths, 1668. [Hill]
- ‘Signor G.Livi, Director of the Bologna Archives sent this extract from an inventory of musical instruments belonging to His Serene Highness Prince Ferdinand of Tuscany. (No.1117. Florence, seventeenth-century). December 7 1915. ‘A small English viol’ da gamba with six strings, of small pattern, with table of pine and a heart-shaped sound hole under the fingerboard with sides and body of maple, varnished, with black purfling and designs on the body of the instrument behind the said black purfling, with pegs, fingerboard, tailpiece and bridge stained black, with small flowers carved in bass-relief at the foot of the neck, with graining towards the sides and behind the peg-box, with a carved head surmounting the neck with a printed label in the body of the instrument bearing the following inscription: “Christopher Wise in Half-Moon alley, Without Bishopsgate London, 1655[”], with its fluted bow.’ [Hill] The Jasberg viol is in the same inventory.
- ‘Miss Corfe of 45, Courtfield Road, Kensington, and of Trever, Truro, brought in a violin today, the back of which was made by Christopher Wise, the other parts not being original. The Royal Crown was indented in the middle of the back by means of small dots & on either side the letters C & R, the date 1665 being underneath. This branding probably denotes that the instrument was Royal property and no doubt formed one of a set made in all probability by Christopher Wise for the use of the members of His Majesty’s Private Band. March 31st 1916.’ [Hill]
- c.1656. Chiefly a maker of viols. [Meredith Morris]
- ‘Also pretty viols with decorative purfling and fancy inlay on backs.’ [Henley]

## 4. *Instrument activities*

- Violin-maker.

## 5. *Extant instruments*

- Several violins known, e.g 1661 [BV, p.322f], 1663 [Harvey, pl.109].

## 6. *Other / Comment*

- The heart-shaped rose and black purfling suggest a connection with William Turner.
- The assumption (e.g. BV, p.14) that Pepys’s 1663 viol-maker [*Diary*, vol.iv, pp.232, 252 etc.] was Christopher Wise the violin-maker ignores the possibility of other makers with that surname.
- Christopher, son of Christopher Wise, was a music publisher but would have been too young to make the latest extant dated viol or violin.

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**Giles YORK/E**

Egidius York

See pp.171f

f, 190, 207, 226f, n.840, n.850, Appendix 10a, illustrations L86, L89.

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**Thomas YOUNG**

See p.175.

*6. Other / Comment*

- A trade card survives from ‘John Young, Musical Instrument Seller at the Dolphin and Crown, West End of St Pauls Church ...all Sorts of Violins, Flutes, Hautboys, Bass-Viols, Harpsichords or Spinets ...strings ...cases...’ [Oxford, Bodleian Library, Douce vol.138, No.83] He was established as a music publisher by 1695. [Grove] He is described as a maker on the title page of ‘*The Harpsichord Master Improved. ... by Mr. Babel... with Psalm tunes by Mr Daniel Purcel...*, Printed by & for Daniel Wright Musical Instrument Maker next the Sun Tavern the corner of Brook Street Holbourn & John Young Musical Instrument Maker at the Dolphin & Crownin, St Pauls ChurchYard.’
- Another John Young was a violist at the English court 1674-1680. [BDECM, p.1183f]
- William Young (d.1662) was an important English violist and composer who worked mostly abroad. His father was Thomas Young of Ripon and he was apprenticed in 1631/2 [BDECM, p.1184], the same year as Thomas Young in Oxford.
- There is no evidence of a connection between any of the three above-mentioned Youngs and Thomas Young the instrument-maker(?) of Oxford.

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Appendix 10a.

Other Northamptonshire Yorks

A continuing family interest in instrument-making might be indicated by later entries in the Kislingbury Parish Register, which records the baptism and burial of Tubal Cain York on 6 July 1693 and 27 November 1717 respectively.¹⁴⁵

Tubal or Tubal-cain is a very unusual forename of biblical origin. Jubal was ‘the father of all such as handle the harp and organ’ and Tubalcain, his half-brother, was the ‘instructor of every artificer in brass and iron.’¹⁴⁶ Jubal and Tubalcain were widely considered as the ancestors of all instrument-makers,¹⁴⁷ although Praetorius focuses more on the biblical King David and on characters from classical mythology as the inventors of instruments.¹⁴⁸ Mace describes King David as a maker of instruments.¹⁴⁹ The distinction between Jubal and Tubal seems to have become confused in some minds because of the story of how Pythagoras conceived the relationships between musical intervals after hearing the sounds of hammers of different sizes in use together in a smith’s forge.¹⁵⁰ An early sixteenth-century Polish woodcut showing Tubalcain is illustrated in Mamczarz, *gravures*, p.81, figs.1, 2. Tubalcain and Pythagoras, his ‘typological counterpart’, are illustrated together in Francino Gaffurio, *Theorica musicae*, (Milan, 1492), fol.vi.¹⁵¹ However, a series of biblical illustrations *Boni et Mali*, engraved by Jan Sadeler after Maerten de Vos (Antwerp, 1583) includes prints of Jubal as an instrument-maker and Tubalcain in his forge with no musical reference.¹⁵²

¹⁴⁵ NRO, 190P/1.

¹⁴⁶ The Bible, King James translation (1611), Genesis, ch.iv, verses 21-2. Illustration L89 shows this passage in a ‘Geneva’ bible published in London by Robert Barker, 1579. A Jew called Tubal is a friend of Shylock in Shakespeare’s *Merchant of Venice* (Act 3, Scene I). This resonates with the judaism of the instrument-maker/musician Bassanos, the character in this play called Bassanio and the identification of Emilia Bassano as Shakespeare’s ‘dark lady’. Lasocki, *Bassanos*, passim and Part II.

¹⁴⁷ E.g. Powell, *Humane Industry*, p.103. Bolton, *Cities Advocate*, p.24 uses Tubalcain as a precedent for apprenticeship. Jubal is mentioned in the dedication to Joannes Tinctoris, *Proportionale Musices* (c.1476). Strunk, *Source Readings*, p.4. Both Jubal and Tubal are mentioned in the section ‘Of fretting the Lute’ in Dowland, *Varietie*. John Playford’s *Of Musick in General...* in his 1667 edition of *A brief introduction to the skill of musick* mentions Jubal but not Tubal.

¹⁴⁸ Rousseau, *Traité*, p.5 (on p.3 Rousseau suggests that if Adam had wanted to make an instrument he would have made a viol). Praetorius, *Syntagma Musicum*, p.4.

¹⁴⁹ Mace, *Musick’s Monument*, p.7.

¹⁵⁰ Illustration L61.

¹⁵¹ Hind, *Woodcut*, p.516. Guidobaldi, ‘Ripa’, p.44 and fig.1.

¹⁵² *HollsteinD* (de Vos) 35, 36. Illustrations L80, L65. A woodcut by Cristoffel van Sichem copying in reverse this image of Jubal was published in 1647. There is also a reversed engraving, possibly by a late seventeenth-century member of the Merian family, which is believed to have been published in 1710. H.van Wellegheem, personal correspondence. Illustration L82.

The father of Tubal Cain York of Kislingbury is not known but there was an earlier Tubal Cain among many Yorks in the nearby parish of Harlestone. Tubal Cain York of Harlestone was baptised on 2 July 1637, the fourth of six children of Thomas and Joan York,¹⁵³ and Tubal Cain's wife Ann bore at least four children in the 1660s and 1670s. No Giles or Henry Yorks are recorded in Harlestone parish registers but John and Elizabeth Yorke had five children baptised there by 1621 (starting with Bezaliel, 28 March 1610). The children of a different John York, who was a mason, and third John York, who was a smith, were baptised there in the 1650s. The relationships between the Yorks of Kislingbury and the Yorks of Harlestone are unclear, but it is unlikely that there were none.¹⁵⁴ I think Tubal Cain York of Kislingbury was probably a grandchild of Tubal Cain York of Harlestone. It is possible that his parents chose the name to evoke metalwork rather than instrument-making, but they might at least have been attracted to that passage in Genesis by the relevance of instrument-making to their family.

A Northamptonshire carpenter called Henry Yorke lived in Southwicke, but his will makes no mention of Giles or another Henry York or of any musical interests.¹⁵⁵ Southwicke is not near Kislingbury and there is no indication that this Henry Yorke is connected with Giles York's family. Other Yorkes,¹⁵⁶ and also Sabins/Savins, are recorded in Brackley Parish Register. A family called Sabye lived in Higham Ferrers, as did men called Henry Smyth, and relatives of a man called Thomas Barnard.¹⁵⁷ In 1611, tracts of land at Kislingbury were owned or farmed by William Sabyn (possibly the father of Giles York's apprentice) and a man called Mr Barnerd, but no land in Kislingbury parish was owned or farmed by anyone by the name of Yorke.¹⁵⁸

¹⁵³ Thomas Yorke married Joan England 27 October 1628. NRO, 153P/1.

¹⁵⁴ NRO, 153P/1.

¹⁵⁵ Will dated 6 September 1636. NRO, Consistory Court of Peterborough, Book XII, fol.207.

¹⁵⁶ Said to be descended from Sir Richard Yorke of the City of York. NRO, H.I. Longden Pedigree.

¹⁵⁷ NRO, 42P/1, 167P/1. For instrument-makers called Henry Smith and Thomas Barnard, see Chapter 5.

¹⁵⁸ NRO, M(TM) 376, 377 and 379. I am grateful to J.Tutchener for showing me copies of these documents.

Appendix 10b.

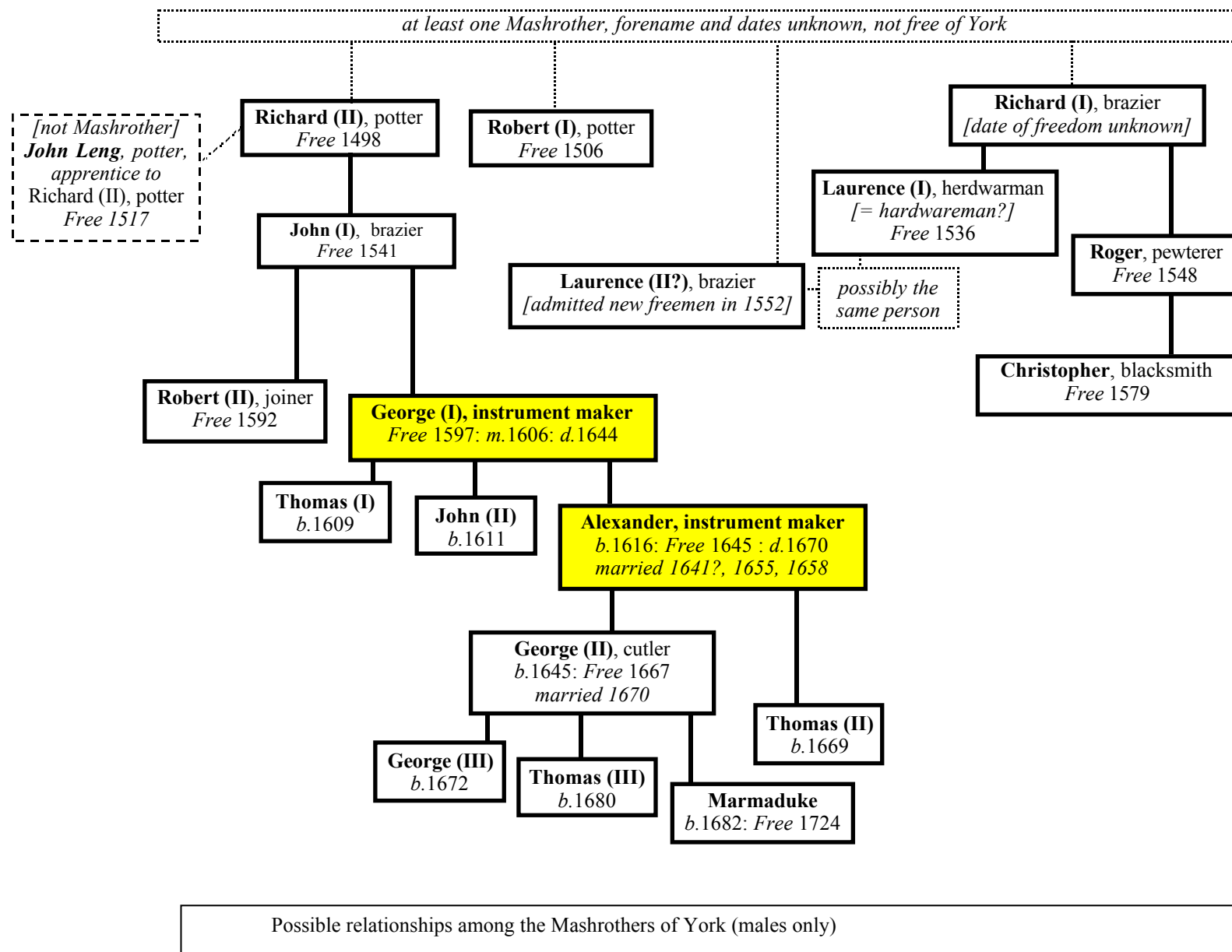
Mashrother and Brownless

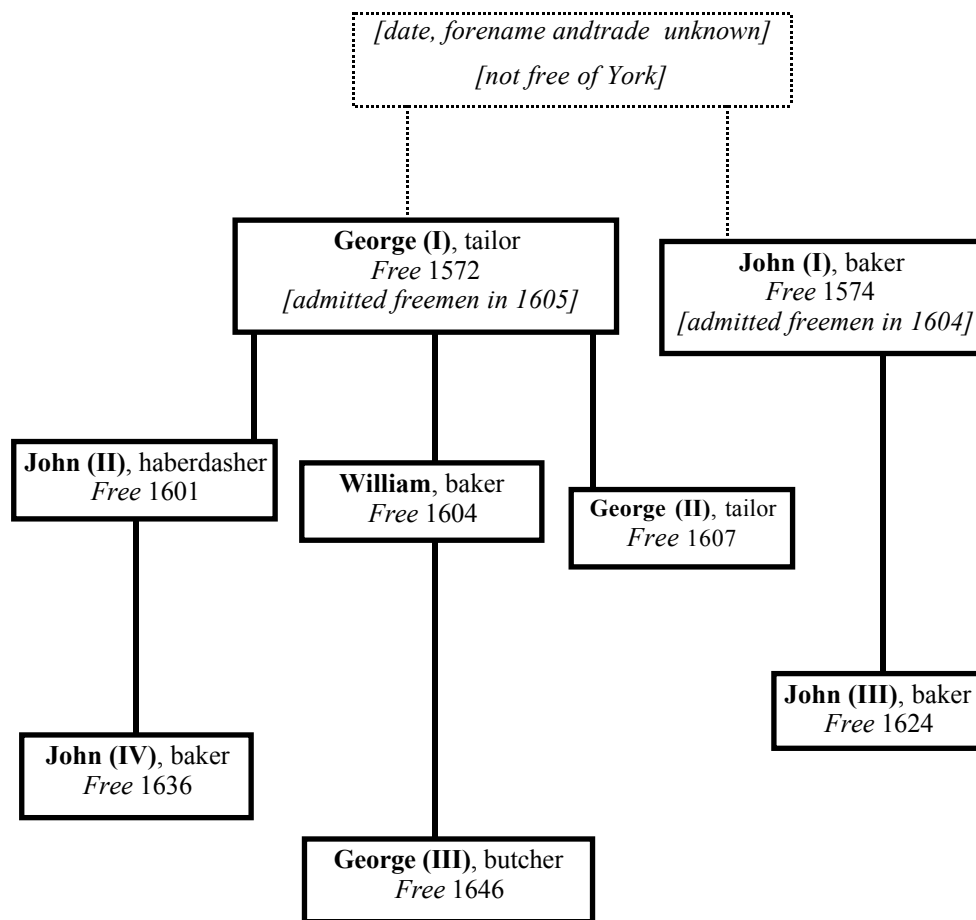
(next three pages)

10b.1 Possible Family Tree of the Mashrothers of York.

10b.2 Will of George Mashrother.

10b.3 Possible Family Tree of the Brownlesses of York.





Possible relationships among the Brownlesses free of York (males only).

The following are entries in the parish registers of the York church of All Saints', Pavement. No George Brownless is mentioned.

John Brownlles and [blank] marr[i]ed the xth of Jully [1636]

Henry Brounles, soonne of John, baptized the xxith of Febuary [1637]

Johan fil John Brownless, Junr. Baptiz: the xxviith of June [1640]

Christopher Browneles, filius John Browneles was bap. 20 June 1644

John Brownlas Buered 15 May. 1677

Appendix 10c.

John Hingeston

(a) the names of his court posts

- ‘a Viol, place of Alphonso Forobosco’.¹ *Following Hingeston’s death, this post went to Robert Carr.*²
- ‘Repayrer and keeper of the organs’.³ *At the same time there were also posts of ‘Organ maker’ (James Farre), ‘Lutemaker’ (William Allaby), and ‘Keeper of the Lutes and Violls’ (Richard Hudson, then Henry Brockwell)*
- ‘Tuner & repairer of ye organs, virginalls & winde instruments’.⁴
- ‘tuner and repairer of his Majesty’s wind instruments.’⁵
- ‘keeper and repairer of his Majesty’s pedals, harpsichords and other instruments’.⁶
- [one of the] ‘Musitians in ordinary’.⁷
- ‘keeper and repairer of his majesty’s organs’.⁸
- ‘Gent., Keeper and Repairer of his Ma^{ties} Instruments’.⁹
- ‘Tuner and Repayrer of the Wind Instruments and organs’.¹⁰
- ‘Keeper and repairer of all his Majesty’s organs in his Chapels and Privy Lodgings, all harpsichords, pedals and all other instruments’.¹¹

In a list of ‘The Names of His Ma^{ties} Servants’ (1660-1670) Hingeston appears among the ‘Private Musick for the lutes and voices, Theorboes & virginalls’. He also appears in other lists of musicians.¹²

¹ 23 June 1660. *RECM* vol.i, pp.4, 6, 216, 219.

² 22 December 1683. *RECM* vol.i, pp.208, 209, 232 and vol.v, p.82.

³ Establishment Book 1660-1668. *RECM* vol.i, p.220.

⁴ 2 July 1660. *RECM* vol.i, p.5.

⁵ 14 July 1660. *RECM* vol.v, p.26 and vol.viii, p.140.

⁶ 3 November 1664. *RECM* vol.i, p.58.

⁷ 1664. *RECM* vol.viii, p.167.

⁸ 28 April 1665. *RECM* vol.i, p.62.

⁹ 11 April 1666. *RECM* vol.i, p.69.

¹⁰ 1668. *RECM* vol.i, p.227.

¹¹ 7 February 1675/6. *RECM* vol.i, p.156.

¹² 1668. *RECM* vol.i, pp.225, 226, 227.

Appendix 10d.

John Hingeston

(b) payments received from the court

- ‘severall wynd Instrum^{ts} by him bought and provided for his Ma^{ty} service.’¹³
- ‘a new Cabinet Organ, 4 Violins and severall other instruments, and for stringing and repaireing sundry other Instruments and for stringing and repaireing sundry other Instruments’.¹⁴
- ‘repairing and erecting organs’ [&c].¹⁵
- ‘organs and harpsichord for the Queen’s private Chapel’.¹⁶
- ‘Mending and repairing the organ in his Majesty’s Chapel Royal and Privy Lodgings at Whitehall, for a bass viol for the private musick, and for erecting an organ in the Banqueting House at Whitehall’ [&c].¹⁷
- Various movings of organs and: ‘mending the organs and harpsichords’, ‘mending her Majesty’s harpsichord that stands in her own chamber’, and a ‘claricon’ [&c].¹⁸
- ‘repairing the organs, harpsichords, pedals and other instruments’.¹⁹
- ‘Mending and tuning the great organ, for strings for the virginals, and for diverse other things’.²⁰
- ‘Strings for the bass viol, pedals and harpsichords; and for bellows and blower’.²¹
- ‘Keeping, repairing and amending his Majesty’s organs, harpsichords and pedals, for rent of a room to keep them in, and for strings for the bass viols, and for a bass viol bought by him, [&c]’.²²
- A warrant to pay Hingeston for a wide range of instrument repairs and supplies over 3 years. Mentions of associated individuals include George Wyatt for blowing organs, Humphrey Madge ‘for a Cornett...’, ‘Mr Fitez’ [Fitz?] ‘for a sagbutt...’, several payments to Bernard Smith including for the loan of one organ and for cleaning another, and payments to ‘Charles Hayward, ye virginal maker’ ‘for mending ye Harsicords & pedals’.²³

¹³ 20 December 1660. *RECM* vol.v, p.110 and vol.i, p.8.

¹⁴ 15 March 1661. *RECM* vol.v, p.113.

¹⁵ 21 May 1661. *RECM* vol.i, p.18.

¹⁶ 19 April 1662. *RECM* vol.i, p.32. He was also paid for fabrics for the organ loft at Hampton Court. *Ibid.*

¹⁷ 23 July 1662. *RECM* vol.i, p.34 and vol.v, p.119.

¹⁸ 6 November 1663. *RECM* vol.i, p.49.

¹⁹ 3 November 1664. *RECM* vol.i, p.58.

²⁰ 29 May 1670. *RECM* vol.i, p.98.

²¹ 27 April 1671. *RECM* vol.i, p.105.

²² 25 April 1673. *RECM* vol.i, p.124.

²³ 7 February 1675/6 (referring to work done 1673-5). *RECM* vol.i, p.156f. There was a similarly miscellaneous set of payments on 19 August 1678. *Ibid.*, p.180f, and another similar and posthumous warrant on 25 December 1683. *Ibid.*, p.208. Samuel Pepys bought a spinet from Hayward for £5 in 1668. Pepys, *Diary*, vol.ix, p.262.

Appendix 10e.

Some gentleman instrument-makers at court.

<i>name</i>	<i>relevant post</i>	<i>comment</i>
William Treasurer (<i>d.</i> 1583) ²⁴	Instrument-maker to the court. ²⁵ (1550-1583)	A German. His merchant status is established by his licences for a large amount of export trade, and his incomes from land and property. These would have entitled and encouraged him to call himself a gentleman.
John Burward/ Burwood (<i>fl.</i> 1618-1642)	‘Groome of his Ma ^{ts} vestrey Extraordinarie for the tuning & mendinge of his Ma ^{ts} organs when hee shalbe required.’ ²⁶ (1626-1642)	Organ-maker (and organist). Groom of the Vestry was a position that implied gentle status. However, that he did certain work was sometimes confirmed by others, ²⁷ in contrast with Richard Hudson (see below) who was trusted to receive payments on behalf of colleagues. ²⁸
Edward Norgate (1580/1-1650) ²⁹	Keeper and Tuner of the organs and keyboard instruments. ³⁰ (appointed 1611)	The son of the Master of Corpus Christi College, Cambridge. He died wealthy, worth over £2,000.
Richard ³¹ Hudson (<i>c.</i> 1617-1668)	Keeper of instruments. Keeper of lutes and viols. ³² (1662-1668)	A marriage licence was issued on 24 Jan 1641/2 for Richard Hudson, gent., of St Giles-in-the-Fields, bachelor. ³³ Hudson seems to have mended and altered instruments, possibly including viols, ³⁴ so it is possible that he made them, but there is no positive evidence that he worked on instruments before 1660.

²⁴ *BDECM*, p.1090ff.

²⁵ April 1551. *RECM*, vol.vii, p.118.

²⁶ *RECM*, vol.viii, p.325.

²⁷ *RECM*, vol. v, p.5, vol.viii, pp. 107, 127.

²⁸ *RECM*, vol.i, pp.261, 266.

²⁹ *BDECM*, p.833ff.

³⁰ November 1611. *RECM*, vol.iv, p.33, vol.viii, p.65. Joint appointment with Andrew (Andrea) Bassano, replacing the same Bassano and Robert Henlake.

³¹ A court violin called George Hudson was probably Richard’s brother. *BDECM*, p.601.

³² ‘in the place of John Taylor and Richard Moller, deceased’. *RECM*, vol.i, p.33. When Hudson died his successor as keeper of lutes and viols was Henry Brockwell. *RECM*, vol.i, p.84, vol.v, p.58. Brockwell was reimbursed for buying a Cremona Tenor Violin (and a viol was bought by Henry Hawes) while Hudson still held the post. *RECM*, vol.v, pp.119, 133. Brockwell was paid for two bass viols in 1673. *Ibid*, p.147.

³³ *BDECM*, p.602.

³⁴ *RECM*, vol.i, p.68.

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Derbyshire <i>Chatsworth</i> Bolton MSS. } Hardwick MSS. }	Collections of accounts, inventories and other miscellaneous documents.
Devon <i>Devon Record Office</i> 404M/B1.	Sketchbook of designs assembled by the Abbot family of plasterers including John (1565-1635) and his son Richard (b.1612). Sources include animals from Gesner, architectural motifs from Serlio, emblems from Wither, and knot garden designs from William Lawson, <i>The Country Housewife's Garden</i> , (1617).
Lincolnshire <i>Lincolnshire Archives</i> Admon 1664/157.	Probate inventory of Sir Robert Bolles, Baronet.

London

[BL =] *British Library*

Harl.1099.

‘A humble presentation of the Greivances of the Companies, discovered and laid open to veiwe, and the persons demeaned by which it Cometh to passe [which is] against Lawe, [and] against their Charter and Orders of the Companie, acting the Societies overthrowe: with some Remedies proposed to the grave Judgements of the Societie for redresse & releife against the same.’, fol.79. This is catalogued as possibly 1626, and no later than 1665.

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Lansdowne Ms.824

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E.179/251/22.

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[CLRO =] *Corporation of London Record Office*

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Finch-Hatton MS.2133.

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H.I. Longden Pedigree.

Undated manuscript genealogical notes about Yorke families.

M(TM) 376, 377 and 379

‘A Terrare of all the landes leas hadons Meadowes and Grasse grounds wthin the feilds of Kislingburyemade by Sixteene men of a Jury there the sixt daye of Maye 1611’, i.e. a list of the

ownership and farmers of lands in the parish of Kislingbury, Northants when it was still arranged in the mediaeval system of strips of ridges and furrows.

O.314.

Mortgage of Irchester Rectory, 1689.

Oxford

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[OUA =] *Oxford University Archives*

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<i>Arch.</i>	Archaeologia.
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<i>Annals of Science</i>	Annals of Science.
<i>Antiq.J</i>	Antiquaries Journal.
<i>BJHS</i>	British Journal of the History of Science.
<i>Burl.</i>	The Burlington Magazine.
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<i>EMH</i>	Early Music History.
<i>EMP</i>	Early Music Performer. [Quarterly Newsletter of the National Early Music Association]
<i>FoMRHIQ</i>	Fellowship of Makers and Researchers of Historical Instruments Quarterly Bulletin.
<i>Furn. Hist.</i>	Furniture History. [Journal of the Furniture History Society]
<i>Gent.</i>	The Gentleman's Magazine.
<i>GSJ</i>	Galpin Society Journal.
<i>IM</i>	Imago Musicae.
<i>JAMIS</i>	Journal of the American Musical Instrument Society.
<i>JAMS</i>	Journal of the American Musicological Society.
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<i>MQ</i>	The Musical Quarterly.
<i>NAMIS</i>	Newsletter of the American Musical Instrument Society.
<i>NBVMA</i>	Newsletter of the British Violin Makers Association.
<i>Oxon</i>	Oxoniensia.
<i>PQ</i>	Print Quarterly.
<i>RenQ</i>	Renaissance Quarterly.
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<i>RMARC</i>	Royal Musical Association Research Chronicle.
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VME01



VME02



VME03



VME04



VME05



VME06



VME07



VME08



VME09



VME10



VME11



VME12



VME13



VME14



VME15



VME16

(photograph from Folger Shakespeare Library, Washington DC)



VME17



VME18



VME19



VME20



VME21



VME22



VME23



VME24



VME25



VME26



VME27



VME28
(Photograph by T.G.MacCracken)



VME29



VME30



VME31



VME32



VME33



VME34



VME35



VME36



VME37



VME38

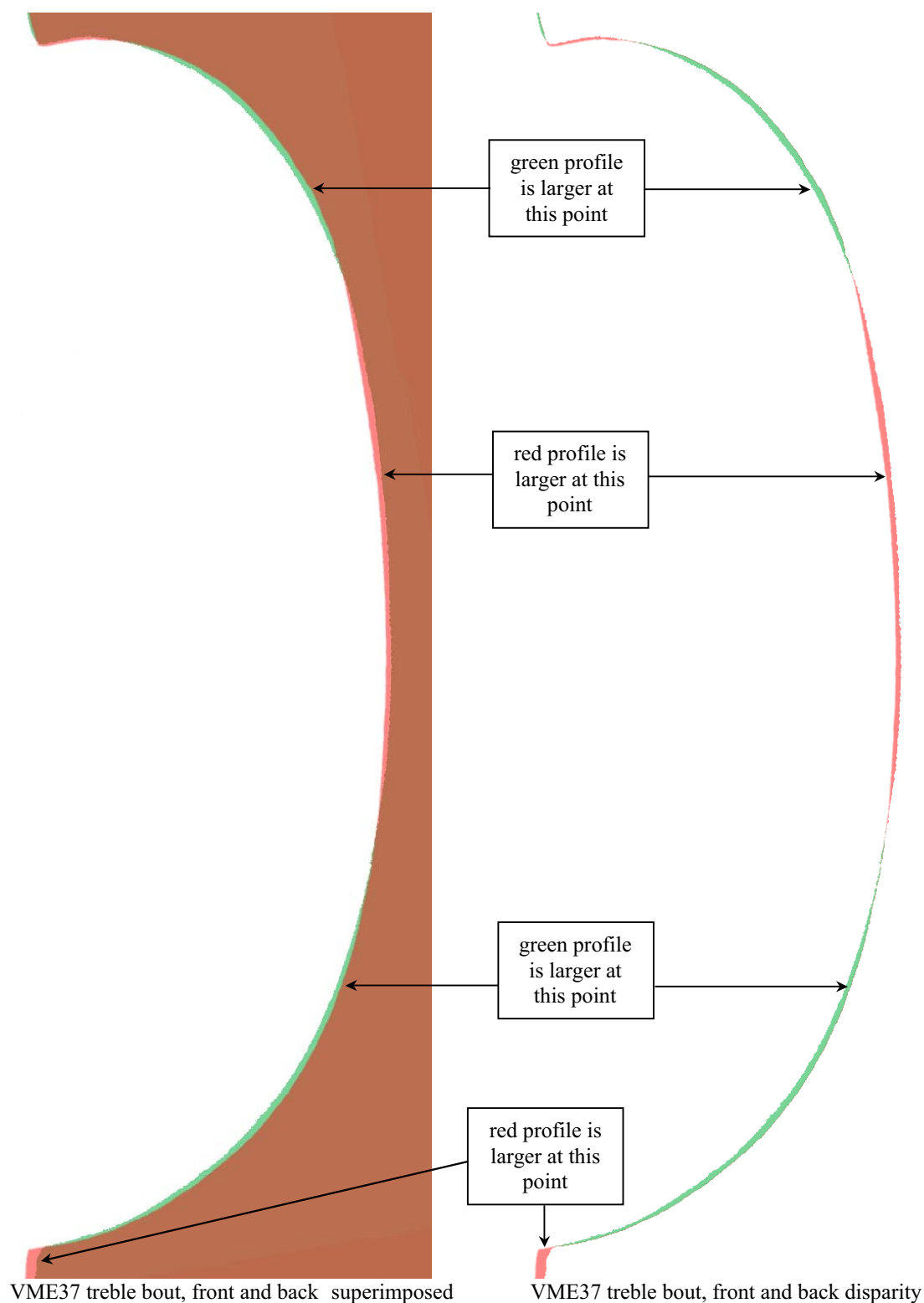


(left) Radii of 6 cm and 7 cm. (middle) Radii of 16 cm and 17 cm. (right) Radii of 24 cm and 26 cm.

Curves of a range of radii showing what disparities of 1-2 cm look like.



VME37. The green and red sections show those parts of an instrument's middle bouts which are used for superimposition comparisons.

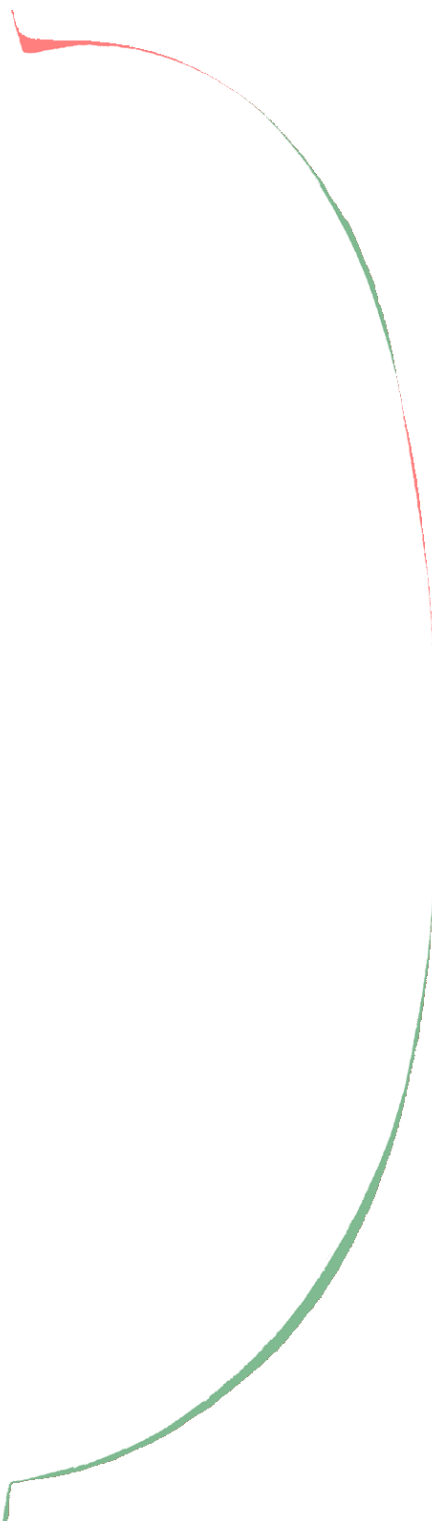


L05. Explanation of how to read the superimposition illustrations.

Illustration L04 (facing this page) shows the parts of a viol that are used for this and similar illustrations. One profile is coloured red, the other is green (the colours have no significance). The pure red and pure green show those parts where the two are not identical, with the colour representing the profile that has the largest overall dimension at that point. The right-hand illustration shows the extent of the disparity by itself.



VME37 front bouts, treble and bass superimposed



VME37 front bouts, treble and bass disparity



VME37 back bouts, treble and bass superimposed



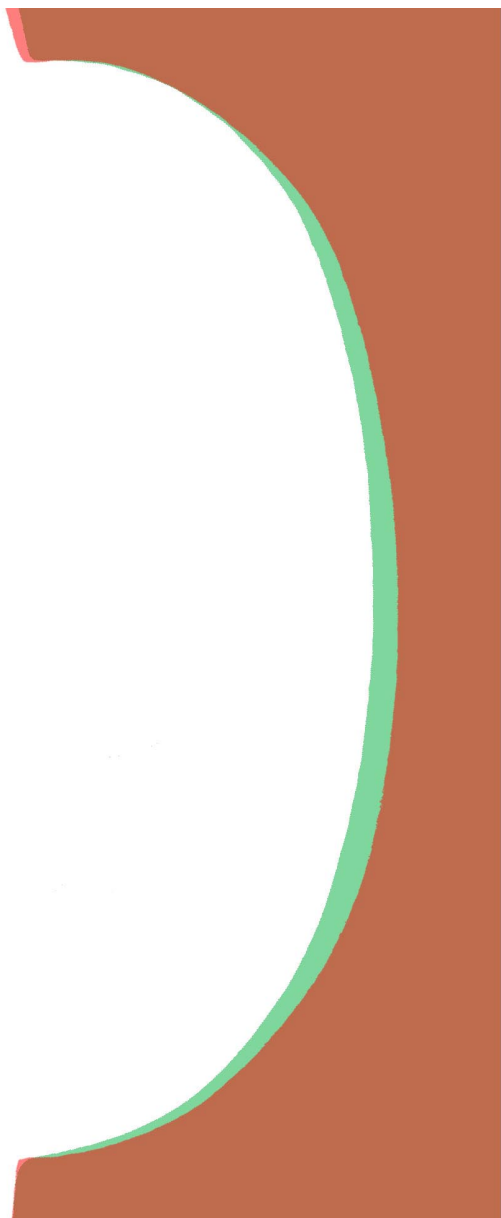
VME37 back bouts, treble and bass disparity



VME37 bass bout, front and back superimposed



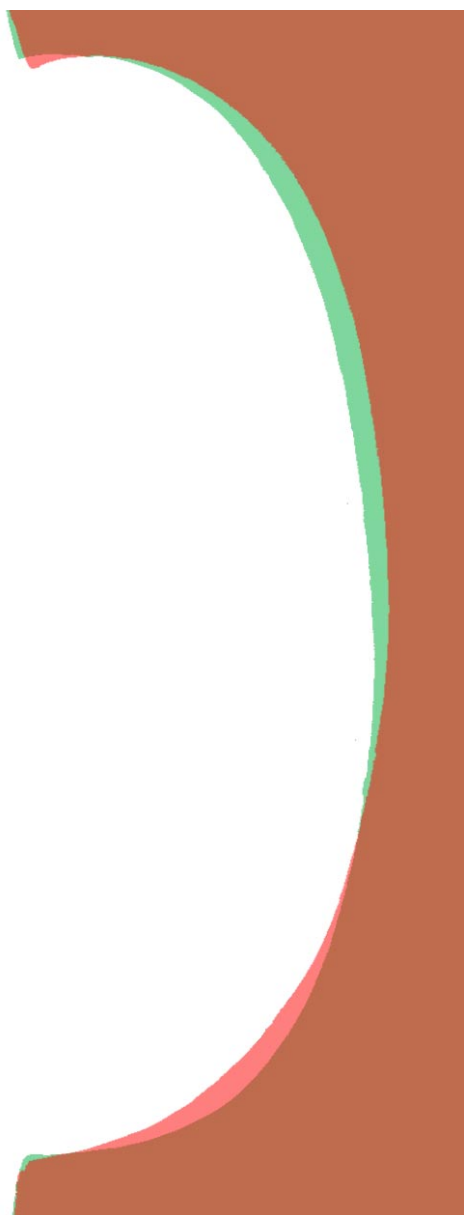
VME37 bass bout, front and back disparity



VME24 front bouts, treble and bass superimposed



VME24 front bouts, treble and bass disparity



VME24 treble bout, front and back superimposed



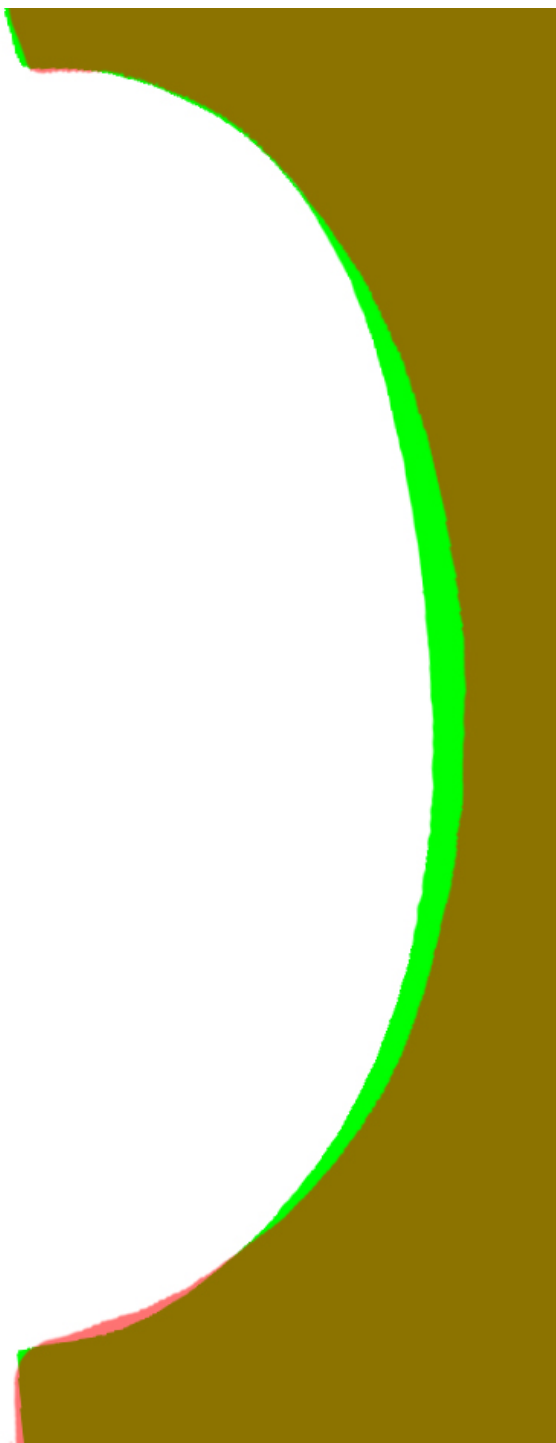
VME24 treble bout, front and back disparity



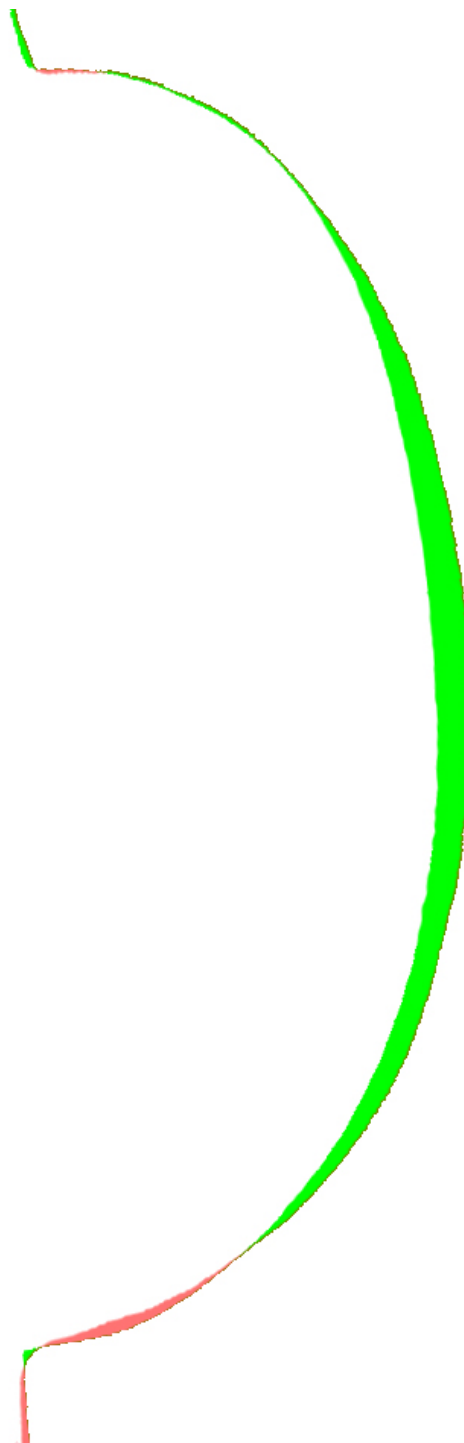
VME36 back bouts, treble and bass superimposed



VME36 back bouts, treble and bass (disparity)



VME23 front bouts, treble and bass superimposed



VME23 front bouts, treble and bass (disparity)



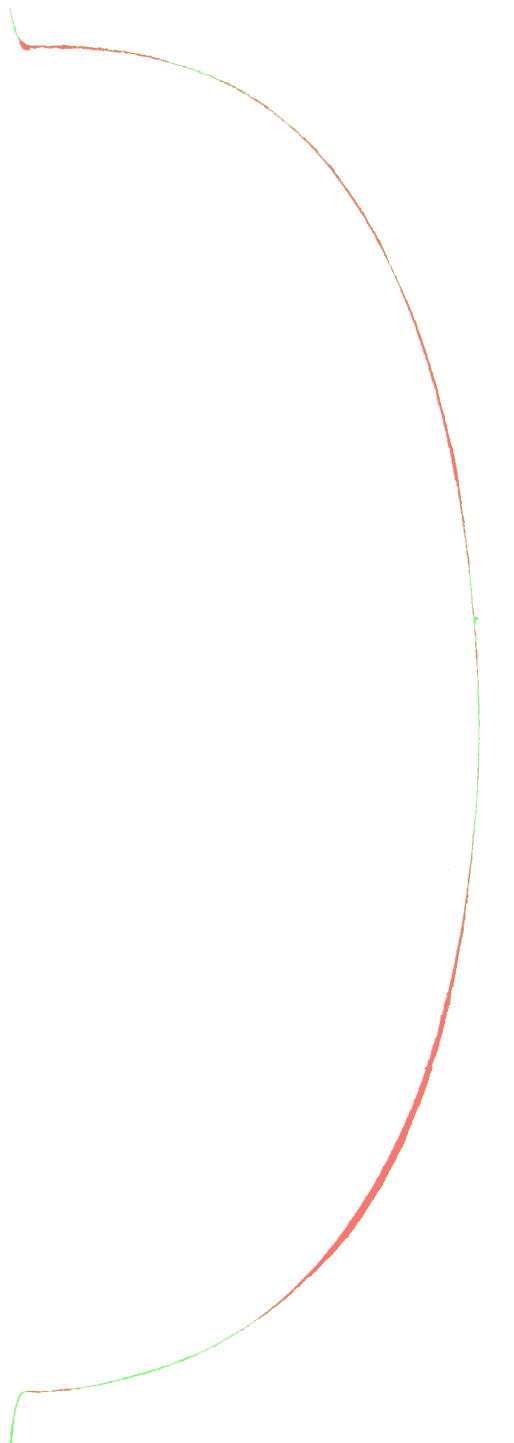
VME23 back bouts, treble and bass superimposed



VME23 back bouts, treble and bass (disparity)



VME20 back bouts, treble and bass superimposed



VME20 back bouts, treble and bass (disparity)



VME01. Back view showing ornaments which are remnants of the wood's previous use and are inappropriately large for this size of instrument.



(top) Upper bouts.
(bottom) Upper treble rib.

VME01. Details showing how ornaments are interrupted when wood is re-used.



(top) Lower bout treble rib.

(bottom) Backfold.

VME01. Details showing how ornaments are interrupted when wood is re-used.



VME01. Details showing how belly ornaments are cut through when wood is re-used.



VME01. Details showing how back and rib ornaments are cut through when wood is re-used.



VME33. Inlaid purfling ornaments on back and ribs, for comparison with VME01.



VME33. Inlaid purfling belly ornaments, very similar to those on VME01.



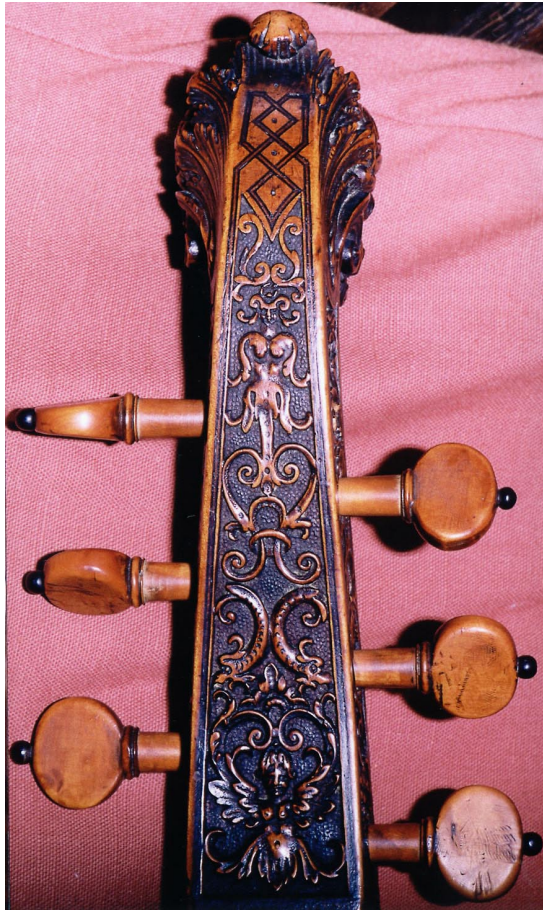
VME23. Back view, showing roughness of wood preparation.



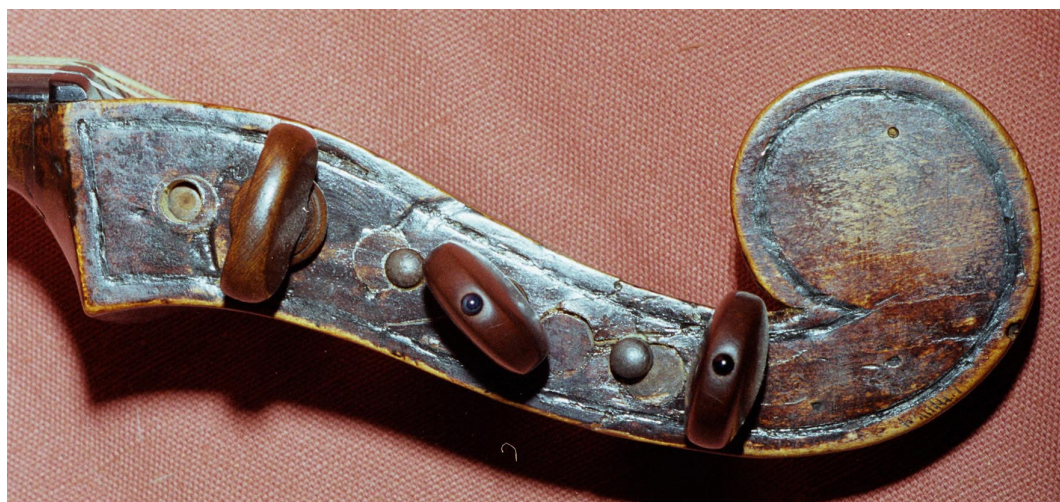
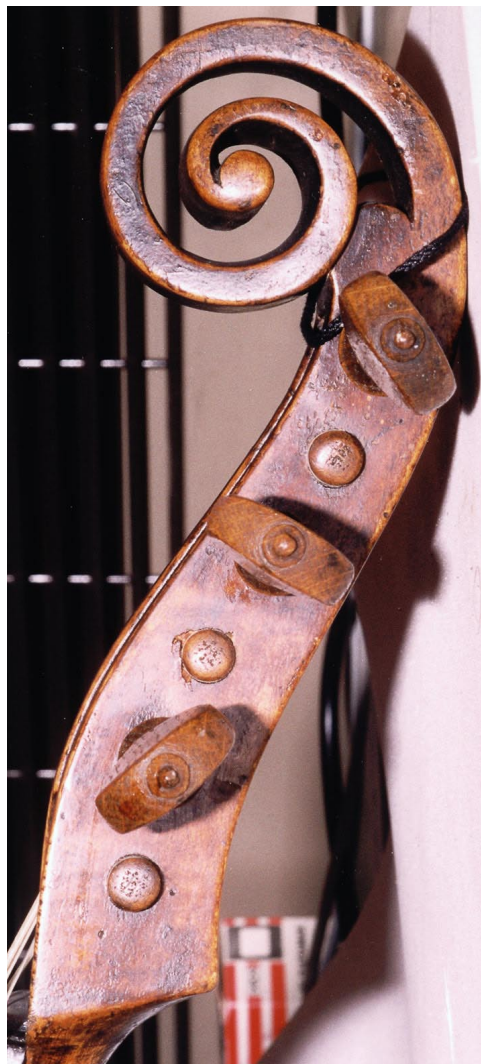
(*top*) Back fold, showing roughness of wood preparation.

(*bottom*) Circular purfling inlay under fingerboard, not cut out to receive a rose.

VME23 Details.



Finials and Pegboxes 1: Human head on a carved pegbox. VME29.



(top left) Pierced scroll and plain pegbox. VME19.
 (top right) Pierced scroll and plain pegbox. VME34.
 (bottom) Plain scroll and plain pegbox. VME08.

Finials and pegboxes.



Relief carved pegbox. VME21.



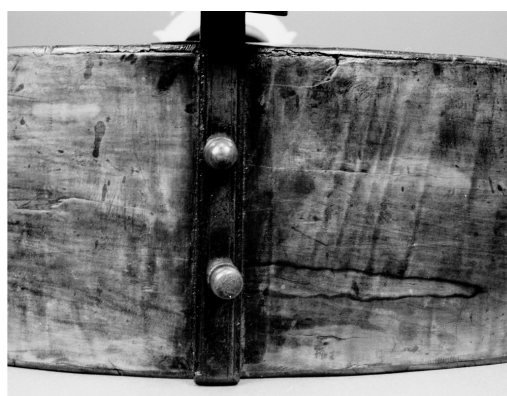
Relief carved pegbox. VME22.

The pegboxes of two tenor viols by Richard Blunt.



VME21.

VME22.



(top) The backs of the two instruments.

(bottom) The same flaw visible on the lower bout ribs of both instruments.

The same wood used on two tenor viols by Richard Blunt.



(above) Soundholes, showing they once had a c-like shape.

(below) Belly ornament.

VME16. Details of a treble viol by John Strong.



(top left) VME09. (top right) VME10.
(bottom left) VME14 . (bottom right) VME27.

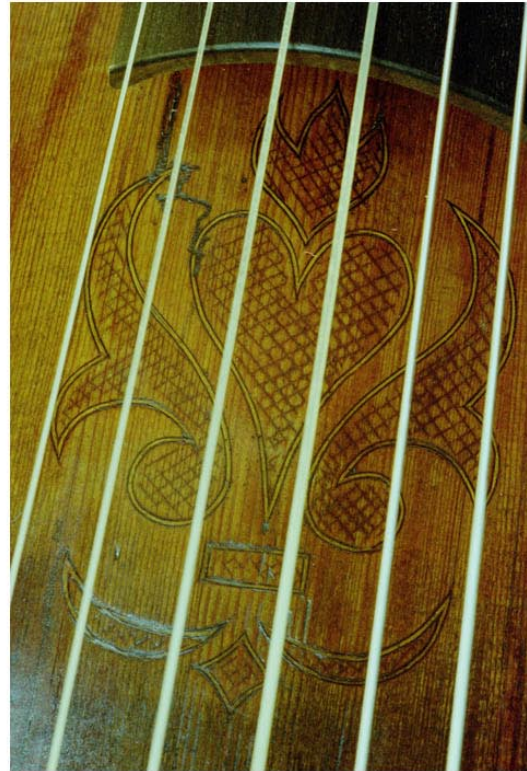
Belly roses on viols by William Turner.



(top left) VME17. (top right) VME26.

(bottom left) VME24 . (bottom centre) VME25. (bottom right) VME31.

Oval belly roses on bass viols.



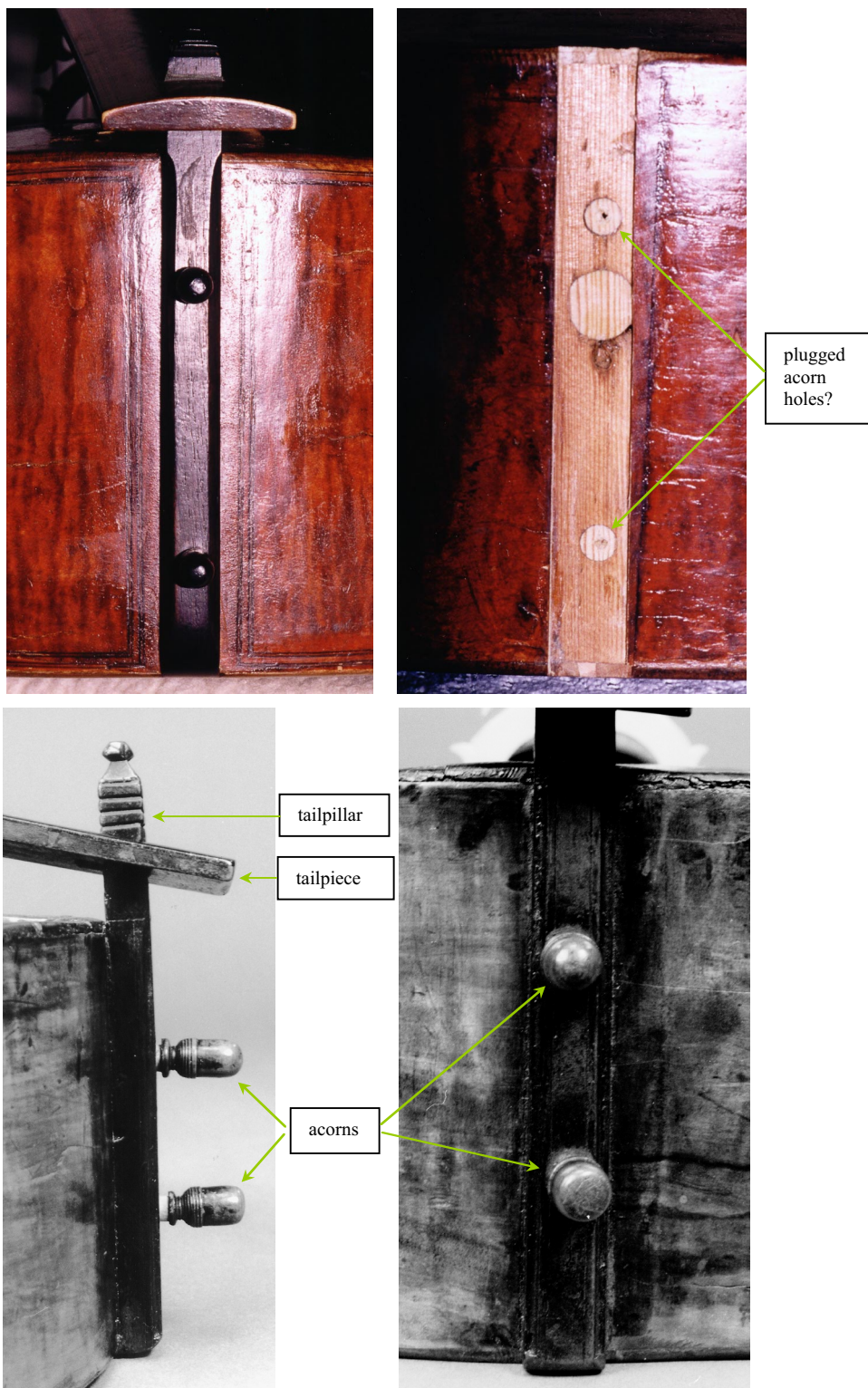
(top left) Bass viol attributed to Miller (Folger)

(top right) Bass viol attributed to Miller (private)

(bottom left) Anonymous treble viol. (Paris)

(bottom right) Bass viol by Pitts, 1675 (private)

Comparison of belly ornaments (inlaid purfling with 'hot needle' cross-hatching).



(top left) VME37. Acorns in the tailpillar (end view)

(top right) VME38. Plugged holes in the bottom block, probably from acorns.

(bottom) VME22. Acorns in the tail pillar, side and end views.

‘Acorns’, for which no function is known.



VME02



VME03

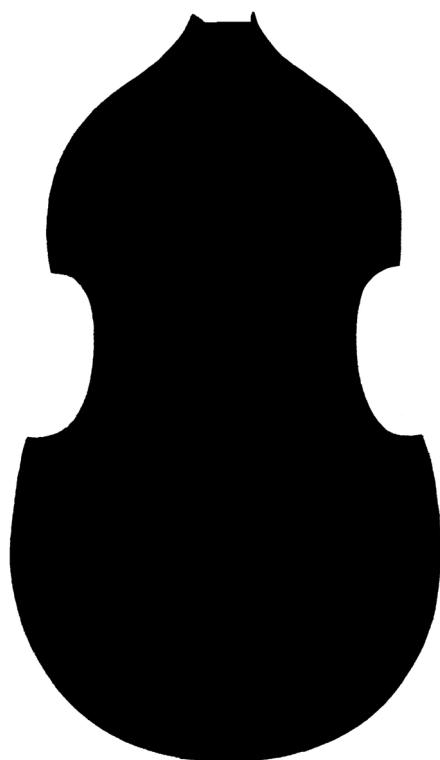


VME04



VME06

Treble viols by Henry Jaye
(no aspect of the shape of the shape of VME04 can be confirmed as original)

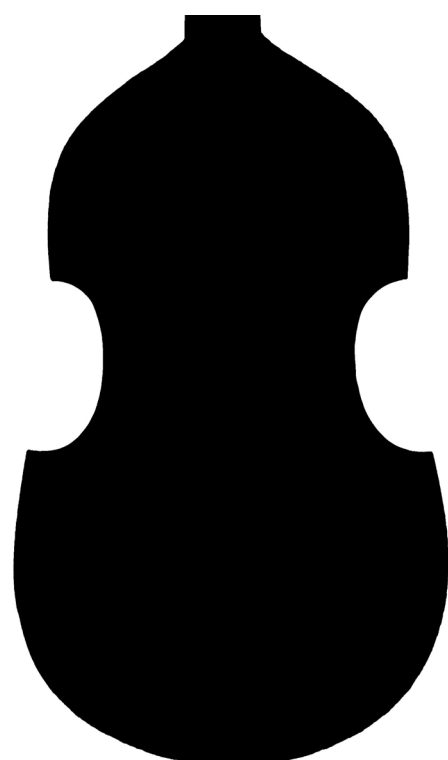


VME25

Two bass viols by Henry Smith

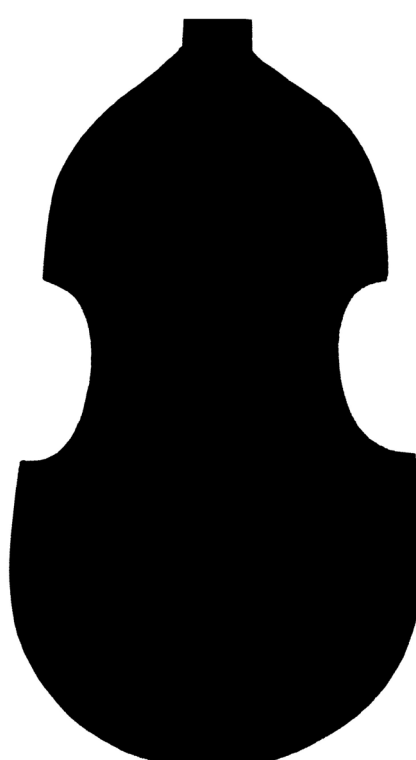


VME31



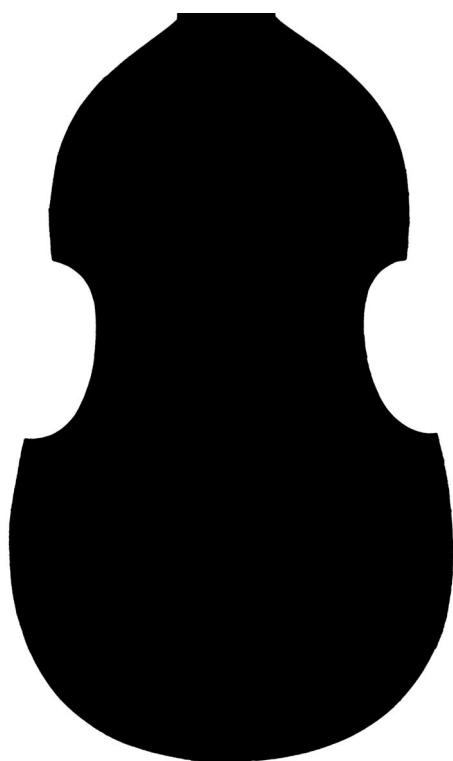
VME35

Two bass viols by John Rose

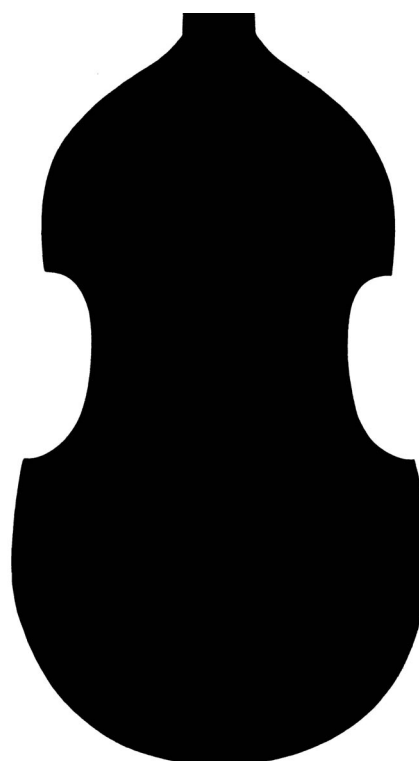


VME34

Silhouettes for comparing viols by the same maker and viols by different makers.

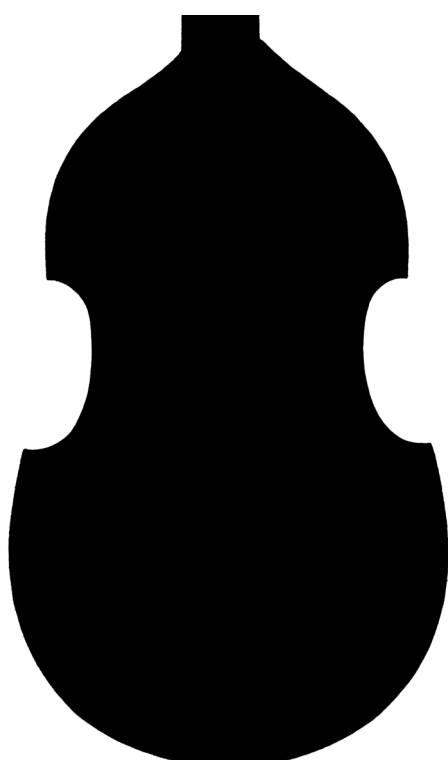


VME24

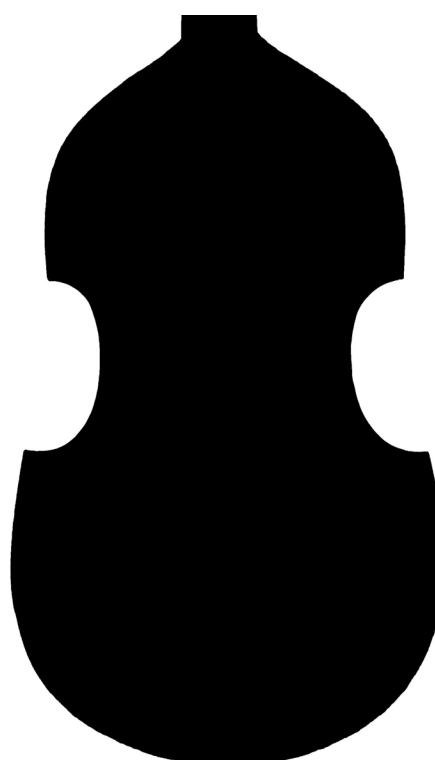


VME37

Two bass viols by Henry Jaye



VME26



VME35

Two bass viols by John Rose

Silhouettes for comparing similarities between viols by the same maker and viols by different makers.



VME08



VME09



VME10



VME14

Four treble viols by William Turner



VME08



VME09

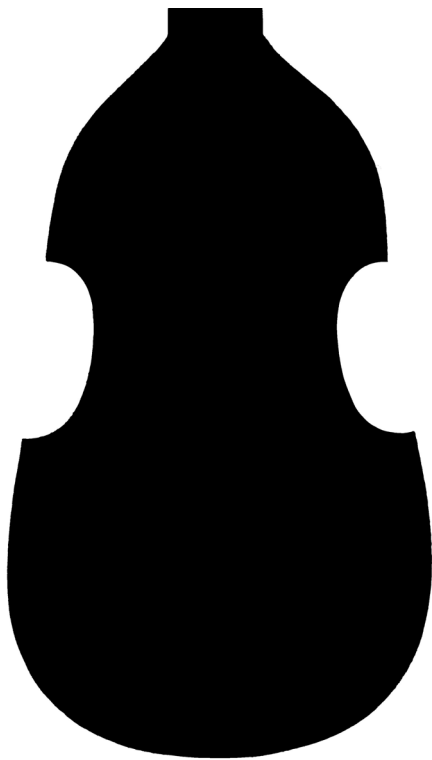


VME10

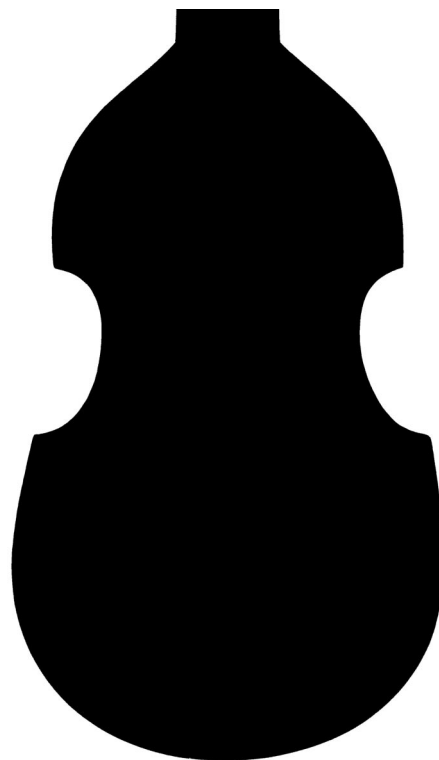


VME14

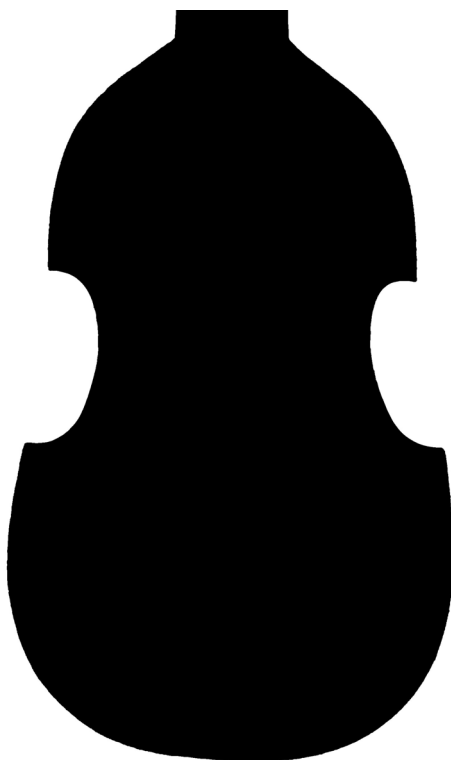
Treble viols by William Turner (semi-silhouettes)



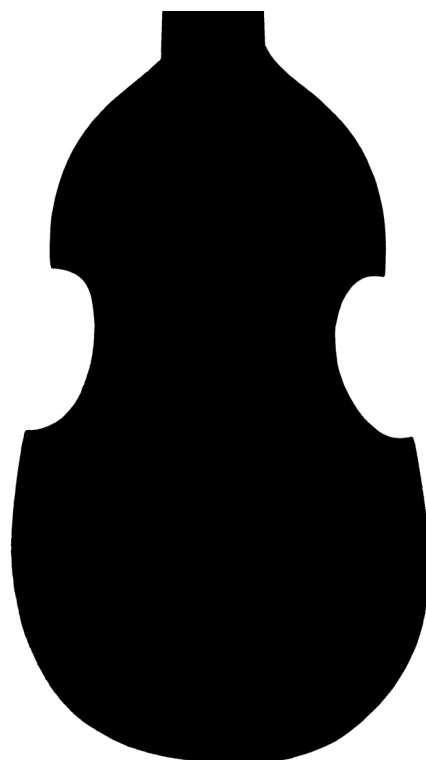
VME08



VME09

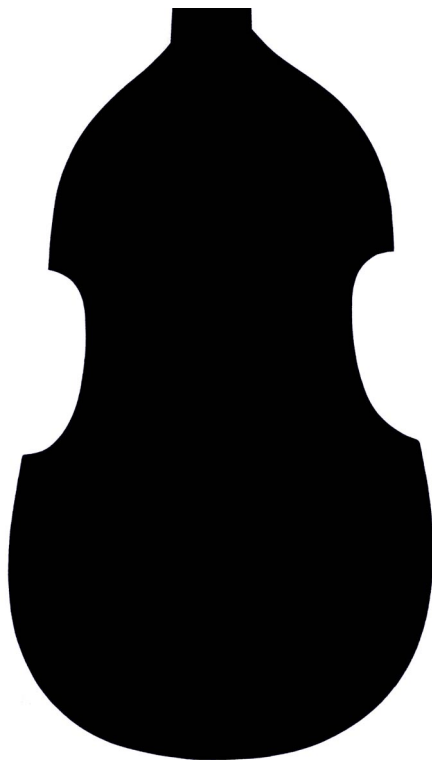


VME10



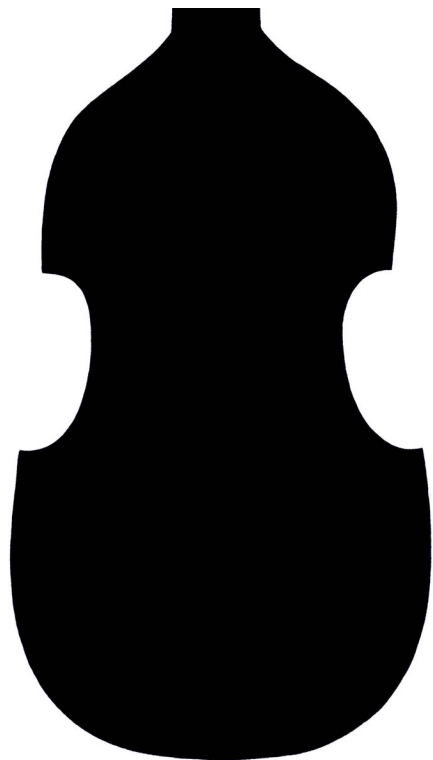
VME14

Treble viols by William Turner (silhouettes).

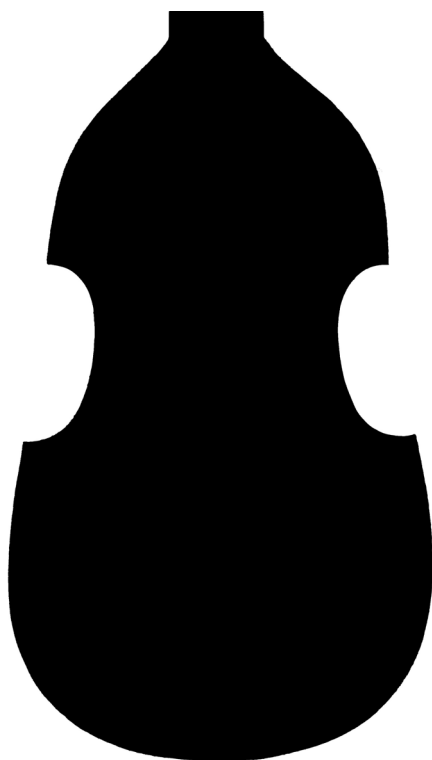


VME27

Two bass viols by William Turner

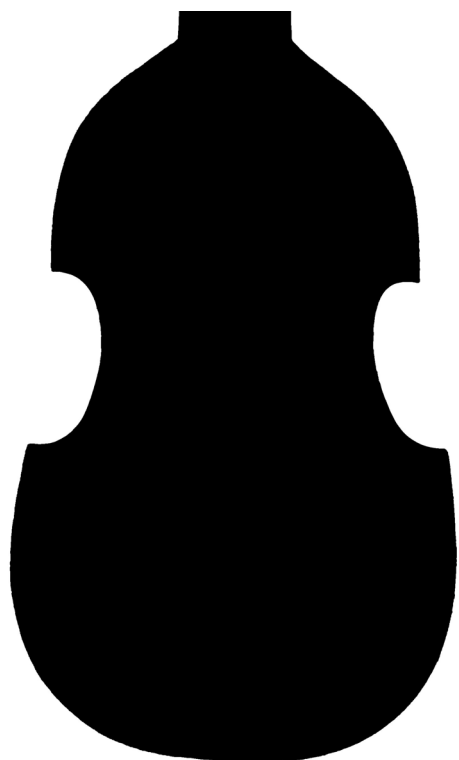


VME28



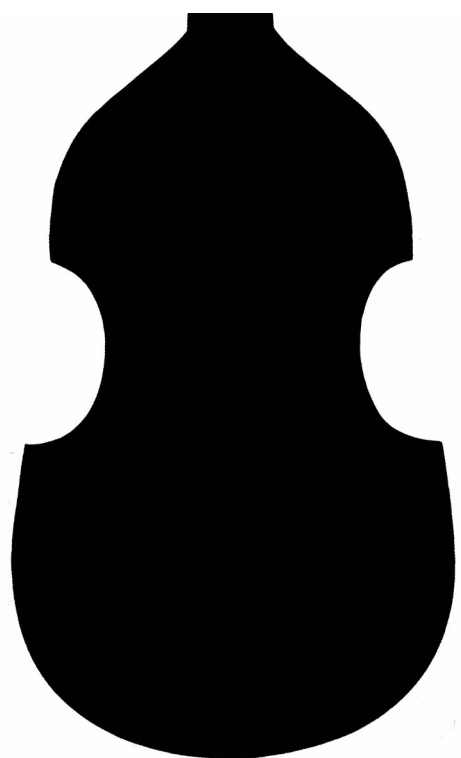
VME08

Two treble viols by William Turner



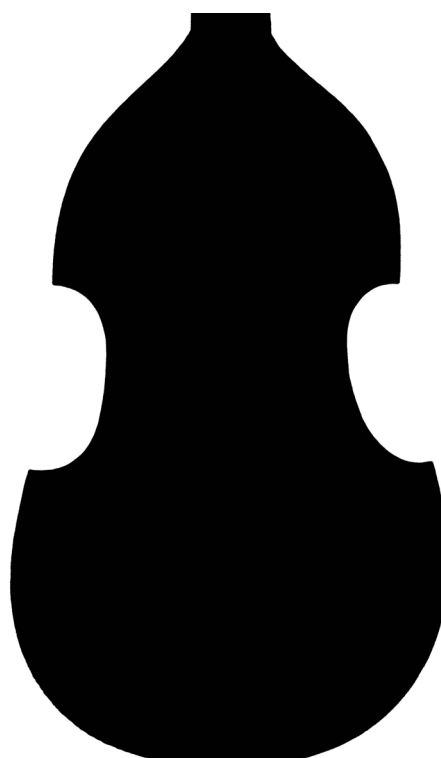
VME10

Silhouettes for comparing treble and bass viols by one maker.

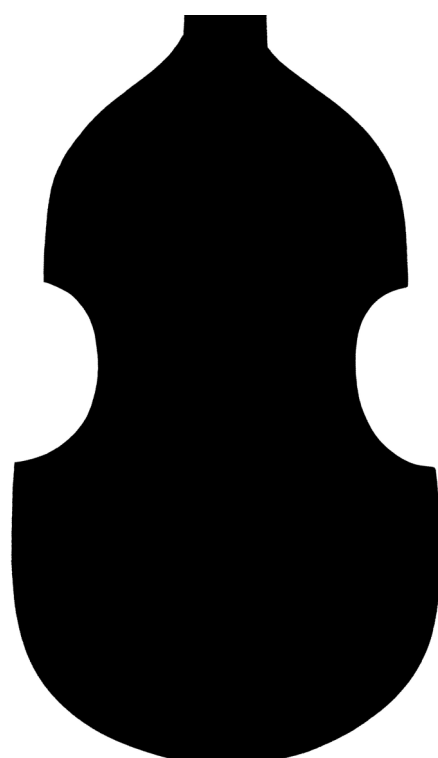


VME19

Two tenor viols by John Rose

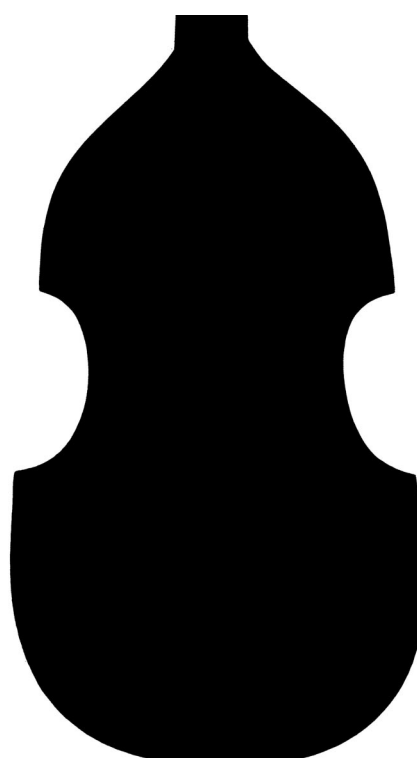


VME20



VME22

Two tenor viols by Richard Blunt



VME21

Silhouettes for comparing tenor viols by two makers.



VME29



VME33

Two Bass viols attributed to John Rose.

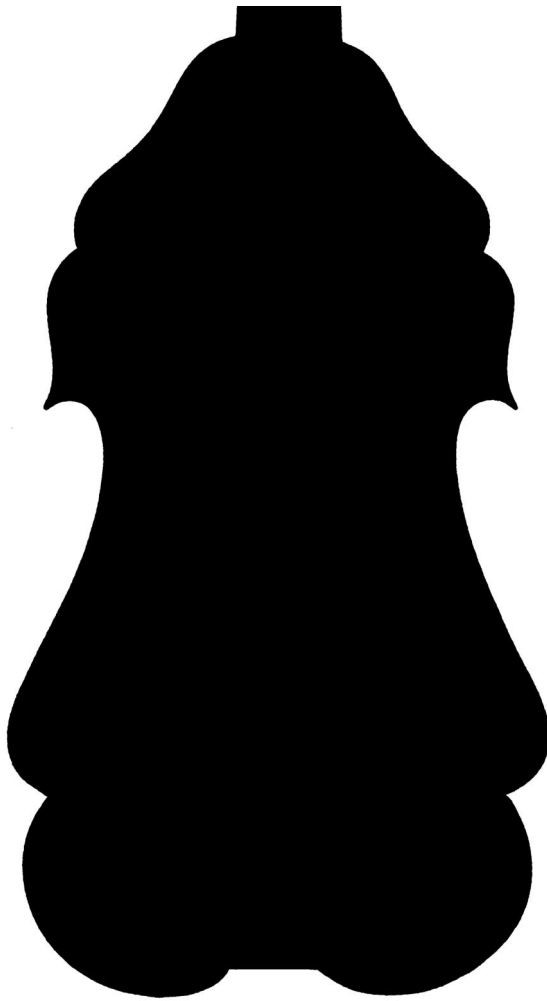


VME29

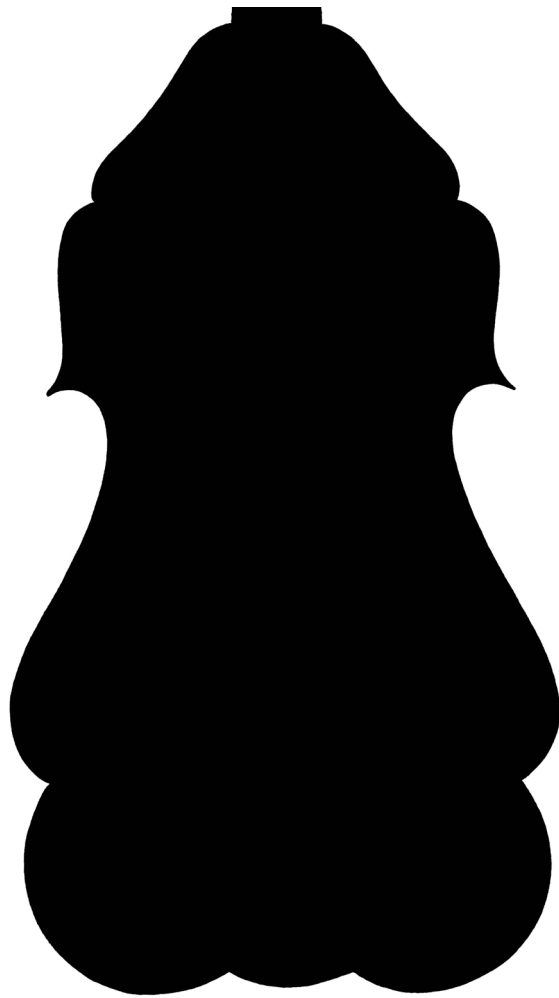


VME33

Semi-silhouettes of two Bass viols attributed to John Rose.

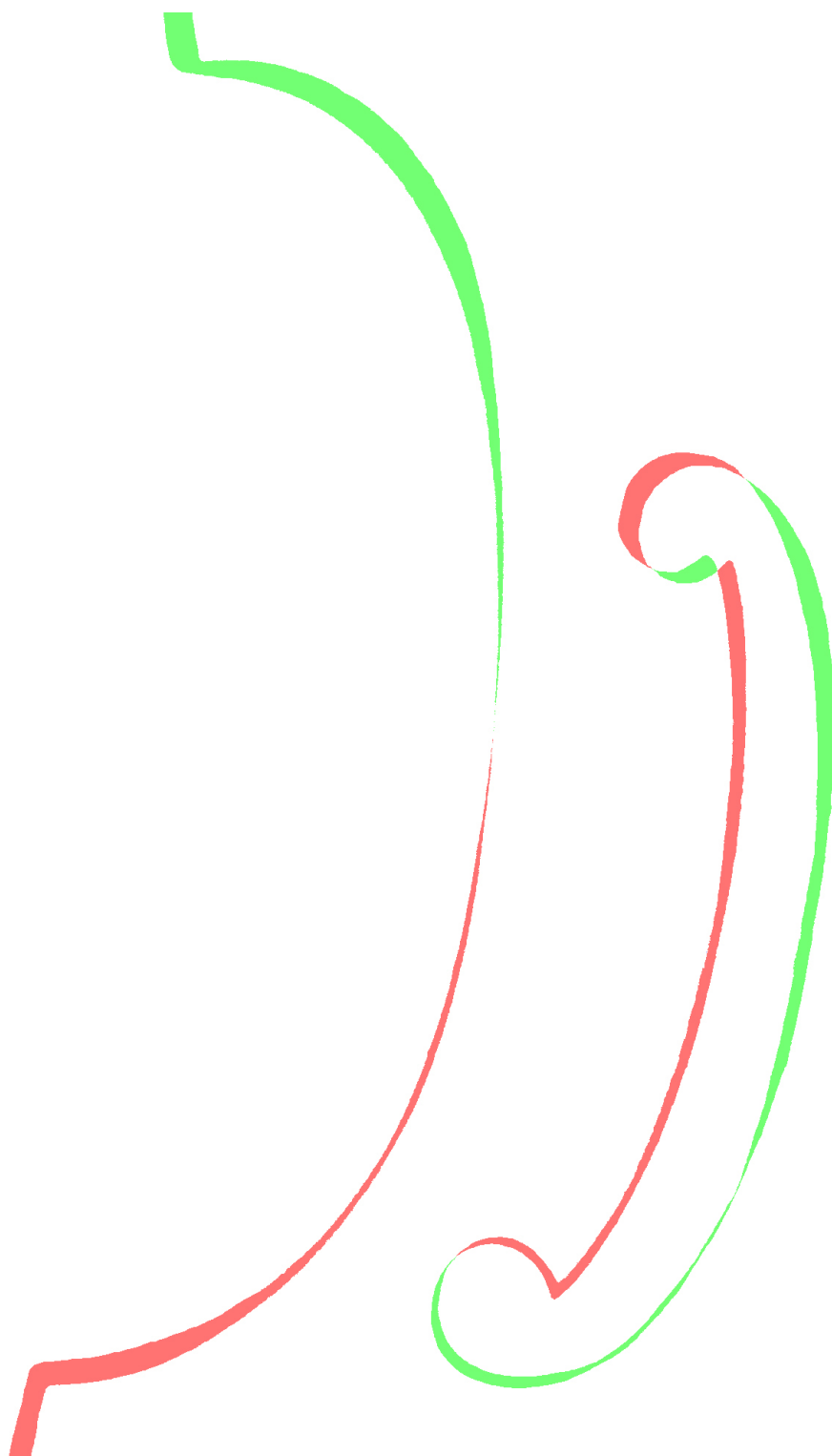


VME29



VME33

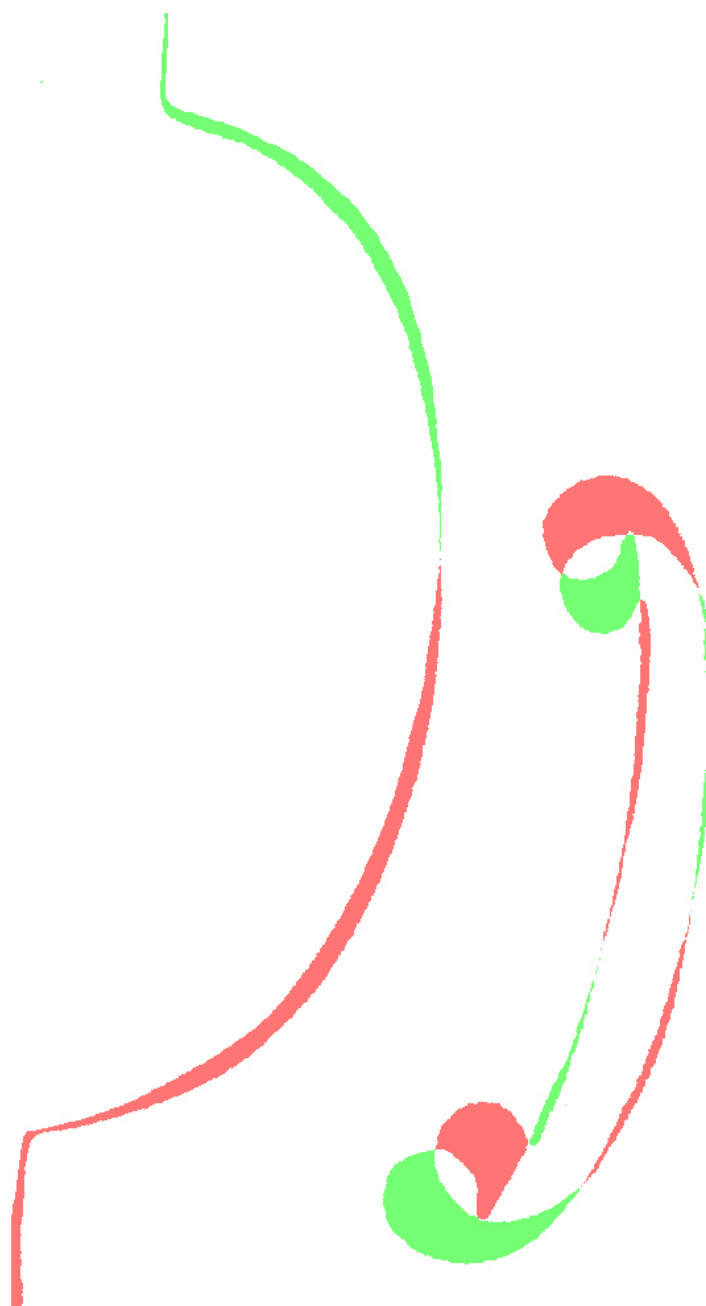
Two Bass viols attributed to John Rose.



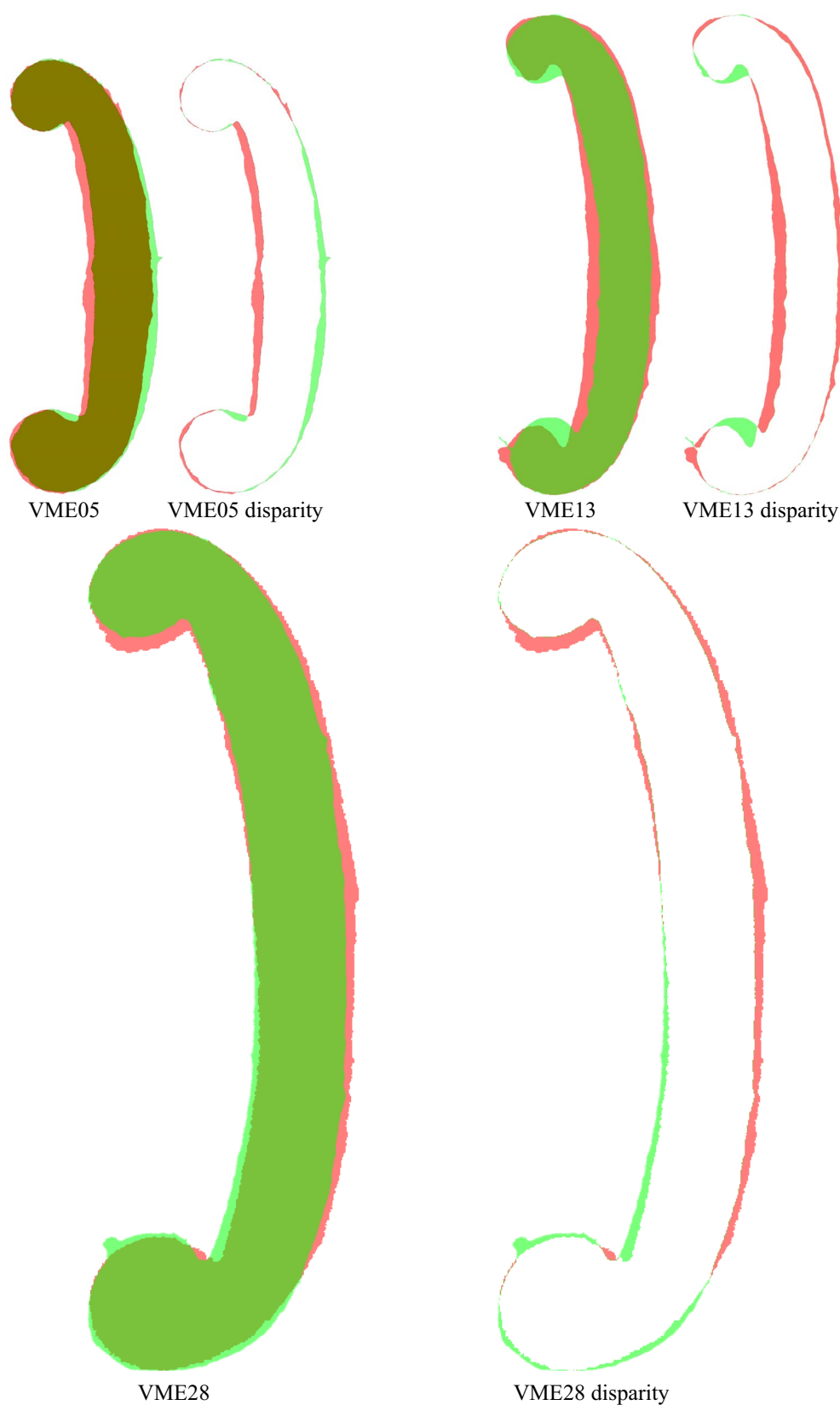
VME37. Unadjusted superimposition of treble bout and soundhole over the bass showing disparity.

This presentation should be considered with the same bouts compared in illustration L06.

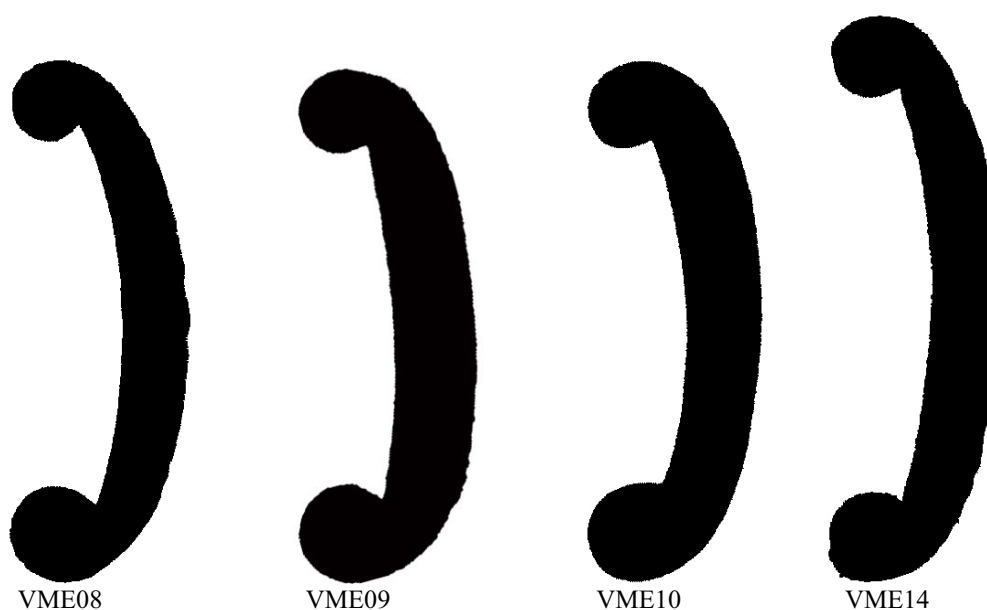
(approximately actual size)



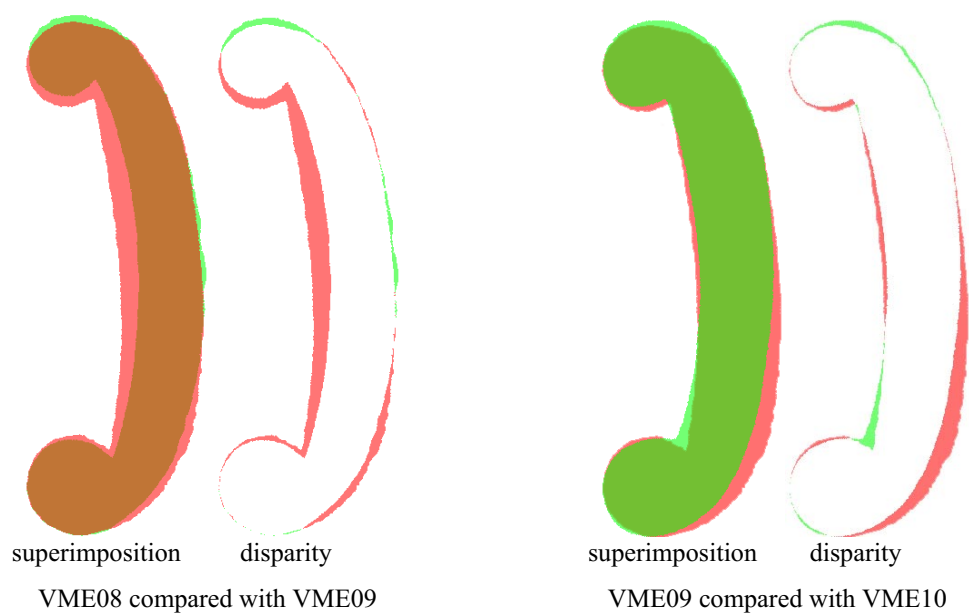
VME21. Unadjusted superimposition of treble bout and soundhole over the bass showing disparity.
(approximately actual size)



Superimposing the treble soundhole on the bass soundhole of the same viol shows that the differences between them are not entirely attributable to damage. Scale and rotation are manipulated to maximise the goodness of fit. These examples from instruments by three makers are given approximately at life-size.



Bass soundholes from four treble viols by William Turner.



Differences between soundholes are generally greater between the bass soundholes of different instruments than between the treble and bass soundholes of the same instrument.

Comparison of bass soundholes of treble viols by William Turner, all given approximately at true size.



VME38



VME37

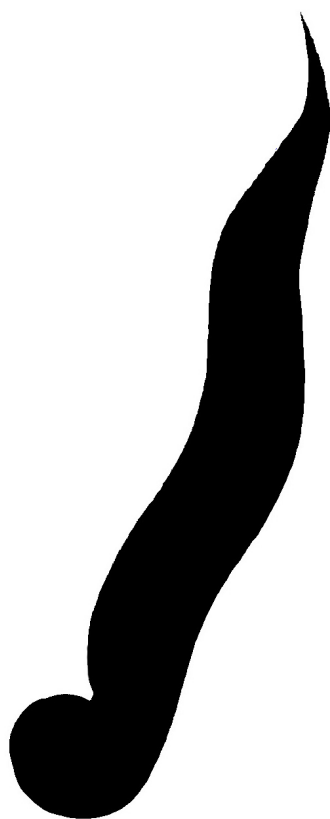


VME32

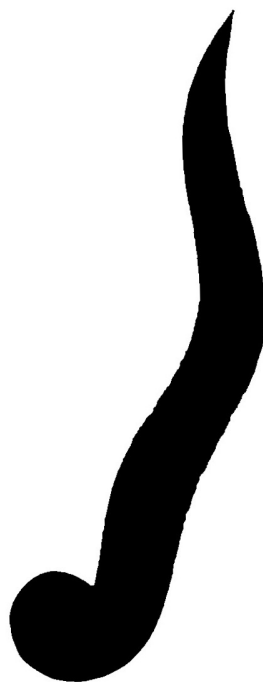


VME24

Comparison of bass soundholes of four Jaye bass viols.



VME29



VME33



VME16

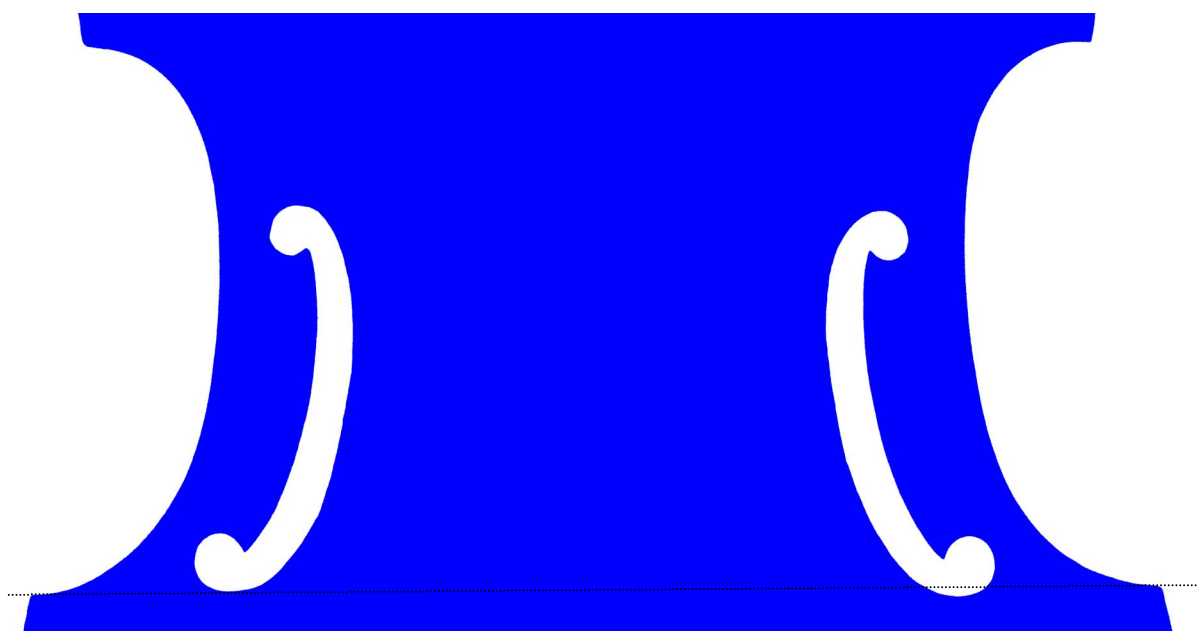


VME26

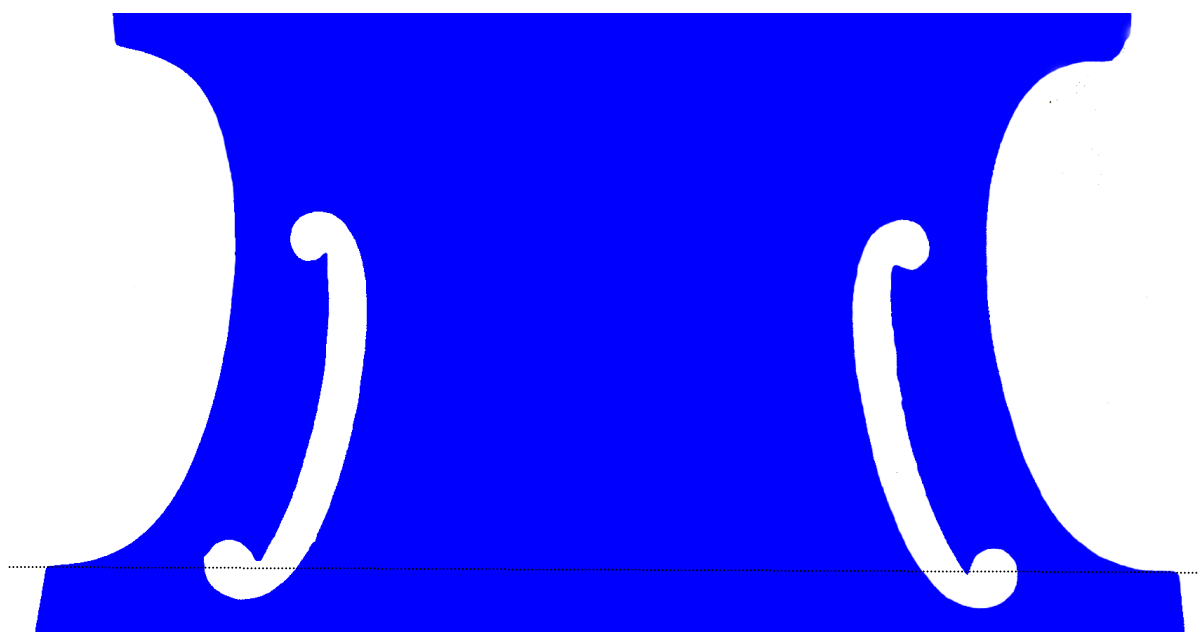


VME35

Bass soundholes of four bass viols by or attributed to John Rose, and the treble viol attributed to John Strong (*top right*). The top three are all shown at the same scale.



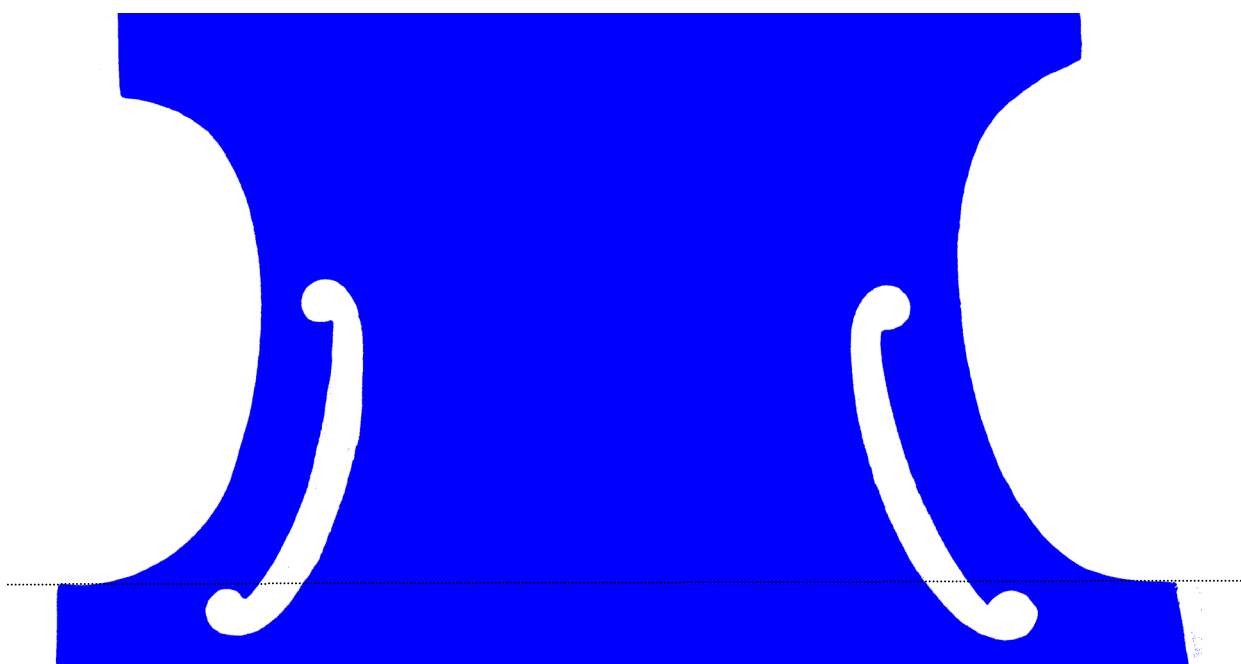
VME37



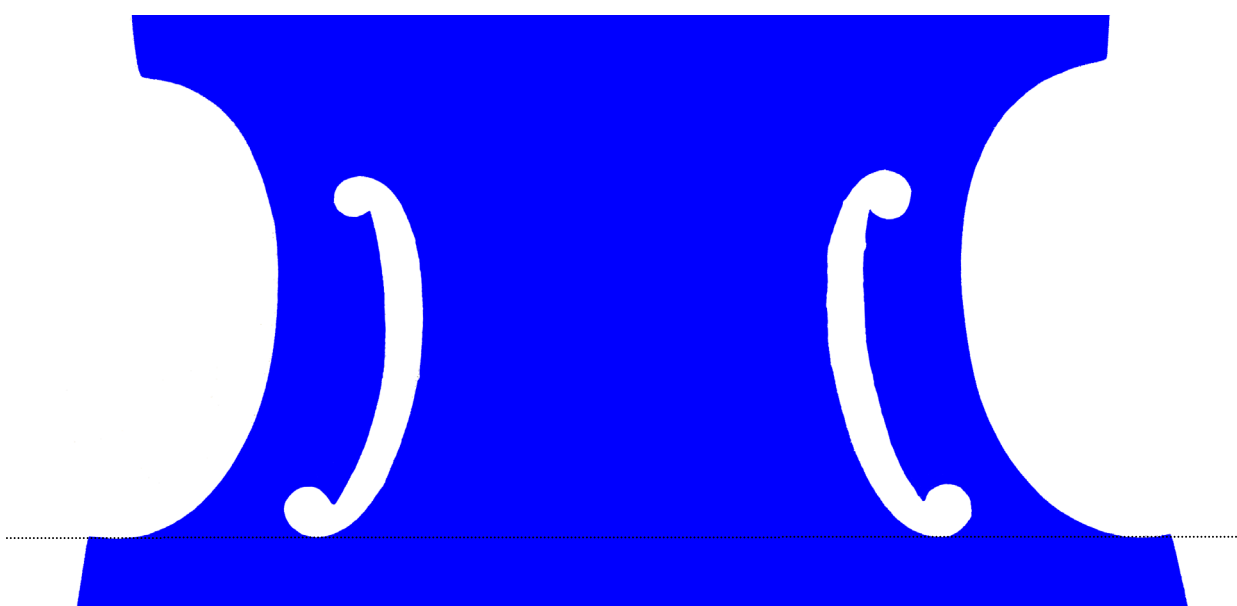
VME38

Comparison of two Jaye bass viols showing different position of soundholes.

(The dotted line is for reference)



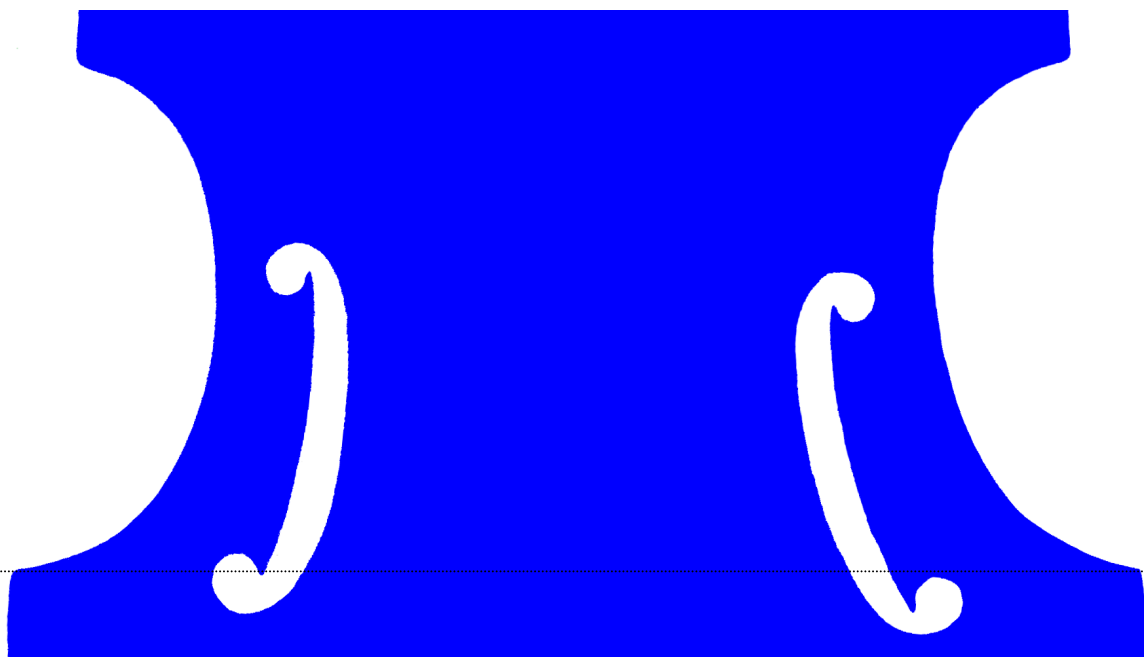
VME34



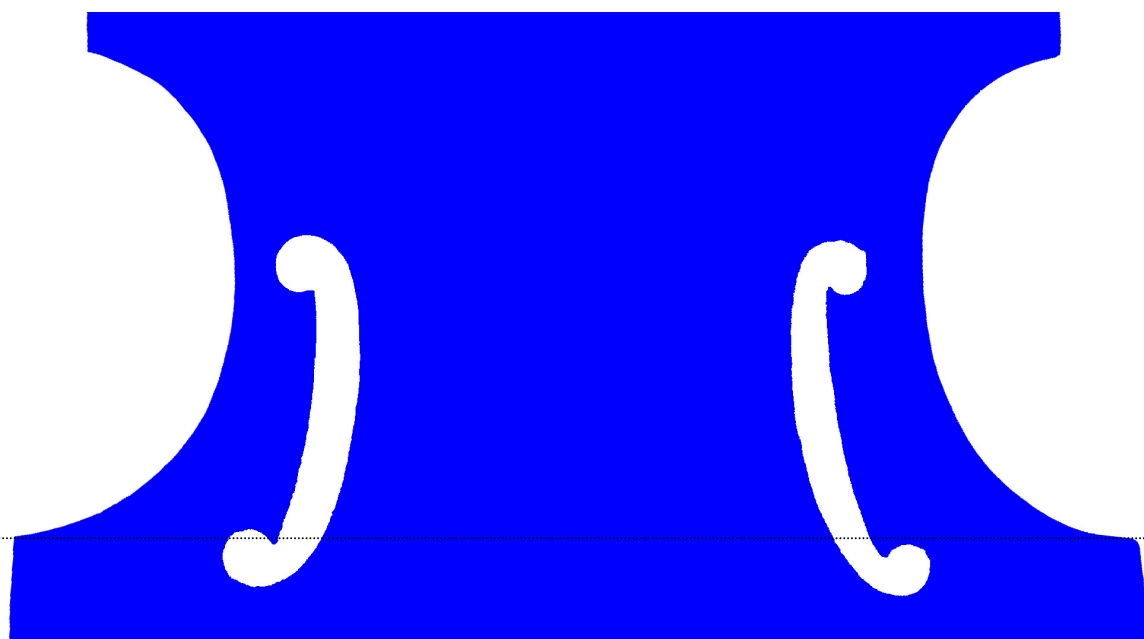
VME35

Comparison of two Rose bass viols showing different position of soundholes.

(The dotted line is for reference)



VME21



VME22

Tenor viols by Richard Blunt, showing similar asymmetrical positioning of soundholes.

(dotted lines are for reference)



(above) Two views of VME04
(pegbox not original)

(above) two views of VME37

Heads by the same carver on two viols (not to scale).

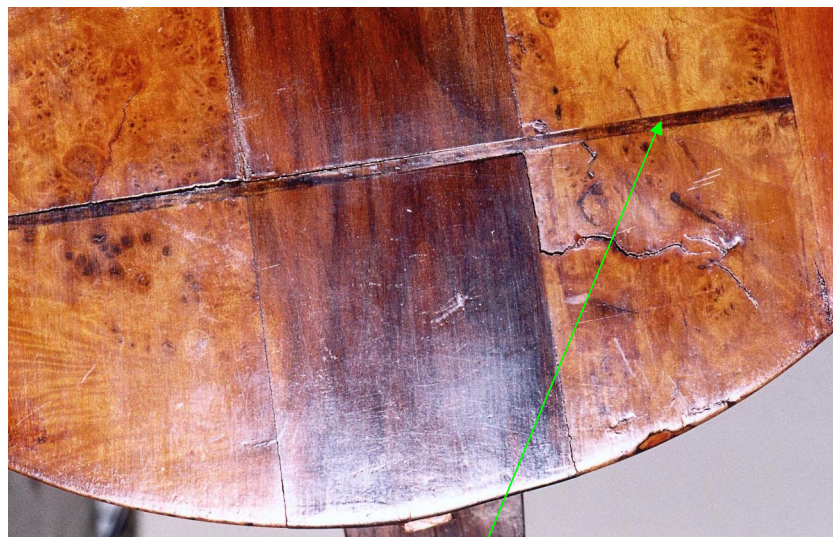


whole back



non-original wood greened-out

original wood

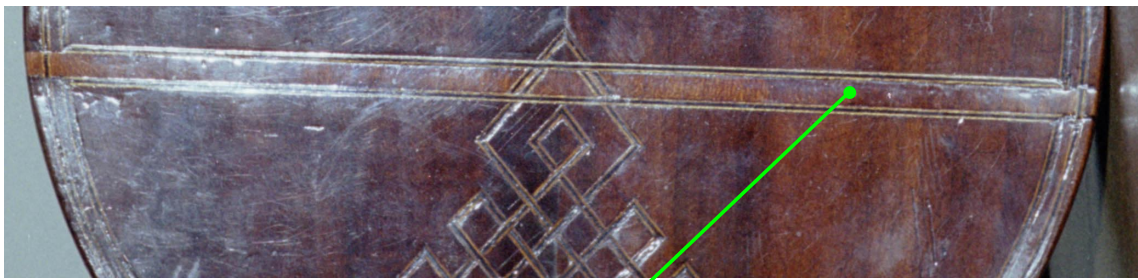


wood inserted during restoration of lower bout fold

VME04. Back views, showing extent of non-original wood.

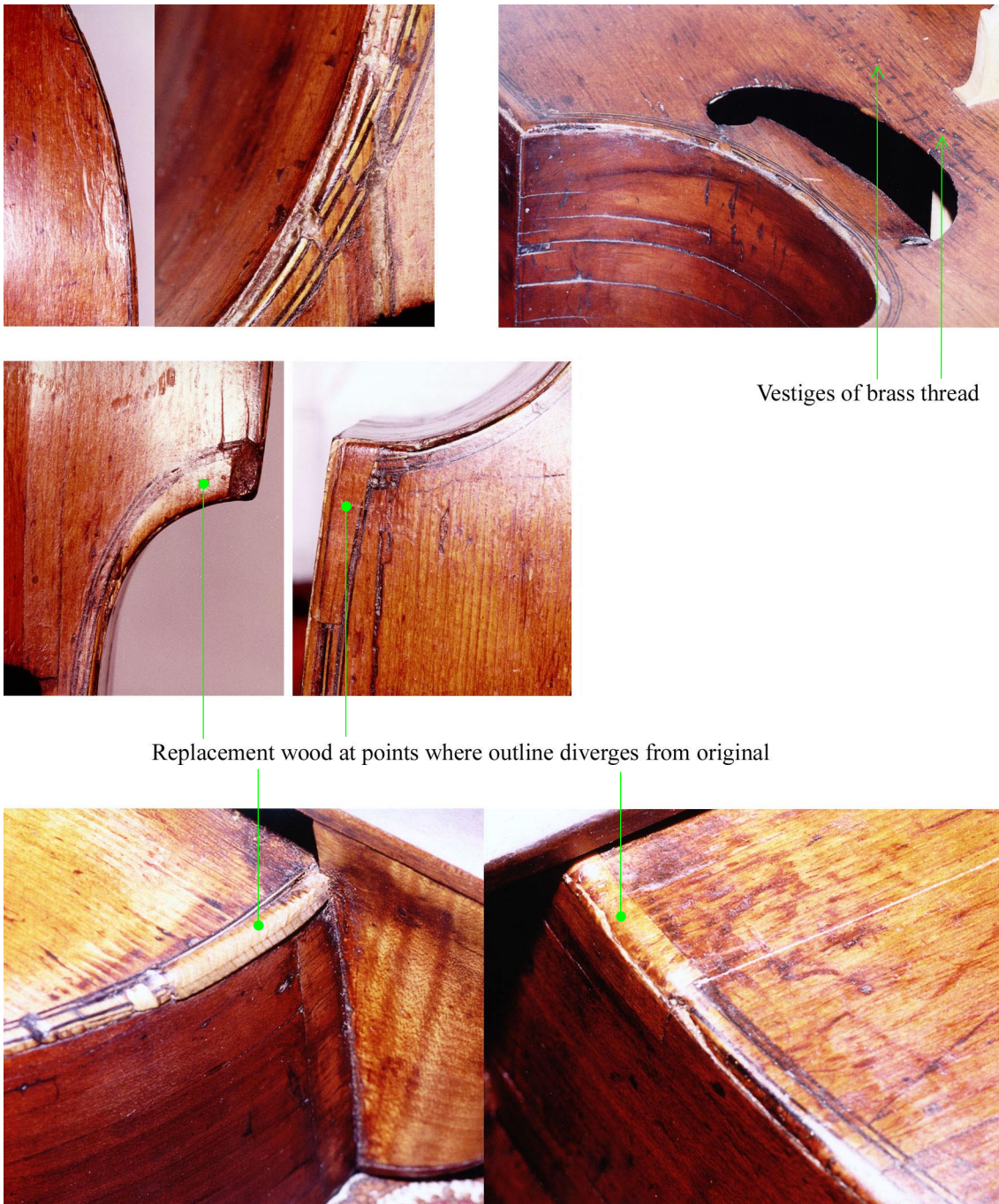


VME13. Outline altered as a consequence of lower bout fold.



VME02. Wood inserted during lower bout fold restoration.

The effects of lower bout back folds.



Replacement wood at points where outline diverges from original

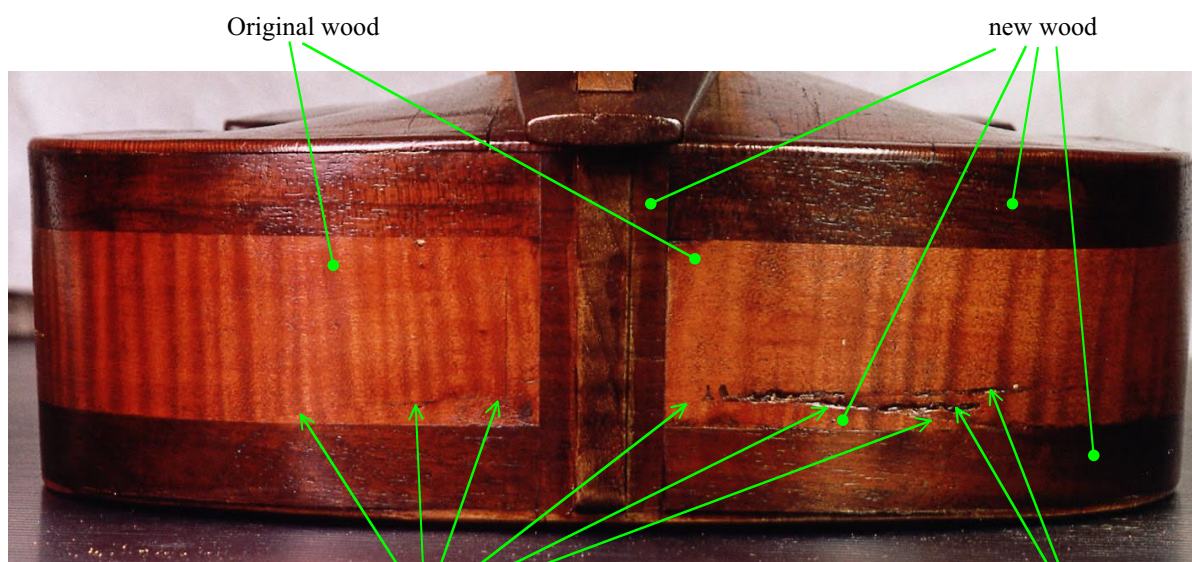
(*top left*) Upper treble bout (L) and bass middle bout (R) edges diverge from original shape. Almost all wood outside the inner line of purfling is missing (L), belly wood does not cover ribs (R).
 (*top right*) Vestiges of brass thread used to sew up a crack.
 (*centre*) Bout corners where belly made up with new wood so as to cover ribs. The original outline could be reconstructed from a continuation of the lines of purfling.
 (*bottom*) Replacement wood, not preserving the original outline at the neck (L) and tailpiece (R). The purfling line near the neck (L) could not be used as a guide to the original shape as it is almost certainly not in the original position. Overall the extent of edge alterations and the inconsistencies of shape mean that the possibility that the belly and ribs originally came from separate violas cannot be excluded.

Examples of visible alterations to edges affecting the outline shape of a viol (VME32).



VME09 Back

Line of former lower bout back fold



Original wood

new wood

Line of former lower bout back fold

woodworm tracks

VME09 Lower bouts, showing damage and alterations.



VME17, showing alterations.

(top left) Back view. (top right) Four details of lower bout.

(bottom left) Neck root. (bottom right) Back of neck.



Front

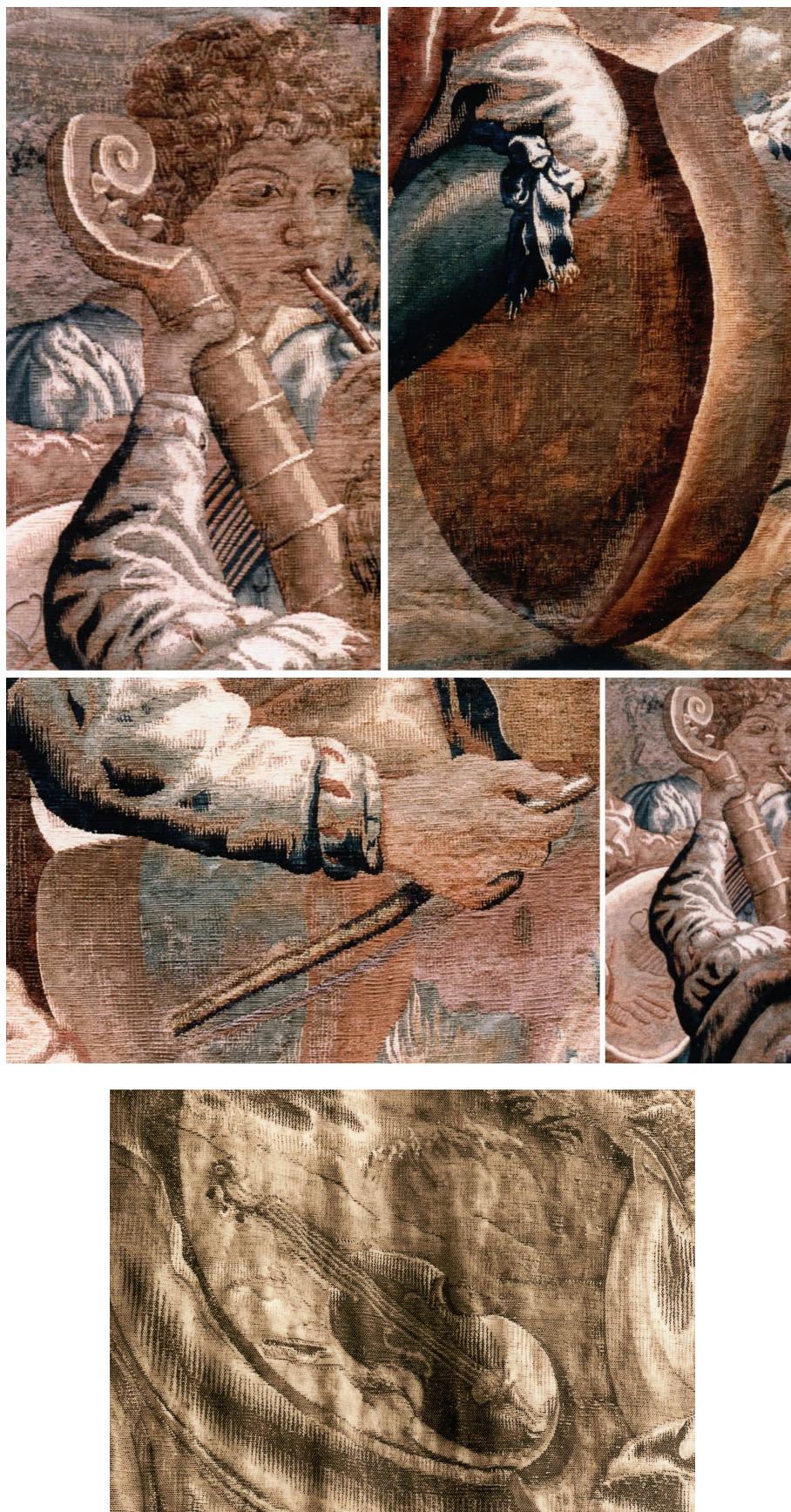


Back



Belly rose

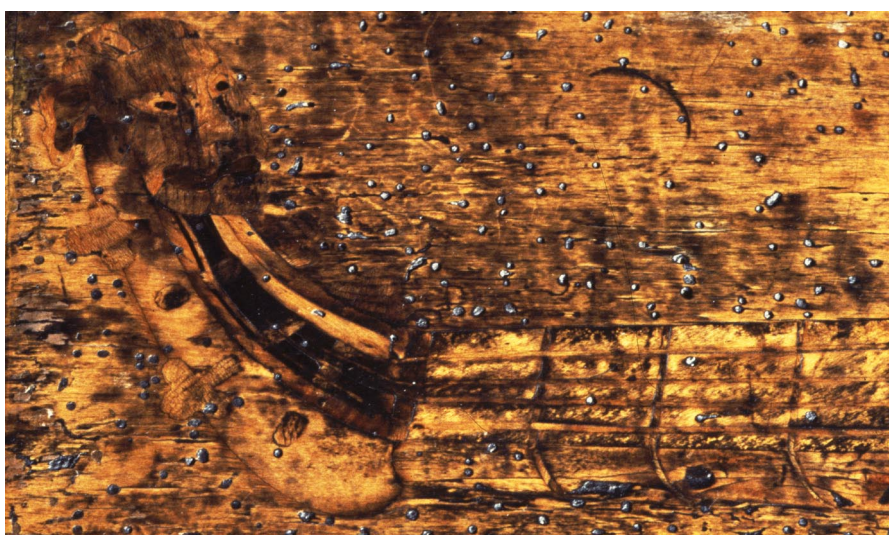
Tenor viol by Henry Smith (Kilmarnock, Dean Castle, No.61). (photographer unknown)



Details of tapestries showing viols. (above) *Prodigal Son*, at Chatsworth. (below) *Hearing*, at Haddon.



Musical scenes on tapestry chairs at Haddon Hall, Derbyshire.
The scene at the top includes a viol(?) with a lute-shaped body.



(top) Bass. (middle) Treble. (bottom) Festooned Tenor.

Details of instruments on the Eglantine table, c.1567 (not to scale)
showing finials, frets, and numbers of strings.

23 Therefore the Lord God sent him forth from the garden of Eden, to till the earth, whence he was taken.
24 Thus he cast out man, and at the East side of the garden of Eden he set the Cherubims, & the blade of a sword shaken, to keepe the way of the tree of life.

CHAP. IIII.

The generation of mankinde. 3 Kain and Habel offer sacrifice. 8 Kain killeth Habel. 23 Lamech a tyrant encourageth his fearefull wives. 26 True religion is restored.

Afterward he knew Henuah his wife, which conceived & bare Kain, and said, I haue obtained a man by the Lord.

And againe she brought forth his brother Habel, & Habel was a keeper of sheepe, and Kain was a tiller of the ground.

And in proceesse of time it came to passe, that Kain brought an oblation vnto the Lord of the fruite of the ground.

And Habel also himselfe brought of the first fruits of his sheepe, & of the fatte of them, & the Lord had respect vnto Habel, and to his offering.

But vnto Kain & to his offering he had no regard: wherefore Kain was exceeding wroth, & his countenance fel down.

Then the Lord said vnto Kain, Why art thou wroth? & why is thy countenance cast downe?

If thou do well, shalt thou not be accepted? and if thou doest not well, sinne lieth at the doore: also vnto thee his desire shall be subiect, and thou shalt rule ouer him.

Then Kain spake to Habel his brother, And when they were in the field, Kain rose vp against Habel his brother, and slew him.

Then the Lord said vnto Kain, Where is Habel thy brother? Who answered, I cannot tel. Am I my brothers keeper?

And he said, What hast thou done? the voyce of thy brothers blood crieth vnto me from the earth.

Now therefore thou art cursed from the earth, which hath opened her mouth to receiue thy brothers blood fro thine hand.

When thou shalt till the ground, it shall not heereforth yeld vnto thee her strength: a bagabond & a runagate shalt thou be in the earth.

Then Kain said to the Lord, My punishment is greater, then I can beare.

Behold, thou hast cast me out this day from the earth, & from thy face shall I be hid, & shall be a bagabond, and a runagate in the earth, and whosoever findeth me, shall slay me.

And the Lord said vnto him, Where is Abel thy brother? And he said, I knowe not: am I my brothers keeper?

And he said, What hast thou done? the voyce of thy brothers blood crieth vnto me from the earth.

Now therefore thou art cursed from the earth, which hath opened her mouth to receiue thy brothers blood fro thine hand.

When thou shalt till the ground, it shall not heereforth yeld vnto thee her strength: a bagabond & a runagate shalt thou be in the earth.

Then Kain said to the Lord, My punishment is greater, then I can beare.

Behold, thou hast cast me out this day from the earth, & from thy face shall I be hid, & shall be a bagabond, and a runagate in the earth, and whosoever findeth me, shall slay me.

he hid, & shall be a bagabond, and a runagate in the earth, and whosoever findeth me, shall slay me.

Then the Lord said vnto him, Dost thou knowe whosoever slayeth Kain, he shall be punished seven fold. And the Lord set a marke vpon Kain, lest any man finding him should kill him.

Then Kain went out from the presence of the Lord & dwelt in the land of Nod toward the Eastside of Eden.

Kain also knew his wife, which conceived and bare Henoch: and he built a citie, and called the name of the citie by the name of his sonne, Henoch.

And to Henoch was born Irad, & Irad begat Methusael, & Methusael begat Lamech.

And Lamech tooke to him two wives: the name of the one was Adah, and the name of the other Zillah.

And Adah bare Jabel, who was the father of such as dwell in the tents, and of such as haue cattell.

And his brothers name was Jubal, who was the father of all that play on the harpe and organes.

And Zillah also bare Tubal-cain, who wrought cunningly euery craft of brasle and of yron: and the sister of Tubal-cain was Naamah.

Then Lamech said vnto his wives Adah & Zillah, Heare my voice, ye wives of Lamech: hearken vnto my speech: for I would slay a man in my wound, and a poung man in mine hurt.

If Kain shall be avenged seven fold, truly Lamech, seventy times seven fold.

And Adam knewe his wife againe, & she bare a sonne, and she called his name Sheth: for God, said she, hath appointed me another seed for Habel, because Kain slew him.

And to the same Sheth also there was borne a sonne, and he called his name Enosh. Then began men to call vpon the name of the Lord.

And the Lord said vnto him, Dost thou knowe whosoever slayeth Kain, he shall be punished seven fold. And the Lord set a marke vpon Kain, lest any man finding him should kill him.

Then Kain went out from the presence of the Lord & dwelt in the land of Nod toward the Eastside of Eden.

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Not for the loue he bare to Kain, but to suppress murder.

Which was some visible sign of Gods judgement, that others should feare thereby.

Thinking thereby to be sure, & to haue lesse occasion to feare Gods iudgements against him.

The lawfull institution of marriage, which is, that two should be one flesh, was first corrupt in the house of Kain by Lamech.

Or, first inuenter. Or, flutes & pipes.

His wives seeing that all men hated him for his crueltie, were afraid: therefore he braggeth, & there is none so lustie that were able to resist, although he were already wounded.

Hee mocked at Gods sufferance in Kain, iesting as though God would suffer none to punish him, & yet giue him licence to murder others.

In these dayes God began to moue the heartes of the godly to restore religion, which a long time by the wicked had bene suppressed.

CHAP. V.

The genealogie, 5 Age and death of Adam. 6 His succession vnto Noah and his children. 24 Henoch was taken away.

This is the booke of the generations of Adam. In the day that God created Adam, in the likeness of God made he him.

Male and female created he them, and blessed them, and called their name Adam in the day that they were created.

Now Adam liued an hundredth and thirtie yeres, and begate a childe in his owne likeness after his image, and called his name Sheth.

And the dayes of Adam, after he had begotten Sheth, were eight hundredth yeres, and he begate sonnes and daughters.

So all the dayes that Adam liued, were nine hundredth and thirtie yeres.

And Adam died.

And his sonne Sheth liued an hundredth and thirtie yeres, and begate a childe in his owne likeness after his image, and called his name Enosh.

And the dayes of Sheth, were eight hundredth and thirtie yeres, and he begate sonnes and daughters.

So all the dayes that Sheth liued, were nine hundredth and thirtie yeres.

And Sheth died.

And his sonne Enosh liued an hundredth and thirtie yeres, and begate a childe in his owne likeness after his image, and called his name Seth.

And the dayes of Enosh, were eight hundredth and thirtie yeres, and he begate sonnes and daughters.

So all the dayes that Enosh liued, were nine hundredth and thirtie yeres.

And Enosh died.

And his sonne Seth liued an hundredth and thirtie yeres, and begate a childe in his owne likeness after his image, and called his name Adam.

A passage from a bible published by Robert Barker in London, 1579 highlighting the association of Jubal and Tubal-cain with musical instrument making. Genesis ch. iv, vv. 21-22.



An engraving by Jan Sadeler after Maerten de Vos showing Jubal in his instrument-making workshop. The original print is 245 x 199 mm.

Edward Ilsbery
 This is the will and testament of Edward Ilsbery, of
 the City of Oxford in the shire of Oxford Joyner or
 Instrument maker anno Domini. 1609. August the fift
 the name of god amen the fift of August. J. Edward Ilsbery
 the City of Oxford Joyner being not in perfect health of
 my. but it in good and perfect memory & prayed god
 do ordayne and make this my will and testament in

By me Edward Ilsbery

George Mashrother

(top) The opening of Edward Ilsbery's will dated 5 August 1609,
 showing where he is described as 'Joyner or Instrument maker'.
Oxford Archives 37/2/33.

(middle) Ilsbery's signature on the above will: 'By me Edward Ilsbery'.

(bottom) The signature on George Mashrother's will.
 ECY George Mashrother of Leeds, York City D. July 1649 (*York, Borthwick Institute*).

Viol-makers' signatures.

Et Et de quibusdam diebus Septem annorum dabitur ordi-
 narius suo Duplice vestes tali dappuntur congruentem
 et vnu instrumentum Anglii vocat a Sagbute &c

Suo Duplice vestes tali dappuntur congruentem &c
 vnu instrumentum ad artem pda pda Anglii vocat a Cornett &c

Me quod vicesimo secundo die Augusti Anno Regni
 Dni me Elizabetha Dei gra Anglie Aramur or
 Libine Regine fidei Defensibus ex vicesimo octavo
 Willms Gibbon filius Willmi Gibbon de Cimitar
 Oxon musition, posuit statim dappuntur pfab Willms
 patri suo in arte sua de musitione crasse erudienda et
 cum ipso more dappuntur remouat me et subit me a festo
 Sni Bartholomei inposstok iam p p fnt me post dat
 p fnt / vsq ad finem et terminum Septem Annorum
 septim p p sequent et plenar complenda ex / Et ad
 finem Dni Septem Annorum dabit eum dappuntur
 suo Duplice vestes tali dappuntur congruentem Dno
 Instrumentum ad artem pda pda Anglii vocat a treble
 Cornett vnu a treble viall et Decem Libras bono
 et legalis moneto Anglie &c

vinginti pda bono et legalis moneto Anglie
 et vnu instrumentum Anglii vocat a treble
 violyn &c

(top) A 'Sagbute' for John Barley (detail). Hanaster A.5.3, fol.320v.

(upper middle) A 'Cornett' for Edward Rursewell (detail). Hanaster A.5.3, fol.338.

(lower middle) A 'treble Cornett and a treble viall' for Gibbons's son, William. Hanaster A.5.3, fol.338.

(bottom). A 'treble violyn' for Richard Pye (detail). Hanaster A.5.3, fol.341.

Some instruments William Gibbons was contracted to provide to apprentices he took on during 1582-1586.
 (All in Oxford Archives)

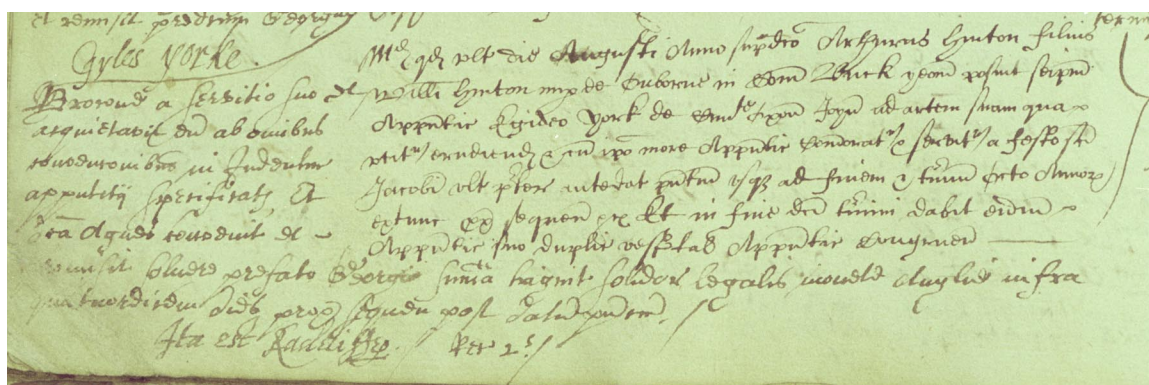
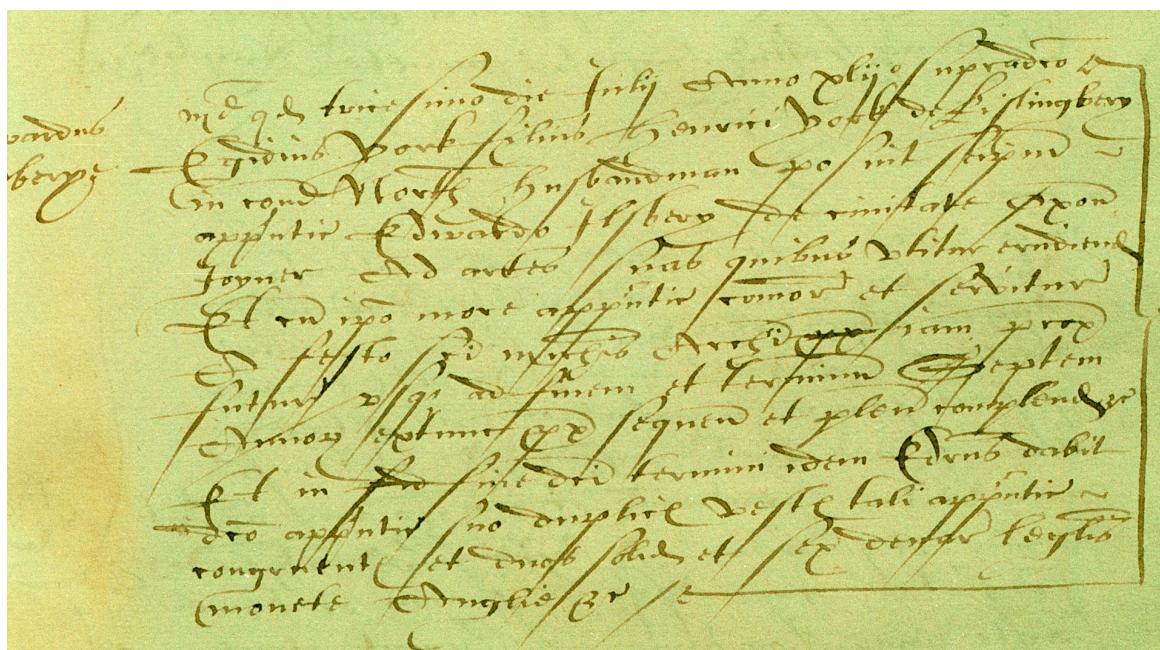
Edm^o Ilsbery
Quod Veruno die May Anno
Regni dñi nri Jacobi Regis Anglie et
quarto et sexto xxxix^o Thomae
Thickpeny, filius Thomae Thickpeny,
imp de Shabam in com Rutland olim
defuncti, posuit seipm apprenticiu dñi
Marini Gubald de dñi dñi Ilsbery de civitate ppon Jeynor ad
quarto dñi Henrici octavi morte apprentici romore et servituri
Anno Regni dñi Jacobi octavi a festo Anniversarii be Marie pñis ultim
Regis Anglie nri et a festo Michaelis usque ad finem et terminu septem
annorum pñis psequen et plenarie
complem et in fine dñi terminu
idem dñus dabit dñi Thomae apprentici
suo duplie pñis tali apprentici
congruen et dñm sibi legib
monete Anglie et tot et talia
instrumenta quot et qualia erunt
sufficien et apta ad faciend et pñiend
ex violis Anglie sibi mñm pñis
tooles ut talia sufficien et fitt for
y making & finisng of a Chest of
vyalls

facione et pñiend pñis violam Anglie
so many and such tooles as are necessarie to
make & finisng of a Chest of vyalls as toles sibi
et quatuor denari legib monete Anglie

(above) Apprenticeship binding of Thomas Thickpeny to Edward Ilsbery, which concludes
 ‘...so many and such tooles as shalbe sufficient & fitt for y^e making & finishing of a Chest of vyalls’
 Oxford Archives, Hanaster L.5.1, fol.137.

(below) Part of the apprenticeship binding of John Stacy to Edward Ilsbery, which includes
 ‘...so many and such tooles as are necessarie to make & finishe of a chest of vialls...’
 Oxford Archives, Hanaster L.5.1, fol.147.

Apprenticeship bindings to the Oxford viol-maker, Edward Ilsbery.



(above) Apprenticeship binding of 'Egidius' (= Giles) York to Edward Ilberye, 'Joyner'.

[This photograph does not show all of Ilberye's name, which is on the left]

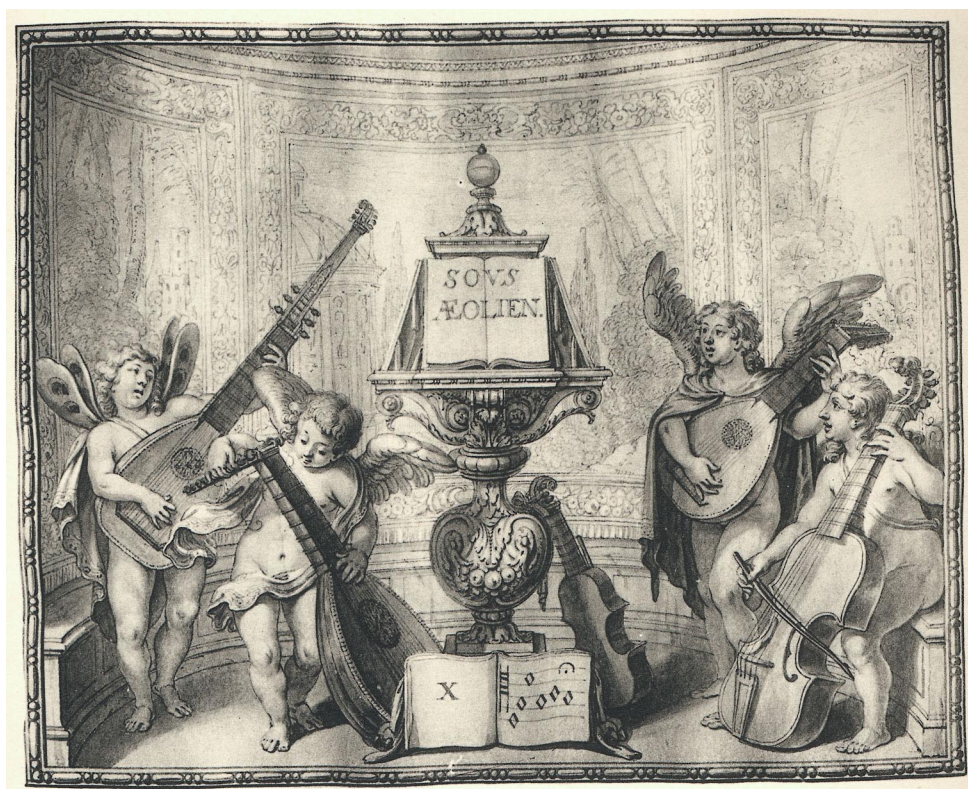
The master is Edward Ilberye's son, here called Ilsbery.

Oxford Archives, Hanaster L.5.1, fol.89.

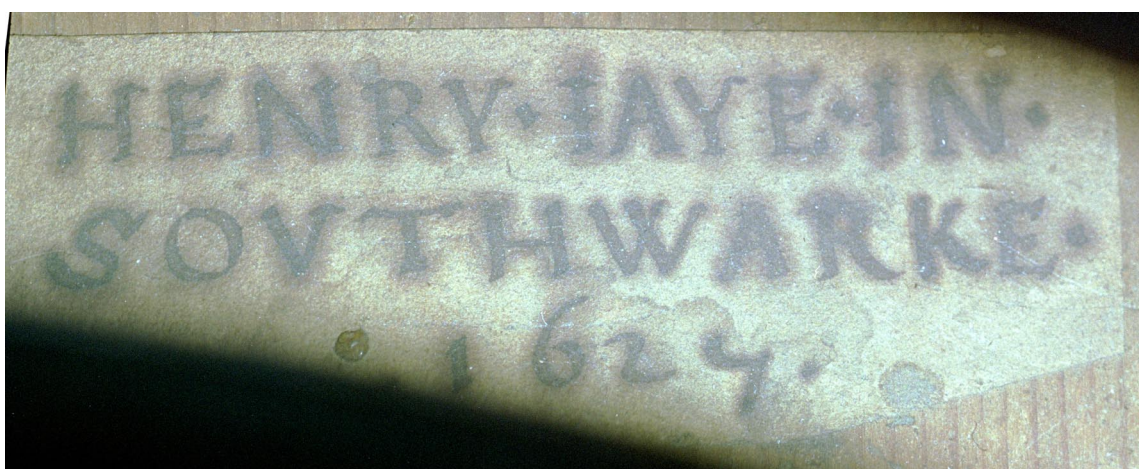
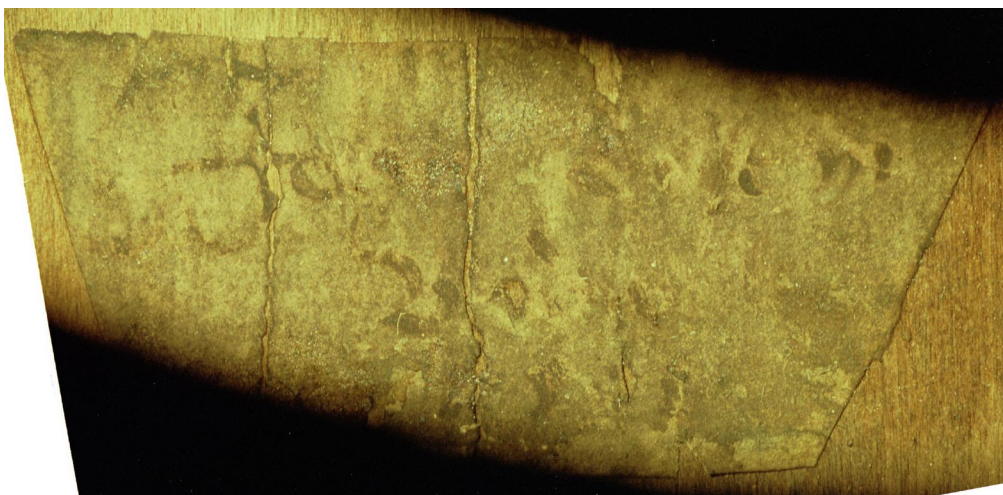
(below) Apprenticeship binding of Arthur Hinton to 'Egideo York', who is described as a joiner and is called Gyles Yorke in the marginal note on the left.

Oxford Archives, Hanaster L.5.2, fol.47v.

Apprenticeship bindings involving Giles York.



Two of the examples of Bowcleffe-shaped viols among Abraham Bosse's drawings for Denis Gaultier, *Rhetorique des Dieux*. Pages 43 and 63 in the facsimile edition (Paris, 1932).



(top) VME19. Said to be by John Rose, 1604. Paris, Musée instrumental du Conservatoire E.980.2.394.

(middle) VME24. Said to be 1624 or 1627. Paris, Musée de la Musique E.73.

(bottom) VME32. (detail) Said to be 1619. *Viollist* BAINE 4.

Some labels which are subject to questionable reading.
(partly obscured by the edges of the soundholes through which the photographs were taken)