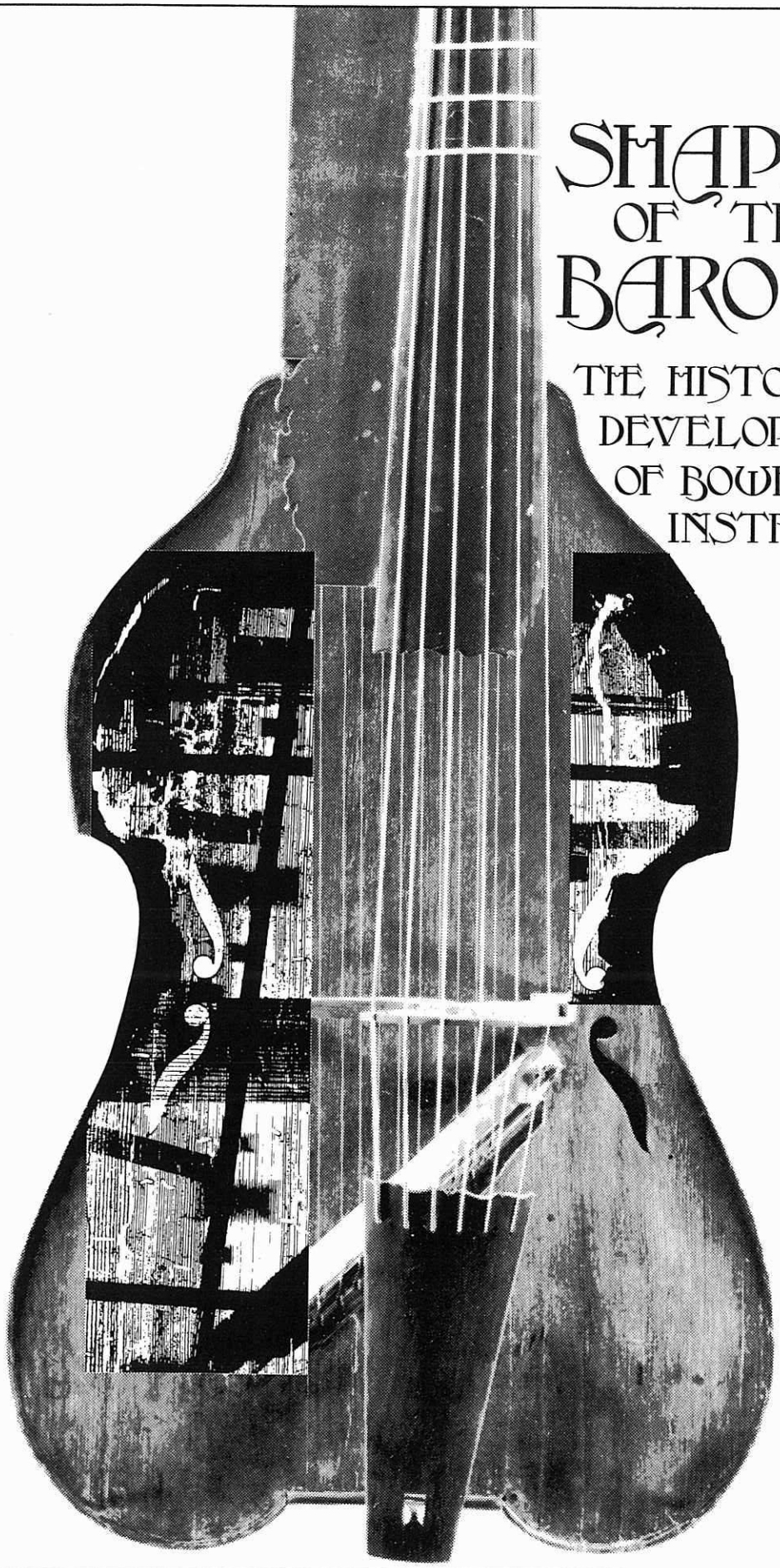
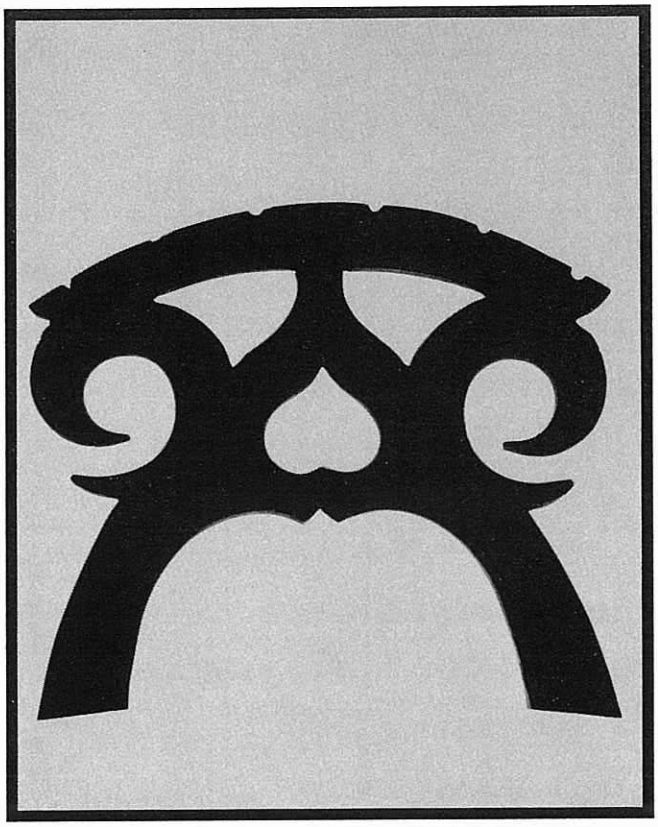


SHAPES OF THE BAROQUE:

THE HISTORICAL DEVELOPMENT OF BOWED STRING INSTRUMENTS

SHAPES OF THE BAROQUE

The Historical Development
of
Bowed String Instruments



Presented by
William L. Monical
Under the Auspices of

The American Federation of Violin & Bow Makers,Inc.

New York Public Library & Museum of the Performing Arts

Division of Musical History, National Museum of American History
Smithsonian Institution, Washington, D.C.

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Cover: Southern German Baryton, ca. 1725, p. 36, with x-ray overlay
Title page: Bridge for 6 String Bass Viol, English, ca. 1680, p.94

PREFACE

It is with pride and pleasure that I write this preface for the exhibition, *Shapes of the Baroque*, presented by William L. Monical.

We have been associated professionally for the past twenty years in one capacity or another, and I have watched him develop as a craftsman and researcher during this time. This Exhibition is the culmination of years of passionate involvement in the Baroque period. Years of reading, visiting museums, studying instruments, assembling information, and developing theories have gone into this endeavor. He has spared neither time nor expense to present this Exhibit in Lincoln Center, and after having collected instruments both in the United States and in Europe, has amassed a group of early bowed specimens in an attempt to show their development from inception; with an emphasis on their shapes, and the strings used at that time, and particularly the systems of neck attachment.

To my knowledge, this is the first attempt at such a scholarly presentation re: the Baroque age with a specifically developed point of view, as well as the assembly of the most authentic instruments for this purpose.

Jacques Francais
New York, New York
February 27, 1989

INTRODUCTION

While viewing a collection that illustrates the historical development of bowed string instruments, one is struck with an impression of bewildering variety. Viols of great beauty, charm and elegance are seen with elaborately carved heads and extensive ornamentation. Violas d'amore and english violets appear to be almost encrusted with strings and like the baryton, have unusual fanciful outlines. Even the tiny kits seem too small and delicate to be functioning instruments. Yet when one comes to the violins, an instrument from 1679 looks apparently similar to one from 1989. While many forms of bowed string instruments were developed and improved only to fall out of popular use, the violin has continued as a dominant element of our musical experience. It is that diversity of instruments and the development of the violin family that forms the subject of *Shapes of the Baroque.*

Today, much new attention has been placed on the performance of baroque and earlier music on appropriate instruments in period style. That demand has created a need for specific information on instrument geometry, methods of workmanship and details of construction that are included in the body of this exhibition. This is not the work of academic scholarship, but an attempt to interpret instruments within the evidence of their design, and the implications of those details that have impact on music and performance.

Instruments in this presentation have been chosen for their purity, and with few exceptions retain original necks and other substantive original features. Only the 1688 Gibs viol (p.20), the small ca. 1700 Cremonese viol (p.26), and the 1701 "Servais" Stradivari cello in modern condition(p.82), have been included for their great interpretive importance. No attempt has been made to include every important maker; there are no examples from the Amati family, for example. Rather the exhibition will focus on the role of the instrument maker in that experimentation that brought us to the musical qualities of the bowed string family of instruments today.

The limitations of space and instrument availability prevent the display of all bowed string instrument forms. For example, there are no representative lyra da gamba, violoncello piccolo or violone included in the exhibition. However, every effort was made to show examples of the major instrument groups as clearly as possible. While bows are represented in the exhibition, their early history remains unclear. Hopefully, further work on the part of specialists and scholars will make such a presentation of original examples possible in the future.

William L. Monical
Staten Island, New York
February 25, 1989

ACKNOWLEDGEMENTS

This exhibition is dedicated to the life and organological achievements of Dr. Robert M. Rosenbaum. Over our years of association, he generously shared his extensive knowledge and was in many ways the architect of this work. I would like to express my gratitude to Mrs. Dorothy Rosenbaum and the Rosenbaum estate for generously loaning the baryton and english violet from the Rosenbaum Family Collection.

A special enthusiasm, interest and cooperation on the part of many people has resulted in this presentation of *Shapes of the Baroque.* Grateful thanks is due to all those who have donated instruments and bows to this exhibition where many examples are being presented to the public for the first time.

The American Federation of Violin & Bow Makers, and Jacques Francais in particular, conceived the idea for the exhibition and have been continually supportive of the project through its many stages. Many thanks to William Moennig III, President, and the Board of Governors for their advice, technical review and publication of this catalog.

Particular thanks is due to Dr. Robert Henderson, Chief, Library and Museum of the Performing Arts at Lincoln Center for his enthusiasm and cooperation throughout the project's development. The work of Donald J. Vlack, Head, Shelby Cullom Davis Museum, in designing the exhibition in the Amsterdam Gallery has made the presentation of the instruments both visually interesting and aesthetically delightful. Thanks are also due to Bob McGlynn for his visual layout, the exhibition poster, and the cover graphics for this catalog. For the safety of the instruments and bows on display and their presentation in cases we are very grateful to Juan Palacio, Museum Supervisor, and his excellent staff, Humberto Hernandez, Herbert Ruiz, & Anthony Walcott.

Gary Sturm of the Division of Musical History at the Smithsonian Institution collaborated closely through the many stages of the project. The exhibition could not have been mounted without his close association, and the help from members of his staff, Stacey Kluck and Betsy McCullough. Stewart Pollens of the Department of Musical Instruments at the Metropolitan Museum of Art provided the radiographic assistance so critical to the interpretation of the instruments. Thanks also to Andrè Larson, director of the Shrine to Music Museum and Samuel Quigley of the Boston Museum of Fine Arts for their generous time, assistance and advice.

Many people contributed their time, knowledge and experience to the research elements of the exhibition. Dr. Stephen Bonta of Hamilton College generously provided source material for the early history of strings and was of great assistance to the project. Thanks also to Donald Warnock for information concerning the Rönnegren viol, and to John Hsu of Cornell University for analysis of French Baroque Literature. I am grateful to David Hill, Berend Möller, Mads Hjorth, Etienne Vatelot, Bernard Millant, Charles Beare, Dietrich Kessler, Boyd Poulsen, William Moennig III, Jacques Francais, Karel Moens, Friedemann Hellwig, and Klaus Marcius for their assistance concerning technical elements of instrument research. John Montgomery provided extensive help in the translation and analysis of French violin maker's inventories and other French materials.

The video accompanying the exhibition could not have been accomplished without the help of the performing artists, Lucy Bardo, Tina Chancey, Judith Davidoff, Jennie Hansen, John Hsu, Susan Iadone, Ken Slowik, Gary Sturm, James Weaver, and Shigetoshi Yamada. We also thank them for contributing recordings for the sound elements of the video presentation. Max Rosen with a fine crew has captured the spirit of the exhibition in a beautifully edited presentation. For the sound system, Jason Bloom of Apogee Acoustics generously donated Diva speakers for the exhibition, with amplification equipment courtesy of Anthony Federici & Paul Rosenberg at Mondial, Inc. Christopher Greenleaf of Classic Masters worked within a very tight schedule to produce recorded material in an edited format.

This catalog stands in many respects through the quality of photography. I am deeply grateful to Tom Shidemantle for his energy, and long hours of laboratory work to produce the photographic materials. The catalog would not have been produced without the imagination and tireless energies of Myra Cohen who designed and typset the publication. Diane Catalano and Hannah Kelly were the supporting strength that held the project together through its many months of development. Special gratitude goes to Philip Monical for designing the instrument stands, and for his many constructive suggestions through mechanical elements of the production. Paul Monical worked many hours on the display preparations and Kathy Monical, as always, was the council and guide in the work from its beginnings.

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EXHIBITION INVENTORY

(continued)

Maker unknown...country of origin:

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SHAPES OF THE BAROQUE

In the experience of the musical public today, the violin is usually linked to the great Cremonese masters, Antonio Stradivari and Joseph Guarneri "del Gesu", whose instruments have achieved a place of prominence in the spotlight of solo performance. One would assume that these instruments were always preferred above others, even from the moment of their first use. It may then come as a surprise to discover that the violins of Stradivari and Guarneri did not reach general popular acceptance until the 19th Century when the power and concentrated sound of their instruments allowed performing artists to reach an increasingly larger musical audience.

The connections between composers, musicians and instrument makers create the catalysts of instrument evolution. Makers have always been challenged to create instruments that allow composers and musicians to reach even greater levels of musical expression.[1] This was the case when the violin appeared in the 16th Century in Northern Italy and began a process of evolution which continued well into the 19th Century. For bowed string instruments, the propellant of change is tied to the technology and development of strings, which are the generators of sound. With the development of wire covered strings in the late 17th Century, the violin family underwent a series of improvements in proportion, construction and sound that led to the familiar instruments we know today.

It is not fully understood why string instrument making increased in the late 15th Century, with a demand that led lute makers in Füssen to exert control by organizing themselves into a guild by 1562[2]. A major result of guild influence was the elevation of makers' skills and standards of workmanship among those both within and outside the Füssen community of craftsman. It was these German craftsmen who were to establish their reputations in French, German and Italian cultural centers.[3] Lute makers skilled in bending materials, joining accurate surfaces and carving delicate soundholes were easily able to adapt methods of workmanship to produce violins and viols as demand for these instruments grew. The craft tradition linking both disciplines continued even into the 18th Century as makers indicated *lute & violin maker* on printed and handwritten labels.[4] And, of course, in France the term *Luthier* is still used today to describe the profession of violin making.

It would seem that the plucked and bowed families of instruments would have little in common, either in construction or sound quality. The strings[5], however, were a very important element to both, determining instrument size, tuning relationships and range, particularly in lower registers. Until the last quarter of the 17th Century, strings were made of plain gut, primarily from the intestines of sheep, and were in universal use on lutes, viols and the violin family of instruments. Thin strands or strips of gut were twisted together to form a smooth cylindrical string. The number of strands used depended on the intended pitch: fewer strands were combined for thin strings of high pitch, while a greater number of strands were needed for thicker strings in lower tunings.

It will be helpful to look briefly at the actual process of string making. The most comprehensive description is provided in the Diderot *Encyclopédie* which provides a great wealth of detailed information on a wide variety of manufacturing processes in France during the mid 18th Century. The *Encyclopédie* gives a comprehensive description of string making which is illustrated on the following page.

1. Stewart Pollens made this observation very clearly in his 1980 interpretive exhibition, *Forgotten Instruments* at the Katonah Gallery. The implications for larger generic groups of instruments are found in the catalog introduction, pp.4-5.
2. See the article by Friedemann Hellwig, "Lute Making in the Late 15th and 16th Century", published in *the Journal of the English Lute Society,* Vol.XII, 1974, p.33.
3. The Bavarian instrument making family of Tieffenbrucker originated from the Füssen region and spread in the 16th Century to Lyons and Paris through Gaspar Tieffenbrucker (Duiffoprugcar), to specialize in bowed string instruments. Other family members including Magno, Ulrich and Michael moved to Italy where they were known mainly for their lutes. (see "Tieffenbrucker" by Ian Harwood in the *New Groves Dictionary of Music and Musicians,* Vol.XVIII, pp.814-815.
4. This practice was not uncommon, particularly among German and Bohemian makers. Alletsee, Aman, Eberle, Fischer, Gedler, Hoffman, Leidolff, Maussiel and Rauch are but a few examples of makers advertising this joint discipline.
5. I am much indebted to Dr. Stephen Bonta for generously sharing his research into the history of strings. It is from his work that a major part of string technology information in this catalog has been taken and interpreted.

Boyaudier: The name of a person who spins and works with gut

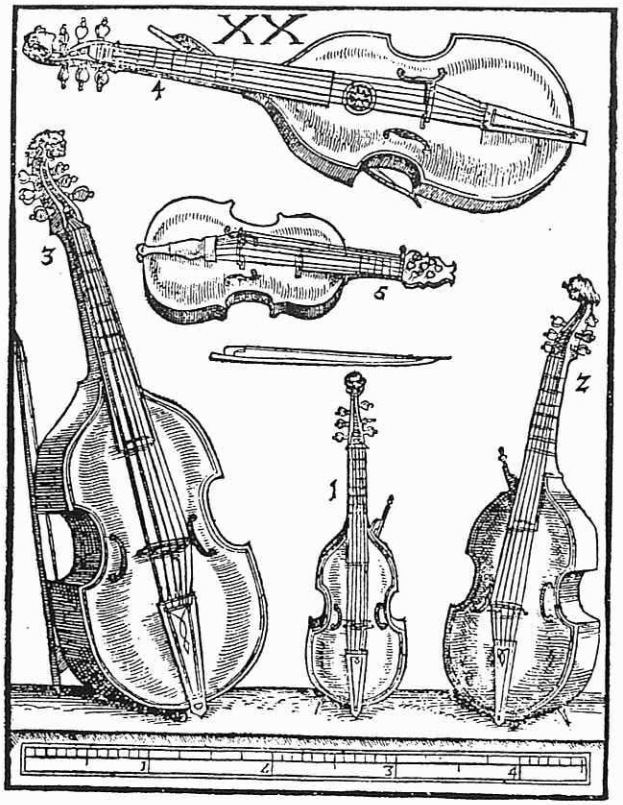
"One of the least agreeable of Parisian trades was that of gut-spinner, who supplied the tennis racket manufacturer and violin-maker with string. The entire guild consisted of eight masters, all of whom had establishments near the slaughterhouses of the Faubourg St. Martin. They would obtain sheep gut and lamb gut from the slaughterer, press out the ordure, wash and dry the lengths of gut on racks (Fig.1), then scrape it (Fig.2), and splice it (Fig.3). It could be sold as a single strand for the thinner strings on a violin, or spun into cords (Fig.4) of several strands for a bass viol. In English this material is called catgut, but it has in fact always been prepared from sheep and goats."[1]

While thin plain gut strings were reasonably successful in the upper registers (and continued to be used on instruments of the violin family into the 20th Century), heavier strings created problems in lower pitch ranges. Very thick strings were needed to sound with suitable tension in lower registers. The resulting stiffness of gut in large diameter created problems of intonation and required excessive bow pressure to bring thick strings into vibration. By increasing the vibrating string length, a thinner more flexible string could be used at the same pitch, but instruments had to be of correspondingly larger size and were cumbersome to play as left hand agility was severely limited by the wide distance between semi-tones. This was an essential problem in the viola and cello,[2] and a concern for instrument makers in the 16th and 17th Centuries as instruments evolved to expand the musical range downward into lower registers.

For practical purposes, string tension had also to be as consistent as possible from the upper to lower registers of an instrument. Without an even resistance from one string to the next, a musician would have to make constant bow pressure adjustments in executing even simple melodic passages involving string crossings. To achieve relatively even tension in a bass viol or cello, for example, the lowest strings must be dramatically thicker than those of the upper register. In 1636 Marin Mersenne published specific information on the mathematics of properties concerning vibrating strings.[3] His formula described the relationships between pitch, string length, tension and density. Mersenne also made recommendations for specific string thickness proportions that achieved even tension over an instrument's open strings. The following illustration from the

1. This information with extensive translated materials from Diderot in a more detailed and comprehensive form is being prepared by Dr. Stephen Bonta for publication under the title "The Making of Gut Strings in 18th Century Paris".
2. See a detailed discussion of cello sizes and terminology in the Stephen Bonta "From Violone to Violoncello: A Question of Strings?", *Journal of the American Musical Instrument Society,* Vol.III, pp.64-69, 1977.
3. An excellent review of string development with specific attention to string, mass and flexibility is found in the Stephen Bonta "Further Thoughts on the History of Strings", *Catgut Acoustical Society Newsletter,* No.26, pp.21-26, 1976. For an additional analysis of Mersenne's data on strings, see Djilda Abbott & Ephraim Segerman, "Strings in the 16th and 17th Centuries", *Galpin Society Journal,* Vol.XXVII, pp.48-73, 1974.

1619 *Syntagma Musicum* of Praetorius shows these extremes of thickness on the family of viols, Table XX.[1]



For the instrument maker, fingerboard, bridge and top-nut curves had to be adjusted sharply downward on the lower register for bow clearance over the strings at the bridge itself, and for playing ease of the left hand on the fingerboard. Most surviving fingerboards that I have seen show this greater curvature from the lower hand positions upward to the top-nut.

To produce working instruments under the physical and musical constraints of plain gut strings, makers experimented with body size and design, plate thickness (graduations) and bass-bars. This experimentation is obvious in the number of large viols and cellos from the 16th and 17th Centuries with differing numbers of strings, body sizes and tunings that are described by Ganassi, Praetorius, Mersenne, Talbot and others. Compromise is also seen in size variation of the violin, and the viola where the performance of the alto and tenor lines were split between a smaller *contralto* and larger *tenor* instrument having the same tuning.

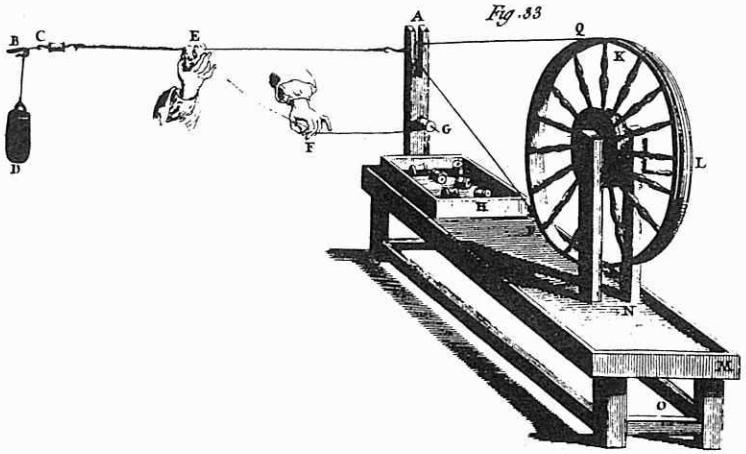
Musicians also experimented with their instruments to find pitch stable relationships with gut strings. Ganassi[2], in the *First Lesson* describes moving the bridge closer to the tailpiece to increase the vibrating string length and further to change string thickness for sound adjustment. To balance the consort of viols together as a group he also implies that the top string be tuned as high as "will allow the thin string to hold", and further suggests that the bridge can also be moved forward toward the fingerboard. There is ample evidence of extensive bridge placement experimentation in bridge foot marks above and below normal location in many instruments of both the violin and viol families. In 1664, John Playford also suggests to the beginner of the violin that "to begin with he must wind up his first or Treble string as high as it will bear..."[3] which, as Bonta points out, is a method of adding tension to the bottom string by raising its pitch to concentrate sound.

As early as 1664[4], a new technology appeared. Plain gut strings could now be wound with copper or silver wire. The results were astonishing to musicians who remarked on the louder quality and ease of playing that covered strings afforded on the lower registers. The new strings created a period of intense experimentation in design and proportion in instrument making that continued well into the 18th Century and beyond as the implications of sound concentration came to be understood. In France, Sainte-Columbe introduced covered strings at about 1675 in the same period when he added the 7th string (low A) to the bass viol.[5]

It is interesting to note that violin makers in Paris received plain gut strings from the gut spinners (Boyaudiers) and then applied their own windings of silver or copper wire to make covered strings. In Milliot's inventory of listings of instrument makers' workshops[6], 10 makers are indicated as having quantities of wire (Nicolas Bertrand, 1725), covered strings (Veron, 1731; Henry, 1739), or actual string winding wheels (Saint

1. Please note in this illustration that strings in the larger instruments are looped through their respective tailpieces. To my knowledge the purpose of this commonly encountered detail in iconography remains unexplained.
2. See the Richard D. Bodig translation of Silvestro Ganassi's *Regola Rubertina,* of 1542-43, in "Ganassi's Regola Rubertina, First lesson", *Journal of the Viola da Gamba Society of America,* Vol.XVIII, 1981, pp.28-31.
3. See John Playford's, *An Introduction to the Skill of Musick,* 7th Edition, London, 1674; Facsimile reprint, London, 1966, p.112, and the conclusions of Stephen Bonta in "Further Thoughts on the History of Strings", p.23.
4. An advertisement in Playford's *Introduction to the Skill of Music,*states: "There is a late invention of Strings for the Basses of Viols and Violins, or Lutes, which sound much better and lowder than the common Gut strings, either under the Bow or Finger. It is a small wire twisted or gimp'd upon silk. I have made tryal of both, but those upon silk do hold best and give as good a sound..." See interpretive information by Ephraim Segerman and Djilda Abbot in the *Fellowship of Makers and Restorers of Historical Instruments Bulletin and Communications*, April, 1976, p.45.
5. See Abott and Segerman, "Gut Strings", *Early Music*, Vol.IV, No.4, October, 1976, p.430.
6. My thanks to John Montgomery for his research and translation from the Sylvette Milliot, *Documents Inédits sur les Luthiers Parisiens du xviii^e Siècle,* Société Française de Musicologie, Paris 1970, inventory pp.128-227.

Paul, 1750; Guersan, 1758; Catherine Anne de Rode, wife of Salomon, 1748; Gaffino, 1787; Marie Françoise Derrey, wife of Louvet, 1772; Alexander Louvet, 1774; and Lejeune, 1785). The string winding wheel and its use are described and illustrated in Diderot's *Encyclopédie* in 1765[1]. The violin is mentioned as having d and g strings "wound with silver or copper, and are called *cordes filées*; they are gut strings that are wrapped throughout their entire length in a very thin silver or copper wire, which coils around the string so that it is totally covered." Plate XIII, entitled *Lutherie*[2] illustrates various tools of violin makers including this example of a wheel to wind strings (*rouet a filer les cordes*, fig.33).[2]



"In order to apply a silver or copper wire to a string the makers use a wheel LK by means of which they rotate the string, AB, which is attached at one end to a swivel-hook C, (called *Emerillion*)... if a silver wire is attached with a string to the swivel-hook, C, it will wrap around the string as it rotates, as one conceives that it would wrap around a cylinder. The wire is guided along the string with a damp sponge which is held in the left hand, E, so that the wire will not double up on itself."

Certainly by 1680, the effects of covered strings were already evident as makers began to reduce the sizes of bass instruments. The 1679 cello by Martin Kaiser of Venice with a body length of 71.5cm, is but one of many examples which appeared before 1700. Probably the keen interest of Stradivari was influenced by the new technology, leading him into a period of experimentation with violin proportions in the last decade of the 17th Century. He later re-designed the cello, beginning in 1707, and created the "B" model which in retrospect became one of his greatest achievements.[3] In England, by 1690, makers of viols moved away from the earlier bent multiple piece tables that had achieved resonance with plain gut strings. Makers like Barak Norman began to carve from solid spruce in response to the increased sound potential of covered strings. Also, in the archlutes that appeared in the 1570's the bass strings were not fingered, but ran parallel to the fingerboard extending into an elongated pegbox. With a vibrating string length extending sometimes to over 5 feet in length on the bass strings, thin plain gut strings were acceptable. But with wire wound gut available, these oversized instruments were reduced to more manageable proportions. From 1680 and onward after 1720, the now almost universal use of covered strings is best viewed in terms of a maker's fine and detailed alterations to instruments of the already preeminent violin family.

We now turn to interpretive materials of neck construction and instrument proportion that can be seen within the framework of covered string technology. It is important to document the changes in neck angles that had been largely variable in the 16th and 17th Centuries. By the 18th Century, violin makers became increasingly aware of performance demands on the shifting of left hand position, and the need to create neck-fingerboard surfaces more parallel than in earlier thick necked instruments. The following is a brief review of neck attachment systems and an introduction to methods used for measurements in this exhibition.

1. I am very grateful to Dr. Stephen Bonta for providing the translation of the materials on *Violon*, from the Denis Diderot, *Encyclopédie, ou Dictionnaire Raisonné des Sciences, des Arts et des Métiers,* Paris, Vol.XVII, p.319, 1765, from which this information was condensed.
2. Illustrations taken from the Diderot *Encyclopédie* Plate Supplement Volume, Compact Edition, published by Readox Microprint Corporation, New York, 1969. I made extensive use of Diderot and interpretive examples of instruments with original features in a lecture presentation with Mr. Gary Sturm, Collections Manager on Oct. 31, 1985 to the National Associates of the Smithsonian Institution, Washington, DC, in the National Museum of American History, Hall of Musical Instruments.
3. See the observations by Hill in Chapter 4 "Stradivari's Violoncellos" in the reference volume *Antonio Stradivari, His Life and Work (1644-1737)*, pp.109-145.

Modern neck attachment that probably developed just before the 19th Century is a study in simplicity and strength (see fig.1). During fitting, the mortise in the top-block holds the neck in place for testing direction and measurements, and allows minute changes of adjustment as the neck is brought into final position. In gluing, the mortise also prevents the neck-foot from sliding when glue is applied. When finished, the neck-foot is "locked" into 3 top-block surfaces plus the button on the back. The assembly is largely unaffected by temperature, humidity and string tension. A mortised neck can also be removed without opening the instrument, and with minimum damage to the top-block. (An example of this system can be seen in the 1701 Stradivari cello, page 82.)

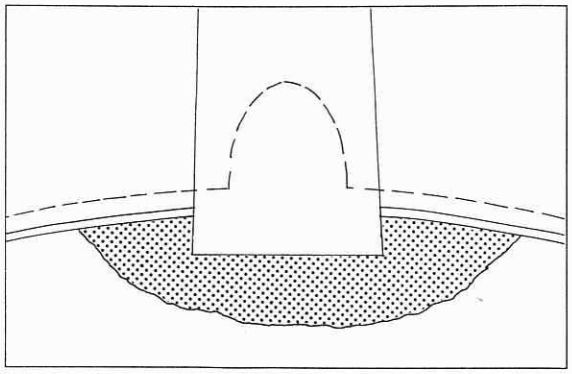


Fig. 1

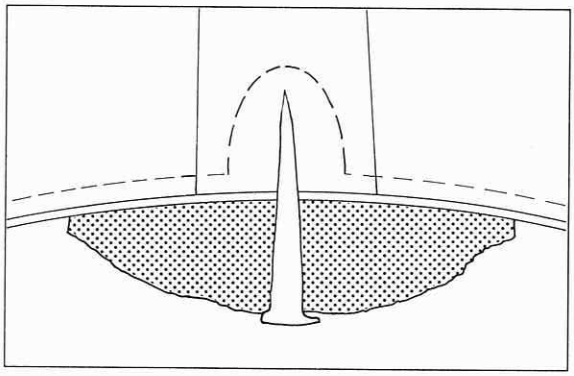


Fig. 2

In the well known baroque nail attachment (fig.2), the neck-foot is glued directly to the ribs covering the top-block. Direction is controlled by adjusting the shape of the concave end grain neck-foot. Direction testing is difficult because the neck has no mortise for repeated measurements. Neck angle and tilt are also hard to control during gluing because the body of the instrument remains open and the table is not in final place to use as a positioning guide. In almost every case, the pegbox is out of alignment with the finished neck. (The neck-foot was probably trimmed after closing the body to create a more accurate center position, and the pre-cut pegbox & scroll are therefore crooked to the adjusted neck.) Despite these problems, the nailed neck system was the most common method of attachment prior to the mortise mentioned above. With only 1 gluing surface plus the button for strength, one or more nails were added through the top-block. X-ray study of nailed necks has led me to believe that the nail (or nails) was probably fixed into a pre-drilled pilot hole in the neck-foot and top-block to prevent splitting of the neck-foot. With such preparation, the nail could then be pressed into final position with a clamp between the nail head and the unfinished outside surface of the neck-foot. I have never seen an original nail or top-block that shows any evidence of hammer blows. Quite the contrary, many nails are pressed almost flush with or even deeper than the top-block surface itself (See Gagliano viola, p.78). Evidence of pilot hole construction can be seen in the 1805 J.B. Ceruti neck on page 93. In time, this baroque neck joint loosens through string tension and temperature-humidity changes that affect the single gluing surface area. (Examples of problems can be found in the 1740 Tononi cello, page 84.) Several exhibition instruments display this neck attachment system, including the violins by Stainer, page 48; Jay, page 54; Rösch, page 56; Balestrieri, page 60; and Hjorth page 66.

Speed of assembly is one advantage of the neck-top-block in 1 piece method of construction (see fig.3). An instrument can be built up from the back without an inside mold, and with less tension created in the ribs & back. Neck direction will be a bit easier to check with alignment to the center joint or bottom-block. The table can even be located in place for final testing with the neck in place. A single clamp from the top of the neck tightened at the button will hold the neck-foot during gluing. An incision on both sides of the neck provide support for the ribs, and the assembly is locked in place with wedges driven and glued in place after the neck is attached. To support the button and provide gluing surface with the back, a platform is left in the back at the neck-foot area for strength (see photo of the 1703 Jacobs violin, page 51). With this system, most pegboxes are in better alignment with their necks than in the nailed method previously discussed. Building instruments "in the air" without a mold was

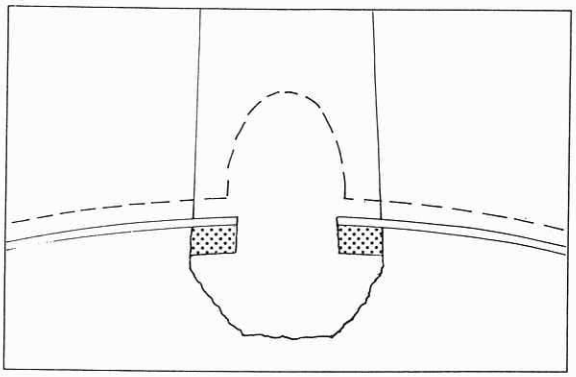


Fig. 3

also a method for makers to experiment with instrument shape and proportion. Rather than committing time and materials to the involved work of mold making on a possibly unsuccessful model, the experimental instrument could be fashioned quickly "in the air". When an instrument was judged to be successful musically, it could then be copied and replicated time after time on a permanent mold. Not only for purposes of trial, some makers simply adopted the expedient neck-top-block construction as a method of choice in their work. The 1796 Hamm violin, page 64, is an example of a maker using this system on a continuing basis. Other instruments with this method of attachment include the 1664 Steiger tenor, page 74; the 1683 Baker viola, page 76; and the ca.1760 Vuillaume violin, on p.52. A problem associated with this construction is that the platform of thick maple on the back is not as flexible as a normally graduated area. With stress from string tension, shrinkage and humidity changes, cracks often appear in the back on one or both sides of the button. Repairs would then require the back be removed and the button area reinforced with a strong doubling. Certainly by the 19th Century, when necks were grafted and re-set for greater sound volume and concentration, it was common for this assembly to be removed and the ribs fitted with a conventional top-block. After re-graduating the platform, almost no evidence of this construction would remain for study today. I believe that the neck-top-block construction was used throughout Europe, possibly from the earliest days of violin making. Evidence, however, is difficult to find, particularly in Italy where most instruments now have modern interior features.[1]

English viol makers in the 17th Century combined elements of both the modern mortise (fig.1) with a nail for strength (fig.2) in the tenon system of attachment seen in fig.4. The tenon will aid in adjusting the neck direction and can be fully set on the body mold before gluing on the back. In our three English viols with original tenons, the 1619 Jaye, page 14; ca. 1660 Meares, page 16; and 1718 Barak Norman, page 18, it is more likely that the backs were already in place, as all three tenons fit much better on the front than at the back on the button where the assembly could not be seen.

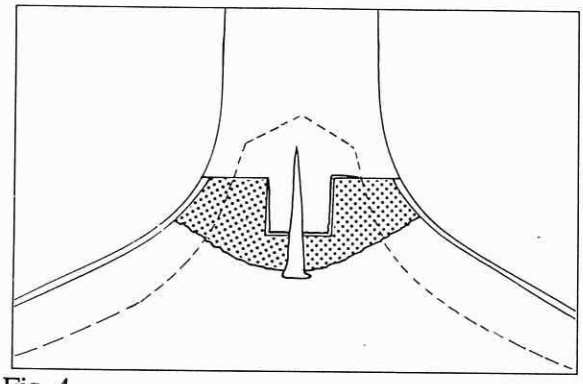


Fig. 4

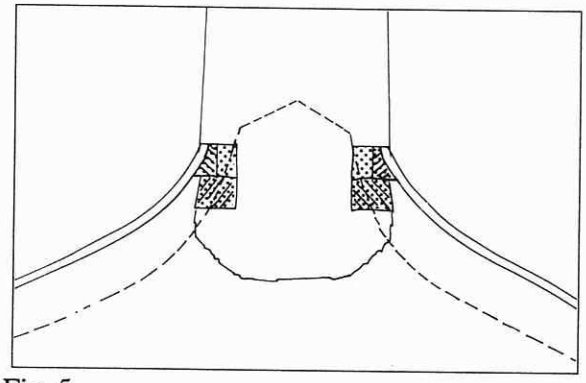


Fig. 5

The neck-top-block system (see fig.3) was also employed by viol makers in a cleverly combined wedge procedure, probably executed in the following steps (see fig.5). First, bent ribs are glued onto the back, with the bottom-block in place. In the upper bout at the slope, studs are needed in gluing the ribs which otherwise would slide into the back from the slope edges. Small blocks are then glued to the end of the ribs joining the top-block, and the neck can be located. With the neck glued in place, an interior block, (wedge) is added to adjust the rib ends flush with the neck, and below these two blocks, locking blocks similar to those in fig.3, secure the rib attachment permanently. An example can be seen in the 1733 Rönnegren bass viol, page 28.

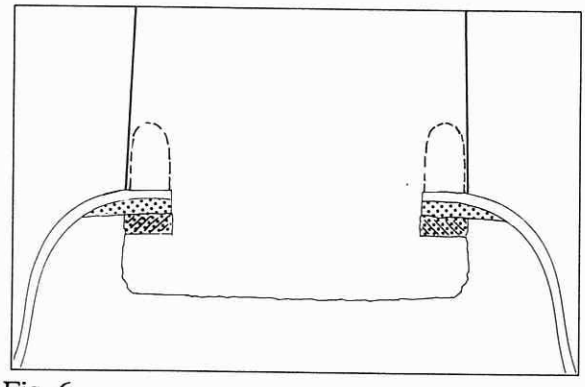


Fig. 6

On a larger scale, the neck-top-block system has been applied to instruments with compound curved ribs at the top-block area (see fig.6). This illustration is taken directly from the ca. 1725 Southern German baryton on page 36. The very broad neck is glued to the back with ribs attached by a broad shaped block to retain the rib shape. Again, after gluing the neck, a second block locks the assembly in place. It is worth noting that while the baryton shows multiple tension cracks on the table, the neck and its attachment system have remained in excellent structural condition, probably because the neck-foot surface joining

1. Mr. René Morel of New York remembers restoring a Grancino violin in original condition that was constructed very similarly to the Mittersill Tenor, page 74. He consolidated the instrument without changes to original features.

the instrument's back is so massive. One finds this method also employed in larger bass instruments not included within the scope of this exhibition.

By far the simplest method of attachment is this one, where the neck-foot is glued directly flush onto the top-block and button without reinforcement (see fig.7). In this system that mainly begins to appear during the 18th Century, the body of an instrument can be completely finished and closed independently of the neck setting process. A flush neck attachment is best applied to instruments with a flat top-block and sloping shoulders, like the viol, quinton, viola d'amore and english violet. Because the body is closed, location measurements and direction can be accurately determined. A bridge model can be used to judge neck tilt and vibrating string length. In practice, the neck-foot is simply planed flat on 2 surfaces; first, on the end grain neck surface, and second, on the slope joining onto the button of the back. In fitting, the neck can be held by hand with guide marks for the button and table edge locations. During gluing, the body can be clamped into a fixed bench position, and the neck clamped in place with locating counterparts. (In x-ray examination one sometimes finds a small metal pin (see fig.7) set halfway into both the neck-foot and top-block to prevent sliding and alignment problems in the gluing process). Examples of this method are the 1745 Guersan pardessus, page 22; 1746 Grosset treble, page 24; 1774 Gagliano d'amore, page 32; 1726 Alletsee english violet, page 34; and the ca. 1740 Chappuy quinton, page 40.

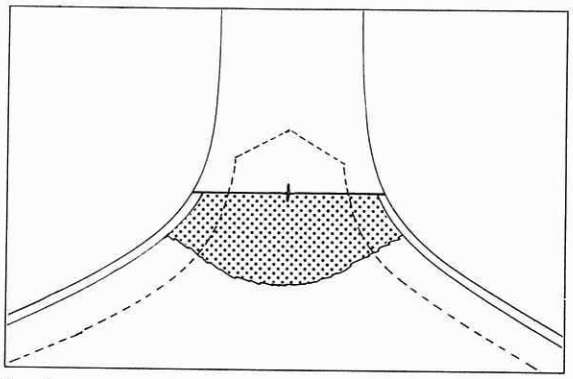


Fig. 7

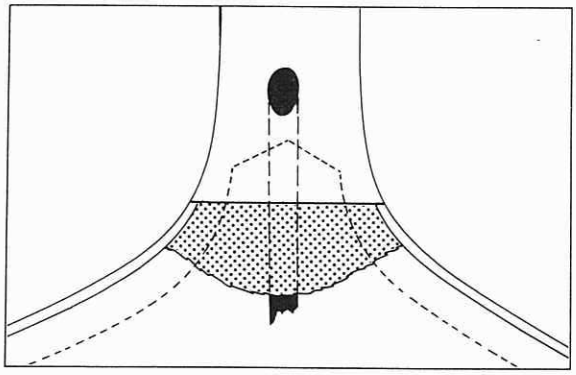


Fig. 8

Realizing that an unsecured neck joint can loosen unexpectedly and possibly fracture the button, a reinforcing dowel provides an obvious solution (see fig.8) to the problem. After the neck has been glued in place, a hole drilled through the neck and top-block can be filled from the outside with a glued dowel. In fitting the fingerboard later, the exposed dowel is simply planed flush with the neck. The dowel end extending into the body of the instrument through the top-block is simply ignored. For study purposes, it is very difficult to distinguish an original dowel from a later repair. Dowels appear in many forms, and are also fitted from the inside into the neck-foot in the manner of a nail. A dowel of this type can be seen in the 1821 Joseph Klotz violin, page 68.

If one combines the tenon into the top-block (fig.4) with a method of attachment to a completed body, the dovetail is a logical result (see fig.9). The obvious nature of a dovetail to draw surfaces together results in an extremely tight joint requiring no further reinforcement.[1] However, such an attachment on a closed instrument requires fitting the dovetail clear through the table. After gluing, a small plug fitted into the mortise hole of the table completes the assembly. One might speculate that the modern mortise (fig. 1) could have been developed from this dovetail concept. An example can be seen in the 1755 Rauch viola d'amore, page 30.

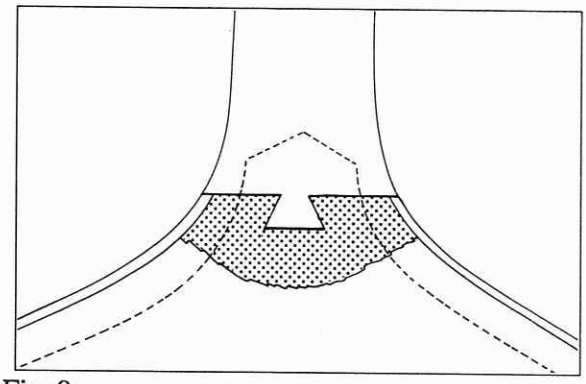


Fig. 9

1. In the collection of Stradivari relics at the Civic Museum in Cremona, patterns No. 329 and 330 for a Viola da Gamba of the French style of 1737 probably by the sons of Stradivari are paper templates for a dovetail like that illustrated above in fig.9. See Sacconi, *The "Secrets" of Stradivari*, Cremona, 1979, p.219.

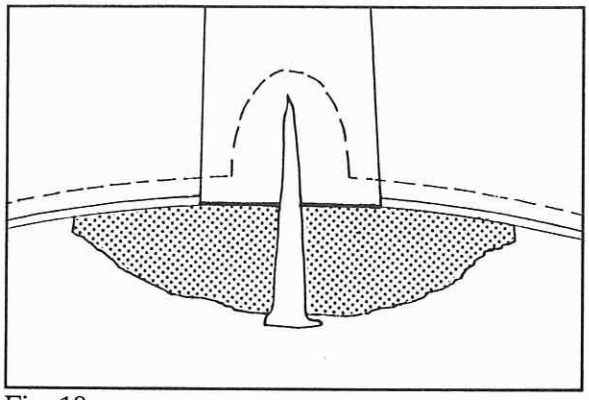


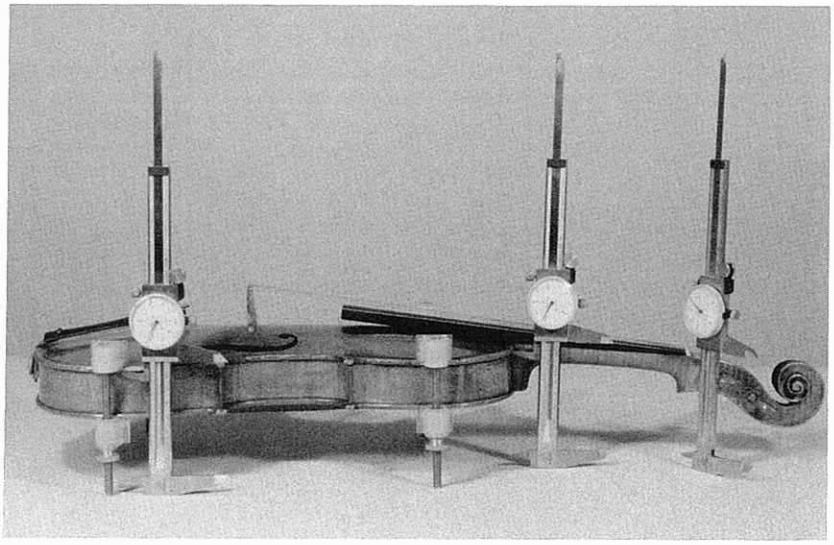
Fig. 10

Our final example, also a combination of systems, can be seen in Fig. 10. As an aid to neck setting, the neck-foot is set *through* the ribs and glued directly to the top-block which is cut flat to accept the planed neck-foot. After gluing, a nail can be fixed in a pre-drilled pilot hole. I have seen this method of attachment on three English instruments (two violins and one cello) of the early-mid 19th Century. We might suggest that this shallow mortise and the dovetail (fig.9) could have led to the modern system (Fig. 1). An example can be found in the 1852 Corsby violin, page 70.

There remains an additional question concerning the use of a screw in place of the typical nail in Fig. 2. A screw has an advantage in holding the surfaces together against long-term string tension without becoming loose as easily from shrinkage of the neck-foot. One finds screws in existing instruments, but assumes their use to be in replacement of loosened earlier nails (see 1795 Gagliano small violin, p.38). However, some hand cut screws have also been seen. The question remains as to when the screw came into popular use, and to seek out such examples of possible original screw attachment in appropriate period chronology[1].

Practical neck setting problems are frequently found in unaltered instruments. Extreme examples of neck direction error can be seen in the 1740 Tononi cello, page 84, and the 1774 Gagliano viola d'amore, page 32. In modern neck design, the fingerboard of even edge thickness (for appearance as well as shifting ease) relies on precise neck setting to insure accurate pre-determined bridge height. Earlier neck placement was frequently less accurate. To arrive at a desired bridge height, correcting errors in neck attachment, fingerboards were typically wedge shaped, compensating for neck placement and inclination problems.

Studying a maker's intentions can become clearer through interpretive measurements. Fingerboard and neck inclination together are found by combining the *appui* and *appui to fingerboard edge* with the *fingerboard edge thickness* on both sides of the neck-foot. By comparing instruments, we see how makers came to achieve concentration of sound by increasing the effective angle of strings passing over the bridge towards the tailpiece. While it is generally accepted that necks were usually set slightly back from the table edge, the increased neck angle became dramatic with the popularity of covered strings just before the end of the 17th Century and beyond. This change is evident from the 2.5mm deflection in the 1679 Stainer, page 48, through the extreme 10.9mm tilt in the 1777 Balestrieri, page 60. These interpretive measurements are given for a number of instruments within the body of this catalog.[2]



Measurement was taken by establishing the instrument table joint with the ribs parallel to a flat surface. From that height, neck deflection was measured at the joint between the fingerboard and top-nut, measured at the neck surface. For reference, an average deflection for modern neck setting lies between 7-9mm, depending on appui and arching geometry.

1. An interesting overview on the technology of nails by Lee H. Nelson in a technical article, "Nail Chronology as an Aid to Dating Old Buildings" published by the American Association for State and Local History, Technical Leaflet 48, 1968. A reference is made in this publication that machine pointed screws were introduced, ca. 1830.
2. See examples of this interpretive measurement applied to instruments on pages 30, 32, 48, 54, 58, 60, 64, 66, 68, 70, 78, 80, and 84.

MEASUREMENTS

All measurements are in centimeters unless otherwise noted.

Body Length:
Measured over the arching to include the edges on the table but excluding table extension into the neck-foot. For backs, taken from the right side of the edge next to the button to the edge of the back at the center joint point at the bottom-block.

Body Width:
Upper & lower bouts measured over the arching at the widest points in actual condition. No allowance was added for wear or missing edge. Center bout measured at narrowest point in actual condition.
- measurements for both table and back allow comparison for studies of body assembly methods, although conclusions may not have been referenced within the scope of this catalog's space limitations.
- viols and other instruments with flat backs were measured only on the table, as comparative measurements reveal little information for purposes of this publication.

Rib Height:
Measured as close as possible to the joint between rib-table and rib-back. For instruments with flush edges, measurement was taken with a ruler. Instruments with overlapping edges were measured with a dial caliper for accuracy.
- bottom-block measurements were taken from that part of the rib on each side of the block and not at the center.
- slope measurements taken at the point where the back bends towards the top or bottom-block on flat back instruments.

Neck Length:
Measured with a ruler on the treble side from the highest point of the edge of the table to the joint between the top-nut and upper end of the fingerboard at the fingerboard surface level.

Neck Width:
Measured with a dial caliper on the joint of the neck-fingerboard combination.

Neck Thickness with Fingerboard:
Measured with a dial caliper at the thinnest point at the nut-end, and the thickest point of the "flat" neck before the curve to the button begins.

Fingerboard Length:
Measured with a ruler from the joint with top-nut to the actual longest point in the center of the fingerboard. With fretted instrument, measurements taken over the frets.

Fingerboard Width:
Measured with a dial caliper at narrowest point joining the top-nut, and at widest point at bottom.

Fingerboard Edge Thickness:
Measured with a ruler "by eye" from the joint of the fingerboard-neck composite to the point where the veneer (or solid wood fingerboard) side becomes the top curved surface of the fingerboard. Bottom thickness measured in total height to top surface of veneer.
- solid fingerboards are noted, but the measurement method remains the same.

Appui: (French; German - Halsfusshöhe or vorstand)
The distance from the highest average table edge surface adjacent to the neck-foot, measured with a ruler upward to the neck-fingerboard joint at the neck-foot.

Appui to Fingerboard Edge:
Measured from the highest average table edge surface adjacent to the neck-foot upward to the top of the veneer at the point where the veneer forms the shape of the fingerboard upper surface.
- these appui measurements can be applied to modern proportions for the study of neck angle and tilt changes through bowed string instrument evolution.

Table Mensure:
Measured with a ruler on the treble side of the table from the outside edge adjacent to the neck-foot, to the inner notch of the "f" hole. In instruments with flush edges, measured from the table-neck joint or table edge (whichever is longer) to the center of the current bridge foot thickness.

Pitch:
Indicates a projection of the fingerboard elevation above the table, measured in the bridge location. From the pitch, bridge and string height can be estimated. Measured from the center length of the fingerboard with a ruler extending beyond the bridge foot location. A second ruler from the center of the bridge foot (table mensure position), held perpendicular to the arching at the center joint, reading the distance from the table arching to the bottom edge of the length held ruler on the fingerboard.
- in fretted instruments, fingerboard ruler begins at the bridge side of the 7th fret where the fingerboard is free.

Vibrating String Length:
Measured from the fingerboard edge joining the top-nut to the fingerboard side of the bridge, taken from the center. This measurement is of the actual free length of vibrating string.

1 Lyra da Braccio

Francesco Linarol, Venice, 1563

This is the earliest form of bowed string instrument in our exhibition. The lyra was an extremely important ancestor of the violin family, used as both a melodic and chordal instrument for the accompaniment of song and poetry. Known primarily in Italy, lyras appear in violin form toward the end of the 15th Century and fall from use after 1600 when the violin has already become the predominant bowed instrument. The lyra, with 5 fingered and 2 drone strings, was held on the shoulder (da braccio) and played with the fingers of the left hand. The bow was strongly outcurved to allow playing of chords that punctuated melodic passages.[1]

Francesco Linarol from Bergamo was probably born ca. 1515-1520 and worked in Venice until his death ca. 1571.[2] This instrument bears a possibly original handwritten label:

> Francisci Linaroli Bergomensis
> Venetiis 1563

Typical for the lyra da braccio of this period, the body is of violin shape with an indented bottom-block area, and the neck is finished in a leaf-shaped pegbox

1. A detailed interpretive review of the lyra da braccio with discussion of existing examples can be found in an article by Lawrence C. Witten II. entitled: "Apollo, Orpheus, and David" published in the *Journal of the American Musical Instrument Society,* Vol.I, 1975, pp. 5-55.
2. Dates suggested by Witten, p.16.

with 7 frontal pegs. A "peg" extending from the side of the pegbox acts as a top-nut for the lower drones. While the body is entirely original except the willow top-block and doubled edges on the table, the neck, leaf pegbox, fingerboard and tailpiece are reproductions. The cedar table has an ornamental geometric purfling in the upper and lower flanks, and bears elegant simplistic "f" holes, perhaps best described as "s" holes. The back of slab pearwood is extensively purfled throughout, and the accompanying pearwood ribs bear the latin block letter text:

Dum per ovem transibit equus sursumque deorsum
reddit mellifluum sylva lo cante manu

which can be translated:

"While the horse crosses (lit. will cross) the sheep up and down, the wood returns a mellifluous [sound]; hail the playing hand!"[1]

In construction, the ribs are particularly interesting. Each half of the body outline was cut from a single plank of pearwood; the two halves were then joined together at the top-block and tailpiece ends. These sides (ribs) were sculptured to create the concave exterior shape and carved on the inside (and finished with a rasp) to form a complimentary convex interior. End grain areas at the shoulders and lower bout areas have been secured with linen to reinforce the many inevitable end grain shrinkage cracks. There is no bottom-block, but the joint has been reinforced by an ornamental attachment for the tailgut which appears to be original. The varnish is of semi-transparent orange-brown color, and was not applied to the table area beneath the fingerboard. A similar more refined example of a lyra from 1577 by Francesco's son Ventura Linarol, has a larger 60 cm. body.[2] In contrast, the well known example by Giovanni Maria of Brescia, Venice, ca. 1525 has a much smaller body length of 38.7 cm.[3]

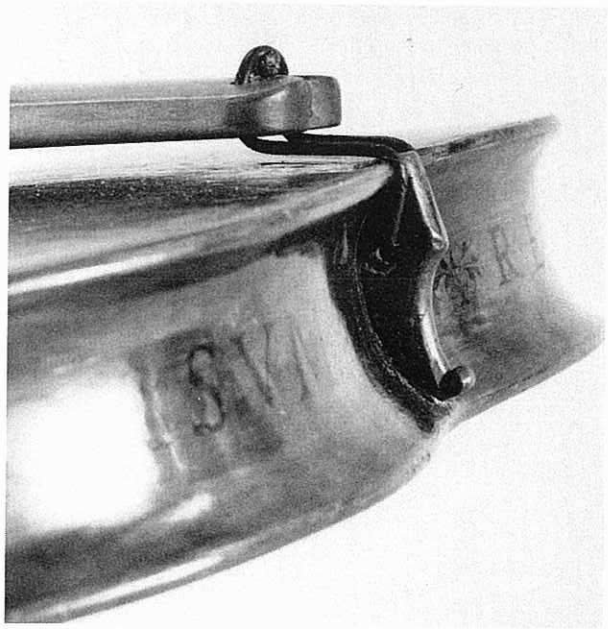
Tuning: d/d', g, g', d', a', e''

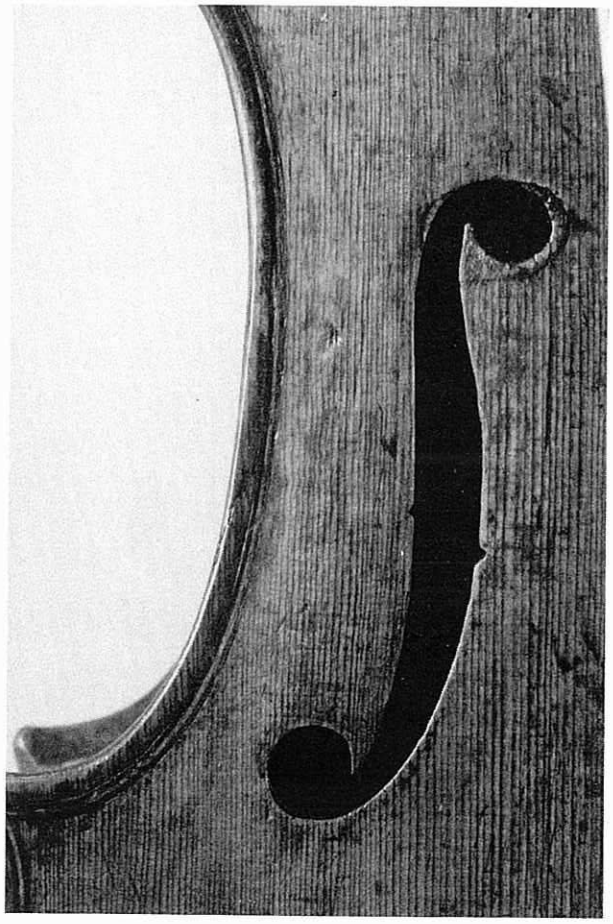
Body	*table*	*back*
length	*50.55*	*51.2*
upper bout	*24.7*	*24.35*
center bout	*18.3*	*18.05*
lower bout	*29.35*	*29.3*
Rib height	*treble*	*bass*
top-block	*3.6*	*3.65*
upper corner	*3.85*	*3.85*
center bout	*4.0*	*3.9*
lower corner	*3.8*	*3.8*
bottom-block	*3.75*	*3.7*
Table mensure	*27.6*	
Vibrating string length	*43.9**	

**current measurement with reproduction neck*

COLLECTION SHRINE TO MUSIC MUSEUM, No. 4203

Photos Courtesy of The Shrine To Music Museum





1. Translation courtesy of Brent Froberg, and the Shrine to Music Museum, University of South Dakota, Vermillion, SD.
2. This instrument is described in detail, along with other information on the lyra da braccio in the Georg Kinsky reference work, *Katalog Des Musikhistorishen Museums von Wilhelm Heyer in Köln*, published by Wilhelm Heyer, Cologne, 1912. pp. 383-417. Instrument description, p.415-416. The Ventura Linarol also appears in photographs in *the Look of Music* exhibition catalog by Philip T. Young, Vancouver Centennial Museum, 1980, p. 52.
3. See the text concerning this Giovanni Maria Lyra in David Boyden's *Catalog of the Hill Collection of Musical Instruments in the Ashmolean Museum, Oxford*, Oxford University Press, London, 1969, pp. 14-16; photographs, catalog #8.

2 Bass Viol

Batista Ciciliano, Venice, ca. 1570

This instrument is of great importance as an early Venetian example. Only four bass viols from Batista Ciciliano are known to survive. Three are in the collection of the Brussels Conservatoire,[1] (cat.# M.1424, M.1425 and M.1426), plus this example from Yale (cat# 4670.00). With 4 instruments from Batista's father, Antonio, there are 8 Ciciliano viols in total; 2 tenors, 5 basses, and 1 large bass. The Antonio group all have "f" holes similar in shape to the Linarol lyra, p.10, while the Batista viols have "c" holes with a stylized outer sloping notch.[2] This instrument has a handwritten label:[3]

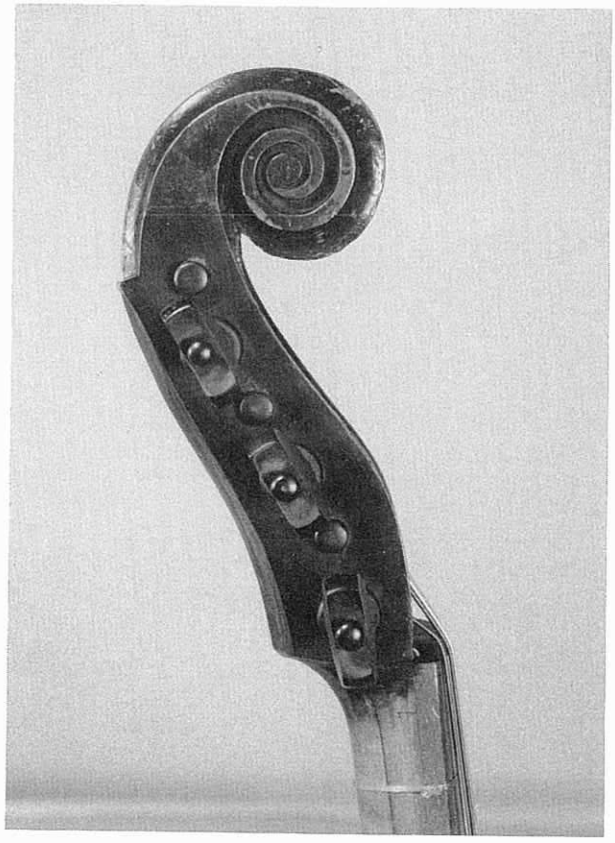
> Batista fiol de Antonio Ciciliano
> in Venecia.

Common to Venetian viols of this period, the table outline is shorter and more indented in the upper bouts than on the back, which ends below the neck-foot without a button. The neck-foot is set at an angle downward toward the table which allows an

1. Photographs of these viols and information concerning their history are in Ian Woodfield's, *The Early History of the Viol*, Cambridge University Press, 1984, pp. 125-133. Photos, p. 128-129. See also the article by Edwards: "Venetian Viols of the 16th Century", *Galpin Society Journal*, Vol.33, 1980.
2. Much information about early Venetian viols and relevant iconography is discussed by Lawrence C. Witten II in, "Apollo, Orpheus, and David", *Journal of the American Musical Instrument Society*, Vol.I, 1975. Class III: 4 Cornered Bodies, p. 28-50.
3. A photograph of the M.1426 label is shown in Woodfield, p. 129, in a style and text slightly different from this example.

elevated (high appui) neck setting parallel to the table edge. It is clear that the neck angle on this viol has been changed. At least the neck-foot was removed and re-set, probably higher than it was originally (see x-ray)[1]. Certainly the original neck has been doubled on the sides, and was probably planed on the top as well. If the neck was raised, the ribs on the back would have been reduced at the top-block, which might explain repairs to the slope of the back. Although the viol has been altered, the basic study importance of the instrument is not diminished.

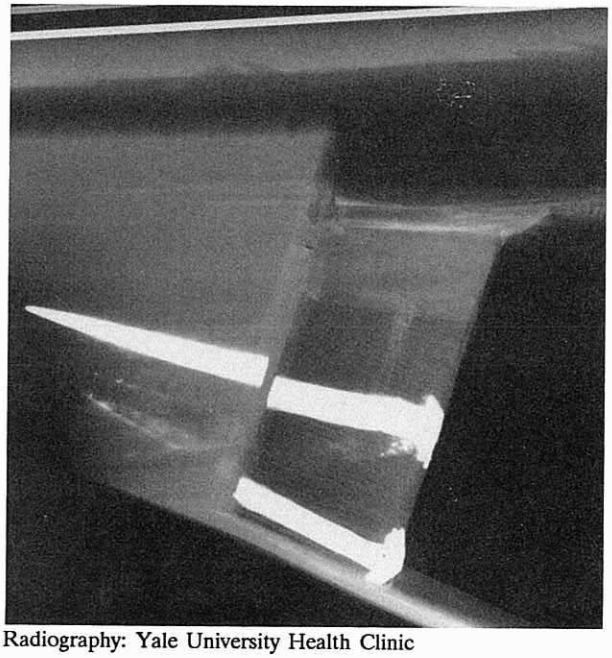
The back, ribs, and neck are possibly of service wood[2], or certainly a fruitwood like pear(?); accurate identification is very difficult in this instrument. Ribs are butted in the corners, and the lower bouts could originally have been in one piece. The back in 2 pieces has a very long slope in the upper bout. Cheeks have been added to the pegbox walls to reinforce compound peg hole cracks, but the original pegbox and fluted flat scroll remain unchanged. The varnish is of semi-opaque reddish brown color.



Tuning: D, G, c, e, a, d' [3]

Body		*table*	
	length	*60.5*	
	upper bout	*32.55*	
	center bout	*23.3*	
	lower bout	*35.8*	
Rib height		*treble*	*bass*
	top-block	*5.3*	*5.45*
	slope	*11.7*	*11.9*
	upper corner	*11.8*	*12.1*
	lower corner	*11.75*	*11.85*
	bottom-block	*11.9*	*12.05*
Neck			
	length	*29.3*	
	width: top-nut	*4.12*	
	neck-foot	*5.9*	
	thickness with fingerboard:		
	top-nut end	*3.05*	
	neck-foot end	*3.75*	
Fingerboard			
	length	*40.45*	
	width: top	*4.19*	
	bottom	*6.9*	
	edge thickness	*treble*	*bass*
	top-nut	*0.65*	*0.62*
	neck-foot	*1.1*	*1.05*
	bottom	*1.25*	*0.9*
	Appui	*1.45*	*1.2*
	Appui to fingerboard edge	*2.55*	*2.25*
Table mensure (current)		*33.1*	
Pitch		*6.15*	
Vibrating string length		*62.7*	

YALE UNIVERSITY COLLECTION OF MUSICAL INSTRUMENTS No.4670.00



Radiography: Yale University Health Clinic

1. One can interpret the x-ray to indicate the neck being raised 3.6mm judging from the break in the upper nail and shadow of lower nail location in the neck-foot. That the ribs have been shortened in the back can be suggested by the lower nail position being too low for insertion into the neck at this angle.
2. Robert Hadaway notes the use of walnut and fruitwood in the Venetian viols of this period in "Another Look at the Viol", in *Early Music*, Vol.VI, No. 4, October, 1978, p. 531.
3. Woodfield discusses tuning methods and an analysis of Ganassi instructions from the "Regulo Rubertina" of 1542-43 in chapter 8, Italian Viol Tunings, pp. 140-154.

3 6 String Bass Viol
Henry Jaye, London, 1619

It is very exciting to see a large English bass viol that has survived without alteration in preparation or neck length. This 1619 Jaye is intact, with an original hand lettered label:

> HENRIE : JAY: IN:
> SOVTHWARKE:
> 1619·

Henry Jaye (written both Jay & Jaye on labels) worked in London after ca. 1612 until about 1667 in Southwark, "near London Bridge" as stated in a label from 1629. No biographic materials have been found, but he is mentioned by Thomas Mace in 1676 as one of the finest makers, which suggests his importance as a craftsman of English viols.[1]

The photographs above will give the reader a sense of the elaborate geometric purfling on the body, accompanied by a central floral purfled ornament above the bridge on the table, framed by the purfled fingerboard and tailpiece.[2] Less evident is the 7 piece table assembled from bent "staves" joined together to form the arching. This typical device of 17th Century English makers will be discussed with the Meares bass viol, p.16. The neck and carved male head is of service wood.[3]

1. See Thomas Mace, *Musick's Monument*, 1676, Facsimile Reproduction by Editions du Centre National de la Recherche Scientifique, 1966, p.245.
2. The tailpiece is a reproduction in the ornamental style of the original fingerboard.
3. My thanks to Dietrich M. Kessler for bringing service wood to my attention in 1987.

This instrument with 72.1cm body length represents a long form of English consort bass and has a typically long vibrating string length of 75cm. In English viols of this type, the string length is often about an inch longer than the body. Also, the width of the upper bout is equal to the approximate distance from the bridge to the bottom of the body. The original neck combines with the fingerboard so that the joint lies midway from the table edge to the bottom of the shaped fingerboard at the neck-foot.[1] Linen is used in place of corner-blocks and linings on the back, and reinforces the joints of the 7 piece table. Interior photos detail the "tenon" neck attachment (see fig.4, p.6) and nail locations. The varnish with textured thickness is of rich golden reddish-brown color.

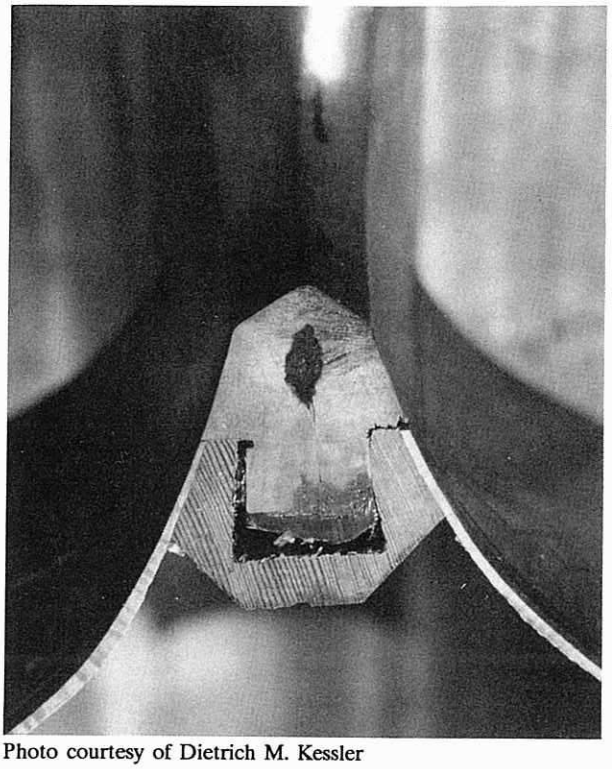


Photo courtesy of Dietrich M. Kessler

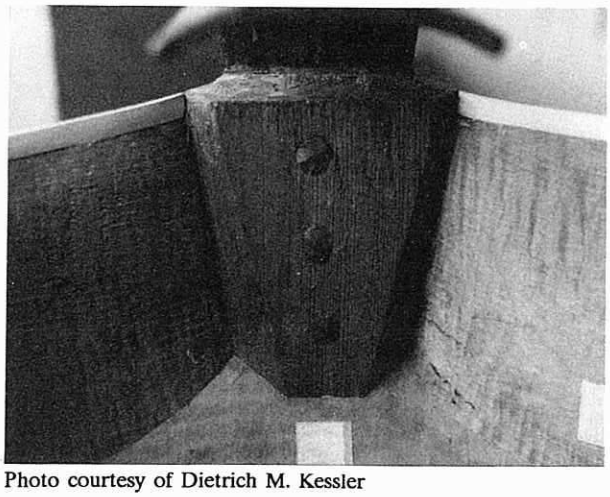


Photo courtesy of Dietrich M. Kessler

Tuning: D, G, c, e, a, d'

Body		*table*	
	length	*72.1*	
	upper bout	*34.05*	
	center bout	*24.85*	
	lower bout	*39.8*	
Rib height		*treble*	*bass*
	top-block	*7.6*	*7.7*
	slope	*13.6*	*13.7*
	upper corner	*13.85*	*13.9*
	lower corner	*13.75*	*13.75*
	bottom-block	*13.9*	*13.95*
Neck			
	length	*35.3*	
	width: top-nut	*4.59*	
	neck-foot	*6.09*	
	thickness with fingerboard:		
	top-nut end	*2.35*	
	neck-foot end	*3.55*	
Fingerboard			
	length	*51.0*	
	width: top	*4.73*	
	bottom	*7.74*	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.48*	*0.45*
	neck-foot	*1.35*	*1.45*
	bottom	*0.45*	*0.4*
	Appui	*1.1*	*1.0*
	Appui to fingerboard edge	*2.45*	*2.45*
Table mensure		*38.6*	
Pitch		*6.74*	
Vibrating string length		*75.0*	

COLLECTION DIETRICH M. KESSLER

1. This same detail can be seen on the English viol by Richard Meares, p.16 and on the Barak Norman, p. 18.

4 6 String Bass Viol

Richard Meares, London, ca. 1660

Richard Meares was probably the finest English viol maker in the generation following Henry Jaye, and this example is the purest instrument from that period that I know. Unfortunately, the label is missing, and only a shadow indicating label location remains. All we know of Meares is the span of his output, ca. 1650 through 1690[1], and the location of the shop that he recorded on labels such as this typical example:

Richard Meares
without Bishopsgate
near to Sir Paul Pinders
London, Feci 1677

Dietrich M. Kessler places the period ca. 1660 for this instrument[2], which he studied extensively and describes in Early Music[3]. It is interesting to note that Meares was left-handed as seen in knife marks on the table ornament and fingerboard.

In the same manner as the Jaye viol, p.14, this instrument was constructed with a 7 piece table of bent "staves" joined together similarly to the back of

1. Meares probably had a son of the same name, which would explain named labels after ca. 1700. I am not aware of any further information about the son, but labels are quoted by Henley, (*Universal Dictionary of Violin and Bow Makers*, Amati Publishing, 1960, Vol.IV, p.8) as late as 1736.
2. A fine Meares bass viol, ca. 1682 can be seen at the Metropolitan Museum of Art, New York, cat. #1982.324.
3. His excellent article, "Viol Construction in 17th Century England", *Early Music*, Vol.X, #3, July, 1982, pp. 340-345 discusses the construction of this instrument in great detail and forms the basis for this entry.

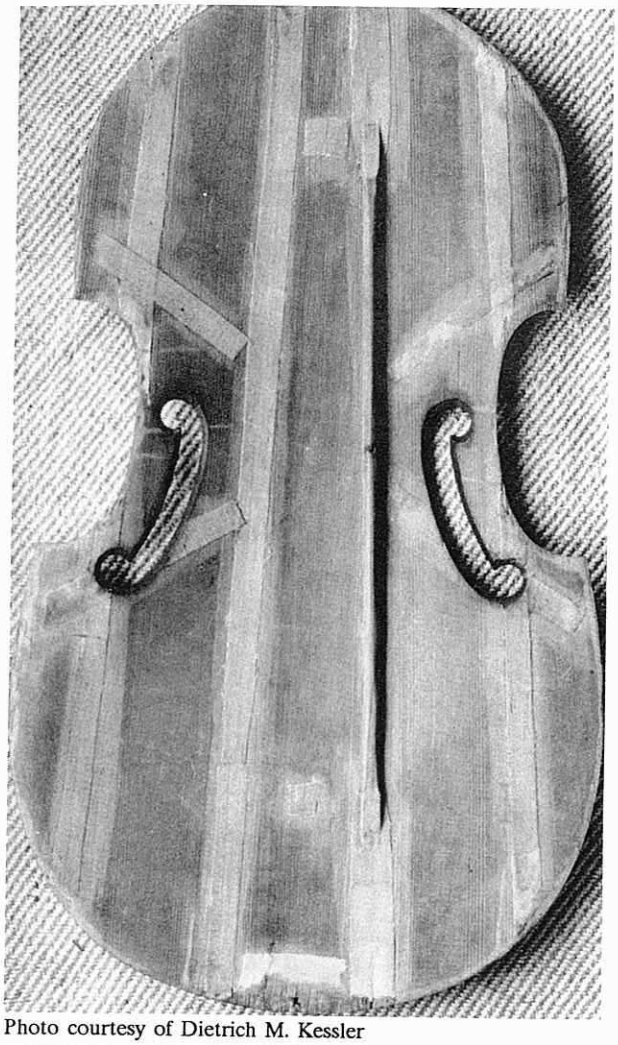


Photo courtesy of Dietrich M. Kessler

a lute with the joints angled over the surface. The advantage of such joining is that the glue surfaces actually tighten under tension from the bridge and strings. This system is also very strong in the arching and allows considerably thinner graduations than is the case with carved 2 piece tables.

The neck is set with a tenon into the top-block (see fig. 4, page 6). The neck is located and fitted to the top-block with the back in place, but before closing the body. Therefore, no tenon incision is made through the table itself. Locating pins are found in the center of the bottom-block area, and close to the treble edge of the top-block area. The pin is asymmetrically placed to avoid the tenon incision on the top-block which would remove the hole for a centrally located pin.

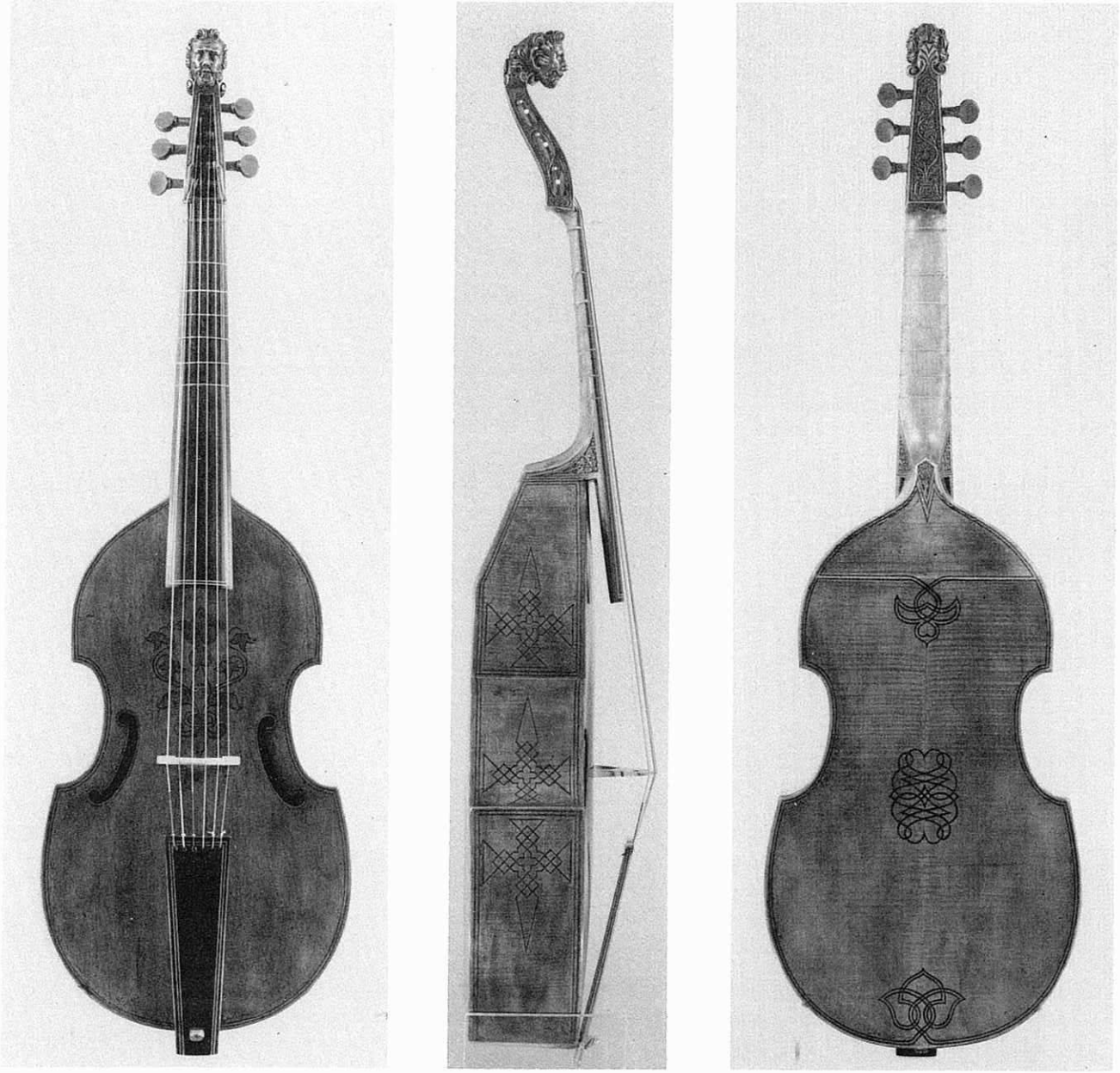
In addition to linen reinforcements of the table joints (see accompanying photograph), original strips of linen are located above and below the soundholes. These 4 strips are found in other viols and indeed on the Baryton, p.36. However, the function of the strips is unclear; it is possible that they are intended to prevent the spread of cracks, but there may have been other reasons for their placement regarding sound and possible "wolf" note suppression. This is a question requiring further study.

The varnish in rich orange color extends beneath the fingerboard and is overall in an exceptionally fine state of preservation. The neck and fingerboard veneered with ebony and an ornamental ivory "purfling" are original, as are the plum wood pegs.

Tuning: D, G, c, e, a, d'

Body		*table*	
	length	*66.4*	
	upper bout	*30.6*	
	center bout	*23.0*	
	lower bout	*37.0*	
Rib height		*treble*	*bass*
	top-block	*8.45*	*8.5*
	slope	*11.2*	*11.4*
	upper corner	*11.3*	*11.42*
	lower corner	*11.35*	*11.3*
	bottom-block	*11.3*	*11.3*
Neck			
	length	*32.65*	
	width: top-nut	*5.06*	
	neck-foot	*6.0*	
	thickness with fingerboard:		
	top-nut end	*2.25*	
	neck-foot end	*2.8*	
Fingerboard			
	length	*48.05*	
	width: top	*5.13*	
	bottom	*7.78*	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.25*	*0.3*
	neck-foot	*1.75*	*1.75*
	bottom	*0.65*	*0.7*
	Appui	*1.1*	*1.2*
	Appui to fingerboard edge	*2.85*	*2.95*
Table mensure		*35.8*	
Pitch		*6.4*	
Vibrating string length		*69.0*	

COLLECTION DIETRICH M. KESSLER



5 6 String Bass Viol
Barak Norman, London, 1718

One original goal of this exhibition was to bring 3 generations of English viols together illustrating the evolution of the viol arching and interior construction. We are rewarded by the presentation of Jaye, Meares, and this beautiful work of Barak Norman. Richard Meares is often discussed as the teacher of Barak Norman, and with these two outstanding examples together for the first time, the similarities are astonishing. It now remains to find documentation supporting the working relationship of these London makers, difficult indeed, because almost no biographic materials are recorded for either maker. However, recent research[1] has shown that Barak Norman was probably born in 1651, placing him closer to a possible working relationship with Meares. Norman would have been 62 years old and already working with Nathanial Cross for 3 years when he built this instrument bearing its original printed label[2]:

Barak Norman
at the Bafs Violin
S^{t}: Pauls Church = y:
London Fecit
1718

(1718 handwritten in ink)

1. My thanks to David Hill for sharing information contained in unpublished manuscripts. On Sept. 7, 1668, a Barak Norman, age 17, applied to become an apprentice weaver in London, later on Sept. 12 1701, as a widower he applied to re-marry, stating himself to be 50 years of age. That the two dates coincide lends more strength to the probable date of Norman's birth being 1651. He died at the age of 89 in 1740.
2. An example of this label style can be found in René Vannes, *Dictionaire Universel des Luthiers,* Vol.I, #1530.

By this time, Barak Norman had abandoned the multiple bent stave top, choosing instead 3 pieces with only the center strip being bent as seen in this instrument. Instead of linen supports, corner-blocks and linings are used, which add stability and strength. The neck assembly is similar however (see x-ray), to the Meares, except that locating pins for the table appear at the center in the top-block area.

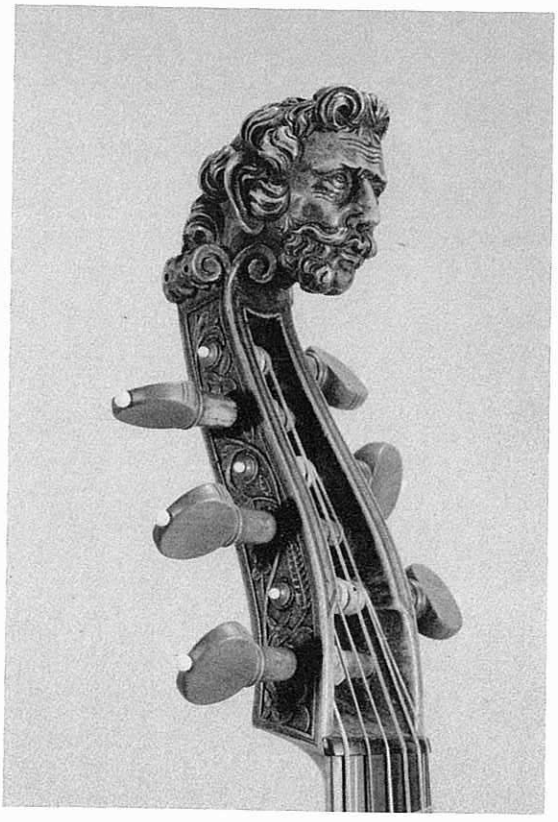
There is no evidence of English makers carving their ornamental heads. It is more likely that this work was given to woodcarvers. However, one can study evolution in style. An earlier Norman head, ca.1700 can be seen in the exhibition, p.93, which lacks much of the elegance of this example. The ribs are inlaid with geometric purfling seen earlier in Jaye, p.14. A unique purfling monogram BN "signature" within the central back ornament is a feature of this instrument that first appears to my knowledge in 1697.

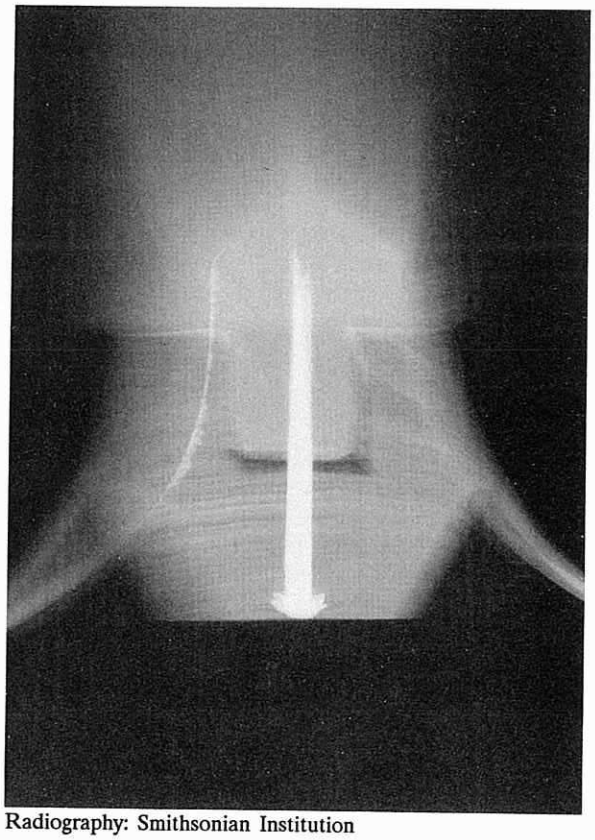
The original fingerboard, equally divided on the joint forming the appui is of typical English style, also found in the exhibition Jaye and Meares examples. The tailpiece with ebony veneer and ivory "purfling" is period in origin, but probably not the work of Norman[1]. The varnish is of rich semi-transparent orange-brown color.

Tuning: D, G, c, e, a, d'

Body		*table*	
	length	*67.8*	
	upper bout	*30.7*	
	center bout	*23.1*	
	lower bout	*37.65*	
Rib height		*treble*	*bass*
	top-block	*7.8*	*7.8*
	slope	*12.65*	*12.7*
	upper corner	*12.95*	*13.0*
	lower corner	*13.05*	*12.95*
	bottom-block	*12.72*	*12.62*
Neck			
	length	*32.6*	
	width: top-nut	*4.97*	
	neck-foot	*5.57*	
	thickness with fingerboard:		
	top-nut end	*1.85*	
	neck-foot end	*2.92*	
Fingerboard			
	length	*47.5*	
	width: top	*5.2*	
	bottom	*8.17*	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.2*	*0.24*
	neck-foot	*1.6*	*1.6*
	bottom	*0.42*	*0.48*
	Appui	*1.0*	*1.0*
	Appui to fingerboard edge	*2.6*	*2.6*
Table mensure (current)		*35.25*	
Pitch		*6.42*	
Vibrating string length		*68.6(current)*	

COLLECTION SMITHSONIAN INSTITUTION





Radiography: Smithsonian Institution

1. Meares has been suggested as the maker of the tailpiece. This shortened example does not follow common tailpiece length proportions known to have been used by makers in this period.

6 Converted 7 String Bass Viol

Gibs (?), London, ca. 1688 (?)

Only three instruments with modern necks have been included in this exhibition for their unique interpretive importance.[1] This English bass viol was probably taken to France in the first quarter of the 18th Century for conversion to a 7 string instrument.[2] Nothing is known of George Gibs except for the information on the handwritten label in ink:

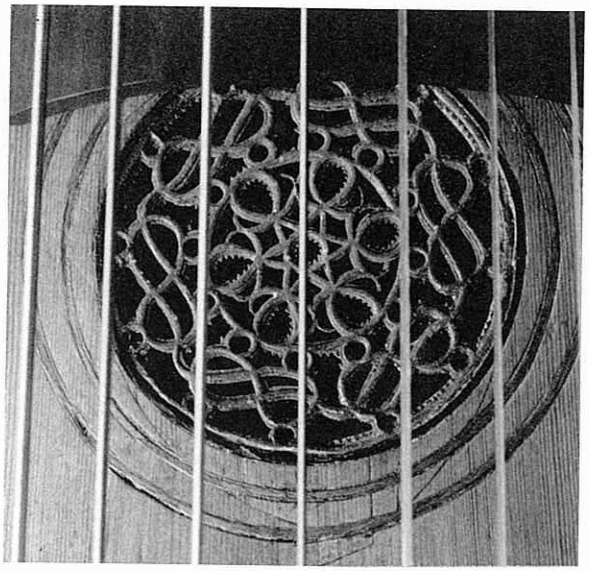
> george gibs
> London fecit
> 16 / 88

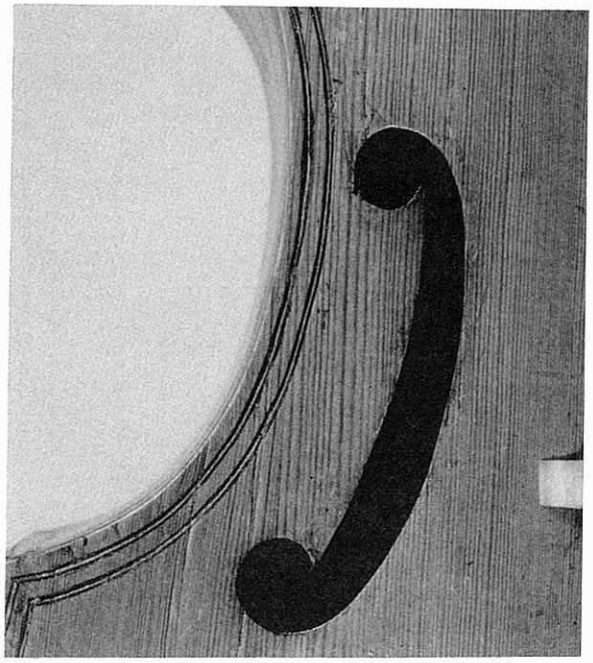
However, it is clear that the maker had more than apprentice's skills and experience judging from the aesthetic and technical quality of the workmanship seen here. The cedar table was fashioned from 6 bent staves with an unusual "center joint" in the central trapezoidal strip. The purfled ribs are of plum wood(?), and the back consists of 4 strips of double purfled plum alternating with 3 strips of widely figured burl maple.

To the original body, a service wood neck and 7 string pegbox and head was added in French execution of English style. In the conversion, the original tenon mortise in the top-block was bushed,

1. See also the small 7 string bass viol attributed to Francesco Rugieri, p.26, and the 1701 "Servais" Stradivari Cello, p.82
2. French musicians often spoke of the advantages in the sound of English viols. Rousseau, in his *Traité de la Viole,* speaks of "old English viols which we in France particularly appreciate." Further comments by J.B.A. Forqueray are on page 13 & 14 of the John Rutledge translation, *Viola da Gamba Society of America,* Journal XIII, 1976.

and the neck was set in flush attachment system (see fig.7, p.7). The "new" French neck was typically thin and flat in shape with a narrow neck foot. Probably in the 19th Century, the instrument was no longer needed, and developed woodworm in the neck-foot area. At some later time the neck was radically narrowed and the instrument once again fell out of use. A recent restoration replaced the French neck, retaining the ornamental pegbox and carved male head, resulting in the composite viol shown on these 2 pages. The French neck was 34.05 cm in length, indicating that the conversion was probably intending the instrument to be used for continuo, with a vibrating string length of approximately 73.1 cm.



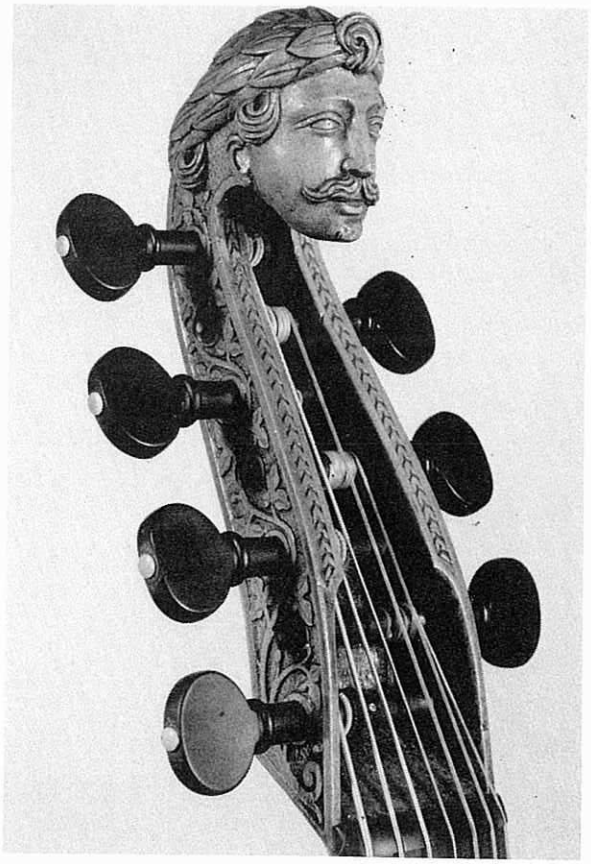


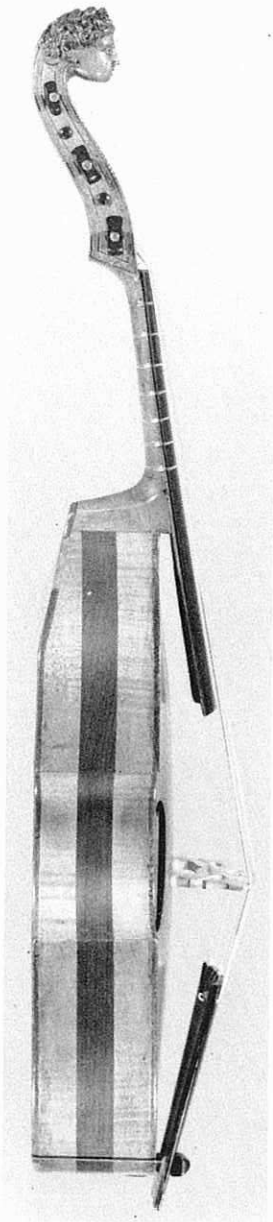
Varnish on the body is of transparent golden orange-red color, while that in the pegbox is of typical French yellow-brown color with a hard brittle texture. The pegs, neck, fingerboard and tailpiece are modern reproductions.

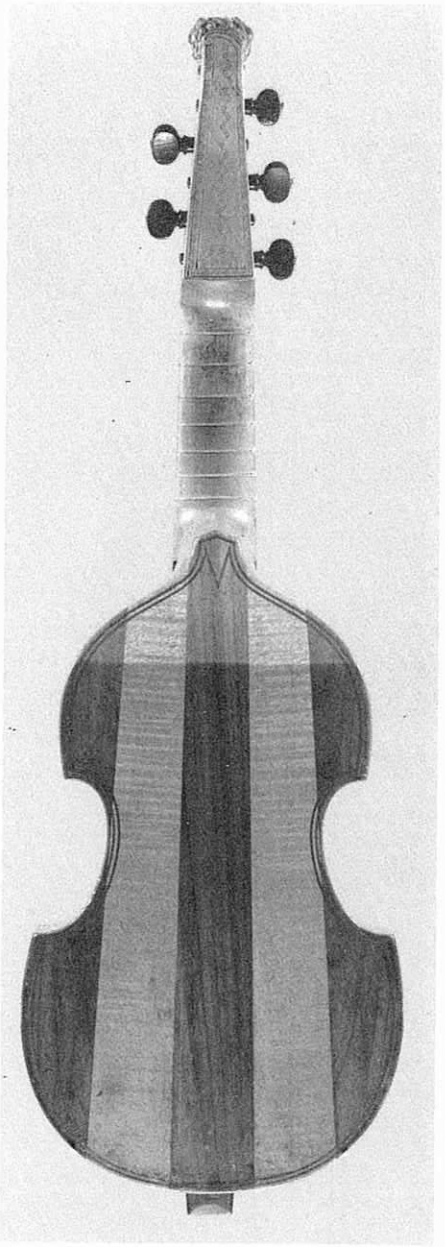
Tuning: AA, D, G, c, e, a, d'

Body	*table*	
length	*69.1*	
upper bout	*31.0*	
center bout	*22.4*	
lower bout	*38.1*	
Rose diameter	*6.88*	
Rib height	*treble*	*bass*
top-block	*8.2*	*8.25*
slope	*12.2*	*12.2*
upper corner	*12.2*	*12.25*
lower corner	*12.05*	*12.25*
bottom-block	*12.15*	*12.15*
Neck		
length	*30.2*	
Table mensure	*38.6*	
Vibrating string length	*69.1*	

COLLECTION LLOYD SMITH







7 Pardessus de Viole

Louis Guersan, Paris, 1745

The smallest member of the family of viols, and an 18th Century innovation of the French, the pardessus is really a "high treble", usually with five and sometimes six strings. Not to be confused with the quinton, or five string true violin, the pardessus is played between the legs as are all instruments of the viola da gamba family. Because the pardessus was popular at court, many examples show a high degree of craftsmanship and refinement. Instruments were often built with backs and sides of contrasting woods (like this example), with elaborate geometric ornaments rendered in ink within the body of the varnish. This charming and decorative small viol fell out of popular use after the French Revolution.

Important makers include Collichon, Bertrand, Pierray, Ouvrard, Fleury, and of course, Guersan. He was the pupil and successor to the workshops of Claude Pierray. Guersan (ca. 1713-1781[1]), became a very successful maker and dealer under the patronage of Court and the Paris Opera. This instrument of 1745 is from the first year of Guersan's pardessus output known to me. He continued making these instruments until 1766, and from this span of 21 years, 34 examples are known today. Since only 74 French pardessus survive, Guersan's 34 instruments suggests the importance of his work at the time

1. See René Vannes, *Dictionare Universel des Luthiers,* Vol.I, 1986, p. 142; a label similar to the one in this instrument is illustrated in example # 841.

of the pardessus' greatest vogue.[1] His prices were also higher (up to 36 livres) than other contemporaries like Bertrand, Lambert, Ouvrard, and Solomon, who averaged 8-18 livres for their pardessus.[2]

This example bears the original printed ornamental label:

Ludovicus
GUERSAN
prope
Comoediam
Gallicam
Lutetiae
Anno
1745

(The printed label has an ornamental scrollwork cut edging; the last two digits of the date are handwritten in ink.)

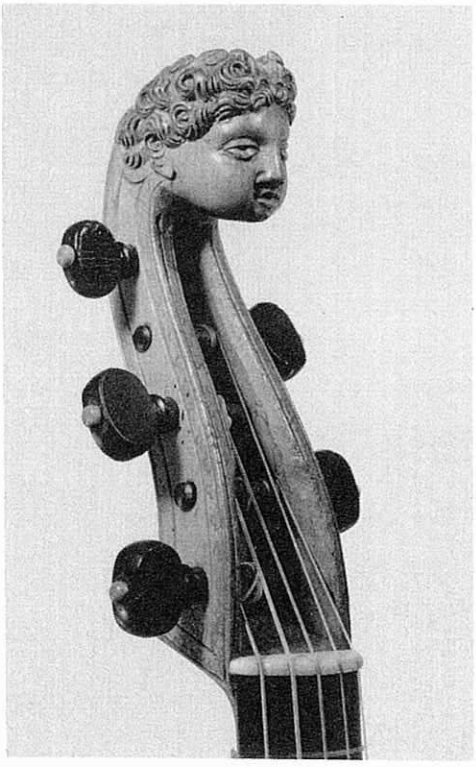
The instrument is completely intact, with the exception of bridge and strings. An ornamental assembly of contrasting pear and maple strips on the back and ribs is accompanied by double purfling on the back and table. A carved female head and ornamental geometric stampings on the pegbox in the character of *La Fille* compliment the decorative style of the instrument.[3] This typical varnish is of a highly transparent golden yellow-orange color.

Unlike Collichon and Bertrand who made viols with the neck and top-block in one piece, Guersan simply butted the neck-foot to the top-block (see Chappuy, quinton, #16, p.40). Also, while other French makers used linen reinforcement, Guersan applied paper or parchment to secure the joints of the striped ribs and back, and incorporated linings and corner-blocks in his body construction. The slope incision on the back retains the 4 usual Guersan spruce studs as reinforcement supports. Typically, the fingerboard and tailpiece of maple are veneered on top with ebony, and the pegs are of rosewood with bone ornaments. The fingerboard also has a 2mm tilt downward on the treble side. (An analysis of a 1759 Guersan pardessus can be seen in Kevin Coates', *Geometry, Proportion, and the Art of Lutherie,* pp. 52- 54.)

Tuning: g, d, a', d'', g''

Body		*table*	
	length	*32.6*	
	upper bout	*15.95*	
	center bout	*11.15*	
	lower bout	*19.5*	
Rib height		*treble*	*bass*
	top-block	*4.15*	*4.2*
	slope	*5.35*	*5.3*
	upper corner	*5.43*	*5.45*
	lower corner	*5.40*	*5.40*
	bottom-block	*5.40*	*5.45*
Neck			
	length	*13.4*	
	width: top-nut	*3.77*	
	neck-foot	*4.40*	
	thickness with fingerboard:		
	top-nut end	*1.35*	
	neck-foot end	*1.62*	
Fingerboard			
	length	*22.9*	
	width: top	*3.8*	
	bottom	*5.02*	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.12*	*0.25*
	neck-foot	*0.25*	*0.25*
	bottom	*0.20*	*0.20*
	Appui	*0.65*	*0.70*
	Appui to fingerboard edge	*0.90*	*0.95*
Table mensure		*17.75*	
Pitch		*3.7*	
Vibrating string length		*31.7*	

COLLECTION TINA CHANCEY



1. See Peter Tourin's extensive listings of known viols in, *Viollist, A Comprehensive Catalog of Historical Viola da Gamba in Public and Private Collections,* published by the Tourin Musica, 1981.
2. See Sylvette Millot, *Documents Inédits sur les Luthiers Parisiens du xviii^e Siècle,* société Francaise de Musicologie, 1970.
3. Although numerous La Fille heads can be found on French viols, hurdy-gurdies, and the violin family of instruments of the 18th century, so far no biographical information concerning the person, or this school of wood carving has been found, except sketchy information passed down by verbal tradition.

8 Treble Viol

Paul François Grosset, Paris, 1746

This French treble with its original label handwritten in ink states:

> P.F. Grosset du Dieu Appellion rüe
> De la Verrerie A Paris. 1746

Although the year of his birth is not known, Grosset died on October 11, 1756 according to Milliot.[1] While there are no recorded prices for his pardessus, Grosset evidently sold a treble viol of his own making in 1756 for 7 livres. (Just 2 years later, Guersan was selling his pardessus for as much as 30 livres.)

This treble is built on a small 34.2cm model with narrow center bouts and a relatively high arching; the highest point lying about 15mm below the "c" holes. The arching then continues to diminish in height through the breast area and upper bouts, becoming flat just below the top-block where a slight rise ends at the neck-foot. The bridge location appears not to have been moved, and lies well centered in the length of the "c" holes. In fact, there is little evidence of any wear to the instrument. Repairs to the body were mainly undertaken to replace areas of the ribs that had suffered extensive worm damage.

Typical for French viols, the neck is very flat in

1. She also mentions that Grosset married M.J. Rebours, the widow of Pierre André Veron, on August 14, 1731. See Sylvette Milliot, *Documents Inédits sur les Luthiers Parisiens du xviii^e Siècle*, p.29.

the back, and quite thin, even with the combined thickness added by the fingerboard. The original fingerboard of maple is only veneered on the top, as is the case with the tailpiece which extends well beyond the tailpiece pin in French style. The underside of the tailpiece below the tailpiece pin is undercut to create an impression of delicacy. Possibly to use a neck that was not deep enough for the entire neck-foot on this treble, Grosset spliced an 8mm length of similar maple to join the neck-foot heel and button.

The bridge is certainly from the period and is possibly original. It has been repaired several times by extending the feet and by gluing cracks close to the top string curve area. The pegs are also probably original as is the ivory top-nut and rosewood tailpiece pin.

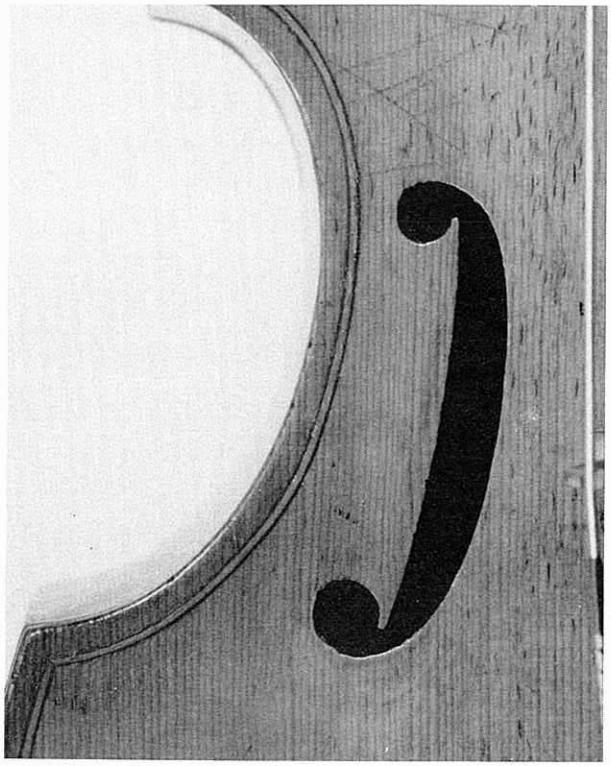
A carved female head wearing a feathered hat and earrings is complimented by ornamental stamped patterns on the pegbox back, sides, and front. A transparent thin varnish of yellow-brown color completes the instrument. Varnish has not been applied under the fingerboard. The neck and fingerboard were fully varnished together with the instrument completed and there was no space under the fingerboard large enough to be reached.

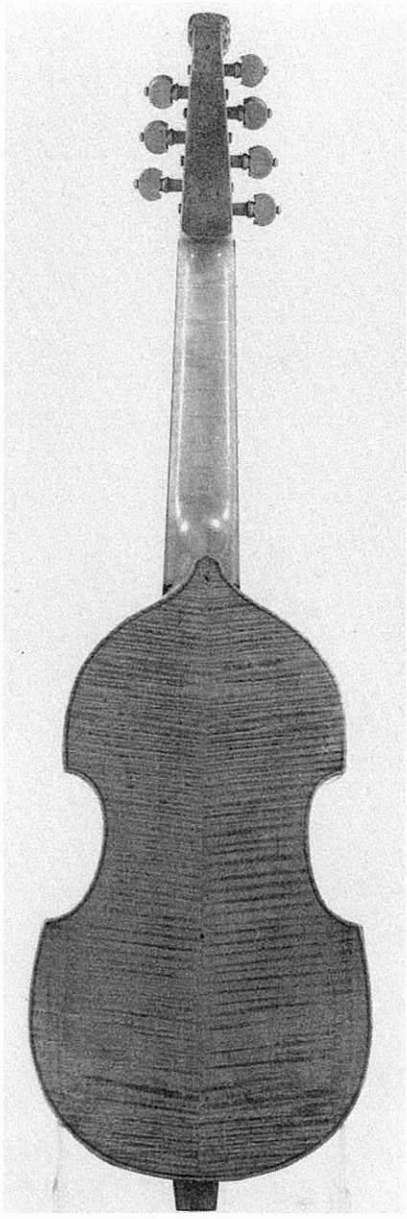
Corner-blocks and linings were not used in this treble. The ribs were simply reinforced with linen on the corners and back. The table was glued to the ribs without linings or studs. Spruce was used for the small top and bottom-blocks.

Tuning: d, g, c, e', a', d''

Body		*table*	
	length	*34.2*	
	upper bout	*16.1*	
	center bout	*11.5*	
	lower bout	*20.15*	
Rib height		*treble*	*bass*
	top-block	*4.45*	*4.5*
	slope	*5.4*	*5.45*
	upper corner	*5.5*	*5.5*
	lower corner	*5.55*	*5.5*
	bottom-block	*5.65*	*5.6*
Neck			
	length	*12.7*	
	width: top-nut	*4.58*	
	neck-foot	*5.03*	
	thickness with fingerboard:		
	top-nut end	*1.4*	
	neck-foot end	*1.64*	
Fingerboard			
	length	*23.8*	
	width: top	*4.58*	
	bottom	*5.7*	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.3*	*0.3*
	neck-foot	*0.4*	*0.35*
	bottom	*0.4*	*0.38*
	Appui	*0.85*	*0.9*
	Appui to fingerboard edge	*1.25*	*1.25*
Table mensure (current)		*18.6*	
Pitch		*2.92*	
Vibrating string length		*31.4*	

COLLECTION NEWARK MUSEUM





9 7 String Bass Viol
Cremonese, ca. 1700

With the development of the 7th string by St. Colombe, the viol reached virtuoso status at the end of the 17th Century. Demand for the instrument spread outside France as orders for the instrument were given to German[1] and Italian makers. Stradivari also developed a 7 string model which he termed a "Viola da Gamba of the French Form" in 1701[2]. This instrument is clearly of Cremonese origin in both workmanship and varnish. The viol has long been linked to Francesco Rugieri, whose reproduction label it bears:

Francesco Ruggieri detto il per Cremona 1697

(97 handwritten in ink)

It is possible that the attribution is correct, but since no other examples exist, confirmation is technically impossible. The date of the label falls exactly into the expected time chronology, and the style of the interior also implies special commission as the instrument was built without an interior mold.

The viol stands alone as the only instrument of such small size in existence. It has a musical voice unusually rich in resonance combined with a short

1. By 1696, the great Hamburg maker, Joachim Tielke was building 7 string viols. An example from this year, with ornamental fingerboard and a carved lion head can be seen in the Music Instrument Collection in Stockholm.
2. There are 10 patterns from this instrument in the collection of the Civic Museum in Cremona, described in Sacconi's *The "Secrets" of Stradivari*, Cremona, 1979, p. 218-219. Illustrations of the neck templates are on page 217.

string length imminently suited for ease of left hand movement demanded by the virtuoso literature. Although no source specifically refers to such a small 7 string bass, Forqueray's son mentions the use of 2 viols[1], implying the use of a small instrument for solo literature.[2]

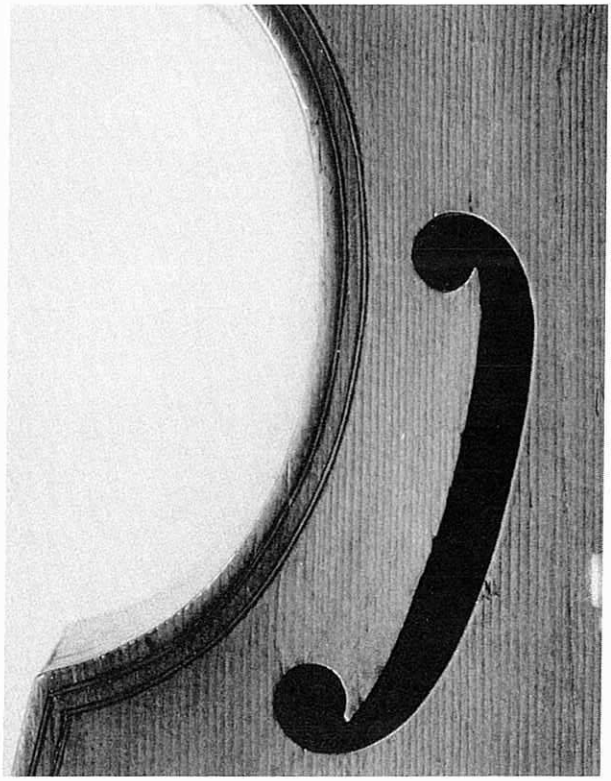
In design and style, the instrument is very French in body model and character of the "c" holes. The viol was built up from the back with interior studs around the edges to hold the ribs in place. While the bass-bar is reproduction, the body is otherwise unaltered. Spruce top and bottom-blocks are combined with 22 studs securing the ribs to the back. The original soundpost bar is of willow, and the spruce linings at the table edge complete the interior construction. The top-block shows signs of an original neck dovetail which was filled during an earlier neck graft. In its current form, a reproduction neck has been dovetailed into the original location marks. The fingerboard, tailpiece and pegs are also reproduction.

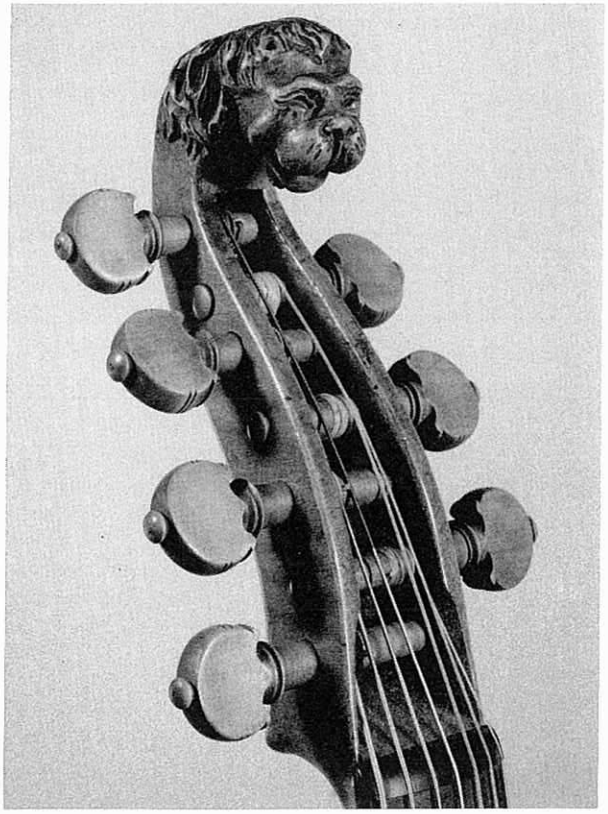
The viol body bears double purfling of poplar on the table. The back simply bears a representation of single purfling cut into the wood with a knife point. The original plain pegbox is terminated in an extended lion head. The varnish is largely original, of a rich transparent yellow-brown color.

Tuning: A, D, G, c, e, a, d'

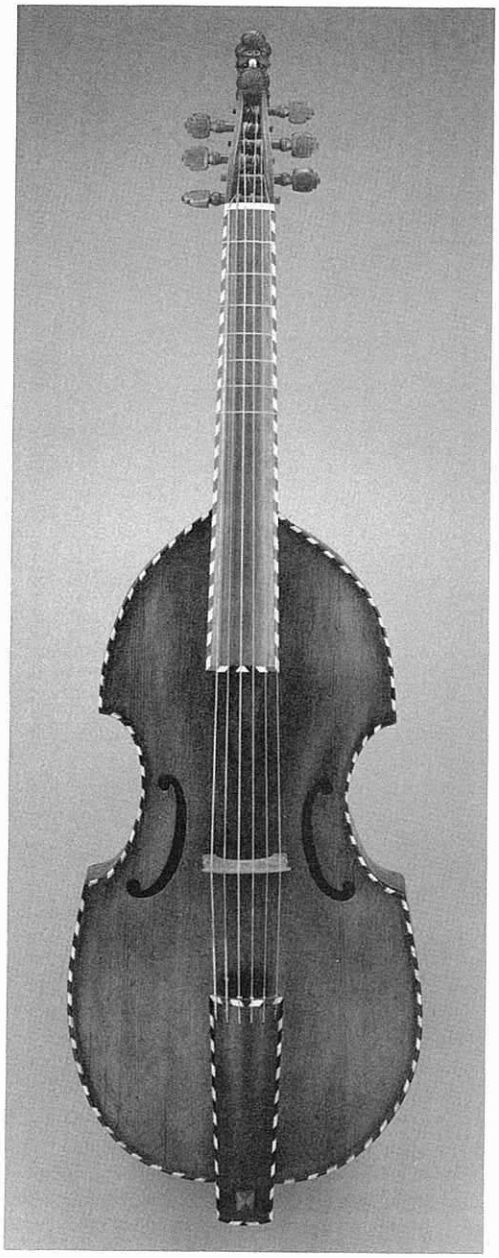
Body	*table*	
length	*59.9*	
upper bout	*28.1*	
center bout	*20.35*	
lower bout	*34.3*	
Rib height	*treble*	*bass*
top-block	*8.16*	*8.05*
slope	*10.7*	*10.7*
upper corner	*10.87*	*10.94*
lower corner	*11.0*	*11.1*
bottom-block	*11.25*	*11.15*
Neck-Reproduction		
length	*34.5**	
width: top-nut	*5.86**	
neck-foot	*7.75**	
thickness with fingerboard:		
top-nut end	*2.8**	
neck-foot end	*3.98**	
Fingerboard-Reproduction		
length	*50.2**	
width: top	*5.95**	
bottom	*9.45**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.40**	*4.5**
neck-foot	*0.65**	*0.70**
bottom	*0.50**	*0.40**
Appui	*1.9**	*2.15**
Appui to fingerboard edge	*2.4**	*2.85**
Table mensure	*32.7*	
Pitch	*7.45**	
Vibrating string length	*68.3**	

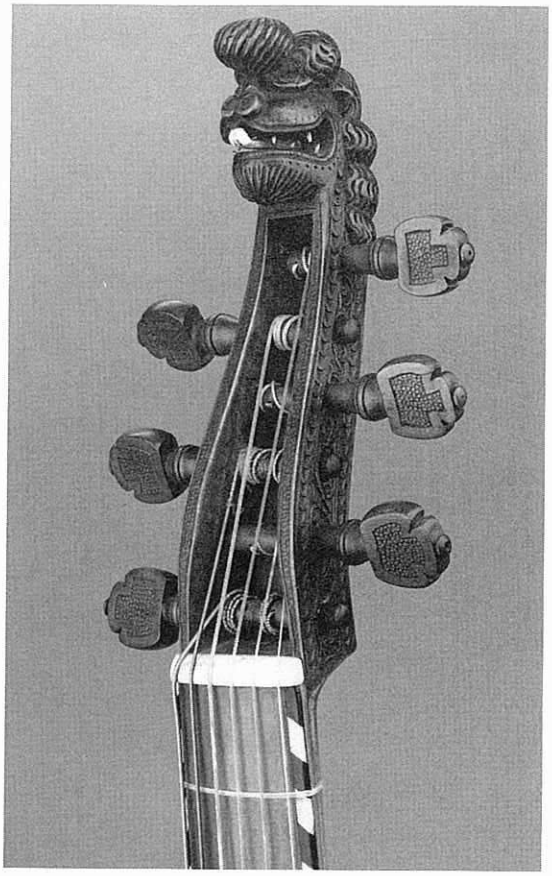
COLLECTION JOHN HSU

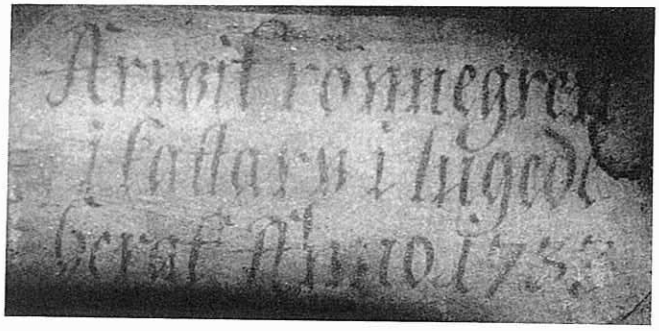




1. See the John Rutledge translation of the Forqueray letter in the *Journal of the Viola da Gamba Society of America,* Vol XIII, 1976, pp.12-16. Forqueray's son in a letter to Friederick Wilhelm of Prussia in 1767 speaks of his father using two Barbet viols: "I have 2 of them which my father played for 25 years of his life, one for solo work, the other for accompaniment."
2. John Hsu has extensively researched the literature and playing technique for the 7 string viol and believes this instrument to represent a solo tool for the intimate chamber performance.







10 6 String Bass Viol
Arwitt Rönnegren, Kattarp, 1733

This 6 string bass viol was made near Ängelholm, on the west coast region in the south of Sweden by Arwitt Rönnegren (1680-1737). Rönnegren was a cavalryman who possibly learned instrument making in prison during incarceration in Russia. His death certificate on November 26, 1737 states, that "Arfvid Röngreen, former cavalryman and violin maker of Kattarp", died at the age of 57.[1]

The original handwritten label is reproduced here:

This instrument shows that the system of neck and top-block in one piece (fig.5, p. 6), was known in Sweden and applied to viols. In construction, the ribs are secured on the back by a series of studs around the inside perimeter of the outline, in a similar manner to the Baryton, p.36. Because the instrument was probably built "in the air", the studs functioned as retainers to hold the complex rib curves in place during assembly, and afterwards providing structural reinforcement to the body in the same manner as traditional linings or linen.[2]

The table is of cedar in 2 pieces with large wings added to both upper and lower bout flanks. The ribs and back are of mildly figured birch. It is interesting that the center bout ribs extend to the body edge

1. This conclusion from documentary evidence is presented by Bengt Nilsson in *Svensk Fiolbyggar Konst* (Swedish Violin Making), Stockholm, 1988, pp. 42-43. A similar bass viol, illustrated on page 37 was made by a colleague of Rönnegren, Georg Mothe, in 1735. Mothe was also imprisoned in Russia with Rönnegren.
2. 27 original studs remain, the lower bouts are now fitted with linings from a repair.

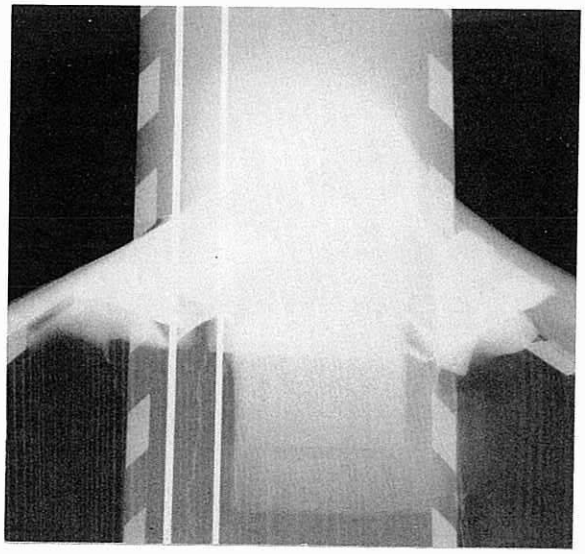
without mitres; upper and lower ribs are simply butted into the center bout rib, without "overlapping" or mitre joint attachment.

Only a lower fragment of the original top-block remains on the block area. The upper part was carefully replaced in style with the original, and a new neck and pegbox were grafted both to the body and the original carved lion head. A repair to the back at the top-block replaced the button with new wood.[1]

While the table and back have a single "purfling" of inlaid lines, the table edge is further ornamented with contrasting pieces of bone (white) and stained pearwood (black). The carved lion head has an ornamental bone tongue and 8 bone teeth. The ornamental tailpiece and fingerboard are both reproduction, as are the pegs. The varnish is of orange reddish-brown color.

Tuning: D, G, c, e, a, d'

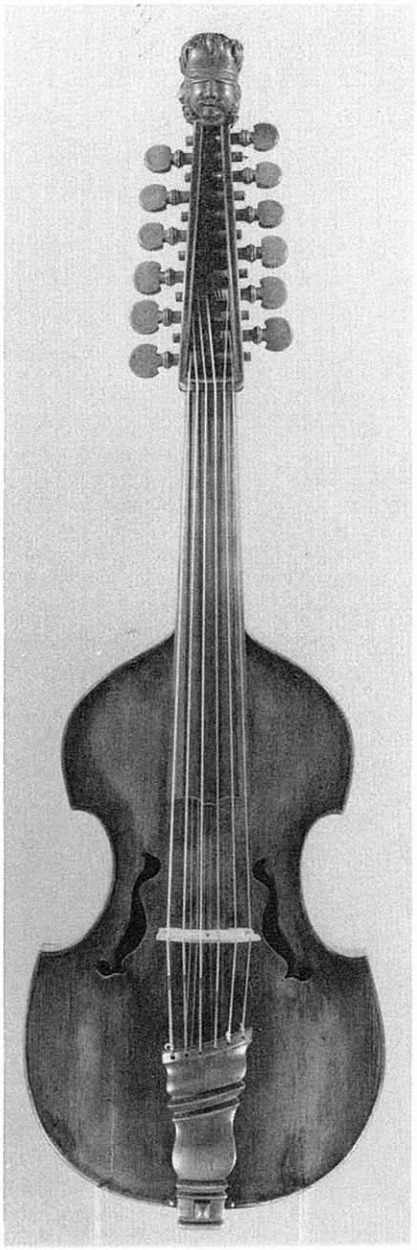
Body		*table*	
	length	*64.4*	
	upper bout . . .	*30.1*	
	center bout . . .	*21.3*	
	lower bout . . .	*34.6*	
Rib height		*treble*	*bass*
	top-block	*9.2*	*9.2*
	slope	*11.65*	*11.7*
	upper corner . .	*11.7*	*11.6*
	lower corner . .	*11.7*	*11.7*
	bottom-block .	*11.9*	*11.7*
Neck			
	length	*30.5(current)*	
Fingerboard			
	length	*47.5(current)*	
	width: top . . .	*5.3 (current)*	
	bottom .	*7.1 (current)*	
Pitch (current)		*5.96*	
Vibrating string length		*66.0(current)*	

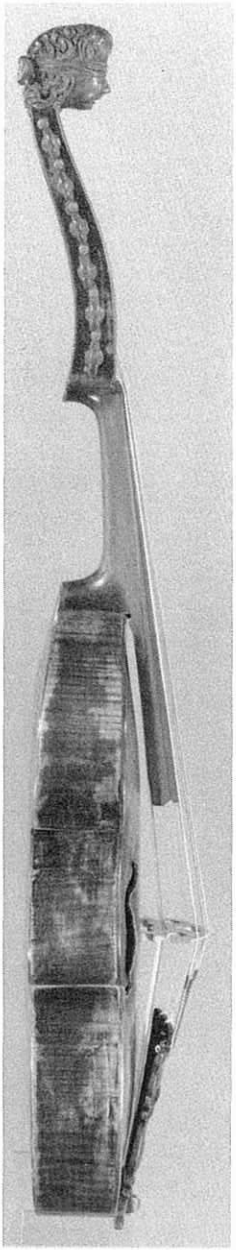


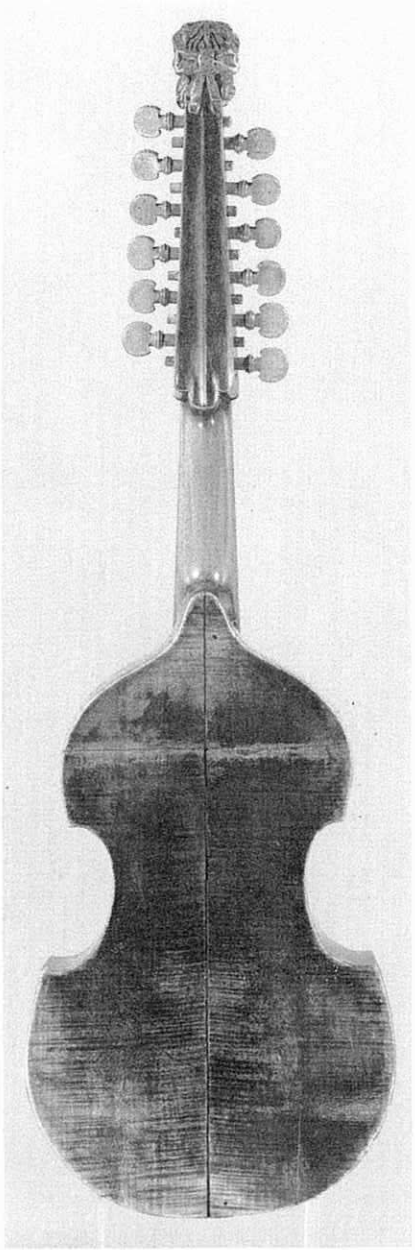
COLLECTION BOSTON MUSEUM OF FINE ARTS

Photographs and radiography courtesy of The Boston Museum of Fine Arts

1. See a similar repair solution on the Steiger tenor, p. 74.







11. Viola d' Amore

Joannes (II) Rauch, Chomutou, 1755

Enormous uncertainty clouds the origins and name of the viola d' amore[1]. From the end of the 17th Century the viola d' amore is an instrument usually of viol outline without frets, that is played on the shoulder with 6 or 7 bowed strings and an equal number of sympathetic strings beneath the fingerboard.[2] The sympathetics enhance volume and resonance of the instrument and impart a "silvery" brilliance and projection to the sound. Instruments often feature ornamental purfling, inlay, rosettes of parchment or wood, and a carved head above the extended pegbox. These heads often depict a blindfolded cherub or angel, and give credit to the "viol of love" attribution for the instrument. The soundholes are usually in "sword" form, which some link to an Islamic origin for the instrument as a viol of the Moors.[3]

This example with 6 bowed and 6 sympathetic strings bears a composite original label:

Joannes	Rauch, me fecit Commo-toui. 1755.

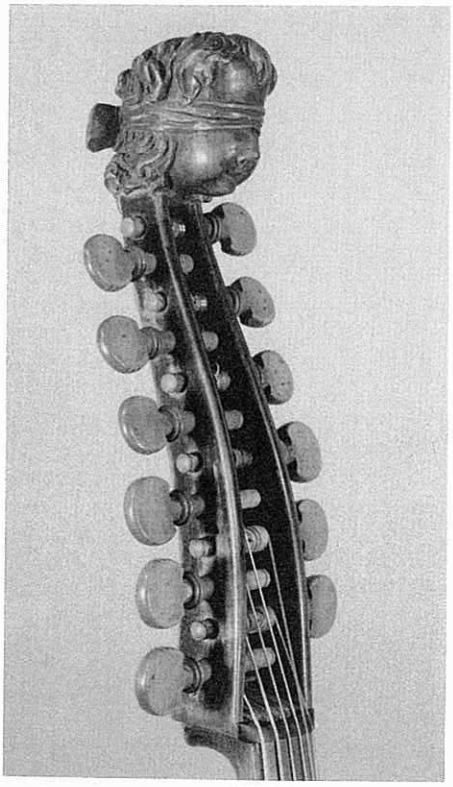
1. For a concise review of the viola d' amore, its history, terminology, literature, and makers, see Harry Danks, *The Viola d' Amore,* published by Stephen Bonner, England, 1979.
2. Sympathetic strings are the unique feature of the viola d' amore. They are usually attached with nails or pins at the bottom-block, or rarely, on the tailpiece itself (similar to the Hardauger felé). These metal strings then pass through holes or a slot in the bridge beneath the bowed strings and continue to the pegbox for tuning through the neck, hollowed for this purpose. The sympathetics are not accessible during playing, but simply vibrate in response to the bowed strings.
3. See, Danks, p.11 for discussion of terminology.

Joannes (II) Rauch (worked, ca. 1720-1760)[1] probably took a printed label from his son, Joseph Johann (b. November 1, 1722, died after 1795), for this instrument[2]. The printed name *Josephus* was cut out and a handwritten ink *Joannes* on separate paper was glued beneath the printed label. The composite was then glued in place on the soundpost bar of the back.

While it is not usually possible to date fittings, I believe that the pegs, fingerboard & tailpiece are probably original, judging from style and proportion in this example. The neck of pearwood is fastened with a tenon into the top-block (see x-ray). Unusual for a viola d' amore, the tailpiece is attached to the instrument with a tailpiece pin more typically employed in viols. The sympathetics are fastened at the bottom-block with 6 nails.

With its high ribs, the back has a double slope, both in the upper and lower bouts (see English violet, p.34). Locating pins on the back lie to the right of the center joint and ornamental strips. Typically, the ribs are not mitered in the corners; the upper and lower bout ribs are laid over the center bout at the corners. The neck is set back 7.4mm from the table joint with the ribs, requiring a strongly wedge shaped fingerboard to reach viable bridge height.

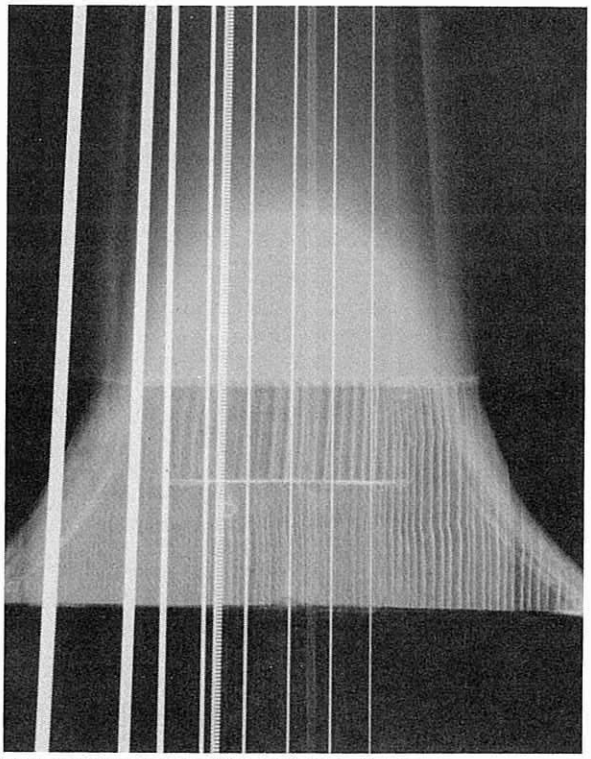
The semi-opaque reddish brown varnish is common to both instrument as well as the pearwood fingerboard and tailpiece.



Tuning: d, a, d', f#', a', d''
sympathetics in unison with bowed strings

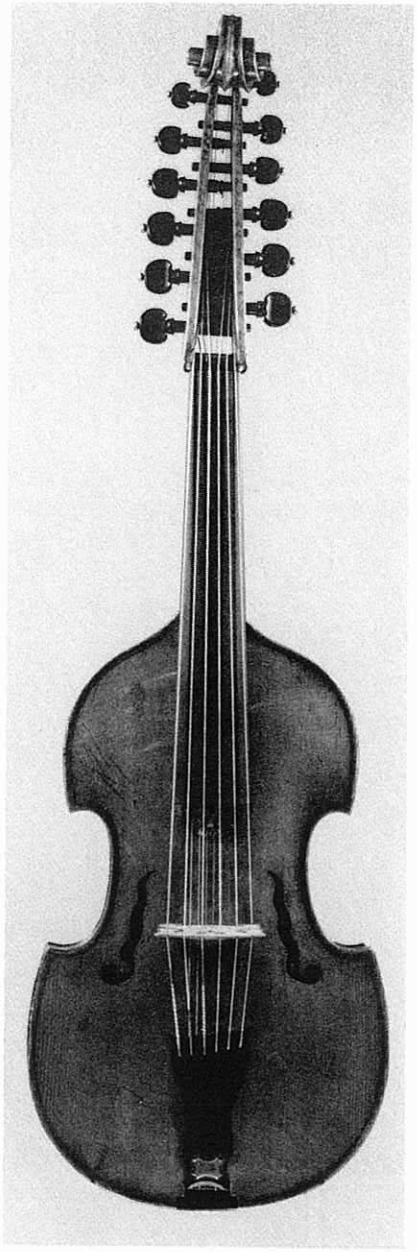
Body	*table*	
length	*38.8*	
upper bout	*19.2*	
center bout	*12.8*	
lower bout	*23.6*	
Rib height	*treble*	*bass*
top-block	*4.07*	*4.1*
slope	*5.1*	*5.1*
upper corner	*5.2*	*5.35*
lower corner	*5.3*	*5.34*
lower slope	*5.24*	*5.2*
bottom-block	*4.57*	*4.65*
Neck		
length	*14.3*	
width: top-nut	*3.13*	
neck-foot	*3.88*	
thickness with fingerboard:		
top-nut end	*2.1*	
neck-foot end	*2.9*	
Fingerboard		
length	*26.9*	
width: top	*3.38*	
bottom	*5.43*	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.25*	*0.35*
neck-foot	*1.1*	*1.15*
bottom	*0.6*	*0.6*
Appui	*0*	*0*
Appui to fingerboard edge	*1.1*	*1.15*
Table mensure	*2.8*	
Pitch	*3.8*	
Vibrating string length	*35.4*	

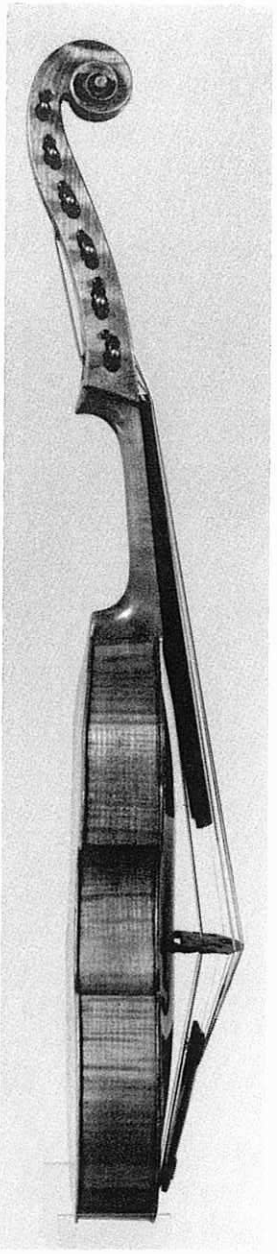
COLLECTION JENNIE HANSEN

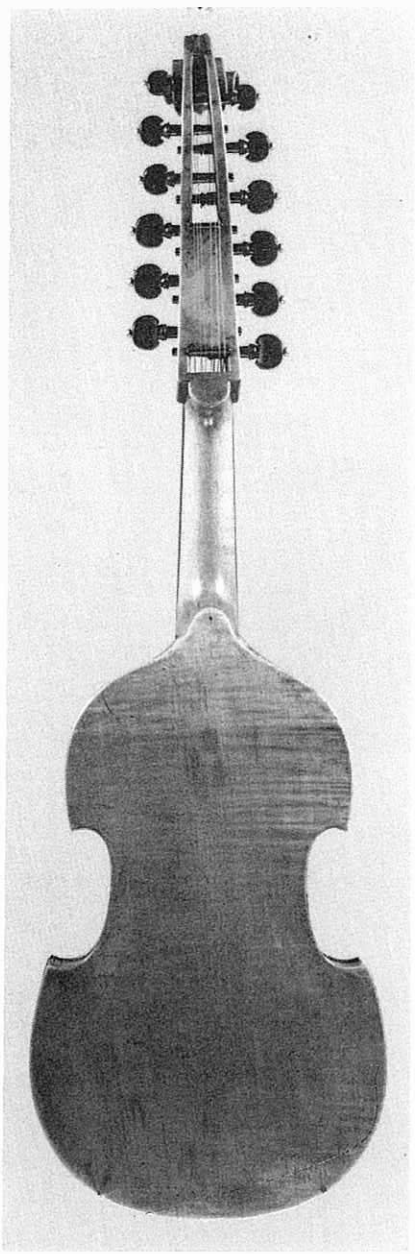


Radiography: Metropolitan Museum of Art

1. Chronology of the Rauch family is uncertain at best. These dates seem most likely from the biography and introduction to the family in Karel Jalovec's *The Violin Makers of Bohemia,* distributed by William Lewis & Son, Chicago, p. 76-79.
2. Ibid., p. 78. The text of this printed label is given with the same word locations as in the original label in this instrument.







12 Viola d' Amore
Ferdinand Gagliano, Naples 1774

Neopolitan violas d'amore were made primarily by Thomas Eberle and members of the Gagliano family. All the examples known to me were originally designed with a 6+6 string configuration[1] while in Germany and Bohemia, most surviving examples from the last quarter of the 18th Century have the more popular 7+7 extended range.

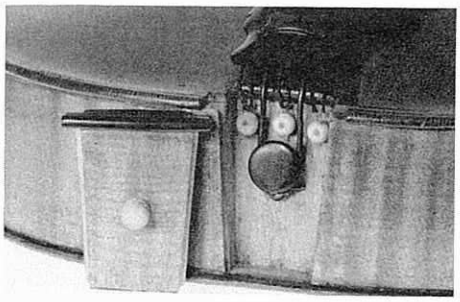
Ferdinand Gagliano (1706-1784)[2] made this viola d'amore at the age of 68. It has an original printed label, without ornamental border:

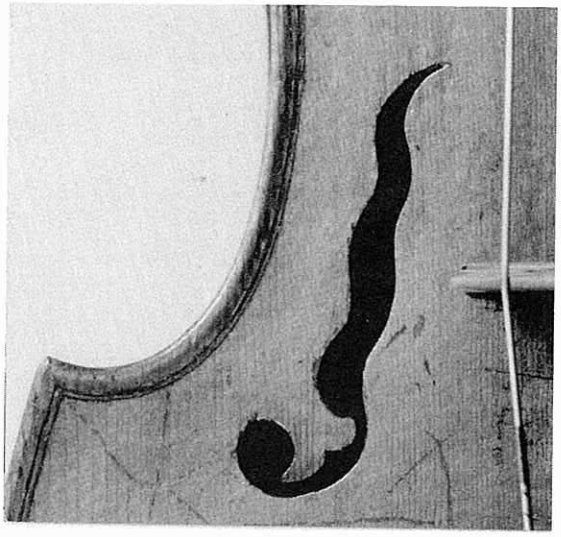
Ferdinandus Gagliano Filius
Nicolai fecit Neap. 1774

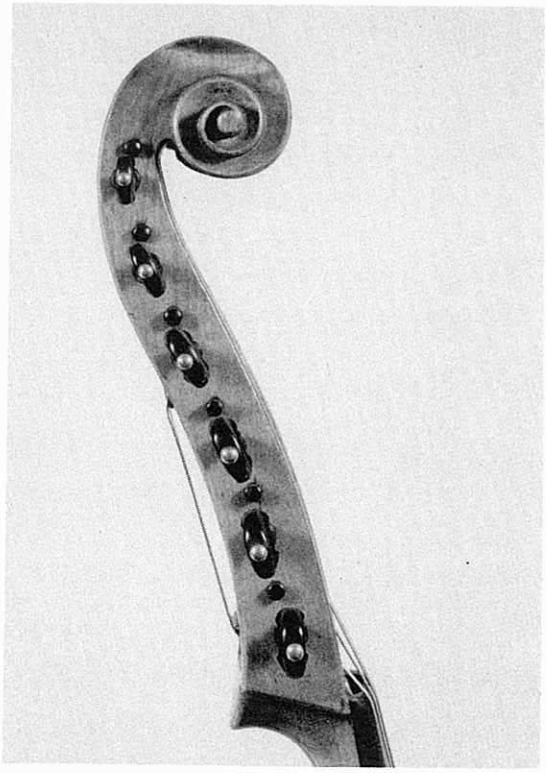
(74 handwritten in ink)

The instrument has overlapping edges on the table and back, and the ribs are not mitered, but simply butted at the corners. The interior blocks are of willow while the linings are of beech, stopping at the soundpost bar on the back. This is the only Ferdinand Gagliano I know that retains an original ornamental parchment rosette beneath the fingerboard. Elaborate "sword" soundholes and a single purfling on the table complete the decorative

1. A magnificent Ferdinand Gagliano viola d' amore on a slightly smaller model from 1771 is in the collection of Hans Weisshaar, Los Angeles. It bears elaborate pastiche inlaid designs on the arched back and has a carved montage of leaves and shells at the end of the pegbox.
2. See biographical information in Walter Hamma's *Meister Italienischer Geigenbaukunst*, Shuler, Stuttgart, 1964, p.237.







work to this instrument which has a golden transparent yellow-orange varnish.

An interesting "sliding door" at the bottom-block, conceals 3 bone sympathetic string attachment pegs and an ebony endpin for the tailgut. This door provides a smooth surface for playing without sharp exposed pins, strings or tailpiece. This feature can be seen in others of Ferdinand's work[1] (see photo).

The neck is set back 10.3mm from the table-rib joint, allowing a much more parallel neck-fingerboard combination than in the wedged fingerboard of the previous Rauch example (see page 30). The neck is glued flush with the top-block (see Fig.7, pg.7). An original locating pin to aid in gluing the assembly is found on the button of the back. Despite this precaution, the neck was set off toward the bass side of the instrument. Correcting the direction by trimming the neck-foot resulted in the asymmetrical appearance of the pegbox and scroll. While the pegs and fingerboard are reproductions, the tailpiece, button and bone pegs are probably original.

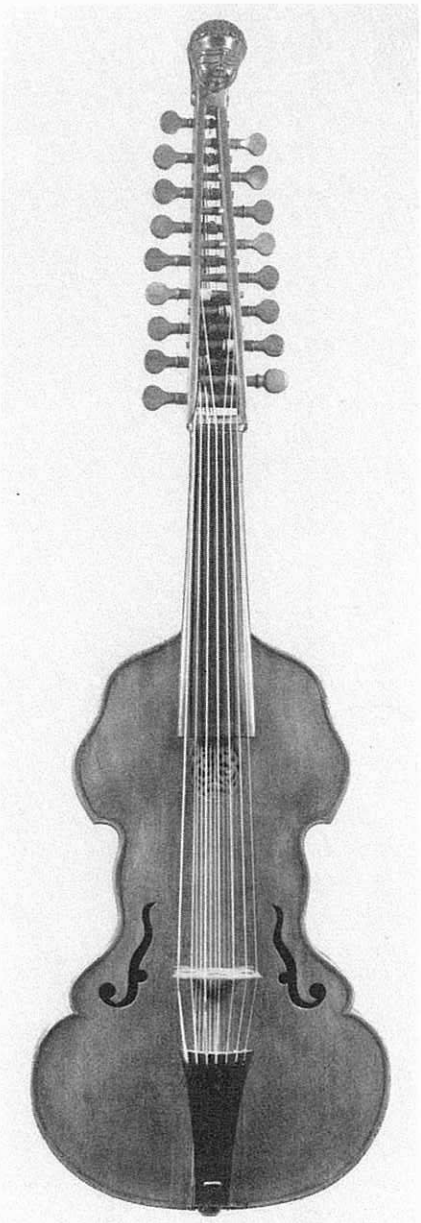
Tuning: d, a, d', f#', a', d''
sympathetics in unison with bowed strings

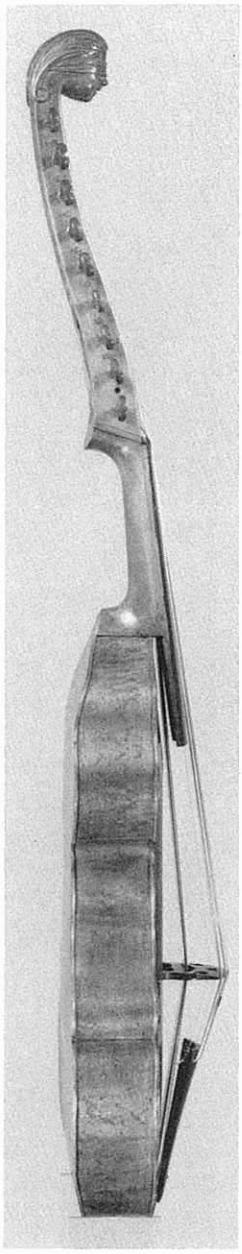
Body		*table*	
	length	*36.2*	
	upper bout	*18.0*	
	center bout	*12.4*	
	lower bout	*22.0*	
Rib height		*treble*	*bass*
	top-block	*3.76*	*3.72*
	slope	*4.31*	*4.32*
	upper corner	*4.36*	*4.35*
	lower corner	*4.5*	*4.47*
	bottom-block	*4.4*	*4.38*
Neck			
	length	*14.5**	
	width: top-nut	*3.0*	
	neck-foot	*3.96*	
	thickness with reproduction fingerboard:		
	top-nut end	*2.3**	
	neck-foot end	*2.72**	
Fingerboard-Ebony Reproduction			
	length	*26.2**	
	width: top	*3.12**	
	bottom	*4.8**	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.55**	*0.5**
	neck-foot	*0.8**	*0.7**
	bottom	*0.32**	*0.35**
	Appui	*0.3*	*0.3*
	Appui to fingerboard edge	*1.1**	*1.0**
Table mensure		*19.1*	
Pitch		*3.45**	
Vibrating string length		*34.0**	

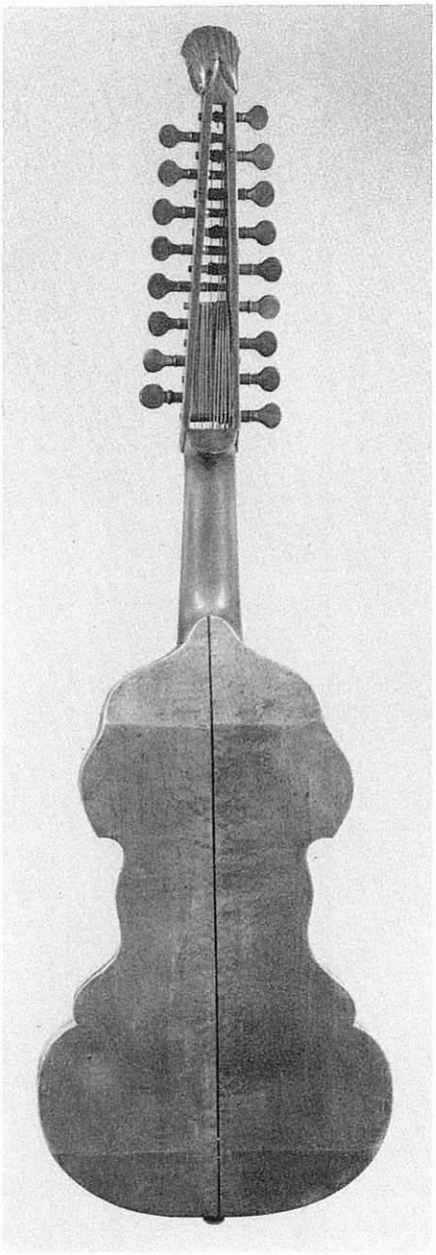
**current measurements with reproduction fingerboard*

COLLECTION WILLIAM L. MONICAL

1. A 1763 Ferdinand Gagliano instrument with this hidden attachment for sympathetics is in the Wilkins Collection of Instruments at the Music Division of the Library of Congress. See a general review of this viola d' amore and the instrument collection by Frank Traficante, entitled, "Henry Blakiston Who? or Some Early Instruments at the Library of Congress", published in the *Journal of the Viola da Gamba Society of America*, Vol. X, 1973.







13 English Violet

Paul Alletsee, Munich, 1726

This is perhaps one of the truly forgotten instruments[1] as even the name *English Violet* is of unclear origin. The "English" attribution may have begun through the early English use of sympathetic strings on viols. In 1619, Praetorius describes an unusual arrangement of strings on the Lyra Viol:

> Now in England something new and strange has been invented that, to the effect that under the usual 6 strings another 8 strings made of steel or twisted brass are lying on a bridge, which have to be accurately tuned to the same pitch as the upper strings. If one of the upper gut strings is touched by finger or bow, the lower brass or steel strings resonate *per consensum*, trembling and quavering so that thereby the sweetness of the harmony is increased and enlarged.[2]

In 1661, Playford also describes the Lyra Violl with sympathetics, attributing its invention to Mr. Daniel Farrant.

At any rate, the English Violet was not English, but rather an 18th Century instrument popular in Germany and Austria, similar to the viola d' amore but larger in body size and having as many as 16 sympathetic strings. The increased number of sympathetics was intended to strengthen and enlarge the volume of sound. However, the large body and extended pegbox resulted in an instrument so tiring to play that it fell out of use by the end of the 18th Century.

1. See exhibition catalog by Stewart Pollens, *Forgotten Instruments*, Katonah Gallery, Nov. 1, 1980- Jan. 18, 1981, p. 25.
2. This quotation, with other reference information appears in Harry Danks' *The Viola d' Amore* , published by Stephen Banner, 1979, p. 12-13.

This example bears the original printed label:[1]

> Paulus Alletsee
> Hof Lauten und Geigen.
> macher in München 1726

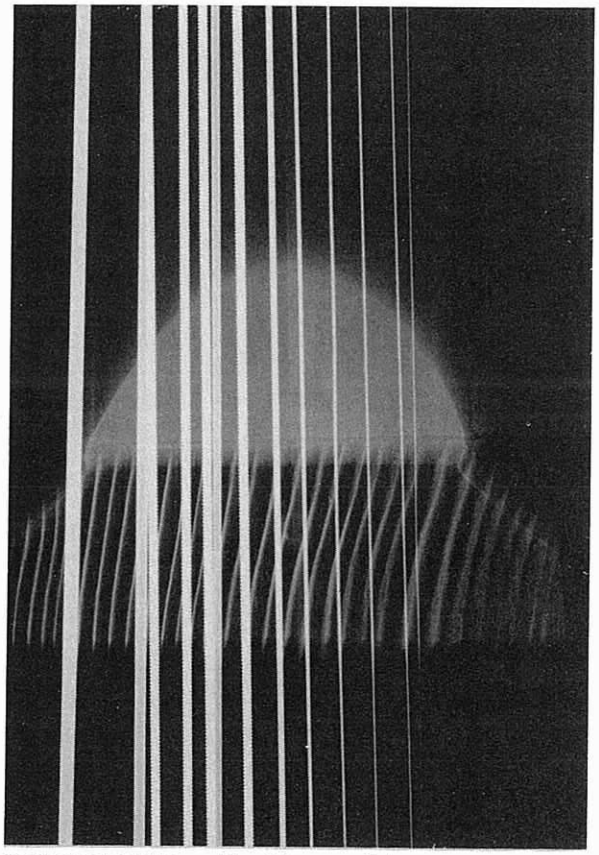
(26 is handwritten in ink)

Alletsee (ca. 1698-1737 ?) was an outstanding and successful Southern German maker of the violin family as well as viols, violas d' amore, and English violets. He made eight violets between 1713 and 1737, with between 8 and 16 sympathetic strings. In the same period, only 5 violas d' amore are known to survive.[2]

The instrument is completely original with the exception of strings, bridge, soundpost, and tailpiece. It was constructed on an inside mold and displays beautifully finished interior features. In addition to the normal blocks and linings, vertical spruce reinforcing bars are found on to the ribs at the narrowest point of the center bout area. This violet has a second slope on the back in the lower bout to reduce rib height at the bottom-block area.

The ribs and back are of complimentary bird's eye maple. An ornamental inlaid pearwood rose and "flame" soundholes compliment the elaborate body form[3] (Narrow center bout design is essential for bow clearance over the edges of the table). The neck, elongated pegbox and blindfolded cherub are of plain pearwood. The pearwood fingerboard is veneered with ebony, and the varnish is of rich reddish brown color.

A companion Alletsee violet from 1725 with 9 sympathetics at the Metropolitan Museum of Art (cat. #1981.7) has its original neck with a nail attachment from the outside of the neck-foot. In our exhibition instrument, the neck is simply joined to the top-block without reinforcement (see fig.7, p.7), and lies almost perfectly straight with the body. It is possible that Alletsee was experimenting with methods of accurately attaching the neck after completing and closing the body assembly (see accompanying x-ray).



Radiography: Metropolitan Museum of Art

Tuning: 7 bowed strings: A, d, a, d', f#', a', d''
10 sympathetics: scordatura

Body		*table*	
	length	*42.8*	
	upper bout	*23.5*	
	center bout	*13.95(narrow point)*	
	lower bout	*26.5*	
Rib height		*treble*	*bass*
	top-block	*3.85*	*3.8*
	slope	*5.4*	*5.4*
	upper corner	*5.5*	*5.55*
	lower corner	*5.6*	*5.5*
	bottom-block	*4.6*	*4.55*
Neck			
	length	*14.1*	
	width: top-nut	*3.97*	
	neck-foot	*4.98*	
	thickness with fingerboard:		
	top-nut end	*2.5*	
	neck-foot end	*2.96*	
Fingerboard			
	length	*22.26*	
	width: top	*3.97*	
	bottom	*5.7*	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.45*	*0.4*
	neck-foot	*0.7*	*0.7*
	bottom	*0.4*	*0.42*
	Appui	*0.55*	*0.55*
	Appui to fingerboard edge	*1.25*	*1.25*
Table mensure		*25.1*	
Pitch		*4.22*	
Vibrating string length		*39.7*	

ROSENBAUM FAMILY COLLECTION, No.225.338

1. See Vannes, *Dictionare Universel des Luthiers,* Vol.I, 1986, label #65 for an example in this format.
2. See Danks, *The Viola d' Amore,* Appendix V, p.117. Instruments tabulated by date of manufacture from which this information was taken.
3. See geometric analysis of a 1724 Alletsee English Violet in Kevin Coates, *Geometry, Proportion and the Art of Lutherie,* Clarendon Press, 1985, pp. 95-98.

14 Baryton

Southern German workmanship, ca. 1725

Generally similar in size and tuning to the bass viol, the baryton incorporates an elaborate body outline with a broad center bout and neck to accommodate a group of between 9-25 sympathetic strings. The back of the neck is open, exposing the sympathetics which can be plucked with the thumb of the left hand while at the same time fingering the bowed upper strings on the fretted fingerboard. Surviving instruments are primarily of Austrian or German origin, and many incorporate elaborately carved heads, ornamentation and inlay that speak of privileged ownership.[1]

In character of sound, the sympathetics amplify the richness and resonance of the bowed strings and add a delightful accompaniment when plucked with the thumb. However, the technical demands of the baryton are enormous; and as a result, plucked and bowed passages were usually written to be played alternately. Leopold Mozart in 1756 indicates a need for special composition to suit the instrument and says, that "It is (the baryton) one of the most

1.Two outstanding examples in the Victoria & Albert Museum, London, are a Joachim Tielke, Hamburg; 1686 (Museum No.:115-1865) and Jacques Sainprae, Berlin, ca. 1750. (museum no.: 1444-1870). See Anthony Baines, *Victoria and Albert Museum Catalog of Musical Instruments,* Vol.II, 1968, p.11-12, and Gunther Hellwig's work, *Joachim Tielke, Verlag Das Musikinstrument,* 1980, p. 63-65 and 186-199.

charming of instruments."[1] It is probably the richness and character of sound that attracted Prince Nikolaus Esterházy to acquire a baryton by Joseph Stadlemann now in the Magyar Nemzeti Múzeum, Budapest. Haydn wrote over 175 baryton compositions for Esterházy, largely trios with viola and cello which provide a substantial wealth of music for the instrument.[2]

This unusually small baryton was possibly designed for a higher tuning (G, c, f, a, d', g'?), but extensive worm damage prevents it being brought to playing pitch. The combined tension of bowed and sympathetic strings are probably responsible for the multiple table cracks, also found in other surviving barytons. Judging from interior evidence, this instrument was opened only once for repair. Later when it fell out of use, the instrument and its repairs became infected with woodworm. The instrument has remained largely unaltered by a process of conservation to retain existing features.

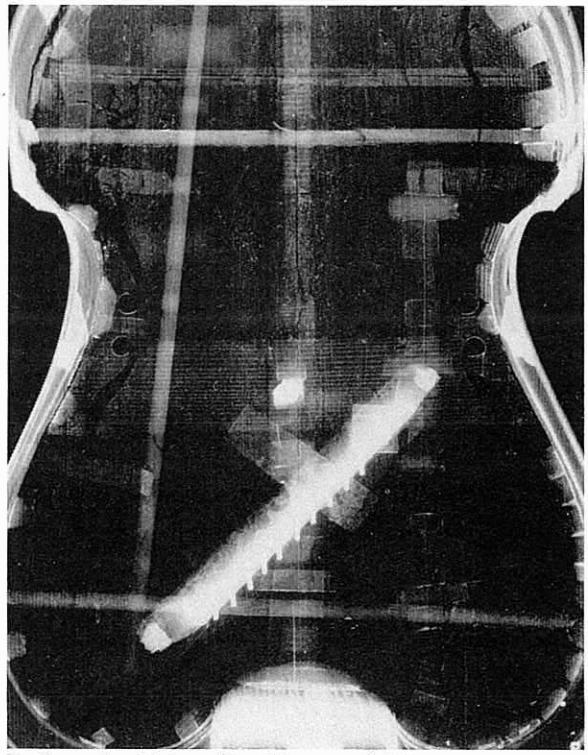
The instrument was built without a mold, and incorporates a service wood[3] neck and top-block in one piece. Typical for Southern German work of this period, the table bears very fine even grained spruce, combined with maple ribs and back of narrow mild figure. Ebony veneer (unusual for Southern German instruments) was placed on the service wood fingerboard cut in slotted relief to accommodate 7 movable gut frets. The baryton also has 12 original and 4 reproduction pegs along with a reproduction tailpiece.

In the x-ray, rib attachment to the neck and top-block in one piece can be seen (see also fig.6, p.6). Note the spruce wedge system which both locks the ribs into the neck and provides support to the rib outline in the upper bout corners. The ribs with maple linings are held in place on the back with original sloped studs, of which several remain untouched. Interestingly, the instrument lacks a conventional soundpost. Instead, a square section spruce "post" in the center of the soundpost bar extends from back to table and is fixed in place with two studs for stability. Another unusual element is the original parchment strips running horizontally above and below the soundholes. This reinforcement(?) is also found in the Richard Meares bass viol, #4, page 16.

Tuning: 6 bowed strings; D, G, c, e, a, d'. 10 sympathetics commonly tuned upward diatonically from E.

		table	back
Body			
	length	50.5	50.4 (flat)
	upper bout	28.85	29.1 "
	center bout	22.3	22.0 "
	lower bout	33.0	32.9 "
Rib height		treble	bass
	top-block	7.8	7.8
	slope	9.4	9.3
	upper corner	9.5	9.25
	widest bout	9.6	9.55
	bottom-block	9.75	9.6
Neck			
	length	28.3	
	width: top-nut	10.66	(neck design limits
	neck-foot	11.2	measurements to
Fingerboard			treble side)
	length	40.4	
	width: top	4.52	
	bottom	7.13 (approx.)	
	Appui	2.3(treble)	2.2(bass)
	Appui to fingerboard edge	3.75(treble)	
Table mensure		26.6	
Pitch		6.05	
Vibrating string length		55.3	

ROSENBAUM FAMILY COLLECTION, No. 228



Radiography: Metropolitan Museum of Art

1. See his *Treatise on the Fundamental Principles of Violin Playing*, 1756, translated by Editha Knocker, Second Edition, Oxford University Press. 1951, p. 12.
2. For further reference to baryton literature & history, see Julie Anne Sadie's entry on the baryton in the *New Groves Dictionary of Musical Instruments*, Vol.I, pp. 163-166.
3. Service wood is the common name for *Sorbus torminalis* or *Sorbus domestica*, very close in appearance to pear; lighter in color with similar grain texture.

15 Small Violin / Violino Piccolo(?)

Joseph & Antonio Gagliano, Naples, 1795

Many elements of uncertainty surround the violino piccolo, a high tessitura form of small violin. Questions arise regarding size, tuning and playability. In studying existing possible examples, the problem lies in recognizing the small specialized instrument that Bach indicates in the 1st Brandenberg Concerto, for example, from a practical child's violin.[1] So far, to my knowledge, no surviving instruments have documented period use in performance, although some of today's existing small instruments were undoubtedly used in this way. One possible answer can be found in neck length. In both this example of 1795 and the Brothers' Amati instrument of 1613 from the Witten-Rawlins Collection in the Shrine to Music Museum, No.3361, the neck is unusually long for a child's violin, being more suited for the facility of an adult hand.

1. Leopold Mozart in his *Violinschule* of 1756 speaks of "...the Quarter; or Half-Fiddle. It is smaller than the ordinary violin and is even used for very small boys.--Some years ago one even played concertos on this little violin (called by the Italians Violino Piccolo) and, as it was capable of being tuned to a much higher pitch than other violins it was often to be heard in company with a transverse flute, a harp, or other similar instruments. The little fiddle is no longer needed, and everything is played on the ordinary violin in the upper registers." translation by Editha Knocker, Oxford University Press, 1972, p. 10. David Boyden has clarified the earlier term: *violino piccolo alla Francese*, in Monteverdi's *Orfeo* as a pochette tuned 1 octave above the normal violin.

This charming instrument bears the original printed label:[2]

JOSEPH ET ANTONIVS
GAGLIANI FILII NICO
LAJ ET NEPOTES JA
NUARJ F. NEAP. 1795

(95 handwritten in ink)

The body of the instrument with willow blocks includes linings of willow only on the center bouts of the back. The bass-bar is original, as is the ebony saddle, 20mm wide and fitted up to the purfling on the table at the bottom-block. The back, ribs and neck are of plain maple, with the pegbox ending in a delicate crest plate. The varnish is of transparent golden yellow-orange color that appears darker on the 2 piece cedar table. Locating pins on the table are placed directly on the center joint at the top and bottom-block areas.

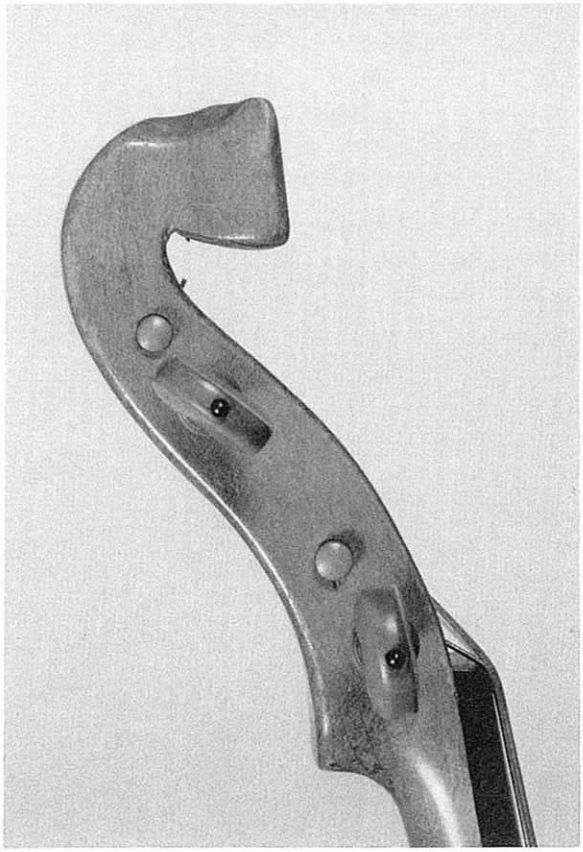
A crack developed in the neck-foot at some point in the past, probably caused by the single nail fitting too tightly in the neck-foot itself. Without changing the neck placement (see x-ray), a screw was fitted to strengthen the neck-top-block assembly upon removal of the original nail. The fingerboard and tailpiece are probably original, and bear similar ebony veneer. While the tailpiece is of stained maple, the core of the fingerboard appears to be cedar, with ebony sides glued to the *outside* of the cedar-ebony veneer core. During repair an ebony wedge was added beneath the original fingerboard to gain bridge height. The table also extends quite far into the neck-foot, as seen in the Gennaro Gagliano viola, p.78.

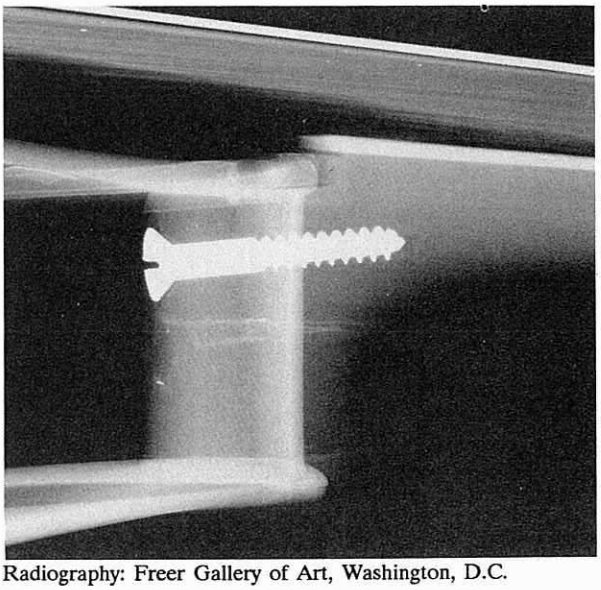
Tuning: g, d', a', e" or c', g', d", a"

Body	*table*	*back*
length	24.5	24.3
upper bout	11.6	11.25
center bout	8.55	8.6
lower bout	14.8	14.8
Rib height	*treble*	*bass*
top-block	2.67	2.67
upper corner	2.68	2.7
lower corner	2.71	2.69
bottom-block	2.71	2.66
Neck		
length	12.45*	
width: top-nut	2.1	
neck-foot	2.6	
thickness with altered fingerboard:		
top-nut end	1.54*	
neck-foot end	2.27*	
Fingerboard-altered with wedge		
length	19.05*	
width: top	2.1	
bottom	34.7	
edge thickness with veneer	*treble*	*bass*
top-nut	0.32	0.35
neck-foot	0.70	0.8
bottom	0.3	0.3
Appui	0.05	0.1
Appui to fingerboard edge	0.75	0.9
Table mensure	12.8	
Pitch	2.3*	
Vibrating string length	25.8*	

**current measurements with altered fingerboard*

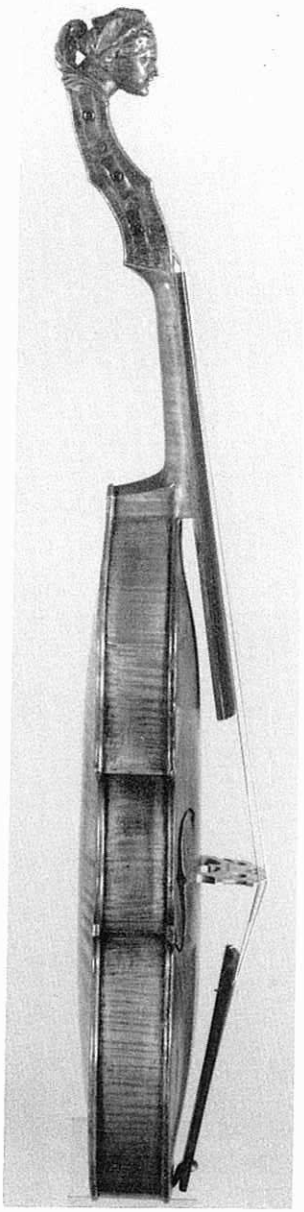
COLLECTION JACQUES FRANCAIS

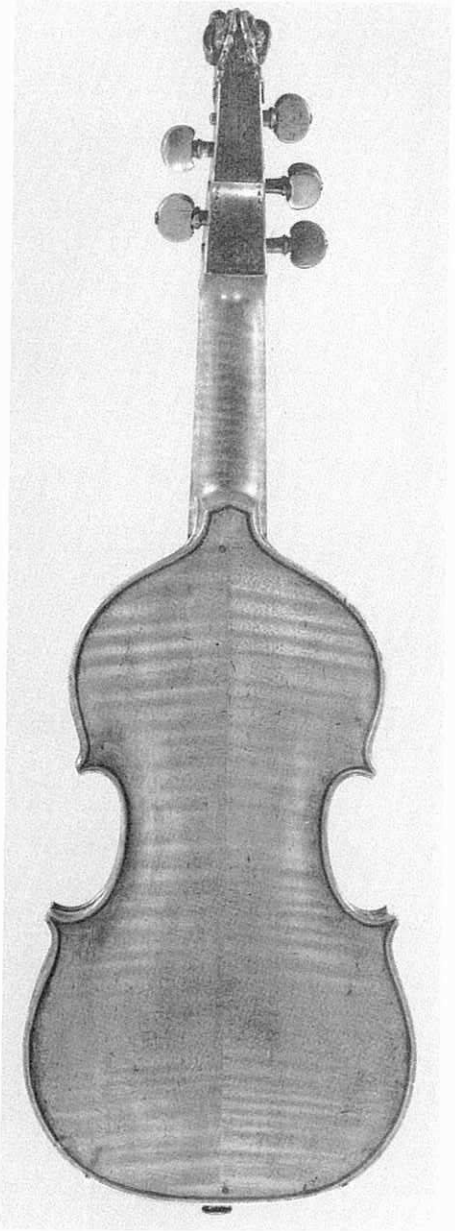




Radiography: Freer Gallery of Art, Washington, D.C.

1. An example of this printed label appears in Vannes Dictionary, Vol. I, # 732.





16 Quinton

Nicholas Chappuy, Mirecourt, ca. 1740

The quinton is a true violin with five strings, that enjoyed its greatest popularity in the first half of the 18th Century in France. It is not to be confused with the pardessus de viole, also with five (or sometimes six) strings, that is the "high treble" of the viola da gamba family of instruments. The quinton with its shallow ribs is played on the shoulder and is almost always found with violin outline. Only the upper bout is modified with sloping shoulders which diminish toward the neck-foot area at the top-block. The quinton commonly has "f" holes, and a tailpiece and tailgut fastened at the bottom block with a button.

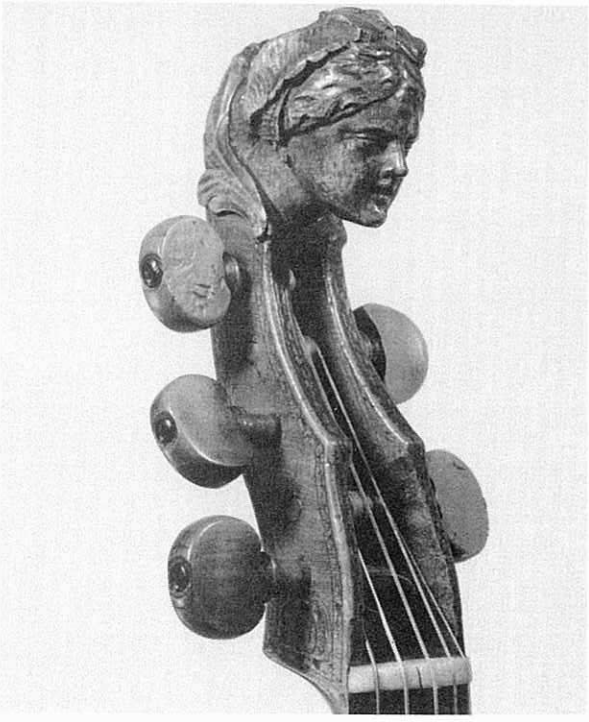
Musically, the quinton, like the violino piccolo, was designed to extend the upper range with less exaggerated left hand shifting. Pre-transitional violin necks with their accompanying wedged-shaped fingerboards limit left hand shifting facility. By the mid-18th Century, covered string technology and technique development among musicians caused the quinton and violino piccolo to fade from performance use.[1]

No biographic materials are known concerning Nicholas Chappuy, other than he worked in

1. See Leopold Mozart's *Treatise on the Fundamental Principles of Violin Playing,* translated by Editha Knocker, Oxford University Press, 1972, p. 10 and Nicholas Bessaraboff, *Ancient European Musical Instruments,* Museum of Fine Arts, Boston; October House, Inc., 1964, p. 303.

Mirecourt in the 18th Century.[1] His instruments sometimes bear the brand stamp: **N. Chappuy** on the button of the back. His work is finer than that of the Paris maker, Nicholas Augustin Chappuy, (ca. 1730-1784), with whom Nicholas is often confused.[2] Nicholas Chappuy is best known for his quinton and viola d' amore.

This quinton, without label or brand-stamp retains all interior features intact, including the bass-bar. The instrument also bears its original neck, quarter cut maple fingerboard with ebony veneer, bone top-nut, and ebony saddle set halfway into the table edge. Also original are four of the five boxwood pegs with ebony ornaments and the boxwood button. The carved male head with cloth cap is executed in a soft "plastic" style different from the typical *La Fille* carving tradition seen in the Guersan pardessus, page 22.



This instrument is built on an outside mold. Chappuy placed locating pins to the left of the center joint at the top-block and to the right at the bottom-block on both table and back as an aid to final body assembly. The neck is glued directly to the top-block without mortise or securing nails. Shrinkage of the neck-foot, and a "drier" glue joint at the end grain of the neck, combined with string tension, weakens the attachment. Many instruments with this neck construction display repaired or replaced buttons damaged when the neck breaks loose from the body.

A long neck combined with a short table mensure and sloping shoulders make position shifting easier. For the same reason, the combined thickness of the neck and fingerboard is almost parallel over the playing length.

Tuning: g, d', a", d", g"

Body		*table*	*back*
	length	*36.5*	*35.9*
	upper bout	*17.1*	*17.1*
	center bout	*11.6*	*11.4*
	lower bout	*21.0*	*21.15*
Rib height		*treble*	*bass*
	top-block	*3.45*	*3.4*
	upper corner	*3.4*	*3.4*
	lower corner	*3.4*	*3.4*
	bottom-block	*3.4*	*3.4*
Neck			
	length	*13.2*	
	width: top-nut	*3.65*	
	neck-foot	*4.24*	
	thickness with fingerboard:		
	top-nut end	*1.84*	
	neck-foot end	*2.28*	
Fingerboard			
length		*24.1*	
	width: top	*3.63*	
	bottom	*4.92*	
	edge thickness with veneer	*treble*	*bass*
top-nut		*0.05*	*0.05*
neck-foot		*0.4*	*0.45*
bottom		*0.28*	*0.35*
	Appui	*0.7*	*0.75*
	Appui to fingerboard edge	*1.1*	*1.2*
Table mensure		*19.2*	
Pitch		*2.9*	
Vibrating string length		*32.9*	

COLLECTION WILLIAM L. MONICAL

1. Vannes, in *the Dictionare Universel des Luthiers,* Vol. I, 1986, p. 59, only describes Chappuy as an 18th Century maker, while in Vol.II, p.139, a provisional dating 1729(?)- 1781 is provided in the town registry section.
2. See Etienne Vatelot, *Evolution of the French School of Violin Making from the end of the 17th Century Until the beginning of the 19th Century,* American Federation of Violin and Bow Makers, Inc., 1986, pp 12-13.

17 Kit (with original case and bow)

Johannes Theodorus Cuypers, The Hague, 1783

Kits (or pochettes) are dance master's instruments used in the 17th-19th Centuries to accompany dance lessons. While their shapes and fanciful style vary tremendously. Kits all have an elongated form that can easily be carried in a pocket. The kit is commonly tuned like the violin, sometimes a fourth or fifth higher, and may or may not have a bass-bar & soundpost depending on model.[1]

Johannes Cuypers (1724-1808)[2], was 59 years of age when he built this kit which is complete with case and bow. In a near perfect state of preservation, the instrument bears a handwritten label:

> Johannes Cuypers
> fecit s: Hage 1783

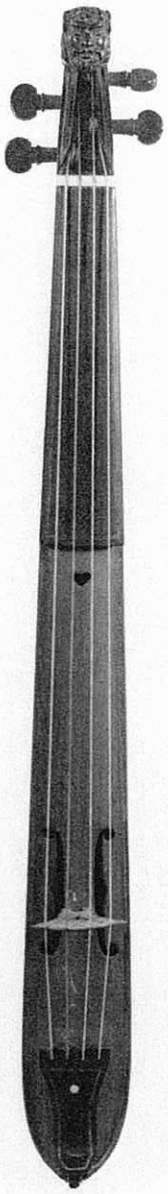
The instrument with violin shape has the sides, back, neck, and scroll all fashioned from 1 piece of figured birch. The body is hollowed out to create the kit's interior. The table is of plain birch and has a

1. See the illustrated catalog, *The Dance Master's Kit* from an exhibition November 1981-January 1982 at the Metropolitan Museum of Art, New York, for an overview of 55 kits, bows and accessories.
2. Biographical and interpretive materials on Johannes Cuypers can be found on pages 136-137 of Max Moller's, *Violin Makers of the Low Countries*, Amsterdam, 1955.

nicely sculptured arching with accompanying "f" holes. An original wedge of beechwood joins with the table edge and raises the solid ebony fingerboard to bridge height. The body is purfled on both table and back. Particularly interesting is the sculptured relief of the back joining the button to create a nearly normal profile on the elongated neck, 14 cm in length. The pegbox ends in a small scroll with 1 volute. A pin mark in the right scroll ear for template location can also be seen in violin family instruments by Cuypers. The varnish is of golden orange-brown color.

Total instrument length	*34.4*
Body length	*13.8*
Neck Length	*14.0*
Neck Width: top-nut	*2.25*
neck-foot	*3.11*
Fingerboard length	*17.35*
Fingerboard width: top-nut	*2.24*
bottom	*3.3*
Table mensure	*7.5*
Pitch	*1.3*
Vibrating string length	*21.3*

COLLECTION BEREND MÖLLER



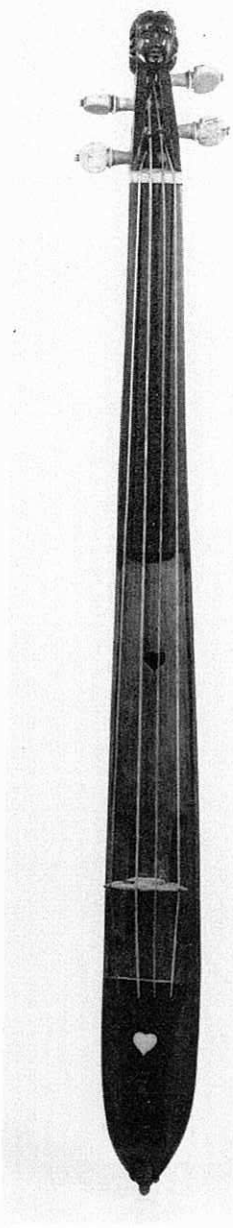
18 Kit

French, 17th Century

This example with back and neck of ebony in 1 piece is highlighted by a carved sartyr with horns. The pearwood table, ebony fingerboard and tailpiece are inlaid with twisted silver wire "purfling". A small heart and "c" holes complete the ensemble.

Total instrument length	41.2
Body Length	27.1
Neck-length	8.35
Neck Width: top-nut	2.05
neck-foot	2.68
Fingerboard length	2.2
Fingerboard width: top-nut	2.05
bottom	2.95
Table mensure	16.0
Pitch	0.9
Vibrating string length	24.8

COLLECTION JACQUES FRANCAIS



19 Kit

C. Bourgir, Orleans, 1645

Small handwritten label:

C. Bourgir a orleaniz. 1645

The back and neck of ironwood in 1 piece, bears a carved female head with cap. The purfled table of pearwood with "c" holes includes a small heart. The period maple tailpiece with serial mark: VI, is veneered with ebony and an ivory heart of later date.

Total instrument length	42.3
Body length	28.6
Neck-Length	7.6
Neck Width: top-nut	1.92
neck-foot	2.26
Fingerboard length	13.05
Fingerboard width: top-nut	1.93
bottom	2.45
Table mensure	17.1
Pitch	1.2
Vibrating string length	24.8

COLLECTION JACQUES FRANCAIS

20 Kit

Northern Italian, 17th Century

This marvelous festooned[1] kit with maple body and neck in 1 piece bears a crest above the pegbox. The delicately sculptured spruce table bears bold "c" holes and ink representations of purfling. The fittings are reproduction, as is the Stradivari label[2] dated 1722. The varnish is of semi- opaque brown color.

Total instrument length	*45.4*
Body length	*24.4*
Neck Length	*13.8*
Neck Width: top-nut	*2.3*
neck-foot	*2.87*
Fingerboard length	*18.0*
Fingerboard width: top-nut	*2.3*
bottom	*2.17*
Table mensure	*14.2*
Pitch	*1.25*
Vibrating string length	*28.2*

COLLECTION JACQUES FRANCAIS

1. Similar kit attributed to Gaspar Borbon, Brussels, 1686, in the Conservatoire Royal de Musique, Brussels, No. 2764 is illustrated in the Anthony Baines *European & American Musical Instruments*, Batsford, Ltd, 1966, p.13 and plate 45 of illustrations. See the analysis of this Borbon Kit in Kevin Coates, *Geometry, Proportion and the Art of Lutherie*, Clarendon Press, 1985, pp. 100-102.
2. See Sacconi, *The "Secrets" of Stradivari*, Libreria del Convegno, Cremona, 1979, pp. 241-242 for pattern #424 which shows a kit ("canini") template for an instrument of this shape and body length.

21 Practice Violin

Nicolaus Gagliano, Naples, 1716

In what would seem a private joke among violin makers, we find instead a practical tool for musicians. The practice violin (Ger. Brettgeige) incorporates full violin proportions and left hand playability with a diminished resonating body similar to a kit, providing an instrument with very low volume level for practicing. Usually thought of as a Germanic[1] invention in the late 17th Century, this Neapolitan example is the only Italian instrument of its type known to me.

The first son of Alessandro, Nicholas (I) Gagliano (1675-1763) made this beautiful example in Naples at the age of 21. His choice of maple in 2 pieces with gently ascending figure gives the outline and geometries of "f" and central ornamental sound holes a pleasant lightness of character. The ribs of the upper and lower bouts diminish at the corners in semi-circular patterns and although shallow, provide necessary left hand "presence" for position playing. In the back, a central maple kit body joins with a bottom-block of willow for endpin attachment. The kit body continues to the upper ribs where the neck is joined with an external nail driven from the outside of the neck-foot. For strength, the ribs are reinforced at the corners with willow "lining"

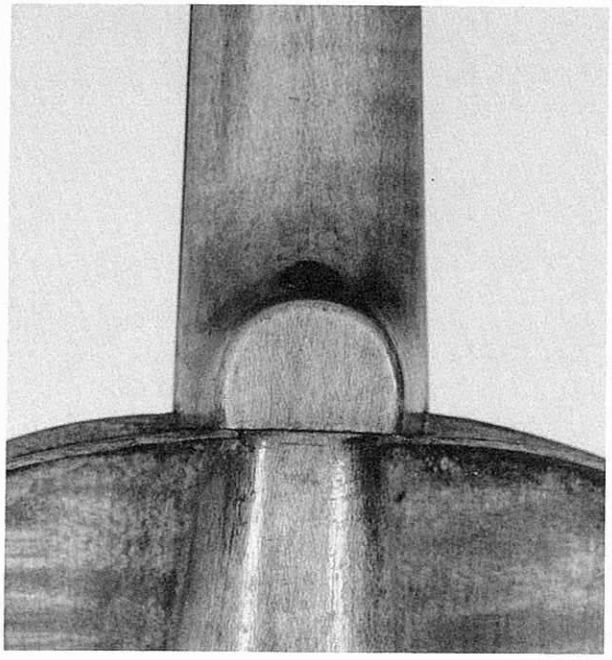
1. A fine example by Johann Schorn, Salzburg, 1695, is in the Berlin Collection, Staatliches Institute für Musikforschung, Instrumenten Sammlung, No. 282, bearing a carved lion head.

blocks. The original label states:[1]

> Nicolaus Gagliano Filius
> Alexandri fecit Neap 1716

(16 handwritten in ink)

and is fastened to the kit body by the treble "f" hole. The instrument has neither soundpost or bass-bar in its design; the bridge feet rest on top of the body walls, preventing distortion of the plate. Interestingly, the upper table edge is fitted into a channel cut into the neck-foot in the manner of the 19th Century Klotz violin, p.68. The varnish is of golden yellow-orange color which continues beneath the neck-foot. While the fittings are of the period, the fingerboard may be a later replacement.

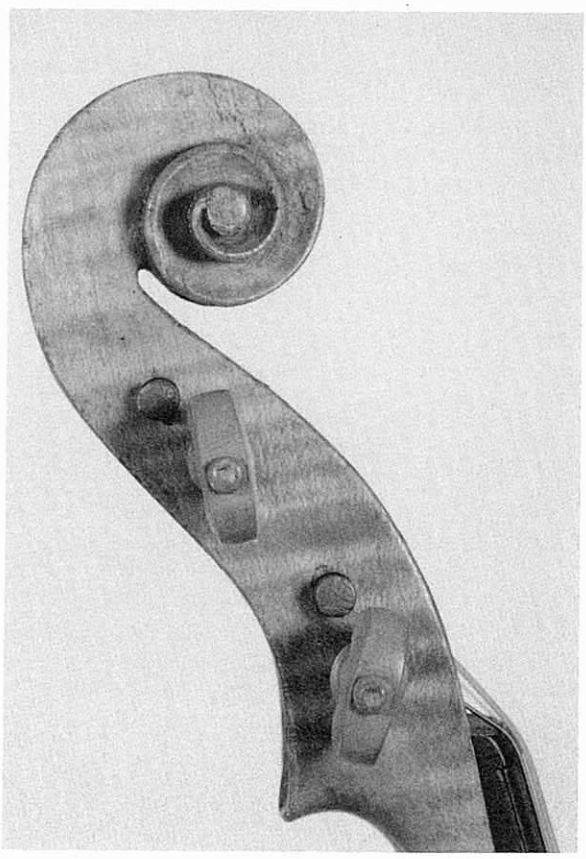


Tuning: g, d', a', e''

Body			*table*
	length		*35.7*
	upper bout		*16.75*
	center bout		*11.6*
	lower bout		*20.8*
Rib height			*treble*
	top-block		*2.1*
	bottom-block		*2.1*
Neck			
	length	*12.05*	
	width: top-nut	*2.47*	
	neck-foot	*3.29*	
	thickness with reproduction fingerboard:		
	top-nut end	*2.0**	
	neck-foot end	*2.56**	
Fingerboard-Reproduction			
	length	*23.4**	
	width: top	*2.49**	
	bottom	*4.24**	
	edge thickness with veneer	*treble*	*bass*
	top-nut	*0.4**	*0.4**
	neck-foot	*0.95**	*0.9**
	bottom	*0.3**	*0.3**
	Appui	*0.20*	*0.20*
	Appui to fingerboard edge	*1.15**	*1.1**
Table mensure		*19.5*	
Pitch		*2.6**	
Vibrating string length		*32.4**	

**current measurements with reproduction fingerboard*

COLLECTION CHARLES BEARE



1. An example of this label style can be found in Vannes, *Dictionaire Universel des Luthiers,* 1986, Vol.I, No. 869.

22 Violin

Jacob Stainer, Absam, 1679

No craftsman outside Cremona had so much impact on violin making as the 17th Century master, Jacob Stainer (ca. 1617-1683), the first and greatest Germanic maker. He was born and worked in the village of Absam, 10 km east of Innsbruck in the Austrian Tyrol, ruled by the arts' enthusiast Archduke Leopold V, who married Claudia di Medici.[1] Like Nicolo Amati (1596-1684), Stainer was famous in his own lifetime for the quality of his instruments.

Due to their character of sound, Stainers' violins were favored above others. Francesco Maria Veracini, Pietro Locatelli, J.S. Bach, and Leopold Mozart all owned and played violins by Stainer.[2] In fact, in the sales room, Stainer violins in the 19th Century commanded higher prices on the Continent and in London than Stradivari or Amati.[3]

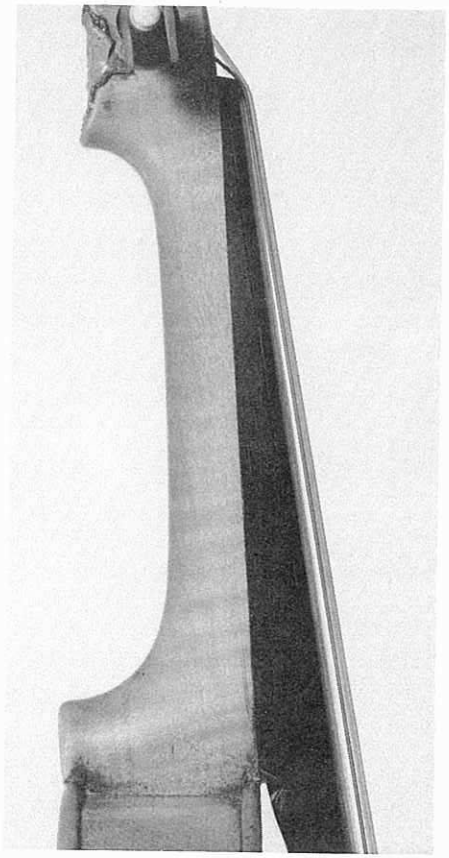
Stainer was also of great influence to violin makers throughout Europe, who sought to emulate the musical qualities of his instruments and to copy his aesthetic of craftsmanship. That the demand for Stainer violins created an active market for makers

1. See Walter Senn & Karl Roy, *Jacob Stainer,* Verlag E. Bochinsky, 1986. Their research on the life, documents, output, and analysis of surviving Stainer instruments has corrected much earlier misinformation. Photos & analysis of this 1679 violin appear, pp. 227. 379-390, and 465 and 467. General biographic information, pp. 13-67, photo of original label, p. 381.
2. Ibid, p. 67.
3. See David Boyden, *The History of Violin Playing from its Origins to 1761,* Oxford University Press, 1965, p. 194-197 for background on Stainer instrument popularity and musicians' accounts of their musical quality and demand.

working in his style on the Continent as well as England was shown in a 1981 Lincoln Center Exhibition by Jacques Francais in New York.[1]

Two violins of Stainer survive in unaltered condition: a 1668 large model[2] (35.5cm body length) in the Shrine to Music Museum, No.4548, and this later 35.1cm instrument from 1679. Sadly, neither retain their original fingerboard, but otherwise provide excellent and extensive study information. Both retain untouched necks 13.0cm in length (as is the standard today) with top-nut positions about 8mm higher into the pegbox than modern convention. Both necks are glued flush to the ribs with a single nail reinforcement through the spruce top-block. The necks are also similar in profile. Both lower bout ribs are cut and joined at the bottom-block, and the ebony saddle, fitted to the purfling line extends toward the button in an ornamental plate. In the arching, however, the 1668 instrument has a higher broader breast on the table and back than this 1679 example, while both have the neck surface joining flush to the table edge.

This 1679 violin with spruce blocks bears linings of walnut on both the table and back. The 3 typical pin marks, on the upper, center, and lower bout areas of the back on the center joint are prominent in this example, but their exact purpose remains a mystery. The neck is not in straight alignment with the table edge, but is set back 2.25mm. The neck is also tilted .25mm lower on the treble side. A single nail is used to secure the neck in place (see x-ray). The reddish-orange varnish with golden ground coat continues beneath the fingerboard area of the table.

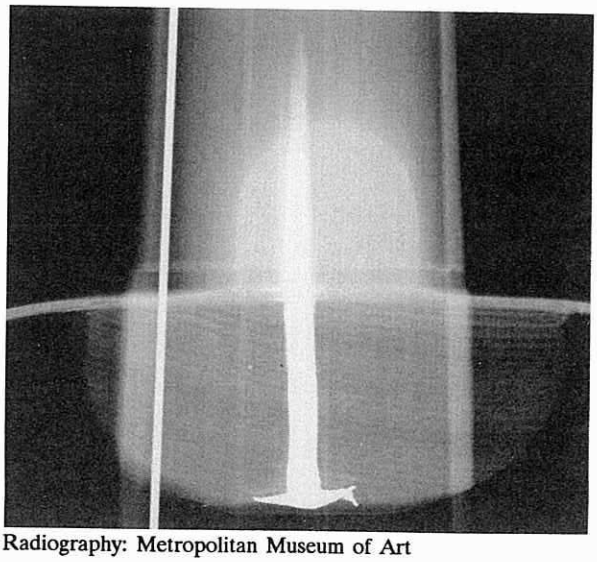


Tuning: g, d', a', e''

		table	back
Body			
	length	35.15	35.1
	upper bout	16.2	16.25
	center bout	11.2	11.05
	lower bout	20.1	20.0
Rib height		*treble*	*bass*
	top-block	2.96	2.98
	upper corner	3.02	3.03
	lower corner	3.02	3.03
	bottom-block	3.05	3.05
Neck			
	length	13.0*	
	width: top-nut	2.43*	
	neck-foot	3.07*	
	thickness with reproduction fingerboard:		
	top-nut end	2.11*	
	neck-foot end	2.95*	
Fingerboard-Reproduction			
	length	25.2*	
	width: top	2.43*	
	bottom	4.2*	
	edge thickness with veneer(distorted)	*treble*	*bass*
	top-nut	0.3*	0.28*
	neck-foot	1.3*	1.3*
	bottom	0.4*	0.4*
	Appui	-0.05	*flush*
	Appui to fingerboard edge	1.25*	1.3*
Table mensure		19.3	
Pitch		2.9*	
Vibrating string length		32.6*	

**current measurements with reproduction fingerboard*

COLLECTION MICHAEL FRANKE



Radiography: Metropolitan Museum of Art

1. The exhibition catalog by Jacques Francais, *Jacobus Stainer & 18th Century Violin Makers,* Oct. 26, 1981- Jan. 29. 1982 gives comparative information relating to 14 Stainer instruments and 25 examples by other European makers working under Stainer's influence.
2. Photos of the 1668 Stainer showing the original neck are in the recent reference work of Walter Hamma, *Geigenbauer der Deutschen Schule,* Vol.II, Verlag Hans Schneider, 1986, pp. 330-332.

23 Violin

Hendrik Jacobs, Amsterdam, 1703

Recent research by Mr. J. H. Gidkes in the Amsterdam Archives has revealed new information about Hendrik Jacobs' life and documents Jacobs' death later than 1699 as previously believed. Jacobs lived "for many years" at S. Antoniesbreestraad in Amsterdam, and later moved to Botermarkt (now called Rembrandtsblein) where he died in 1704. The Death Registry of the Nieuwizijds Kapel in Amsterdam does not give the date of Jacobs' death, but only that his burial was on December 31, 1704.[1] If ca. 1629 was the year of his birth, this violin would have been made when Jacobs was 74 years of age.

The violin bears its original engraved label:

HENDRIK JACOBS. ME FECIT
IN AMSTERDAM 1703

(03 handwritten in ink)

In Max Möller's excellent reference work he addresses the engraved labels of Jacobs. Möller discusses the work of Jacobs and collaboration with his stepson, Pieter Rombouts (1667-1740), that becomes evident in instruments after 1686.[2] This violin typifies

1. I would like to extend my gratitude to Berend Möller for providing this important information in a telephone interview on February 10, 1989.
2. See the landmark work on the Dutch School by Max Möller, *The Violin Makers of the Low Countries,* Amsterdam, 1955. Biographies, pp. 142-144 and 148-150. An example of the engraved label cited above is found on page 81.

that cooperative element of teacher and pupil in the strength and character of the whalebone purfling and edgework, the style of arching, and interpretation of models based on the influence of Amati.

This is the only violin by Jacobs known[1] to be constructed with the neck and top-block of maple in one piece (see fig. 3, page 5). To provide support for the neck assembly, a flat "plateau" extends into the back, counteracting the tendency of the neck to move forward under string tension. In the photo below, the "foot" of the neck and its platform support can be seen. The back has been slightly altered in an early repair where a patch was placed on the button to reinforce cracks on both sides of the neck-foot area. Such cracks close to the button are often found in instruments with this neck construction. A spruce addition to the top-block area increases gluing surface with the table.

The bottom and corner-blocks of willow are combined with cedar linings to complete the interior construction. Clamp marks on the roughly finished linings show that they were added to the back after the ribs were secured, as were the corner and bottom-blocks. The table and the original fitted bass-bar are of cedar. There is a single locating pin on the center joint of the table at both the top and bottom-block, but there are no pins on the back as they are not needed in an assembly without interior mold. Notice that the table is similar to the back in upper and lower bout width, but shorter in the length (3mm) and wider in the center bout (2.5mm) because the outline could not be more accurately controlled without a mold.

Tuning: g, d', a', e''

Body	*table*	*back*
length	*35.3*	*35.6*
upper bout	*16.7*	*16.8*
center bout	*11.2*	*10.95*
lower bout	*20.7*	*20.7*
Rib height	*treble*	*bass*
top-block	*2.9*	*2.9*
upper corner	*3.15*	*3.1*
lower corner	*3.15*	*3.15*
bottom-block	*3.06*	*3.1*
Neck		
length	*12.7*	
width: top-nut	*2.33*	
neck-foot	*3.08*	
thickness with reproduction fingerboard:		
top-nut end	*1.7**	
neck-foot end	*2.23**	
Fingerboard-Reproduction		
length	*22.35**	
width: top	*2.34**	
bottom	*4.22**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.3**	*0.28**
neck-foot	*1.25**	*1.2**
bottom	*0.4**	*0.45**
Appui	*0.05*	*0.05*
Appui to fingerboard edge	*1.3**	*1.25**
Table mensure	*19.2*	
Pitch	*2.25**	
Vibrating string length	*3.18**	

**current measurements with reproduction fingerboard*

COLLECTION SHIGETOSHI YAMADA

Photo courtesy of Hans Weisshaar

1. I would like to thank Hans Weisshaar for first bringing this instrument to my attention in 1986.

24 Violin

Claude François Vuillaume, Mirecourt, ca. 1760

Mirecourt, a town known for lace making, was also an early center for French instrument making, and violin makers named Vuillaume are known to have been in residence since 1625 according to the Mirecourt town registry listings.[1] Although little is known even of the 18th century Mirecourt Vuillaume family, Claude François(I) Vuillaume (ca. 1729-1792?) was the great, great grandfather of J.B. Vuillaume, the eminent 19th century Parisian maker, dealer and expert.

This work of Claude François (I), while rough in character, is well preserved and affords insights into at least one aspect of Mirecourt practices at the time. The violin is signed in ink on the back beneath the button in an ornamental crest which states simply:[2]

x C x F x

VUILLAVME

The neck, ribs, and back, are of plain soft maple, accompanied by a spruce table in two pieces with irregular grain. The table and back bear ink representations of purfling. The original maple fingerboard is surprisingly veneered in ebony instead of softer stained wood. The violin was built "in the air" like our Jacobs example (see page 50), but in this

1. See Roger Millant, *J.B. Vuillaume, His Life and Work*, W.E. Hill & Sons, London, 1972, p. 81, and René Vannes, *Dictionare Universel des Luthiers*, Vol.I, 1986, p.143.
2. See an example of this ink emblem in Vannes, Vol.I, label #2357.

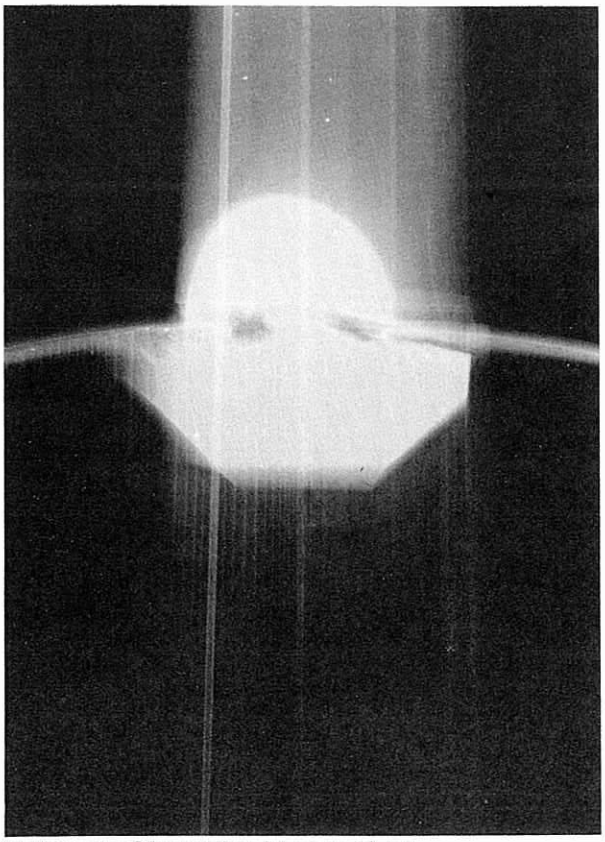
case the ribs are inlaid into the back. Rough poplar(?) linings are glued into the center bout area of the back only, and extend over very small-corner blocks of the same material. The bottom-block of spruce is fitted with grain direction parallel to the back. The neck and top-block in one piece is set into the ribs with only a small platform extension on the back.

The original bass-bar has been fitted and glued with an unusual attachment. The bar is secured(?) with 4 tapered square spruce pins driven through the bar to the outside of the table where they are visible beneath the varnish. More commonly, the ebony saddle is fitted through the table and extends 3.2mm into the rib at the bottom-block. The lower bout rib is in one piece, but an ebony inlay has been inserted through the rib, creating an ornament at the typical joint location. An original top-nut of bone is inserted into the neck above the fingerboard. The varnish is of dry, brittle texture with a transparent yellow-orange color that does not extend beneath the fingerboard.

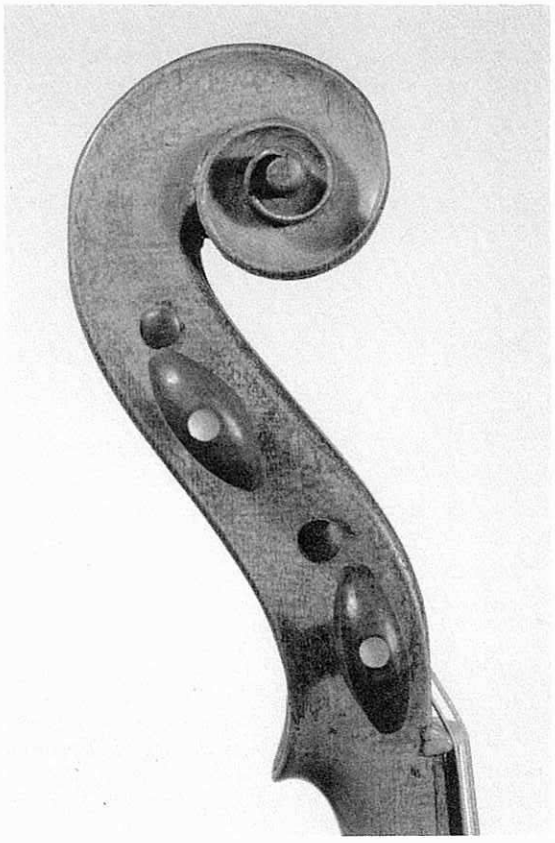
Tuning: g, d', a', e''

		table	back
Body			
	length	35.1	35.6
	upper bout	16.0	16.0
	center bout	11.35	11.2
	lower bout	20.8	20.6
Rib height		*treble*	*bass*
	top-block	3.15	3.2
	upper corner	3.2	3.1
	lower corner	3.2	3.1
	bottom-block	3.1	3.1
Neck			
	length	12.95	
	width: top-nut	2.3	
	neck-foot	3.05	
	thickness with fingerboard:		
	top-nut end	1.98	
	neck-foot end	2.5	
Fingerboard			
	length	24.05	
	width: top	2.22	
	bottom	4.0	
	edge thickness with veneer	*treble*	*bass*
	top-nut	0.05	0.015
	neck-foot	0.5	0.7
	bottom	0.2	0.2
	Appui	0.15	0.15
	Appui to fingerboard edge	0.65	0.85
Table mensure		19.4	
Pitch		2.35 (approx)	
Vibrating string length		3.31	

COLLECTION SMITHSONIAN INSTITUTION, NO. 69.1



Radiography: Metropolitan Museum of Art



25 Violin

Henry Jay, Long Acre, London, 1760

It has been suggested that this maker is a descendent of Henry Jaye, the famous 17th century viol maker in Southwarke[1] (see bass viol, p.14). Henry Jay worked in London in Long Acre and later in Windmill Street near Piccadilly, as evidenced in his labels. In Jay's active years, ca. 1740-1776, he gained a reputation as a fine kit maker who made violins and cellos as well. He also worked for the trade, with some signed instruments bearing the large Longman & Broderip[2] brand stamp beneath the button on the backs.

In this violin from 1760, the strong influence of Jacob Stainer is amended in a broader breast area and widely spaced "f" holes. The arching is also

1. See Lütgendorff, *Die Geigen=und Lautenmacher von Mittelalter bis zur Gegenwart,* Verlag Heinrich Keller, 1913, Vol.2, pp. 406-407, and Vannes, *Dictionare Universel des Luthiers,* Les Amis de la Musique, 1986, Vol.I. p. 177.
2. Longman & Broderip were dealers of musical instruments in London from 1741-1798. While selling violins of English and Continental makers, they were also well known for keyboard instruments. A brand stamp commonly found on violins states:

Longman & Broderip
No. 26 Cheapside
No. 13 Hay-Market
London

An untouched Benjamin Banks violin, in private hands, with the brand stamp *BANKS* on the bottom block also bears the Longman & Broderip stamp beneath the button on the back.

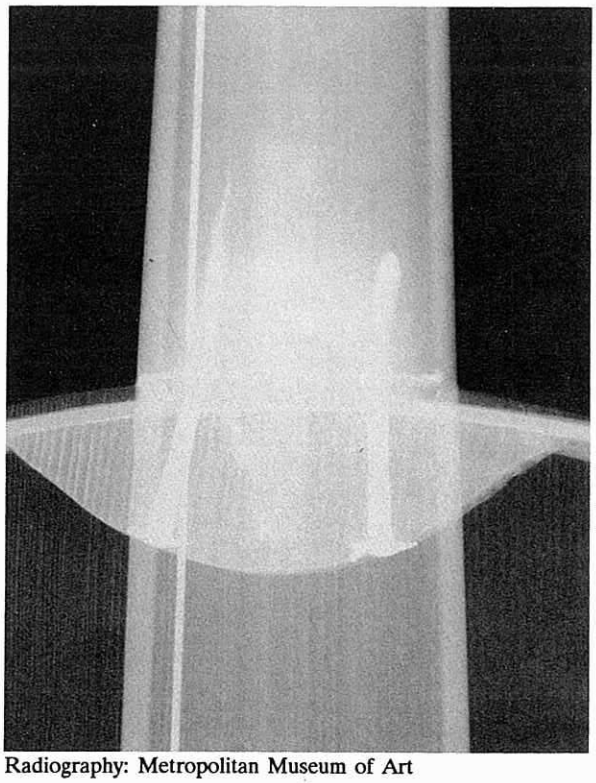
fuller overall, not dissimilar to his arching treatment of kits. Indeed, the instrument is somewhat like an enlarged model of his kit design, similar also in the use of a golden reddish-brown semi-transparent varnish, which in this violin extends fully beneath the fingerboard.

The instrument retains the original neck and all interior features intact. The original printed label reads:

Made by Henry Jay in
Long Acre. LONDON. 1760

(60 handwritten in ink)

This is a clearly defined transitional instrument with proportions approaching today's standards. The violin, was built on an inside mold. Without locating pins on the top-block areas of the table and back. The neck is glued on top of the ribs and secured with 2 widely spaced nails in the top-block which extend through the neck-foot and are visible through the varnish (see accompanying x-ray). The neck is set back 6mm from the table edge with the ribs, and has a 1mm tilt towards the treble side. The neck is of modern length, but was probably thinned and reshaped in the playing area and neck-foot. The original bass-bar is close to modern proportions and the blocks and linings have been nicely finished. At least in this example, Jay did not use locating pins on the top and bottom-block areas of the table and back.



Radiography: Metropolitan Museum of Art

Tuning: g, d', a', e''

Body	*table*	*back*
length	*35.9*	*36.0*
upper bout	*16.4*	*16.7*
center bout	*11.6*	*11.6*
lower bout	*20.2*	*20.5*
Rib height	*treble*	*bass*
top-block	*3.25*	*3.25*
upper corner	*3.2*	*3.2*
lower corner	*3.2*	*3.15*
bottom-block	*3.22*	*3.2*
Neck		
length	*13.0*	
width: top-nut	*2.3*	
neck-foot	*3.12*	
thickness with reproduction fingerboard:		
top-nut end	*1.94**	
neck-foot end	*2.2**	
Fingerboard-Reproduction		
length	*26.0**	
width: top	*2.4**	
bottom	*4.16**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.35**	*0.4**
neck-foot	*0.85**	*0.95**
bottom	*0.3**	*0.3**
Appui	*0.075*	*0.2*
Appui to fingerboard edge	*0.925**	*1.15**
Table mensure	*19.7*	
Pitch	*2.6**	
Vibrating string length	*33.0**	

**current measurements with reproduction fingerboard*

COLLECTION FRANCES RIOS

26 Violin

Joseph Rösch, Mittenwald, 1759

Lütgendorff simply states that Rösch appears in church records from 1760 to 1767, but sketches in working years from 1750 onward.[1] There is a handwritten notation in ink on parchment at the top block area of the table which reads:

> Joseph Rösch geigen M.
> in Mittenwald 1759
> an Der Iser

The parchment is located on the center joint of the table and continues to the bottom-block in reinforcement of that joint. This is the only example that I know by this maker, and it is interesting for its excellent state of preservation although the fittings and fingerboard are reproduction.

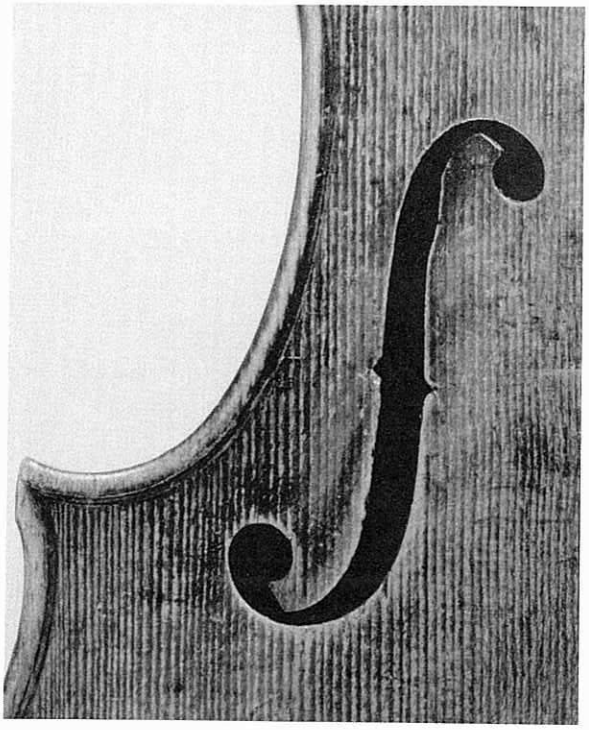
Particularly interesting in this violin, the neck and body are very much in today's standard proportion with a neck length of 13.0cm and a table mensure of 19.45cm. In the arching, with a relatively low elevation and flat breast area, the highest point of the table lies on the bridge. The neck is secured by a single nail with a "clover leaf" pattern head with 3 rounded lobes.

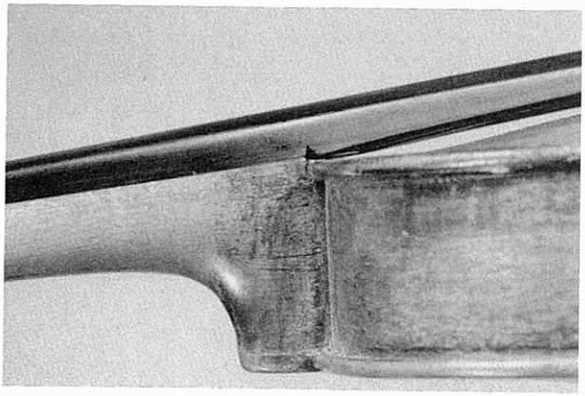
In selection of wood, the almost plain maple back and ribs are continued in a similar original plain maple neck, pegbox and scroll. The table, however, is of finer quality, with nicely even medium fine grain. Purfling is quite neatly applied, and cleanly

1. See Lütgendorff, *Die Geigen = und Lautenmacher vom Mittelalter bis zur Gegenwart*, Frankfurt, 1913, Vol.II, p.702.

finished in the typically short corners found in many Mittenwald outlines. A nicely rounded button extends into the neck-foot and neck which show very little signs of reshaping.

The bass-bar is quite long and nicely finished, with an extended central area of elevation beneath the breast. At its highest point, the bass-bar is 7.8mm in height, and the bar is fitted in direct line with the grain of the table, which converges toward the top-block. The instrument also has typical spruce linings and blocks and is unaltered in the neck attachment. It is useful to note, as in many Mittenwald examples, the table extends into the neck-foot in an angle sloping upwards toward the fingerboard. This joint, when glued, prevents the table loosening from the top-block and rising in the neck mortise.[1] The varnish is of semi-opaque reddish-brown color, and quite brittle in texture.





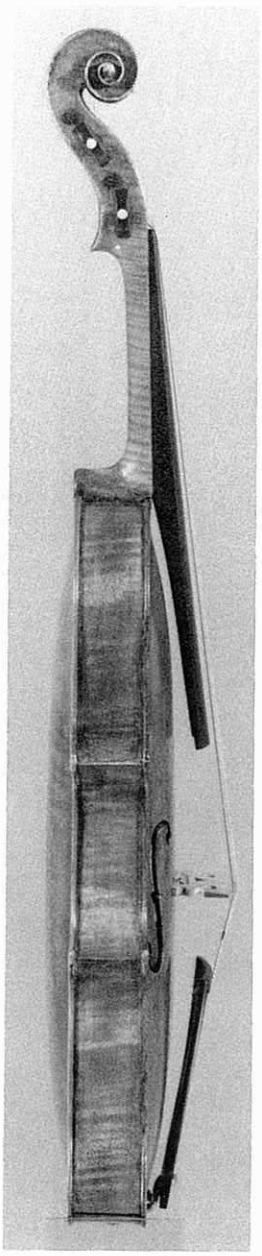
Tuning: g, d', a', e''

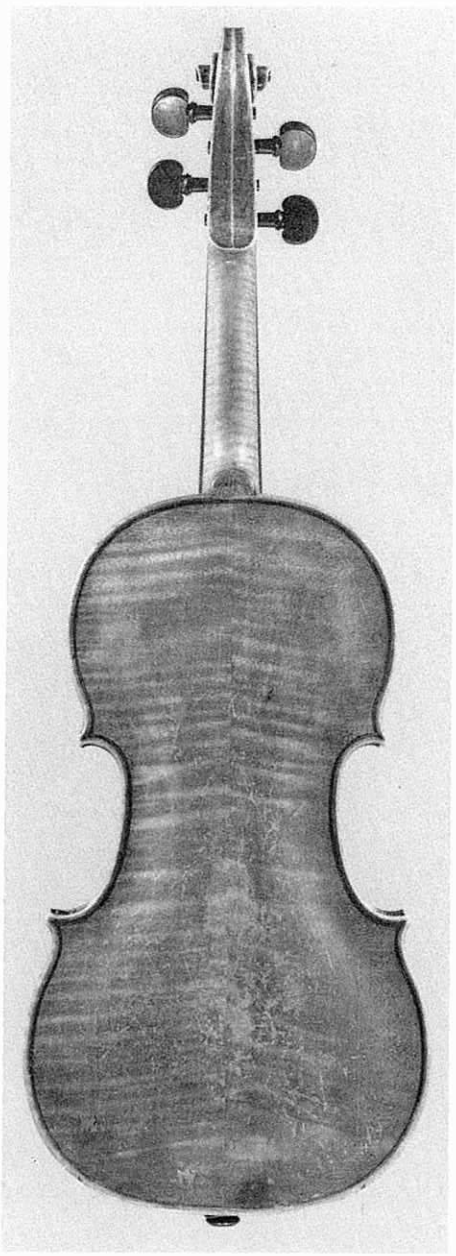
		table	back
Body			
	length	35.5	35.5
	upper bout	16.5	16.5
	center bout	10.95	10.7
	lower bout	20.15	20.25
Rib height		*treble*	*bass*
	top-block	2.81	2.83
	upper corner	2.83	2.85
	lower corner	2.89	2.92
	bottom-block	2.96	2.98
Neck			
	length	13.0*	
	width: top-nut	2.3	
	neck-foot	3.14	
	thickness with reproduction fingerboard:		
	top-nut end	1.92*	
	neck-foot end	2.24*	
Fingerboard-Reproduction			
	length	25.05*	
	width: top	2.3*	
	bottom	3.95*	
	edge thickness	*treble*	*bass*
	top-nut	0.35*	0.35*
	neck-foot	0.55*	0.65*
	bottom	0.35*	0.35*
	Appui	0.05	0.1
	Appui to fingerboard edge	0.60*	0.75*
Table mensure		19.5	
Pitch		2.65*	
Vibrating string length		32.8*	

**current measurements with reproduction fingerboard*

COLLECTION RONALD AND EILEEN WEISER

1. This "locking" effect can be seen in the extreme on the 1821 Joseph Klotz violin, p. 68 and also on the Nicholas Gagliano practice violin on page 46.





27 Violin

Johann Georg Thir, Vienna 1754

This beautiful violin is typical of the careful and meticulous work of Johann Georg Thir (ca. 1710-after 1781), who was the finest craftsman of the Thir family of makers in Vienna. The violin is built in an elongated model after Stainer and retains the original printed label:[1]

> Johann Georg Thir/Lauten=
> und Geigenmacher in Wienn
> Anno 1754

(64 handwritten in ink)

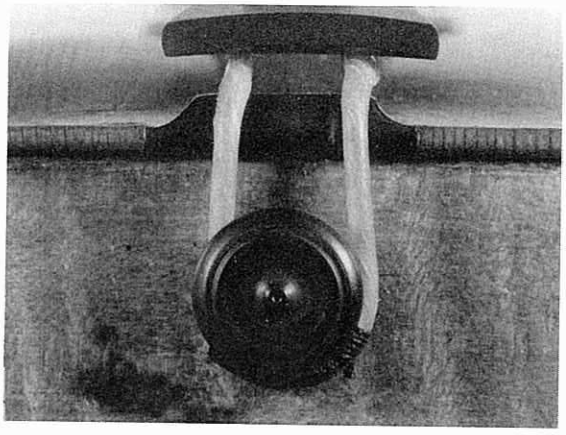
The neck is original, but probably came loose from its single nail, which was replaced with a screw and retaining collar. The nail "imprint", however, is still visible on the spruce top-block, indicating a nail-head in a "three leaf clover" shape. As a result of the repair and a maple addition extending the neck-foot above the button, the current neck angle lies .70mm above the table edge. The reproduction fingerboard is now thicker (to reach the bridge height) than it probably would have been originally. Interestingly, Viennese instruments I have seen with original features from this period and later toward the 19th Century seem to lack the amount of tilt in the neck associated with other schools of making. It remains to be discovered why at least some

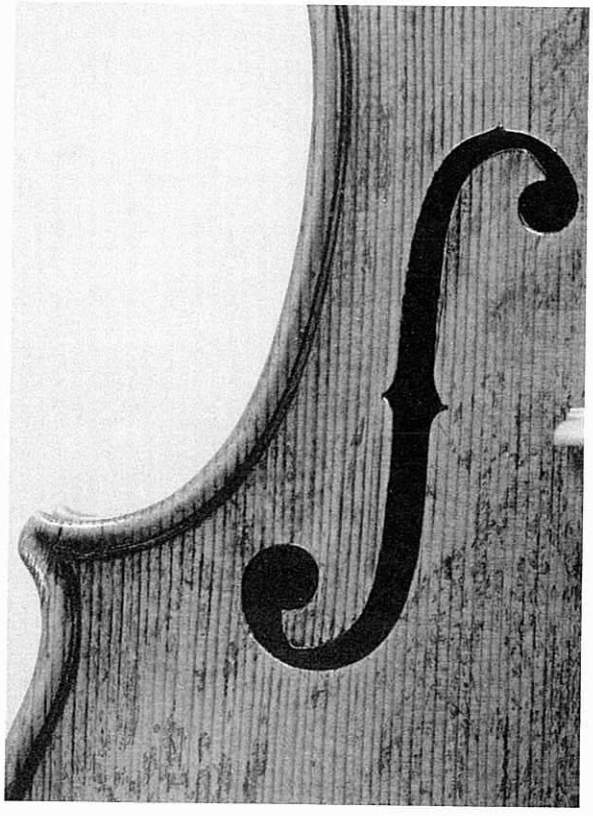
1. A label of this type from 1767, with photos of a Thir violin in this 35.7cm model is illustrated on page 446 of Walter Hamma, *Geigenbauer der Deutschen Schule*, Verlag Hans Schneide, 1986.

Viennese makers did not increase the neck angle in the classical period, but retained earlier style and proportions.

The violin retains its original bass-bar, spruce blocks and spruce linings. Marks on the button may be fragments of stamped letters: GT (GD) sometimes found on his instruments. The stamp could have been partly obliterated during repairs to a crack on the back adjacent to the button. The instrument retains its semi-transparent red-orange varnish that also continues beneath the fingerboard.

Pegs, fingerboard, tailpiece and endpin are all reproduction fittings. The original saddle of ebony is not flush with the table but extends 4mm above the table surface much like a modern violin.



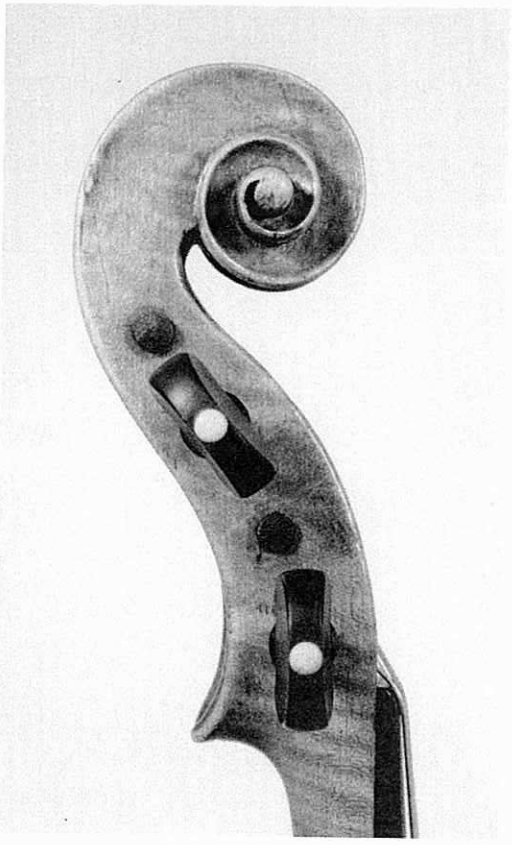


Tuning: g, d', a', e"

Body	*table*	*back*
length	*35.6*	*35.7*
upper bout	*16.6*	*16.5*
center bout	*11.35*	*11.2*
lower bout	*20.1*	*20.1*
Rib height	*treble*	*bass*
top-block	*3.16*	*3.2*
upper corner	*3.15*	*3.2*
lower corner	*3.18*	*3.2*
bottom-block	*3.26*	*3.27*
Neck		
length	*12.8**	
width: top-nut	*2.45*	
neck-foot	*2.95*	
thickness with reproduction fingerboard:		
top-nut end	*1.86**	
neck-foot end	*2.45**	
Fingerboard		
length	*25.1**	
width: top	*2.45**	
bottom	*4.2**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.25**	*0.3**
neck-foot	*1.15**	*1.25**
bottom	*0.25**	*0.3**
Appui	*0*	*0.5*
Appui to fingerboard edge	*1.15**	*1.3**
Table mensure	*19.4*	
Pitch	*2.55**	
Vibrating string length	*32.1**	

**Current measurements with reproduction fingerboard*

PRIVATE COLLECTION, USA



28 Violin

Thomas Balestrieri, Mantua, 1777

Thomas Balestrieri studied and worked in Cremona from about 1730, then moved to Mantua, probably around 1750.[1] This violin is of the Mantua period where he continued working until about 1780. Unfortunately no other biographical information is available concerning his life. The original printed label states:[2]

> Thomas Balestrieri Cremonensis
> Fecit Mantuae. Anno 1777

(77 handwritten in ink)

Also handwritten in ink on the actual back above the label is the text:

Fr. [la] Baguzzi
la_s (?) Felice

Not only is the neck original and unaltered, it is set back from the table edge 10.9mm, nearly 3mm steeper in average than in today's typical neck deflection of 8mm. The instrument is built unusually high. It may be the case that Balestrieri was trying to achieve a close to parallel neck and fingerboard combination for ease of playing while retaining fingerboard elevation over the table. Certainly, in this violin, we see a steeper neck angle than in any other exhibition example, which illustrates the great variety of neck conceptions in the classical period. The

1. See reference in Walter Hamma's *Meister Italienischer Geigenbaukunst,* Shuler, Stuttgart, 1964, p. 71.
2. An example of this label format can be seen in Vannes, Vol. I, label # 60.

neck is held in place with a 3 nail attachment as shown in the accompanying x-ray.

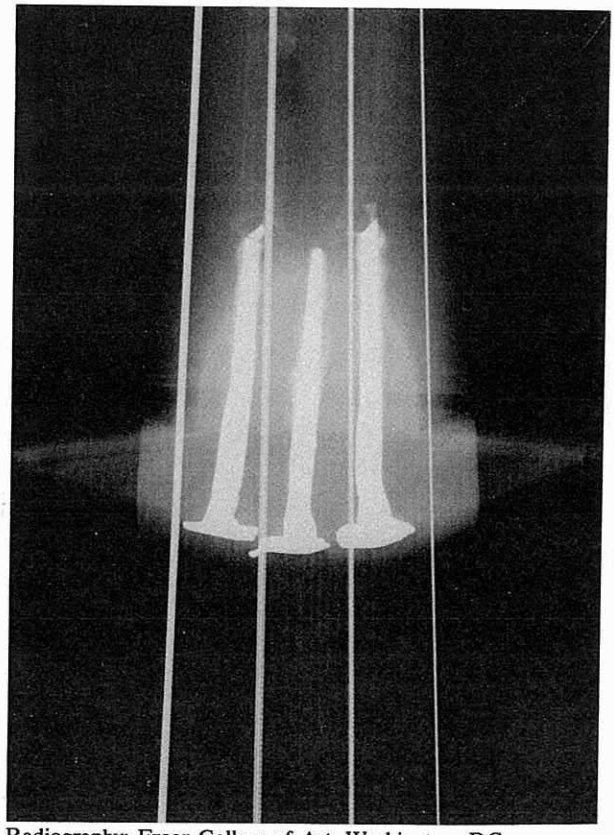
The instrument with a body length of 35.2 cm is an unusually fine study example, with virtually no wear to the edges and scroll. The varnish, is of gorgeous transparency with golden orange-red color, also extending under the fingerboard.

Tuning: g, d', a', e''

Body		*table*	*back*
	length	*35.15*	*35.2*
	upper bout	*16.8*	*16.6*
	center bout	*11.7*	*11.4*
	lower bout	*20.5*	*20.45*
Rib height		*treble*	*bass*
	top-block	*3.08*	*3.07*
	upper corner	*3.12*	*3.04*
	lower corner	*3.13*	*3.15*
	bottom-block	*3.21*	*3.20*
Neck			
	length	*12.9**	
	width: top-nut	*2.37*	
	neck-foot	*3.15*	
	thickness with modern fingerboard and wedge:		
	top-nut end	*1.86**	
	neck-foot end	*2.13**	
Fingerboard-Modern			
	length	*26.9**	
	width: top	*2.37**	
	bottom	*4.23**	
	edge thickness with wedge	*treble*	*bass*
	top-nut	*0.55**	*0.50**
	neck-foot	*1.0**	*1.0**
	bottom	*0.52**	*0.50**
	Appui	*0*	*0*
	Appui to fingerboard edge	*1.0**	*1.0**
Table mensure		*19.4*	
Pitch		*2.7**	
Vibrating string length		*32.8**	

**current measurements with modern fingerboard and wedge*

COLLECTION JACQUES FRANCAIS



Radiography: Freer Gallery of Art, Washington, DC

29 Violin

Aloysius Stangel, Mittenwald, 1793

The Southern Bavarian town of Mittenwald, surrounded by forests rich in spruce and maple, has been famous for instrument making since the 17th Century. Dynasties of makers like Klotz, Hornsteiner, Fichtler, and Wörnle, provided the foundation of this tradition which grew to major proportions in the 18th Century. Vannes lists 133 violin makers who were working in Mittenwald before 1800, most of whom probably lived by exporting their output throughout Bavaria, Germany, and further north to Scandinavia and England. Surprisingly, many Mittenwald makers worked in a tradition influenced by the style of Amati rather than Stainer who worked nearby in the Tyrol near Innsbruck.

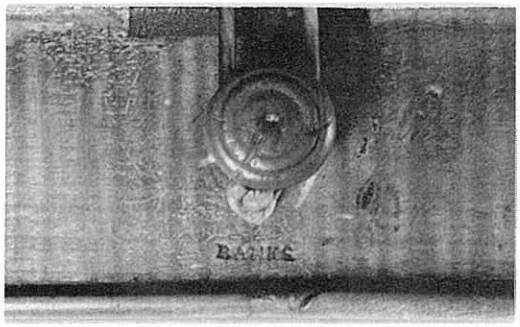
This violin by Stangel, in an interpretive style of Amati, bears the brand stamp BANKS on the ribs at the bottom-block and the button of the back. It is possible that the instrument was commissioned, or at least sold by James & Henry Banks.[1] They worked first in Salisbury and then after 1811, in Liverpool where they were music sellers, and dealers in musical instruments. The original handwritten label[2] reads:

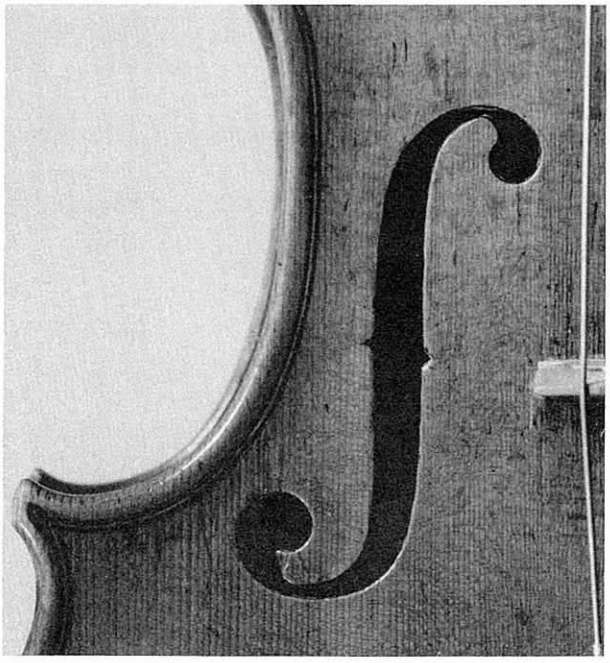
1. James Banks (1756-1831) was a violin maker and the son of Benjamin Banks, Salisbury. Henry Banks, James' brother, was a piano tuner and dealer in music and related products.
2. In this handwritten label, the e in Stangel is omitted, while Aloysius is carefully written. Another similar label in the same hand from 1704 reads Aloysi Stangel and can be seen in Walter Hamma , *Geigenbauer der Deutshen Schule,* Verlag Hans Schneider, Vol.II, p.352.

Aloysius Stangl in
Mittenwald 1793.

It is interesting to note that this example has a short neck. High "f" hole placement on the table creates a short table mensure. The vibrating string length is then shorter than one might expect at this late date. Notice that the bridge was moved lower (from marks on the table) to an effective vibrating string length of 33.4cm. Low bridge placement relative to the "f" holes is frequently seen in iconography, and actual lower bridge foot marks can be seen on many examples in this exhibition.

The table in 2 pieces is of typical fine grain Mittenwald wood. Small locating pins lie to the left of the center joint at the top-block and to the right of the joint at the bottom-block. Interior features including a very high bass-bar are all original. The neck bears a single nail attachment to the top-block at the neck-foot. The fingerboard, top-nut and tailpiece are reproductions. Boxwood pegs and endpin are of typical English workmanship from the end of the 18th Century. The varnish is of golden orange-brown color.



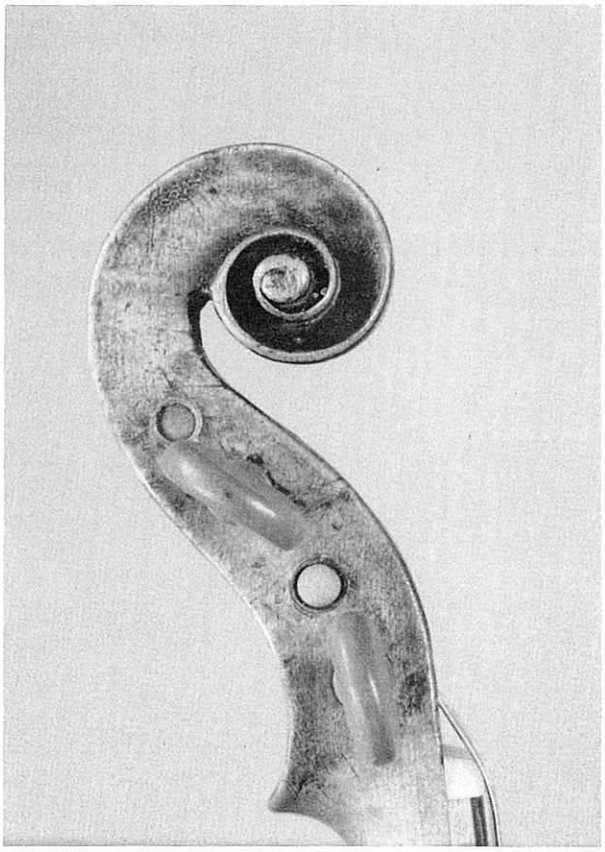


Tuning: g, d', a', e''

Body	*table*	*back*
length	*35.6*	*35.6*
upper bout	*16.6*	*16.5*
center bout	*11.05*	*11.0*
lower bout	*20.3*	*20.3*
Rib height	*treble*	*bass*
top-block	*3.15*	*3.07*
upper corner	*3.11*	*3.11*
lower corner	*3.18*	*3.12*
bottom-block	*3.22*	*3.19*
Neck		
length	*12.5**	
width: top-nut	*2.29*	
neck-foot	*3.12*	
thickness with reproduction fingerboard:		
top-nut end	*1.98**	
neck-foot end	*2.34**	
Fingerboard-Reproduction		
length	*23.3**	
width: top	*2.26**	
bottom	*4.18**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.45**	*0.48**
neck-foot	*0.8**	*0.7**
bottom	*0.35**	*0.3**
Appui	*0.05*	*0.05*
Appui to fingerboard edge	*0.85**	*0.75**
Table mensure	*18.75*	
Pitch	*2.5**	
Vibrating string length	*31.7**	

**current measurements with reproduction fingerboard*

COLLECTION WILLIAM L. MONICAL



30 Violin

Johann Gottfried Hamm, Markneukirchen, 1796

Johann Gottfried (1744-1817) is certainly the most refined craftsman[1] of the Hamm family who worked in Markneukirchen, Saxony during the 18th and early 19th Centuries. While his style reflects Saxon character, he did embody elements of Stainer's influence in his work. This violin bears the original printed label glued over the center joint of the back.

Johann Gottfried Hamm,
probe Violino Markneukirchen bey
Adorf in Voigtland fecit. Ao 1796

(96 handwritten in ink)

Beneath the label, the typical 7 element brand stamp is located on a scribed location line:

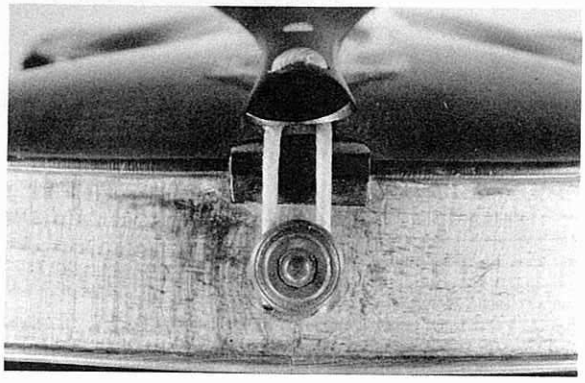
* I * G * H * [2]

In this violin one finds typical Saxon "hourglass" fullness in the arching of the table and back. The instrument retains original features including the neck-top-block in one piece, original shallow bass-bar

1. A violin with ivory edges and an ornamental ivory plate on the back of the scroll is illustrated and described in the Richard T. Rephann catalog of *The Schambach-Kaston Collection of Musical Instruments*, published by the Yale Collection of Musical Instruments, 1988, No. 35, p. 50, text and p. 52, color photo.
2. This brand is illustrated (with a different label style) in Walter Hamma's *Geigenbauer der Deutschen Schule,* 1986, Vol.I, p. 250.

and spruce linings, corner-blocks and bottom-block. Reproduction pegs and a 19th Century Saxony tailpiece accompany the violin. The original fingerboard has a core of quarter cut spruce, veneered on the sides and top with pearwood stained black. To preserve the original fingerboard, a reproduction with ebony veneer (for resistance to wear) has been provided to the instrument.

The neck is set with an extended appui of 3mm above the table edge. Because the neck is set back only .6 mm from the table-rib joint, the extended appui creates an overall neck angle overcoming the high arching with a relatively low fingerboard wedge. Neck thickness with the fingerboard is therefore relatively parallel for purposes of left hand shifting. The original saddle is also high to provide tailpiece clearance above the arching in the lower bout.



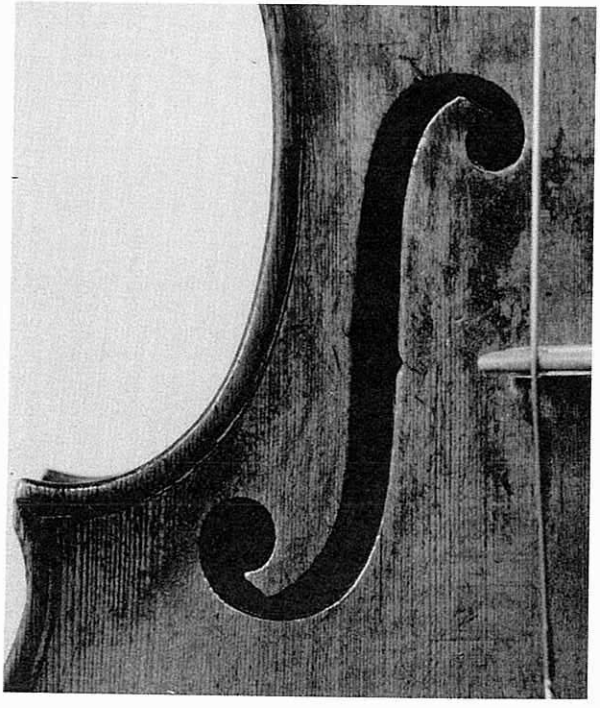
Sculptured incurved sides to the neck-foot joining the upper ribs give an impression of fine detail, mirrored in the slope of the button towards the neck. No locating pins are on the back, but the table bears 2 pins at the top, and 2 at the bottom-block area, one on each side of the center joint. The varnish is of transparent orange-brown color.

Tuning: g, d', a', e''

Body	*table*	*back*
length	*35.9*	*36.1*
upper bout	*16.3*	*16.3*
center bout	*10.9*	*10.75*
lower bout	*20.2*	*20.1*
Rib height	*treble*	*bass*
top-block	*3.05*	*3.06*
upper corner	*3.09*	*3.08*
lower corner	*3.1*	*3.07*
bottom-block	*3.12*	*3.1*
Neck		
length	*12.65*	
width: top-nut	*2.33*	
neck-foot	*3.2*	
thickness with reproduction fingerboard:		
top-nut end	*1.78**	
neck-foot end	*2.23**	
Fingerboard-Original		
length	*25.7*	
width: top	*2.29*	
bottom	*4.28*	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.15*	*0.2*
neck-foot	*0.07*	*0.75*
bottom	*0.03*	*0.35*
Appui	*0.3*	*0.3*
Appui to reproduction fingerboard edge	*1.2**	*1.1**
Table mensure	*19.35*	
Pitch	*2.65**	
Vibrating string length	*32.1**	

**current measurements with reproduction fingerboard*

COLLECTION JEAN TWOMBLY



31 Violin

Andreas Hansen Hjorth, Copenhagen, 1819

On May 20, 1789, at the age of 36, Andreas Hjorth became licensed as a violin maker and string dealer in Copenhagen. From these beginnings, the firm Hjorth has been inherited from father to son for six generations.[1] Andreas was born in Haderslev on November 1, 1752. Before learning violin making, he worked in his youth as a ship's carpenter. It is not known where he studied, but his instruments, frequently with rather high archings, are often based on Amati models as referenced in printed labels like the one from this violin:

> Forfaerdiger eifer Amatus Regel af Instrumentmager Andreas Hiorth, i Kjöbenhaun. Anno 1819

(19 handwritten in red ink, with the 1 written over a printed 0 on the label printed as 180 The brand stamp: AHH[2] appears to the left and right side of the label.)

In 1799 he became violin maker and string supplier to the Royal Orchestra, and in 1804 at the age of 52, his position was elevated to that of "Maker of Instruments for the Royal Court". From Hjorth's second marriage in 1803 he gained 2 sons (Andreas Christian and Johannes) who became instrument

1. We congratulate the Hjorth family and extend our best wishes during this year of their 200 Years' Jubilee in Copenhagen.
2. A photo of the brand stamp AHH with scalloped border is illustrated in the reference work by Arne Hjorth, *Danish Violins and Their Makers,* published by Hjorth, Copenhagen, 1963, plate no. 11 which illustrates this brand on a Hjorth cello beneath the button on the back.

makers. Johannes Hjorth (1809-1900) inherited the family business upon the death of his father at the age of 82, on November 6, 1834.[1]

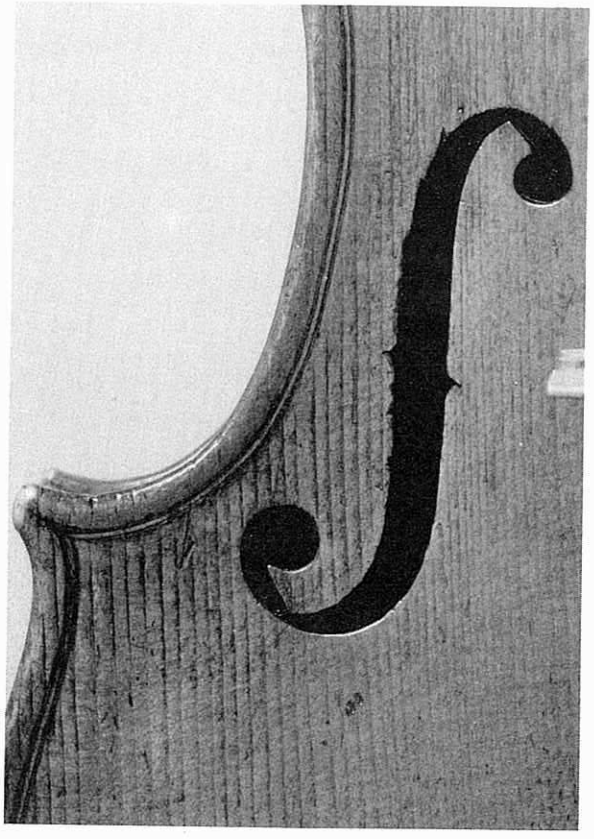
Unusually interesting for study, this violin has never been opened, and is completely intact, except for pegs and bridge, with an original solid ebony fingerboard and tailpiece. The relatively high arching of the table and back are rather pointed, with a broad gently ascending channel from the edges. There are no locating pins on the back. On the table they are large (4mm ϕ), placed to the right of the center joint at the top-block and to the left of the joint at the bottom-block area.

The neck is secured with a single central nail through the spruce top-block (see fig.2, p.5), and has an average tilt of 5.7mm, with the fingerboard-neck combination nearing parallel proportions. The varnish is of orange-brown color on a yellow ground, and the table is not varnished beneath the fingerboard.

Tuning: g, d', a', e"

		table	back
Body			
	length	35.7	35.7
	upper bout	16.8	16.8
	center bout	11.3	11.4
	lower bout	20.3	20.4
Rib height		*treble*	*bass*
	top-block	2.87	2.85
	upper corner	2.92	2.85
	lower corner	2.92	2.86
	bottom-block	3.03	3.06
Neck			
	length	12.75	
	width: top-nut	2.3	
	neck-foot	3.14	
	thickness with fingerboard:		
	top-nut end	1.98	
	neck-foot end	2.4	
Fingerboard-ebony			
	length	25.8	
	width: top	2.22	
	bottom	4.1	
	edge thickness: solid ebony	*treble*	*bass*
	top-nut	0.12	0.18
	neck-foot	0.5	0.6
	bottom	0.25	0.35
	Appui	0.1	0.1
	Appui to fingerboard edge	0.6	0.7
Table mensure		19.4	
Pitch		2.4	
Vibrating string length		32.8	

COLLECTION EMIL HJORTH & SØNNER



1. My grateful thanks to Mads Hjorth for making biographical information available from unpublished documents. Further published details of the life and output of Hjorth and his son Johannes is found in *Danske Instrumentbyggere,* 1770-1850, by Dorthe Falcon Møller, published by G.E.C. Gad, 1983, pp. 171-178.

32 Violin

Joseph (II) Klotz, Mittenwald, 1821

Ultraviolet examination of the original handwritten label has shown the ink inscription to read, in part:

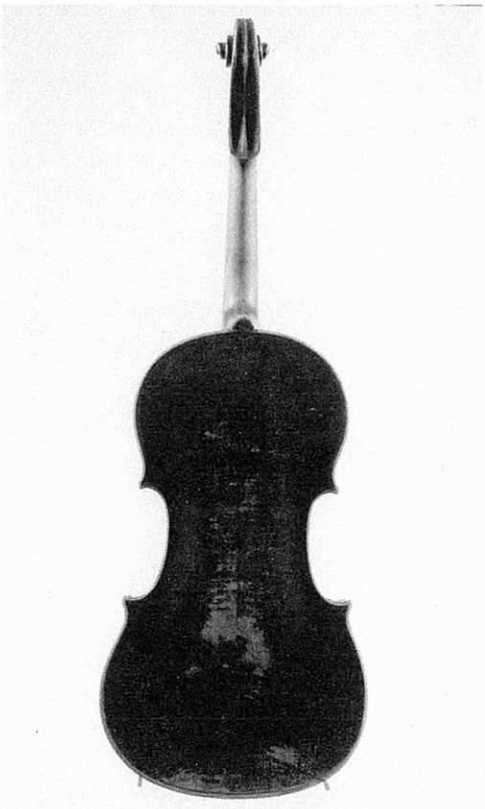
Joseph Klotz i_ Mittin=
wald
a_ de _ _ _ Musicus 1821

According to Lütgendorf, Joseph Klotz lived in Mittenwald from ca. 1768 until after 1831. A label is included in biographic information[1] showing the word "musicus" as does this example.

It is of interest to study the unusual neck setting and treatment of the upper table edge joining the neck-foot in this instrument. The table edge is finished and rounded through the area of neck attachment.[2] In turn, the neck-foot has been hollowed below the appui to accept the rounded table. (The only other example of this method that I know is in the Nicolaus Gagliano practice violin, illustrated on page 46). In this Klotz instrument, the neck is secured to the top-block with a wooden pin which is apparently original, as are the large double pins securing the top-block onto the back.

It is most unusual to find an original neck-foot fitted to the top-block ribs with such a high degree of accuracy. Center marking notches on the rib assembly are a typical feature of the Mittenwald style, and in this example, those points are very precise. The pin extending through the top-block into the neck-foot is certainly not proportioned for strength. It probably acted as a locating guide for fitting and gluing the neck into final position. A similar concept can be seen in the neck attachment information on page 7, fig.7, but in the Klotz, the pin is of course set into the block from the inside.

In all other respects, the violin retains typical features one would expect from an example of this period. The neck is set back from the table-rib edge 9.3mm. Since the original fingerboard is missing, one can only speculate that there should be a relatively parallel neck-fingerboard combination. The interior block construction is typical of the Mittenwald method, with the center bout linings cut into the corner-blocks at a pointed bevel (see photo). The bass-bar was replaced in a repair, and the locating pin holes were enlarged. A small doubling was also



1. See *Die Geigen=und Lautenmacher vom Mittelalter bis zur Gegenwart,* Vol. II, Heinrich Keller, 1913, p. 436-437 for biographic materials concerning Joseph Klotz.
2. I would like to thank Karl Roy, Director, Staatliche Berufsfachschule für Geigenbau, Mittenwald, for bringing this interesting example to my attention.

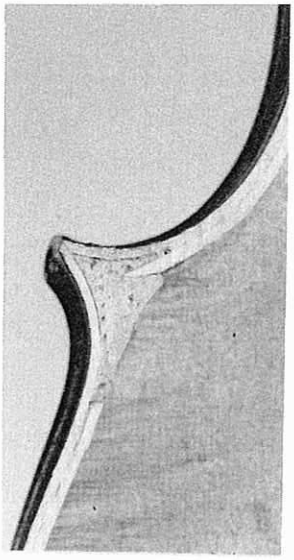
added to the lower "f" hole wing area to secure a wing crack.

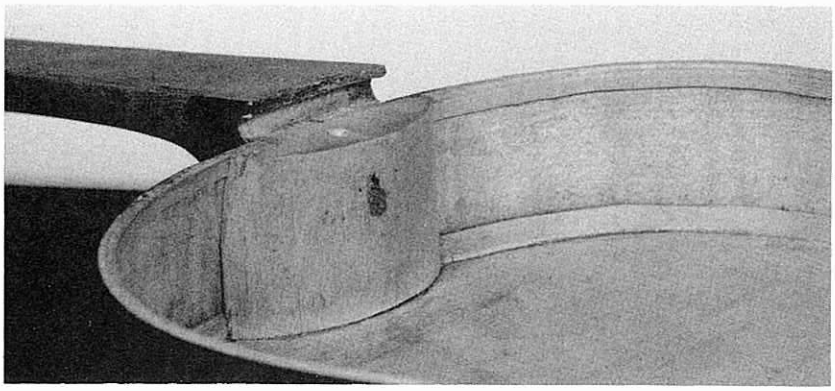
The purfling is very clearly inlaid into the top and back, and the overall details of finishing the edges are nicely executed. The varnish however, is a dark opaque brown-black color and thinly applied to the violin.

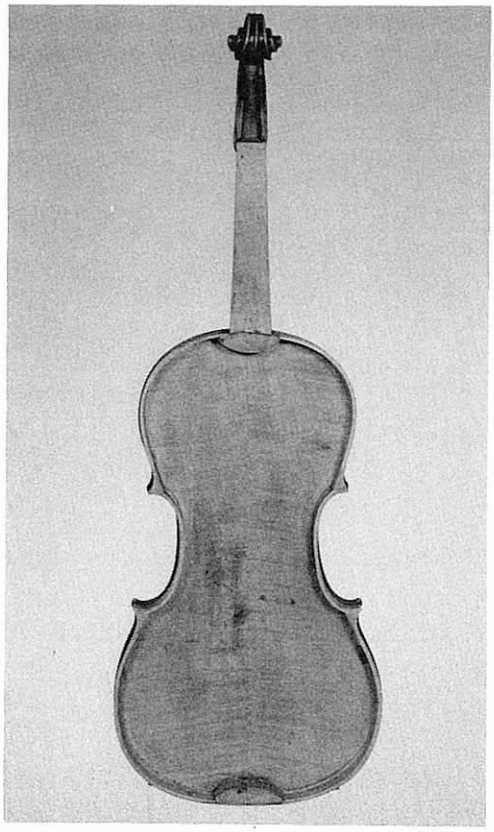
Tuning: g, d', a', e''

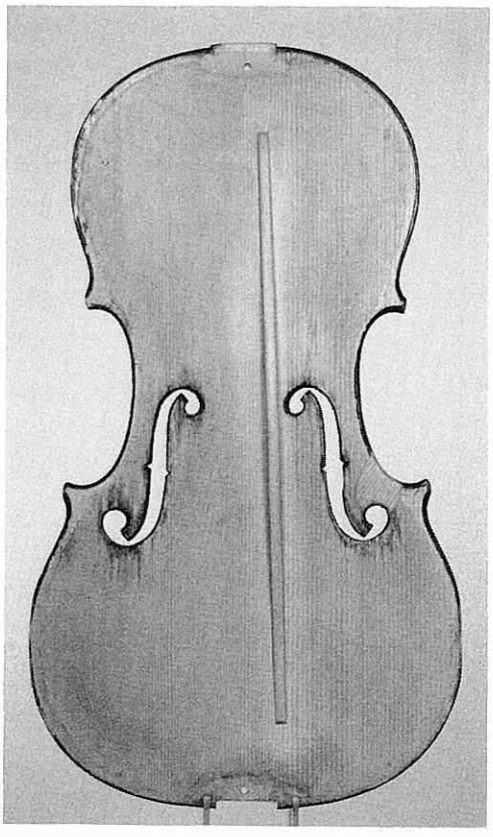
		table	back
Body			
	length	35.1	35.3
	upper bout	16.2	
	center bout	11.05	
	lower bout	19.95	
Rib height		*treble*	*bass*
	top-block	3.18	3.15
	upper corner	3.18	3.13
	lower corner	3.18	3.15
	bottom-block	3.18	3.15
Neck			
	length	13.1	
	width: top-nut	2.16	
	neck-foot	3.12	
		treble	*bass*
Appui		0.2	0.25
Table mensure		19.7	

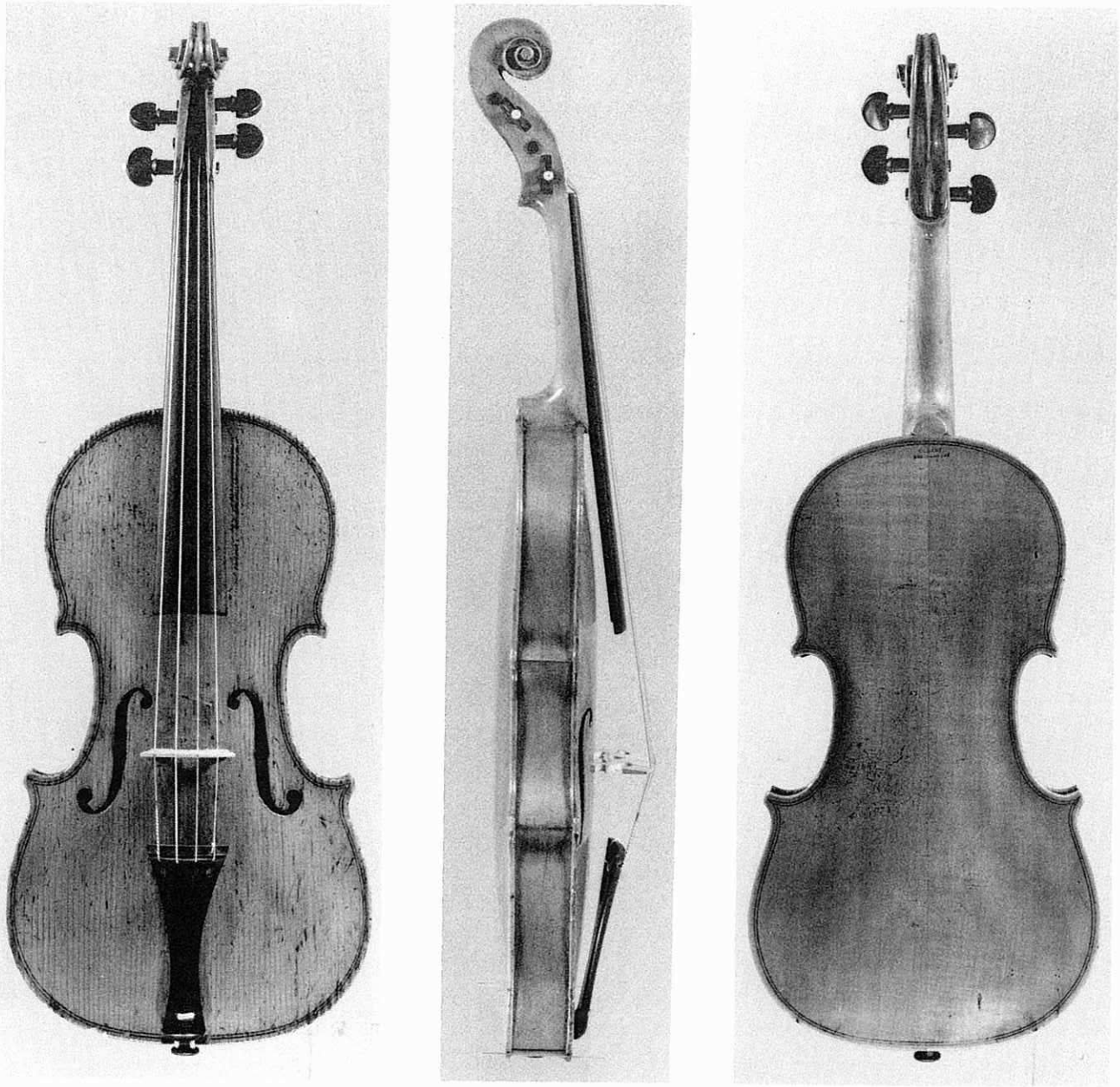
COLLECTION KARL ROY











33 Violin

C. Corsby, Northampton, 1852

This instrument is of special interest because the neck is set through the ribs and glued directly onto the top-block in a shallow "mortise" that is the basis for the modern method of neck attachment (see fig.10 page 8). Unfortunately, very little is known about C. Corsby except for Northampton town records listing him as a greengrocer[1], and the information contained in a pencil inscription on the inside of the table next to the bass-bar:

C. Corsby
21 Jan^{y} 1852
Northhampton

The date 1852 is also written in ink beneath the varnish of the table at the top-block, and separate brand stamps: CORSBY and NORTHAMPTON in different type styles appear beneath the button on the back. The CORSBY stamp is also found beneath the tailgut on the ebony tailpiece, and is identical to the stamp beneath the button. The Hills know only one instrument, a cello, with a similar pencil inscription stating, C. Corsby / 2nd March 1838 / Northampton, and describe it being rather similar to this violin in workmanship.[2] Vannes mentions Corsby as an "English luthier known for several good basses made around 1778 in Northampton. From that period until 1830 lived in London another maker, George Corsby, possibly a brother".[3]

1. From correspondence of May 12, 1979, with the clerk of the Northampton Archives.
2. From a telephone conversation with David Hill on February 20, 1989.
3. See Renè Vannes, *Dictionaire Universel des Luthiers*, 1986, Vol.I, pp. 67-68.

The instrument retains the original saddle and tailpiece. The fingerboard, pegs, and endpin are reproduction. Original spruce linings and corner-blocks are accompanied by a bass-bar of nearly modern proportions. The table of spruce in 2 pieces bears a very broad grain, contrasting the 2 piece back with only a faint horizontal figure, and a similar maple neck. The ribs are of plain sycamore, and combined with ink representations of purfling, give the instrument a character of inexpensive materials and workmanship. However, it is interesting to note the accurate similarity between the measurements of the table and back, and the accurate body proportions. The transparent orange varnish is also fully applied under the fingerboard.

From the accompanying x-ray, the neck set through the ribs is very clear. Although the neck has not been removed, only a shadow indicates the original nail location. Probably at some time the nail became loose and was removed. To avoid disturbing the neck, a broader nail, cut short, was simply inserted into the original hole for cosmetic purposes. The neck is set back 8.3mm from the rib joint with the table edge, allowing a nearly parallel neck and fingerboard combination. The neck is also tilted .6mm toward the bass side of the fingerboard.

Tuning: g, d', a', e''

		table	back
Body			
	length	35.9	36.0
	upper bout	16.75	16.7
	center bout	11.2	11.1
	lower bout	20.55	20.6
Rib height		*treble*	*bass*
	top-block	31.5	3.15
	upper corner	3.11	3.07
	lower corner	3.11	3.09
	bottom-block	3.1	3.09
Neck			
	length	12.8	
	width: top-nut	2.3	
	neck-foot	3.24	
	thickness with reproduction fingerboard:		
	top-nut end	1.93*	
	neck-foot end	2.36*	
Fingerboard-Reproduction			
	length	24.8*	
	width: top	2.25*	
	bottom	4.13*	
	edge thickness of ebony fingerboard	*treble*	*bass*
	top-nut	0.35*	0.35*
	neck-foot	0.5*	0.55*
	bottom	0.25*	0.3*
	Appui	0.25	0.2
	Appui to fingerboard edge	0.8*	0.75*
Table mensure		19.7	
Pitch		2.8*	
Vibrating string length		32.9*	

**current measurements with reproduction fingerboard*

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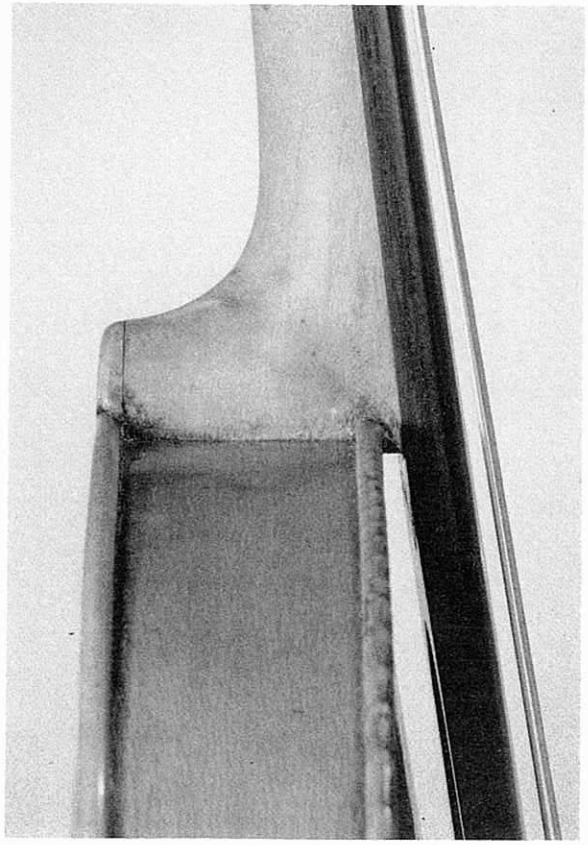
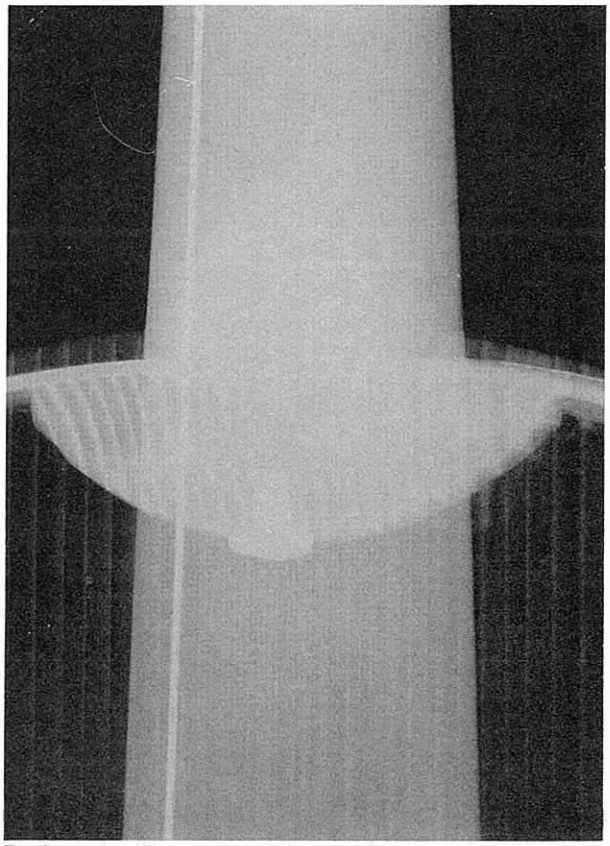




Radiography: Metropolitan Museum of Art

34 Tenor Viola (large viola)
Andrea Guarneri, Cremona, 1664

Having begun his studies with Nicolo Amati after the age of 10, Andrea Guarneri, the grandfather of Joseph Guarneri (del Gesù), was to become the first of this famous family of makers. Andrea was already married and working in his own shop when he built this tenor at the age of 38[1] in 1664. The original printed label reproduced below shows the entire date handwritten boldly in ink, and the dedication to the patron, St. Teresia.

Unlike the Mittersil tenor of the same year (p.74), this instrument is of classical Cremonese construction on an inside mold, and is a famous example of Andrea Guarneri's workmanship. In largely untouched condition, the tenor provides much information on the physical execution of the instrument. To gain necessary width for the model, the 2 piece table of spruce has added wings on both

1. Andrea was born in Cremona, ca. 1626, where he worked and later died at the age of about 72 years on December 7, 1698. This and additional biographical information is detailed in the reference work of the Hill Family, *The Violin Makers of the Guarneri Family (1626-1762),* 1931, reprinted by the Holland Press, 1965.

flanks of the upper and lower bouts; the 2 piece back of maple with narrow figure has wings only on the lower flanks. All of the wings were apparently taken from offcuts of the table and back materials. Original blocks and linings are of willow, and the spruce bass-bar in untouched condition complete the body. Fittings to the instrument, the pegs, tailpiece and endpin are possibly original and certainly of the period.

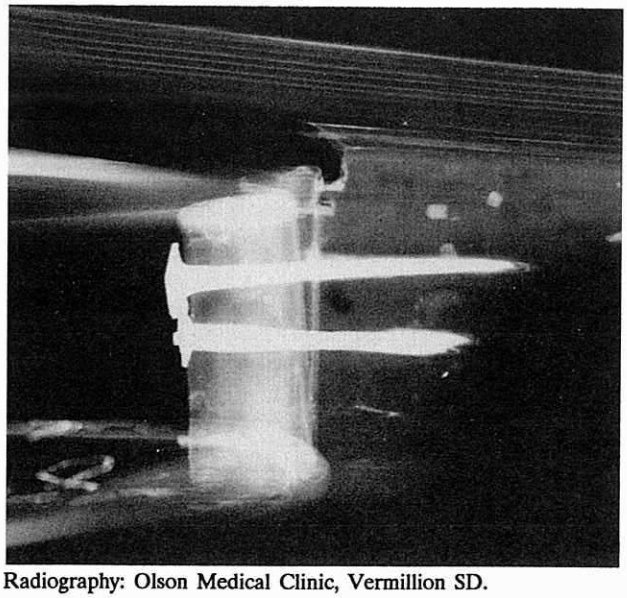
There has been extensive worm damage to the upper back, top-block, neck, and pegbox. It was probably in the Bisiach[1] workshops that conservation was undertaken to consolidate weakened areas. Worm damage to the back was filled, and a doubling was added to the interior of the button for strength. Worm holes in the neck and neck-foot were filled with dowels and inlays of new maple to retain as much of the original character as possible. In the course of this work, the neck was removed probably to accomplish repairs on the ribs adjacent to the neck- foot and to consolidate the top-block itself. When the neck was returned to the body, a wedge was placed between the neck-foot and rib at the top-block to increase the neck angle. This wedge, approximately 3mm thick at the table edge of the block, diminishes and becomes flush with the ribs just above the button. A second wedge was placed between the fingerboard and neck, also to increase the neck angle. If the fingerboard is original, it would have been placed very close to the arching of the table. Of 4 original nails, the upper three were returned in place[2]. The lower nail is missing and the hole was filled on the surface of the block. A saw cut into the neck-foot was probably an error on Guarneri's part when cutting an incision for the table edge extension (see accompanying x-rays).

Tuning: c, g, d', a'

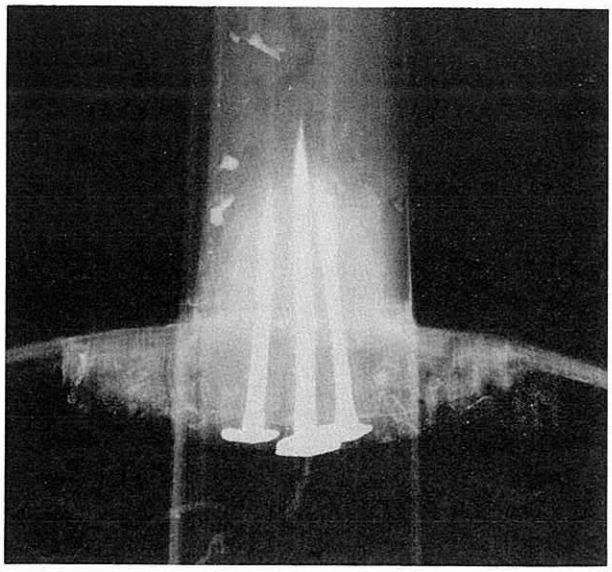
Body	*table*	*back*
length	*48.2*	*48.2*
upper bout	*24.25*	*23.9*
center bout	*17.0*	*16.6*
lower bout	*28.05*	*28.2*
Rib height	*treble*	*bass*
top-block	*4.05*	*4.15*
upper corner	*4.25*	*4.25*
lower corner	*4.4*	*4.45*
bottom-block	*4.5*	*4.4*
Neck		
length	*15.55*	
width: top-nut	*2.88*	
neck-foot	*3.74*	
thickness with fingerboard:		
top-nut end	*2.31*	
neck-foot end	*3.05*	
Fingerboard		
length	*32.0*	
width: top	*2.85*	
bottom	*5.3*	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.6*	*0.6*
neck-foot	*1.2*	*1.2*
bottom	*0.75*	*0.8*
Appui	*0.325*	*0.4*
Appui to fingerboard edge	*1.52*	*1.6*
Table mensure	*26.5*	
Pitch	*38.5*	
Vibrating string length	*42.4*	

COLLECTION SHRINE TO MUSIC MUSEUM, No.3354

Photos courtesy of the Shrine to Music Museum



Radiography: Olson Medical Clinic, Vermillion SD.



1. The known history of this instrument records ownership by the Counts Canal of Venice, probably from the time it was made until acquired by the Bisiach family in the 1940's. It then was acquired by Lawrence C. Witten II with the assistance of Rembert Wurlitzer in 1967, where it remained until entering the Shrine to Music Museum as a part of the Witten-Rawlins Collection in 1984.
2. An interesting account of neck repair and methods of re-fastening original nails is found in the Count Cozio di Salabue memoir translation by Dipper & Woodrow, p. 38 which states in part:
"When necks are taken out the nails should not be put back into the same holes until these are glued and plugged with little spikes of hard wood. Also, no more than three nails are replaced, that is, the two which go into the top of the neck stem and one in the centre below the half way mark."

35 Tenor Viola (large viola)
Mathäus Steiger, Mittersill, 1664

Surviving tenors are particularly rare, and because of their variations in size, provide insight into methods of instrument making. This example from 1664 was built "in the air" without an interior mold. Ribs were simply bent and glued into a channel in the back which provided a prepared outline. The neck-top-block in one piece was glued and then fitted in place with the ribs, and secured with wedges, completing the assembly. The table was cut to match the outline of the ribs, and the instrument was closed after completing the graduation, bass-bar and soundholes. Ornamental purfling could be inlaid either before or after completion of the body, but it is more likely that the purfling on this instrument was completed before assembly.

In this example, the sharply sloping shoulders were probably designed to aid the facility of players left hand position. Even with its short neck, the "f" holes are placed quite high allowing the large bodied instrument to retain a relatively short vibrating string length, to facilitate ease of fingering.

Nothing is known concerning Steiger except the evidence of his label, which states:

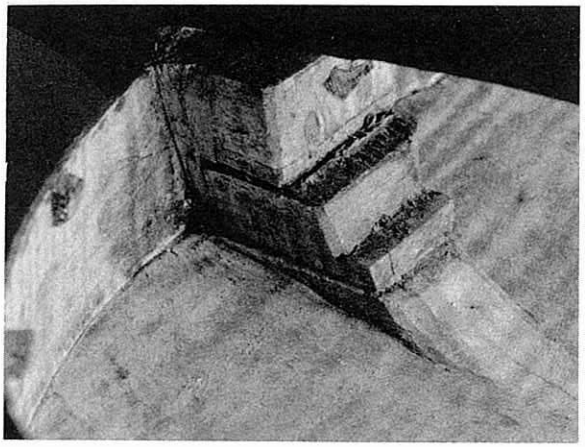
Mathäus Steiger
Geigenbaumacher in
Mittersill 1664

Mittersill lies about 125 km east of Innsbruck near Kitzbühel in the Tyrol.

The instrument bears a table of spruce in one piece with a "quilted" pattern and grain broadening toward the treble flank. The table is in original condition with the exception of new edge work at the top-block, upper right center bout and corner, and lower right bout areas. The bass-bar of red cedar(?) is 19.5 cm in length and lies diagonally across the breast area of the arching, extending into the treble side of the table above the "f" holes. The bar is 5.7 mm wide (with only a slight variation) and 5mm in height overall except for a slight rise to 6mm at the bridge foot area.

The ribs have been inlaid into a channel on the back. Instead of traditional linings, the ribs are reinforced with flax strands soaked in glue and applied to the rib assembly. While the flax is missing from some areas, this manner of securing the ribs can be seen in the right bout area. To provide increased gluing surface for the ribs to the table, 25 small roughly cut cedar blocks were glued to the ribs, of which 5 are missing. The bottom-block of spruce is a repair addition, as is the trapezoidal plate fitted to replace worm damaged ribs at this block area. The corner-blocks of spruce may be original.

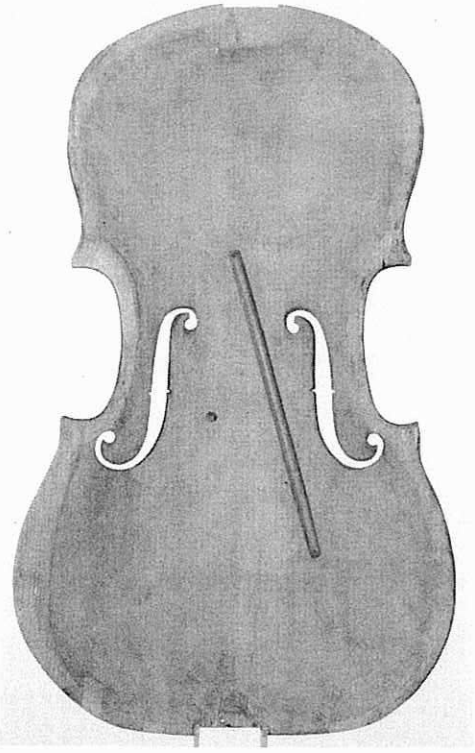
The button of the back has been replaced, but the base of the neck-foot top-block remains unaltered. Further repairs have added sides to the original neck which was reduced in width and thickness. The composite top-block is the result of repairs that added new wood secured by the original wedge method. The varnish of golden reddish orange color remains largely intact.



Tuning: c, g, d', a'

Body	*table*	*back*
length	*44.4*	*44.65*
upper bout	*21.8*	*21.9*
center bout	*15.3*	*15.45*
lower bout	*27.0*	*27.1*
Rib height	*treble*	*bass*
top-block	*3.16*	*3.18*
upper corner	*3.36*	*3.3*
lower corner	*3.38*	*3.32*
bottom-block	*3.23*	*3.34*
Neck		
length	*13.1*	
width: top-nut	*2.34*	
neck-foot	*3.36*	
thickness with fingerboard:		
top-nut end	*2.0*	
neck-foot end	*2.77*	
Fingerboard		
length	*28.2*	
width: top	*2.34*	
bottom	*4.46*	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.25*	*0.15*
neck-foot	*1.1*	*0.98*
bottom	*0.45*	*0.3*
Appui	*below table edge*	
Table mensure	*23.5*	
Pitch	*3.4(estimate)*	
Vibrating string length	*37.1(estimate)*	

COLLECTION TIROLER LANDESMUSEUM FERDINANDEUM, INNSBRUCK, AUSTRIA
Cat. No. 300



36 Viola
William Baker, Oxford, 1683

This 1683 viola is one of only five Baker instruments known today. A violin and viola from the same 1683 period were originally part of a set of instruments in the Music School, Oxford. They were displayed by T.W. Taphowe of Oxford at the Tricentenary Exhibition of the Musicians Company in 1904. A small William Baker cello of 1672 and a small viol from 1682, along with the above mentioned instrument completes the group. From an examination of these examples, W.E. Hill & Sons believe that Baker was at one time influenced by, or a student of Thomas Urquhart, the 17th Century London maker.[1]

The original label having been lost, this reproduction states:

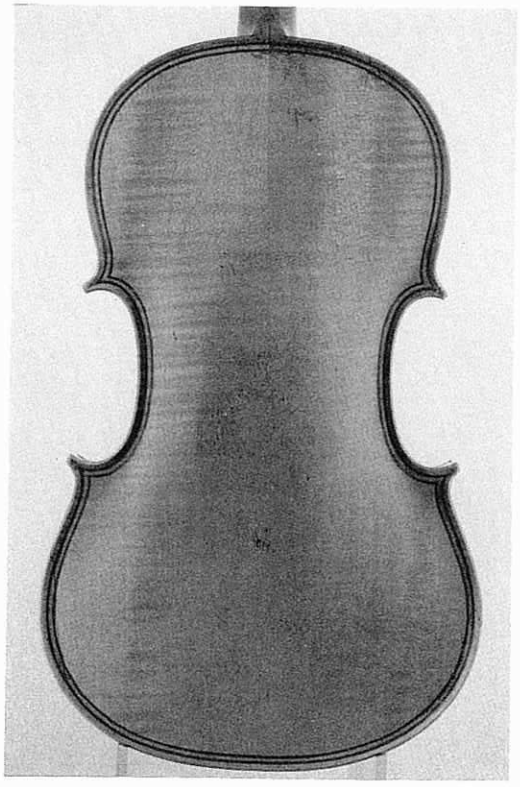
WILLIAM BAKER
of Oxford 1683

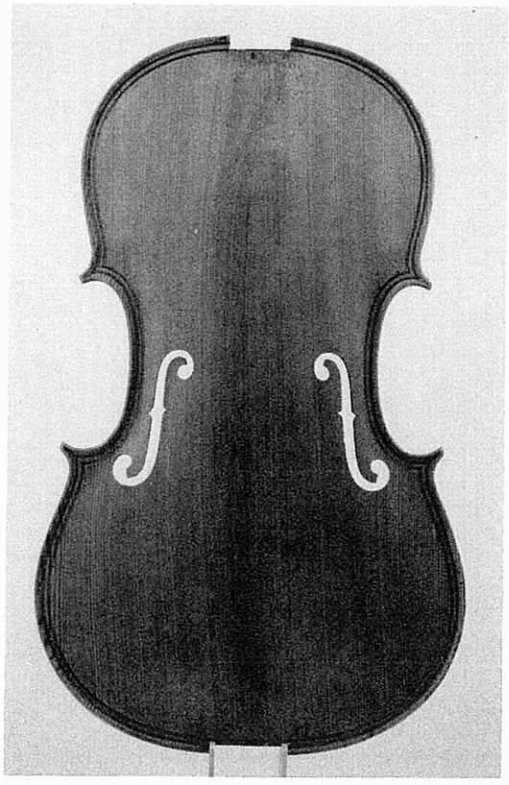
(83 handwritten in ink)

Of particular interest to me, this very highly arched viola documents English makers' knowledge and use of a neck and top-block construction in one piece (see fig.3, p.5). The neck and pegbox were consumed with wood worm and replaced with modern reproductions, but the original scroll and top-block have been retained in unaltered condition, providing considerable study information. Notice the ornamental pin marks at the base of the scroll volutes. In this example, the transparent varnish is of golden yellow color.

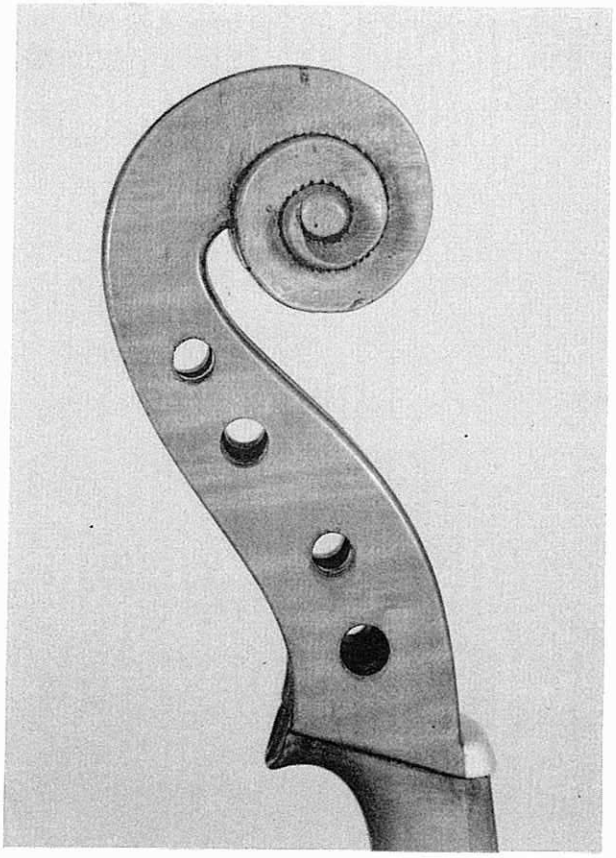
This instrument was built "in the air", without a mold, but the ribs were glued flush to the block without channeling as seen in the 1664 Mathäus Steiger tenor, p.74. Baker simply glued the rib corners together without blocks or reinforcements. This method typically results in long corners created by the need for an extended gluing surface at the miters, frequently found in Flemish instruments of this period.[2] The lower bout ribs in 2 pieces are joined at the bottom-block which was added after the ribs were fixed in place. Although simplistic in interior design, the work is very cleanly executed with nicely finished ribs and carefully symmetrical blocks.

In the cedar table of 2 pieces, the bass-bar has been cut from the table itself. The "f" holes are heavily undercut, giving an impression of delicacy and thinness to the table in a manner typical of English viol makers. Finally, the center joint is reinforced with an original linen strip in 2 pieces.





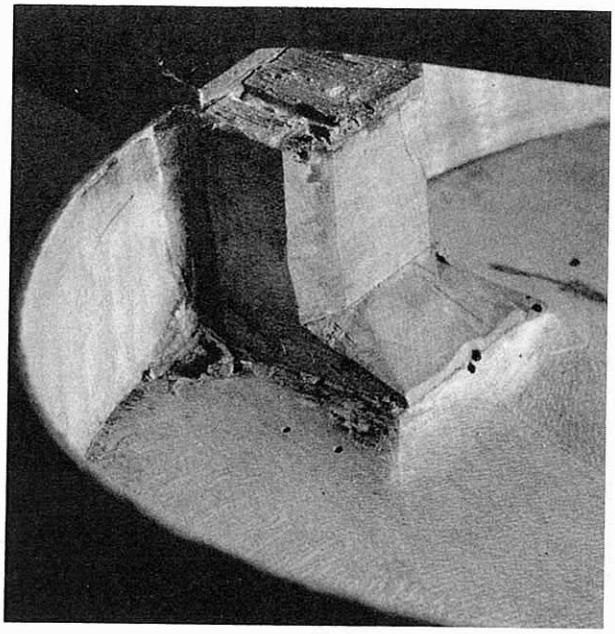
1. My grateful thanks is extended to Mr. David Hill of W. E. Hill & Sons, for sharing unpublished biographical information concerning William Baker and surviving examples of his work.
2. A very interesting group of long corner Flemish instruments, including examples by Gaspar Borbon, Brussels, 1692 (M.2836), Marcus Snoeck and others, are in the Collection of Musical Instrument Museum in Brussels.

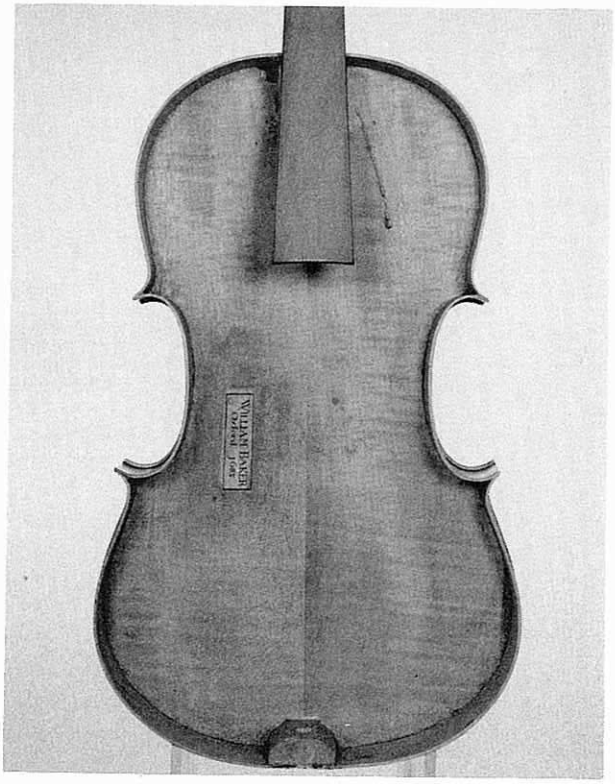


Tuning: c, g, d', a'

Body	*table*	*back*
length	*41.25*	*41.5*
upper bout	*20.7*	*20.7*
center bout	*15.2*	*15.4*
lower bout	*24.85*	*25.0*
Rib height	*treble*	*bass*
top-block	*4.06*	*4.03*
upper corner	*4.03*	*4.05*
lower corner	*4.04*	*4.08*
bottom-block	*4.03*	*4.05*
Table mensure	*22.0*	

COLLECTION W.E. HILL & SONS





37 Viola

Gennaro Gagliano, Naples, 1762

This viola bears 2 printed labels. The first in traditional location on the back beneath the left "f" hole reads:

> Januarius Gaglianus
> Fecit Neap. 1762.

(62 handwritten in ink)

The second label, on the top-block in the form of a prayer of dedication states:

> In conceptione tua virgo Maria Immaculata fuisti
> Ora pro nobis Patrem, cujus Filium Jesum de Sp.s.preperitei

(In thy conception, Virgin Mary, didst thou remain immaculate. Pray for us to the Father, whose son thou hast born from the Holy Ghost)[1]

Gennaro Gagliano, (1690-1771)[2] would have been 72 years of age when this viola was made. With the neck angle set back, accompanied by high ribs and a more supportive longer bass-bar, an

1. According to Henley in the *Universal Dictionary of Violin and Bow Makers,* Amati Publishing, Ltd., 1960, Vol.II, p. 174, this label also appears in the work of Nicolo(I) Gagliano, (1675-1763), who was Gennaro's brother. I have seen several smaller printed labels which read: "Jesu e Maria", on top-blocks of instruments by Thomas Eberle, a student of Nicolo Gagliano. Two especially pure violas d' amore by Eberle from 1774 and 1783 bear this short label of dedication.
2. The dates of Gagliano's life and descriptive information concerning his instruments appears in Walter Hamma's *Meister Italienisher Geigenbaukunst,* Shuler, Stuttgart, 1964, p.243, along with photographs of representative examples.

instrument like this one sought to combine playability with focus and concentration of sound.

Like the Tononi cello, p.84, this viola shows a rather long extension of the table into the neck-foot above the top-block (see x-ray). The neck is set back 5.5mm from the table edge and is completely original in shape with a charming ornament on the sides of the pegbox at the top-nut. The bass-bar is original in this viola as are the original willow blocks and linings. A strip of parchment serves to reinforce the center joint of the two piece back. The original saddle of ebony, 32mm wide, is flush with the table edge and extends as an ornament on the surface of the ribs at the bottom-block. Locating pins on the table are found at the top and bottom-block areas, directly on the center joint.

The accompanying x-ray surprisingly revealed 2 nails in the top-block. The first is visible above the label of dedication. The second nail lies only 5mm lower and is completely covered by the label itself. The longer top nail appears slightly loose in the neck-foot, which is possibly why the second shorter nail lies so closely below.

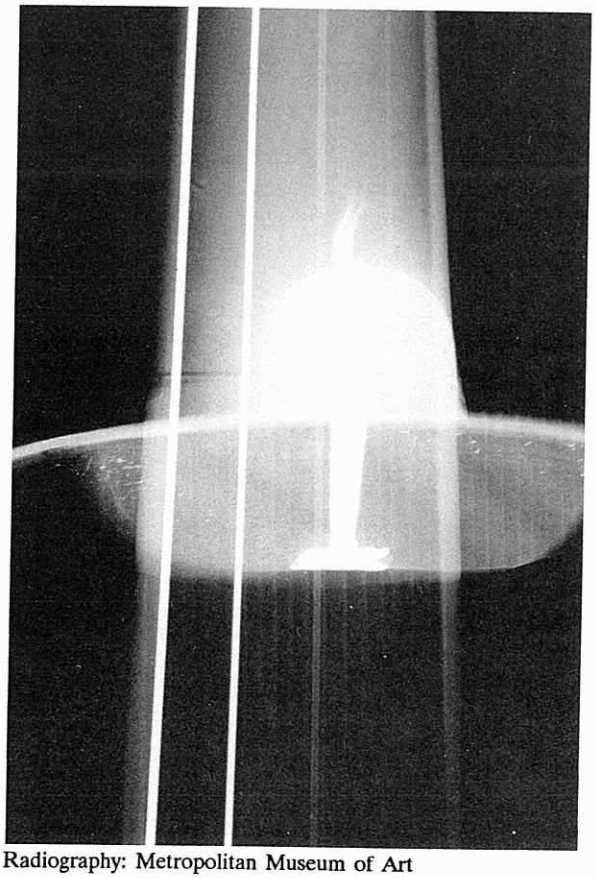
In this viola, the back, ribs and neck are all fashioned from a single plank of maple bearing an even medium to medium-fine figure. The fittings are of modern reproduction. The varnish is of semi-transparent orange-red color and fully extends beneath the fingerboard.

Tuning: c, g, d', a'

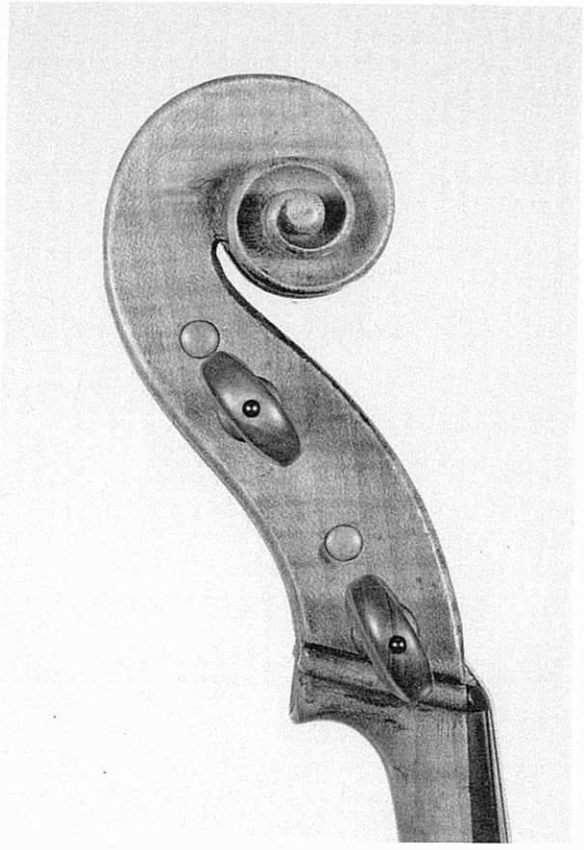
Body	*table*	*back*
length	*41.05*	*41.1*
upper bout	*19.4*	*19.4*
center bout	*13.8*	*13.75*
lower bout	*24.2*	*24.5*
Rib height	*treble*	*bass*
top-block	*3.86*	*3.84*
upper corner	*4.08*	*4.1*
lower corner	*4.11*	*4.12*
bottom-block	*4.2*	*4.19*
Neck		
length	*14.0**	
width: top-nut	*2.42**	
neck-foot	*3.47**	
thickness with reproduction fingerboard:		
top-nut end	*2.05**	
neck-foot end	*2.73**	
Fingerboard-Reproduction		
length	*27.9**	
width: top	*2.50**	
bottom	*4.93**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.2**	*0.4**
neck-foot	*0.85**	*1.0**
bottom	*0.3**	*0.3**
Appui	*0*	*0*
Appui to fingerboard edge	*0.85**	*1.0**
Table mensure	*23.2*	
Pitch	*3.31**	
Vibrating string length	*37.5**	

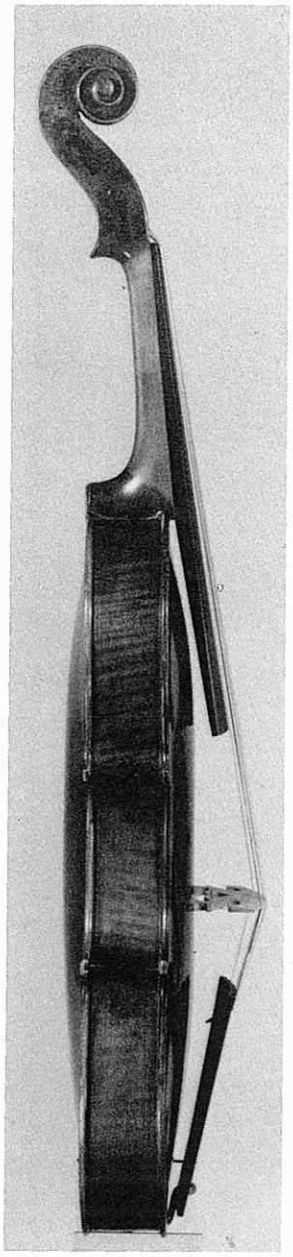
**current measurements with reproduction fingerboard*

COLLECTION SMITHSONIAN INSTITUTION No. 1979.0172.02



Radiography: Metropolitan Museum of Art





38 Small Viola

Goulding & Company, London, ca. 1800

Unfortunately, the maker of this instrument has not been identified. Goulding & Company was a well known firm of London music sellers, ca. 1785-1812, who also traded in musical instruments, as did Longman & Broderip, for example. In addition to importing bowed string instruments from the Continent, they also purchased instruments from many English makers including Lockey Hill (1756-1810).[1] This viola bears the printed label on the soundpost side of the back, stating:

GOULDING & CO.
20, SOHO SQUARE, London
No. 306

(306 is handwritten in pencil)

With a body length of 15 ¼", this example is representative of a small instrument playing a style of composition in the late 18th Century that treated the violin and viola with similar technical demands in solo writing. In the Sinfonia Concertante (K 364/32Od, 1779) Mozart wrote the viola part in scordatura, transposing the instrument up a half step

1. This information was received from David Hill in a telephone interview of February 21, 1989.

to increase brightness of sound, more like the quality and projection of the violin. Vanhal and Stamitz also employed this approach in their solo writing for the viola. Small instruments like this one provided improved facility in shifting to the higher positions for the new virtuoso violist, often a violinist called upon to play on both instruments[1]. The many 18th Century examples of 15 to 15½" instruments confirm the popularity of the small size, as do double cases for violin and small viola.

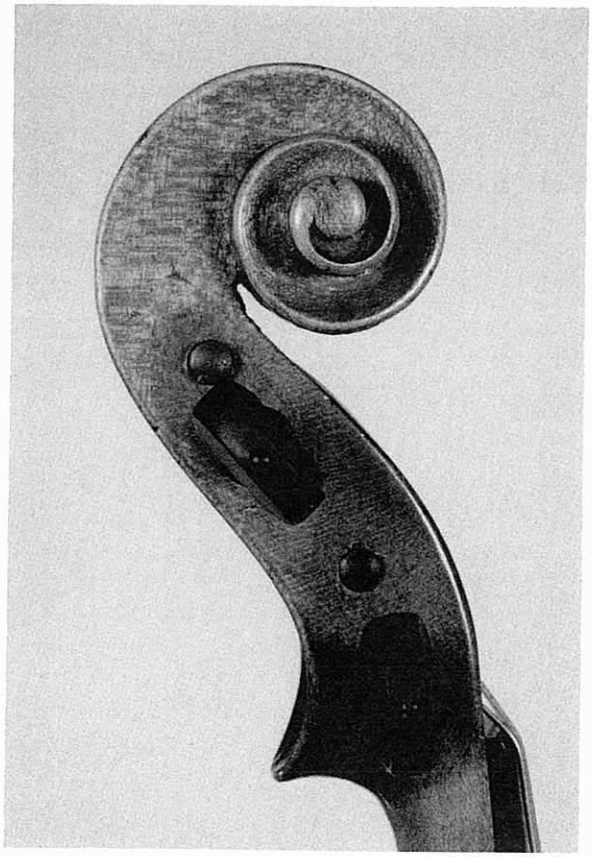
In this example the neck angle is set well back at 7.2mm to achieve greater musical tension. The table is of pine in 2 pieces accompanied by a 1 piece back with fine figure. The neck is glued onto the ribs without nail or securing mortise. Ink purfling and a rich orange-brown varnish complete the instrument. While the body and neck are completely original, the fingerboard, pegs and tailpiece are reproduction.

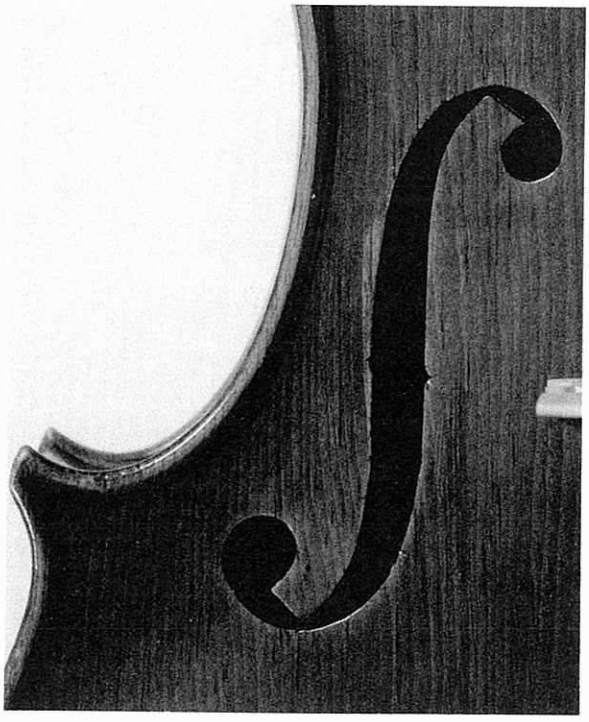
Tuning: c, g, d', a'

Body	*table*	*back*
length	*38.9*	*38.8*
upper bout	*18.4*	*18.0*
center bout	*12.6*	*12.3*
lower bout	*22.6*	*22.4*
Rib height	*treble*	*bass*
top-block	*3.64*	*3.58*
upper corner	*3.64*	*3.63*
lower corner	*3.63*	*3.64*
bottom-block	*3.72*	*3.74*
Neck		
length	*14.1**	
width: top-nut	*2.34**	
neck-foot	*3.35**	
thickness with reproduction fingerboard:		
top-nut end	*2.08**	
neck-foot end	*2.72**	
Fingerboard-Reproduction, ebony		
length	*26.15**	
width: top	*2.4**	
bottom	*4.36**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.25**	*0.3**
neck-foot	*0.7**	*0.8**
bottom	*0.2**	*0.25**
Appui	*0.25*	*0.2*
Appui to fingerboard edge	*0.95**	*1.0**
Table mensure	*21.2*	
Pitch	*3.2**	
Vibrating string length	*35.7**	

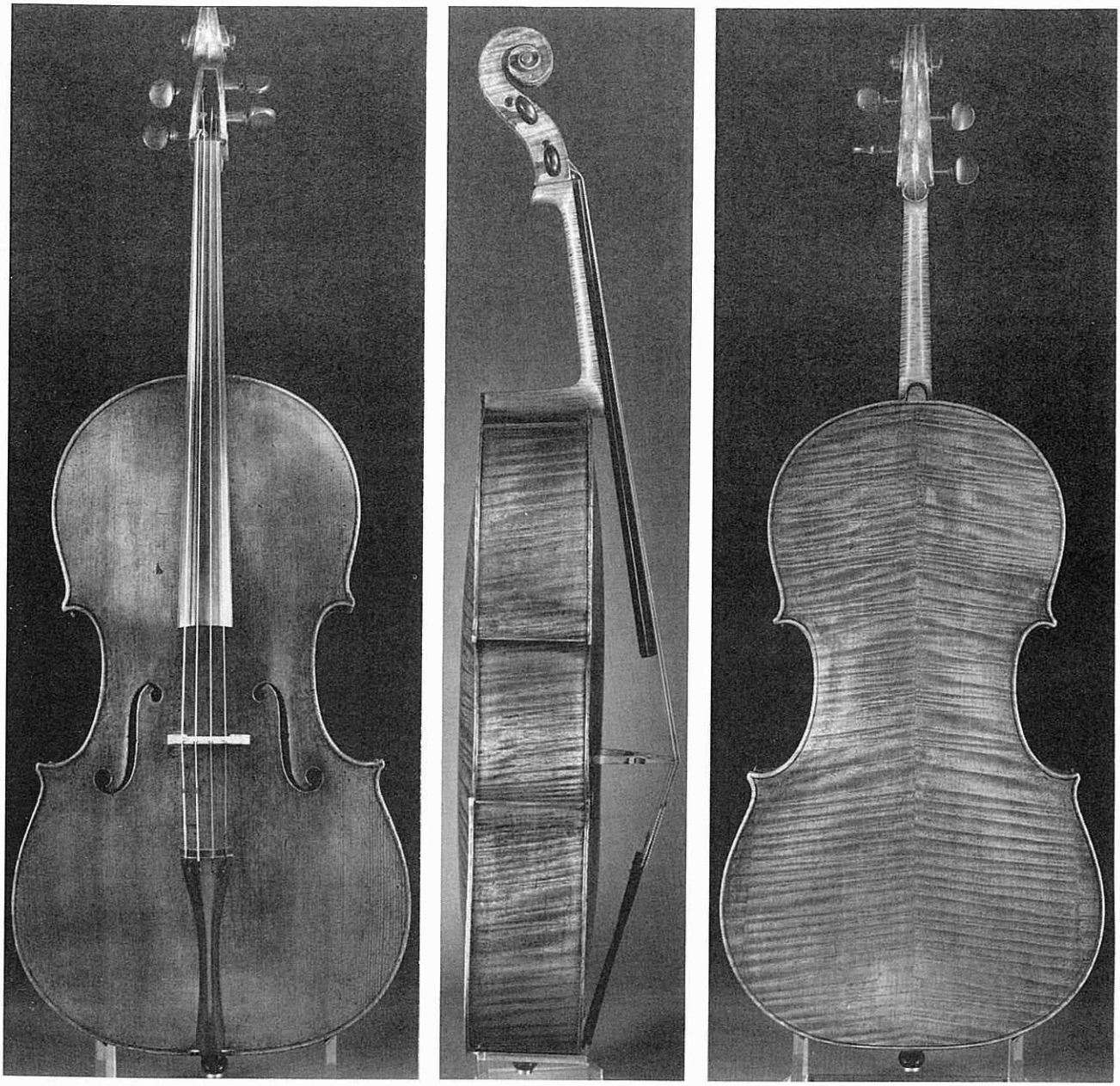
**current measurements with reproduction fingerboard*

COLLECTION STATE UNIVERSITY OF NEW YORK AT PURCHASE





1. Special thanks to Ann Woodward at the University of North Carolina for sharing her performance research and unpublished research on instruments of this dimension. See her article "Observations on the Status, Instruments, and Solo Repertoire of Violists in the Classical Period", *Journal of the Violin Society of America*, Vol.IX, No. 2, 1988, pp. 81-104, which explores the repertoire and use of small violas in depth.



39 Cello

Antonio Stradivari, Cremona, 1701
"The Servais"

Antonio Stradivari (1644-1737) was 57 years old when he built this instrument in the year 1701, along with 11 violins and 1 viola[1]. The original printed label[2] states:

> Antonius Stradiuarius Cremonensis
> Faciebat Anno 1701

(701 is handwritten in ink)

The "Servais" cello is built on the large 1696 "Aylesford" model, with a body length of 78.8 cm. It is the last of the known instruments by Stradivari in the Venetian model. Eight original templates for this cello are in the collection of the Civic Museum in Cremona. They are described by Sacconi[3], and include the paper neck model and a drawing for "f" hole location. In the instrument, compass layout marks for the "f" hole can still be seen. It is the purity of this instrument that makes it such an excellent study example, being completely uncut unlike many instruments of this size. The cello is

1. A catalog chronology of known Stradivari instruments can be found in the Herbert K. Goodkind reference work, *Violin Iconography of Antonio Stradivari*, published by the author, New York, 1972.
2. An example of this label style can be seen on the second page of labels, upper left illustration after page 216, in the Hill's *Antonio Stradivari*, 1902, reprinted by Dover, New York, 1963. A description of the "Servais" instrument and its history appear on pp.122-124.
3. See Simone F. Sacconi, *The "Secrets" of Stradivari*, Cremona, 1979. The templates are described on p. 216, and are illustrated on pp. 213 & 215. A drawing of the physical layout for the soundholes of the "Servais" cello showing existing details is found on p. 90.

currently in modern playing condition, and is included in the interpretive body of this exhibition for its unique features.

I believe the "Servais" represents an experiment on the part of Stradivari to study the relationships of sound, body volume, arching geometry and covered strings. In this cello he combined the highest ribs of any known Stradivari instrument with an extremely low arching. The result was a concentration and focus of sound in the lower register that is unique in depth and power. With this instrument (and possibly others that have not survived) he realized new musical potential with lower archings. His next cello does not appear until 6 years later in 1707. It was of reduced size and string length which developed into the famous "B" form of which the "Duport", of 1711 and the "Piatti", of 1720 are outstanding examples.

After completing the "Servais", Stradivari devoted his attention to the violin. Having already completed 10 years of experiments with larger violins, he returned to the 35.5 cm body size and refined the outline, style and arching. In general, these later instruments with lower archings have become the most successful, with a concentrated sound that has led to the "Golden Period" attribution for his work in the first quarter of the 18th Century.

A second interpretive element of this cello concerns its use by Adrien Francois Servais (1807-1866)[1], the celebrated cellist and teacher at the Brussels Conservatory. His powerful playing and virtuoso technique were combined with left hand vibrato that was a new performance innovation. Although artists today are amazed by the quality and depth of the "Servais" cello, many remark about difficulties in playing this very large instrument in tune. It was possibly the size problem that led Servais to develop an extended enpin which steadied the instrument in use and allowed greater left hand mobility on the fingerboard.

Tuning: C, G, d, a

Body	*table*	*back*
length	*79.2*	*78.9*
upper bout	*36.2*	*36.1*
center bout	*25.15*	*24.9*
lower bout	*46.25*	*46.3*
Rib height	*treble*	*bass*
top-block	*12.5*	*12.46*
upper corner	*12.8*	*12.75*
lower corner	*12.7*	*12.8*
bottom-block	*12.7*	*12.75*
Neck-Modern		
length	*27.9*	
Table mensure	*42.8*	
Vibrating string length	*72.0*	

COLLECTION SMITHSONIAN INSTITUTION
NO. 1981.0289.01

Photos courtesy of the Smithsonian Institution

1. Much further information and documentation concerning the 1701 "Servais" Stradivari and its celebrated owner are available from the Division of Musical History in the Museum of American History of the Smithsonian Institution, Washington, DC.

40 Cello

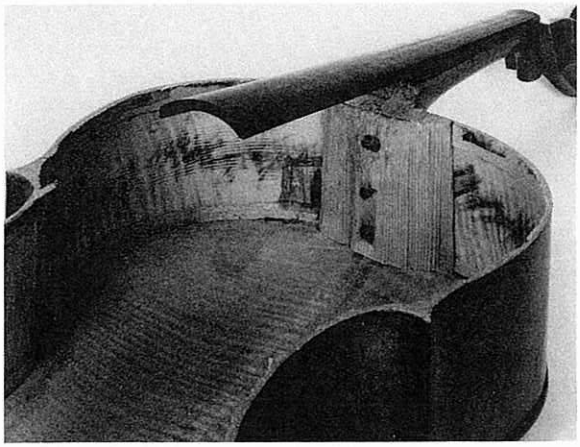
Joannes Baptista Tononi, Bologna, 1740

This is the only dated 18th Century Italian cello known to me that retains the original neck unaltered. It is particularly interesting for its small size and "tenor" character of sound. Of this maker, no biographical information has come to light, but the quality and style of workmanship and varnish would indicate a link to other makers of the Tononi family working in Bologna. The printed label, with its full printed date is reproduced below:

Obvious twisting in the neck and pegbox was caused by the maker's difficulty in setting the neck height, length, and direction. Because the neck was leaning toward the bass side of the body, a wedge of maple was placed between the rib and treble side of the neck-foot in an attempt to straighten the neck direction. Attachment of the neck was accomplished with 3 nails as is shown in the accompanying x-ray plate. The interior work, with beech linings on the back, spruce blocks, and spruce top linings is rough in execution, with frequent burn marks on ribs and linings from the bending process. The ribs are finished inside with a toothed plane and the blocks are only roughly shaped with a gouge. The table and back bear locating pins of maple to the right of the center joint at the top-block and to the left at the bottom-block area. The original pegs of an unidentified soft wood are stained black and were

fitted with a rasp.[1] The original neck is tilted back 17mm from the table edge with an appui of 9mm on the bass side of the neck. It is not possible to see evidence of Tononi's neck-setting goals regarding tilt or direction relative to the bridge as the original neck shows so many problems of location.

This cello does not have its original fingerboard and bass-bar. There is a reproduction fingerboard of maple with ebony veneer, a stained maple endpin, and a reproduction tailpiece. Copies of the pegs were made to conserve the originals. The varnish of semi-transparent orange-brown color is largely untouched and continues completely beneath the fingerboard.

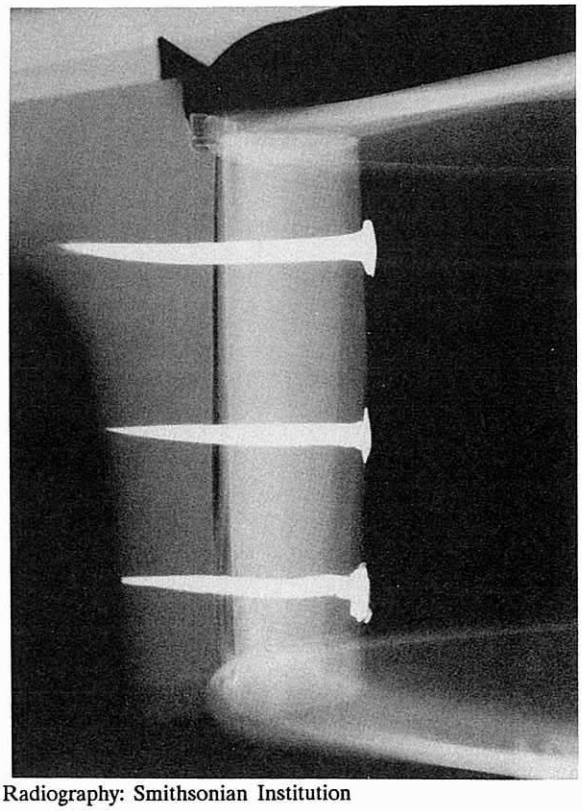


Tuning: C, G, d, a

Body	*table*	*back*
length	71.4	72.0
upper bout	32.8	32.8
center bout	22.5	22.35
lower bout	40.2	40.7
Rib height	*treble*	*bass*
top-block	10.3	10.25
upper corner	10.05	10.5
lower corner	10.25	10.4
bottom-block	10.2	10.25
Neck		
length	25.6	
width: top-nut	2.76	
neck-foot	4.2	
thickness with reproduction fingerboard:		
top-nut end	2.87*	
neck-foot end	4.47*	
Fingerboard-Reproduction		
length	48.6*	
width: top	2.96*	
bottom	6.06*	
edge thickness with veneer	*treble*	*bass*
top-nut	0.3*	0.5*
neck-foot	1.3*	1.4*
bottom	0.4*	0.4*
Appui	0.95	0.9
Appui to fingerboard edge	2.25*	2.3*
Table mensure	38.6	
Pitch	7.6*	
Vibrating string length	65.6*	

**current measurements with reproduction fingerboard*

COLLECTION SMITHSONIAN INSTITUTION, No. 1979.0172.03



Radiography: Smithsonian Institution

1. In his memoirs of 1804-1816 on the construction of stringed instruments and their adjustments, Count Cozio di Salabue describes pegs "...of earlier times made...of pear or other wood softer than maple so as not to crack the wood of the holes..." and mentions reddish wood zanzuino as the best wood for pegs, noting the Mantegazza brothers using ebony. See the English translation by Andrew Dipper and David Woodrow, *Technical Studies in the Arts of Musical Instrument Making: Count Ignazio Alessandro Cozio di Salabue*, 1987, published by the author, pp.24-25.

41 Cello

John Preston, London, 1785

This English cello is particularly interesting in our review of neck attachment systems. Like the Corsby violin of 1852 (p. 70), this instrument which was made 67 years earlier, has the neck set through the ribs at the top-block. In this example, the neck is joined without nail reinforcement, but in all other respects is identical to the illustration, fig.8, p.8. The body of the cello was built on an inside mold, and completed entirely with the table glued in place. The neck-foot, planed flat, was then set into the body through the ribs and table edge. Except for the shallow depth of insertion, this neck was fitted in the same manner as is employed today, illustrated in fig.1, page 5. Not only is practical working knowledge of a mortised neck important for making, it provides a system for adjusting or replacing a neck on an older instrument without removing the table. I believe that the work application of the mortise concept was critical for the development of neck-grafting methods. Unfortunately, there is no accurate information concerning when or where the practice of grafting began. That knowledge would be of great help in the study of 18th and 19th Century changes to instruments during the first process of classical conversion.

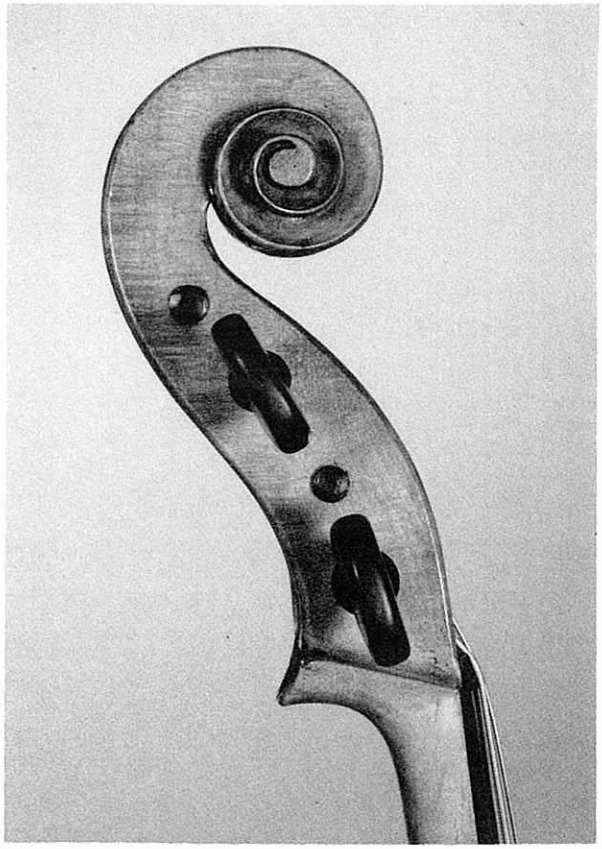
John Preston, working in London, was established in Long Acre in 1774, and eventually

located at No. 97 Strand after 1776. The original printed label from this address simply states[1]:

Preston MAKER
N° 97 Strand 1785
LONDON

(85 handwritten in ink)

The body of this cello is intact except the bass-bar which is a modern reproduction. Interior blocks are of spruce, with nicely finished features. The linings beveled at the top, are of spruce throughout, except for the center bout linings on the back which are of maple with fine even toothing plane marks. The ribs are also finished inside with the same toothing plane. The body bears ink representation of purfling on the table and back, beneath the transparent yellow-brown varnish.



Two separate repairs attempted to consolidate the weak neck attachment. The first repair added an ebony dowel through the button into the heel of the neck-foot to prevent forward movement of the neck caused by string tension. Later, when that addition became loose, 2 wood screws were placed through the neck-foot into the top-block. The screw heads were recessed into the neck-foot, and the holes then filled with maple dowels. Probably during that second repair the neck became crooked and was trimmed on the bass side. The current reproduction fingerboard is asymmetrically placed on the neck to return to the center without moving or altering the original neck any further. Pegs, tailpiece, saddle, and endpin are all reproduction fittings.

Tuning: C, G, d, a

Body	*table*	*back*
length	*75.5*	*75.6*
upper bout	*35.4*	*35.0*
center bout	*25.2*	*24.6*
lower bout	*44.0*	*43.4*
Rib height	*treble*	*bass*
top-block	*11.73*	*11.65*
upper corner	*11.7*	*11.32*
lower corner	*11.63*	*11.32*
bottom-block	*11.42*	*11.34*
Neck		
length	*26.6*	
width: top-nut	*2.83*	
neck-foot	*4.12*	
thickness with fingerboard:		
top-nut end	*2.6*	
neck-foot end	*3.25*	
Fingerboard-Reproduction		
length	*51.5**	
width: top	*3.19**	
bottom	*6.3**	
edge thickness with veneer	*treble*	*bass*
top-nut	*0.35**	*0.4**
neck-foot	*1.35**	*1.0**
bottom	*0.45**	*0.5**
Appui	*1.2*	*1.4*
Appui to fingerboard edge	*2.55**	*2.4**
Table mensure	*40.9*	
Pitch	*7.65**	
Vibrating string length	*68.3**	

**current measurements with reproduction fingerboard*

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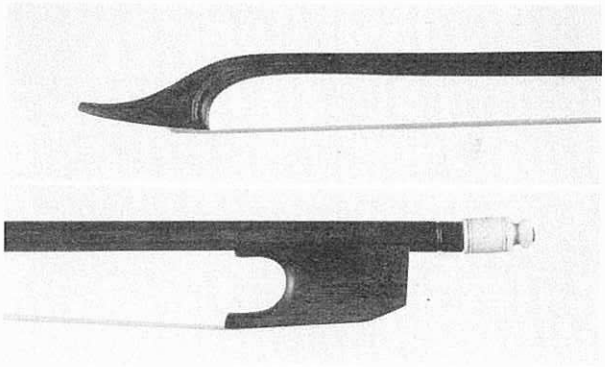
1. See Vannes *Dictionare Universel des Luthiers,* Vol.I, p. 288.

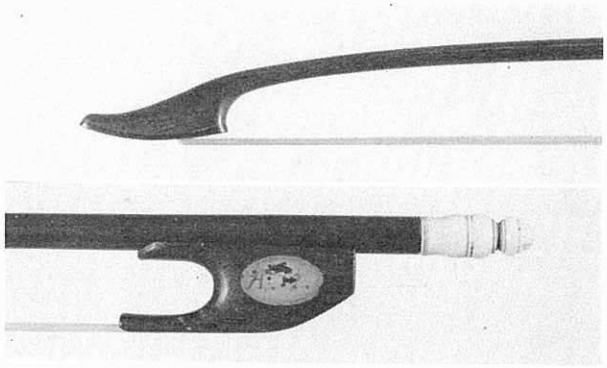
The documentation of bow development lies outside the scope of this exhibition, in part because so little is known concerning bows and their makers before the 18th Century. It is quite possible that early bows were simply regarded as replaceable accessories, and were not made by specialized bow makers on a refined scale. The bow is however, central in the development of string instruments, functioning in many ways as the "generator" of sound. It is unfortunate that only a few early bows survive, in numbers too small for accurate conclusions on design, style, and nationality. With the general acceptance of covered strings by the end of the 17th Century, the new focused sound was probably the catalyst that changed and evolved bow design. The outcurved stick depicted in iconography begins to change in the 18th Century into a concave shape with true "camber". Early forms of frog attachment also give way to the threaded screw & eyelet allowing accurate fine adjustment of hair tension. During the 18th Century in France, craftsmen in Paris and Mirecourt begin to appear as named bow makers and begin signing their work with brand stamps. In this exhibition, 17 examples of 18th Century and early 19th Century bows are used to illustrate a few of the many design changes and materials that preceded the modern style refined by the Tourte family. Measurements are included as reference to the variations of proportion and length.



42 Bass Viol Bow
Possibly Italian, 18th Century

This nicely fluted snakewood stick ends in an elongated pike head. An interesting ornament on the balance point separates the fluted area from the plain octagonal shank. The ironwood open face frog is accompanied by an ornamental bone button.
Weight: 69.3 grams / Total bow length: 75.3
Stick length: 73.25 / Playing hair length: 62.5

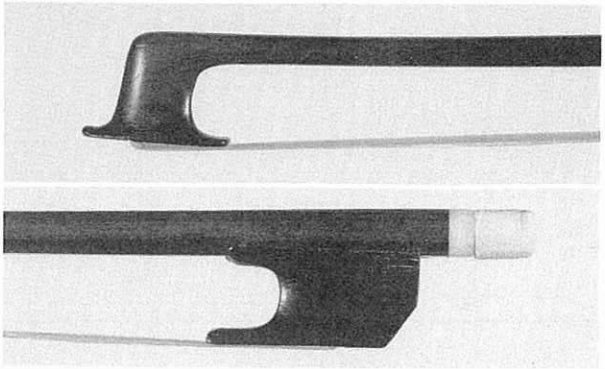
COLLECTION WILLIAM L. MONICAL



43 Bass Viol Bow
French, 18th Century

The round ironwood stick of heavy graduation ends in a modified pike head with an ebony face. An interesting open face ironwood frog is channeled for the hair to continue around the heel for attachment inside under the stick. The bow has a beautifully turned ornamental bone button.
Weight: 91 grams / Total bow length: 74.9
Stick length: 71.4 / Playing hair length: 58.2

COLLECTION JACQUES FRANCAIS



44 Kit Bow
French, late 18th Century

This bow accompanies the Cuypers kit, p.42. The style of the head is similar to that of Nicolas Duchaine who is listed as working in Mirecourt from 1770-1787[1], and one of the first named and signed French bow makers. The round rosewood (?) stick is accompanied by an ebony open face frog and ivory button.
Weight: 19.5 grams / Total bow length: 34.3
Stick length: 33.3 / Playing hair length: 26.7

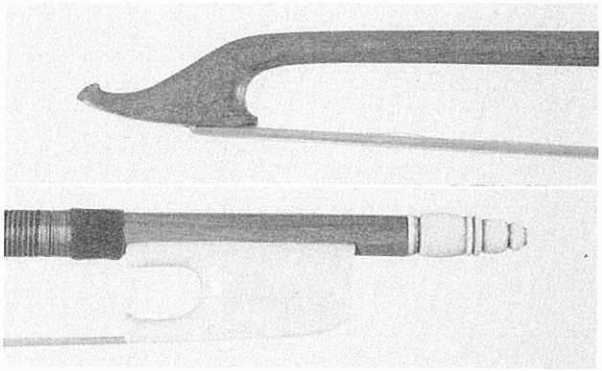
COLLECTION BEREND MÖLLER

1. An excellent example of Duchaine, with accompanying biography can be found in the reference work by Etienne Vatelot, *Les Archets Français,* Sernor, Paris, 1985, Vol.I, p. 288, and accompanying plate.

45 Kit bow
French, late 18th Century

This octagonal pernambuco stick terminates in a modified pike head with slanting tip. The open face ivory frog is accompanied by an ornamental ivory button.
Weight: 20.7 grams / Total bow length: 39.4
Stick length: 37.4 / Playing hair length: 30.0

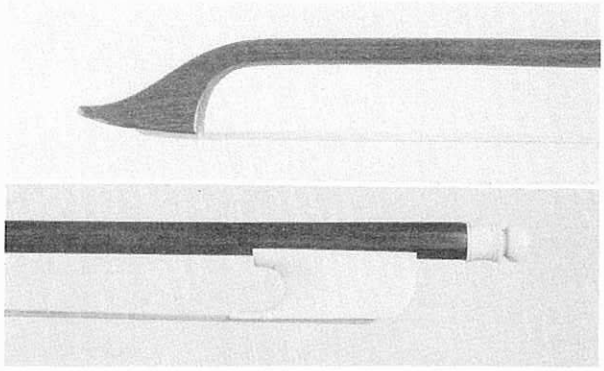
COLLECTION JACQUES FRANCAIS



46 Violin Bow
English, ca. 1780

The bow has a round pernambuco stick which ends in a modified pike head with high throat. An open face ivory frog is accompanied by an ornamental turned button of bone.
Weight: 45.6 grams / Total bow length: 70.2
Stick length: 68.6 / Playing hair length: 60.1

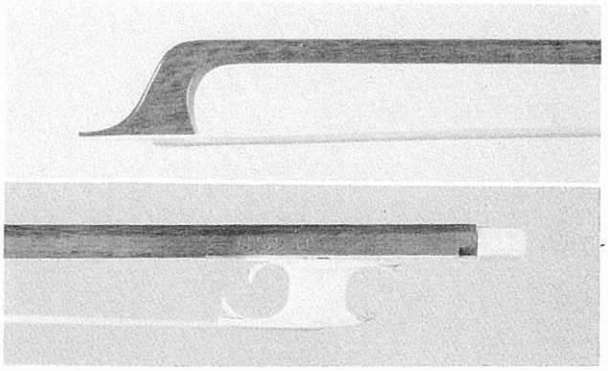
COLLECTION WILLIAM L. MONICAL



47 Violin Bow
Meauchand, Mirecourt (?) ca. 1750

This rare early stamped French bow bears the brand stamp: MEAUCHAND on the shank. It is not clear if this is a spelling variation of Jacques Marchand, who is listed in the Mirecourt bow maker's register until 1789.[1] The round snakewood stick is terminated in a delicate modified pike head with high throat and ivory face. The ornamental ivory open face frog fits to an ivory plate on the underside of the stick with an internal guide pin. The button is probably not original to this bow.
Weight: 48.9 grams / Total bow length: 72.1
Stick length: 70.8 / Playing hair length: 61.9

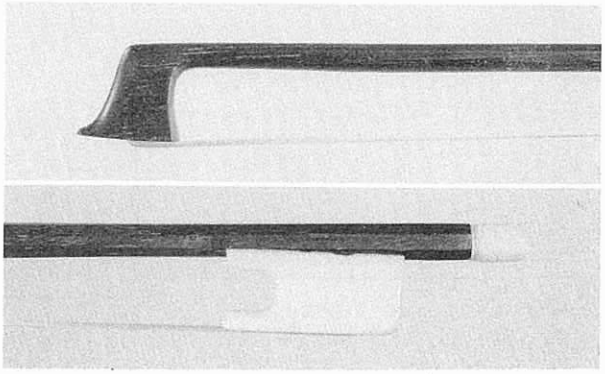
COLLECTION JACQUES FRANCAIS



48 Violin Bow
English, ca. 1800

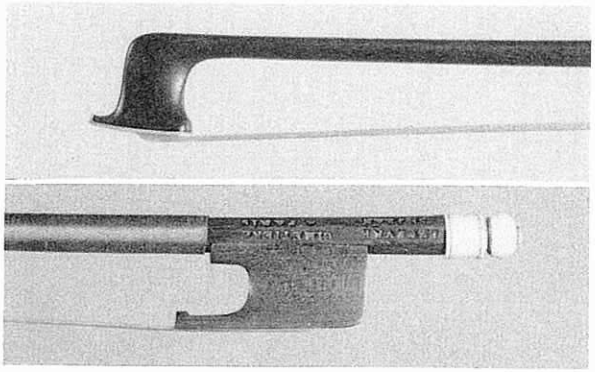
The round dark wood stick (material unidentified) is heavily graduated, ending in a transitional head. The open face ivory frog is accompanied by an ivory button.
Weight: 53.8 grams / Total bow length: 73.2
Stick length: 71.9 / Playing hair length: 63.4

COLLECTION WILLIAM L. MONICAL



1. See entry on Marchand in the Vatelot, *Les Archets Français,* Vol.II, p. 612.

49 Violin Bow
T.N.G. Lefèvre, Paris, ca. 1780



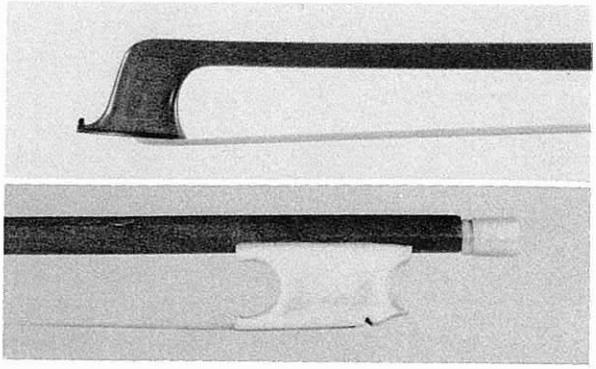
Brand stamp on shank states: LEFEVRE CIMETIERE S^{t}. JEAN A PARIS and on the inverse side: LEFEVRE

Toussaint Nicolas Germain Lefèvre lived in the Rue du Capitaine - Saint - Jean, Paris and is listed in the commercial register between 1763 and 1789.[1] The round pernambuco stick ends in a modified "hatchet" head with a reproduction ivory face. The open face pernambuco frog is accompanied by an ornamental ivory button.

Weight: 52.2 grams / Total bow length: 71.9
Stick length: 70.1 / Playing hair length: 61.0

COLLECTION JACQUES FRANCAIS

50 Violin Bow
Dodd Family, London, ca. 1800

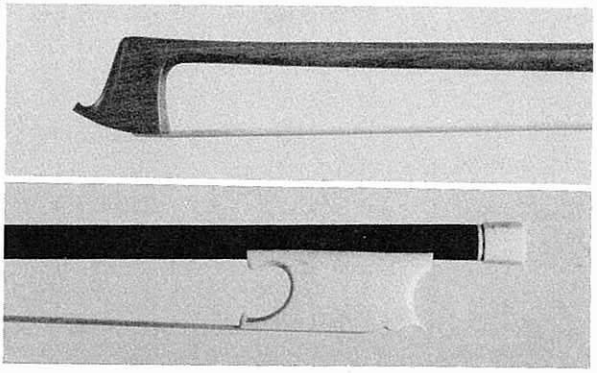


Brand stamp on the shank and inverse side of ivory frog: DODD. The round pernambuco stick is terminated in a transitional head with a reproduction ebony face. An open face ivory frog, probably not original to this stick is complimented by a period bone button, probably also from another source.

Weight: 51.4 grams / Total bow length: 72.3
Stick length: 70.9 / Playing hair length: 62.9

COLLECTION WILLIAM L. MONICAL

51 Violin Bow
John Dodd, London, ca. 1810

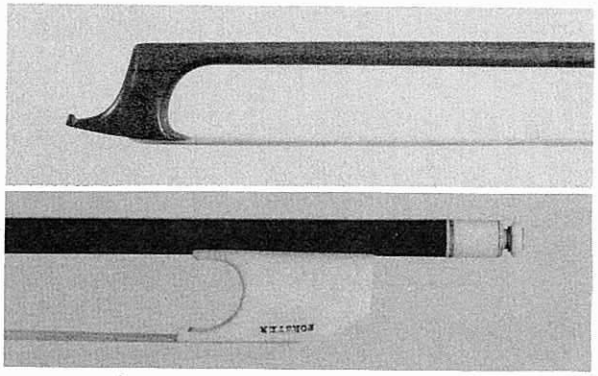


Brand stamp: DODD on the shank and inverse side of ivory frog. John Dodd (1752-1839) worked in London at Kew Gardens.[2] This example is in a very pure state of preservation. The round stick is terminated in a transitional head with "T" mortise. The ornamental ivory frog is accompanied by the original ivory button.

Weight: 54.2 grams / Total bow length: 72.6
Stick length: 71.4 / Playing hair length: 63.3

COLLECTION WILLIAM L. MONICAL

52 Violin Bow
Forster, London, ca. 1800



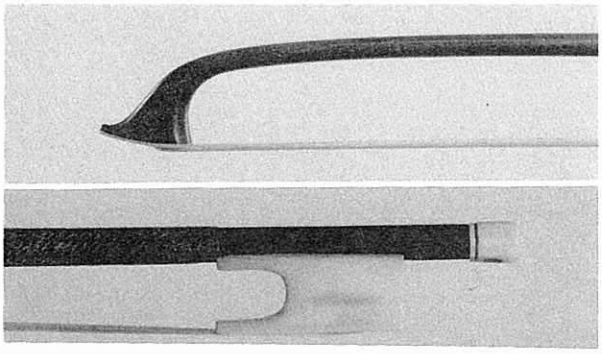
Branded: FORSTER inverted in the ivory frog on both faces, although it could be the work of a Dodd family member. The bow is finely finished, and retains its "T" mortise intact in the head. The round pernambuco stick ends in a modified transitional sloping head with very high throat. The original slender ivory open face frog is accompanied by an ornamental ivory button.

Weight: 51.4 grams / Total bow length: 72.3
Stick length: 70.4 / Playing hair length: 61.0

COLLECTION WILLIAM L. MONICAL

1. See Vatelot's biographical text and photos of a Lefèvre bow in *Les Archets Français,* Vol.II, p.540.
2. Information concerning the Dodd family can be found in the Joseph Roda, *Bows for Musical Instruments,* 1959, pp.146-153.

53 Violin Bow
John Dodd, London, ca. 1800

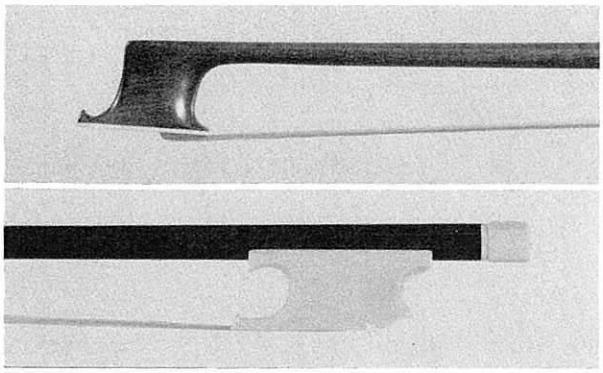


Branded: DODD on the shank and inverted brand on the ivory frog. An interesting transitional example with reverse camber on the upper quarter of the round stick ending in a delicate modified pike head with original ivory face. The plain, square cut ivory frog, cut on the slab, with open face is complimented by an ivory button.

Weight: 48.3 grams / Total bow length: 72.1
Stick length: 70.9 / Playing hair length

COLLECTION WILLIAM L. MONICAL

54 Viola Bow
Dodd Family, London ca. 1800

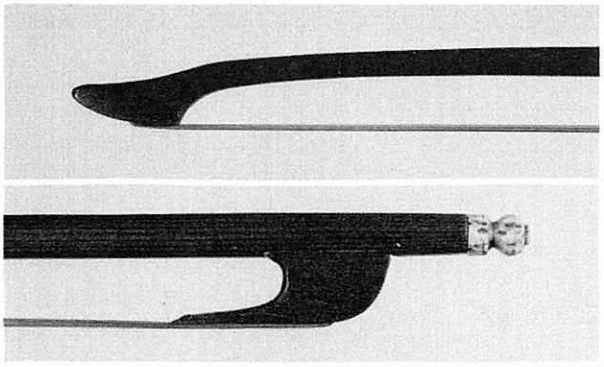


Branded: DODD on the shank. The frog and button are reproduction. The dark chocolate pernambuco stick ends in an untouched hatchet head with an original ivory face and "T" mortise.

Weight: 54.2 grams / Total bow length: 72.8
Stick length: 71.5 / Playing hair length with reproduction frog: 62.5

COLLECTION WILLIAM L. MONICAL

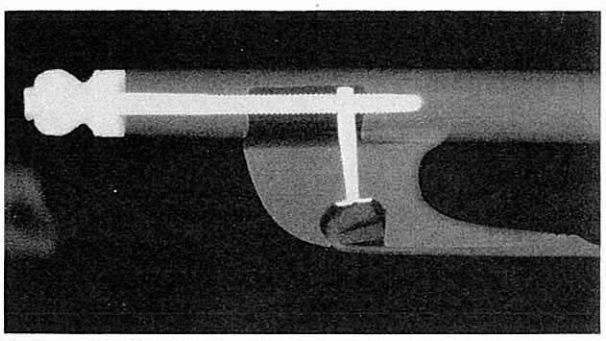
55 Cello Bow
French, Early 18th Century



This bow of ironwood (?) is unusually short and massive in graduation, ending in a blunt pike head. The smooth round stick bears ornamental "reeding" 1.4 cm above the balance point, continuing through the shank. An elongated ironwood (?) open face frog bears a fused 2 piece eyelet that is not threaded into the frog, but simply bent in the fashion of a paper fastener (see x-ray). The original turned button is of bone.

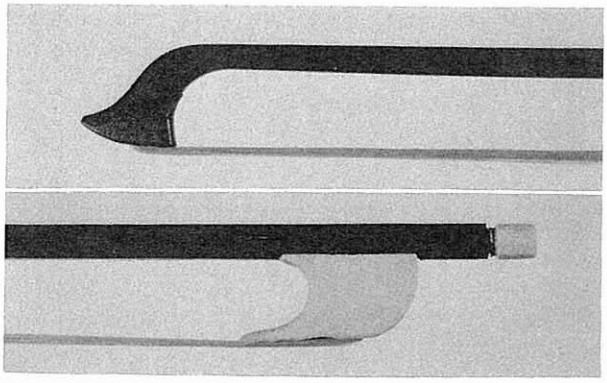
Weight: 79.9 grams / Total bow length: 74.4
Stick length: 73.1 / Playing hair length: 62.4

COLLECTION WILLIAM L. MONICAL



Radiography: Smithsonian Institution

56 Cello Bow
English, 18th Century

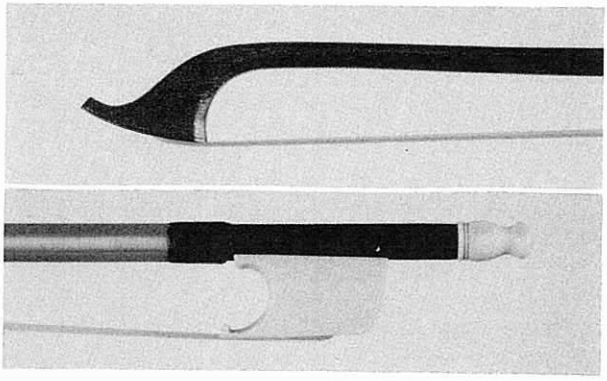


This bow of open pored "horse flesh" wood, is included in the exhibition to show an early repair. So many early bows must have been discarded when broken, but in this example an attempt was made to reinforce the head and glue cracks on the stick. This example with round stick terminates in a modified pike head that has been repaired with a bent metal plate behind the throat. The open face ivory frog is possibly original, but the bone button is a period replacement.

Weight: 72.4 grams / Total bow length: 74.4
Stick length: 73.1 / Playing hair length: 62.4

COLLECTION WILLIAM L. MONICAL

57 Cello Bow
English, ca. 1780

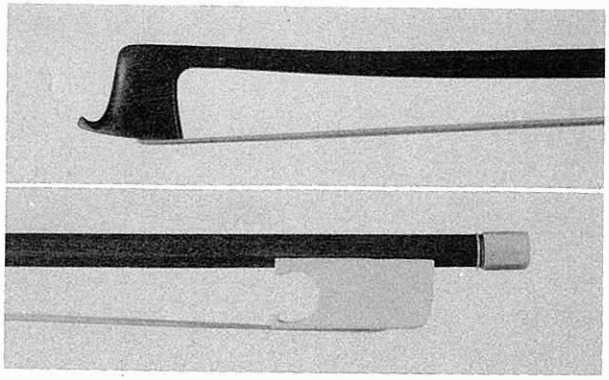


In this bow, like the previous example, the stick is of what is sometimes referred to as "horse flesh" wood, indicating very large open pores of rough character. The wood is relatively light in weight and has not been identified formally. Bows of this wood usually are thick in the stick to achieve strength and mass. The round stick ends in a transitional pike head with a reproduction ebony face. The flat sided open face ivory frog is accompanied by an ivory button.

Weight: 73.7 grams / Total bow length: 71.8
Stick length: 69.6 / Playing hair length: 59.0

ESTATE OF FORTUNATO ARICO

58 Cello Bow
English, ca. 1820



This example is in fine condition, entirely intact. A round pernambuco stick is terminated in a nicely formed head with the original "T" mortise. A full square open face ivory frog is accompanied by an ivory button.

Weight: 75.6 grams / Total bow length: 70.1
Stick length: 68.5 / Playing hair length: 59.1

COLLECTION WILLIAM L. MONICAL

59 Head from 6 String Bass Viol
Barak Norman, London, ca. 1700

Carved heads are often found on viols by Barak Norman, either in male or female model. There is however, no evidence that he carved the heads himself. This example is less developed in style than the 1718 head, p. 18, with narrow collars and slender leaf plate in the back of the head. Notice that this pegbox , like the 1718 example, is purfled on the back, side and front walls.[1] It is unfortunate that the head was heavily consumed by wood worm, and that the neck and body were lost.

COLLECTION WILLIAM L. MONICAL

60 Violin Neck With Original Nail
Giovanni Battista Ceruti, Cremona, 1805

This maple neck from the Bisiach collection, has an attribution handwritten in pencil beneath the fingerboard referencing G.B. Ceruti (Cremona, 1755-1817). Most interesting is the evidence of pilot holes through the ribs (and block) that were drilled in preparation for the neck attachment with 3 nails (see description, fig.2, p.5). The fingerboard of willow is veneered with ebony first on the top surface and afterwards on the sides. The veneer thickness of 1.6mm is applied over a surface rounder than modern standard.
The neck-foot indicates a tilt of the fingerboard, 1.1mm lower on the treble side.

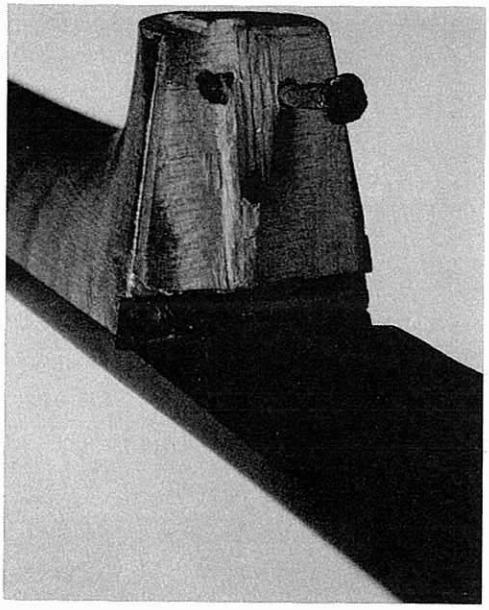
Neck

length	*11.95*
width: top-nut	*2.53*
neck-foot	*3.22*
thickness with fingerboard:	
top-nut end	*2.0*
neck-foot end	*2.34*

Fingerboard

length	*25.25*
width: top	*2.55*
bottom	*4.68*

edge thickness with veneer	*treble*	*bass*
top-nut	*0.25*	*0.30*
neck-foot	*0.45*	*0.46*
bottom	*0.32*	*0.30*

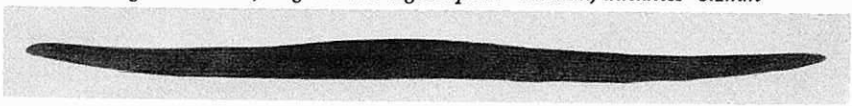


COLLECTION SHRINE TO MUSIC MUSEUM

61 Violin Bass-Bar
Johann Georg Shönfelder, Markneukirchen, ca. 1795

It is interesting to note that this bass-bar has grain cut on the quarter, usually seen in earlier 17th Century construction. The bar is also unusually high and thin. It illustrates the extreme variety of proportions found in period bars. It is much heavier than the ca. 1700 examples from Italy.

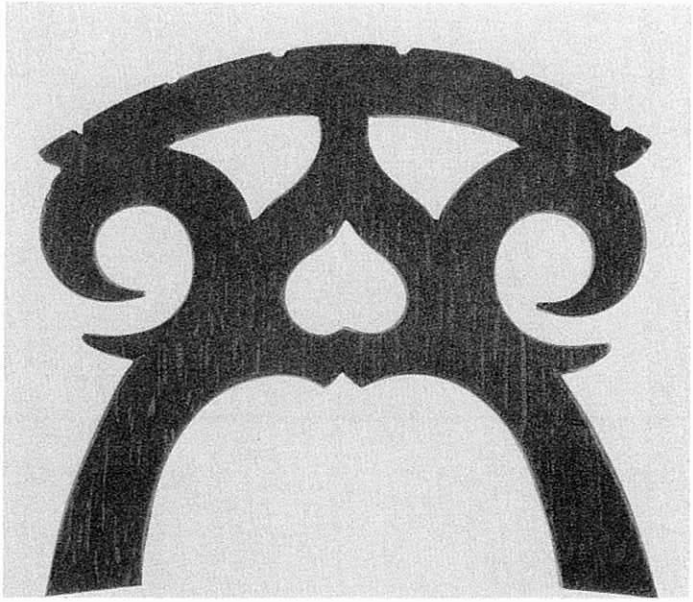
Length - 28.55cm, height at the highest point- 14.6mm, thickness- 5.1mm



COLLECTION WILLIAM L. MONICAL

1. A similar carved head appears on a 1713 example currently in California. A second variation of this head can be found illustrated in Adolf König's *Die Viola da Gamba,* Verlag Erwin Bochinsky, Frankfurt, 1985, p. 90-92, Ill.37, but no date is given for the instrument.

62 Bridge for 6 String Bass Viol
English, ca. 1680

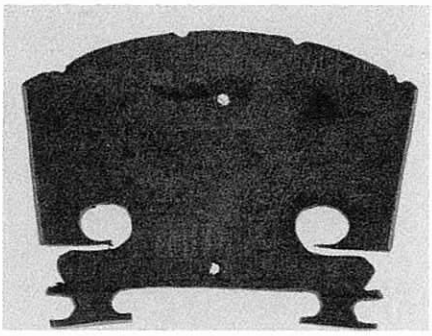


In Christopher Simpson's *"The Division Viol"*[1], 1667, we find a bridge illustration, similar in concept and design to the example shown here. Like the Simpson bridge, this one has feet without extended sides to cushion string pressure on the table. There is a tendency for square feet to cut into the spruce table, somewhat like a punch, and it is probable that extended sides or "wings" were in common practice by 1700. The bridge is also relatively thin, with a foot thickness of 8.5 mm, combined with a breast of 5.5 mm. The bridge is of moderately figured maple, cut quite accurately on the quarter.

String spacing: 75mm; bridge foot spacing: 85mm.

COLLECTION WILLIAM L. MONICAL

63 Bridge for Violin (transitional)
Origin Unknown, ca 1790(?)



From the Bisiach Collection, this bridge is typically thin and very high, indicating an angle of neck (pitch) at least 29 mm in height. The bridge is of plain maple with only minimal flexibility.

String spacing: 40 mm; foot spacing: 39 mm; foot thickness: 4.1 mm.

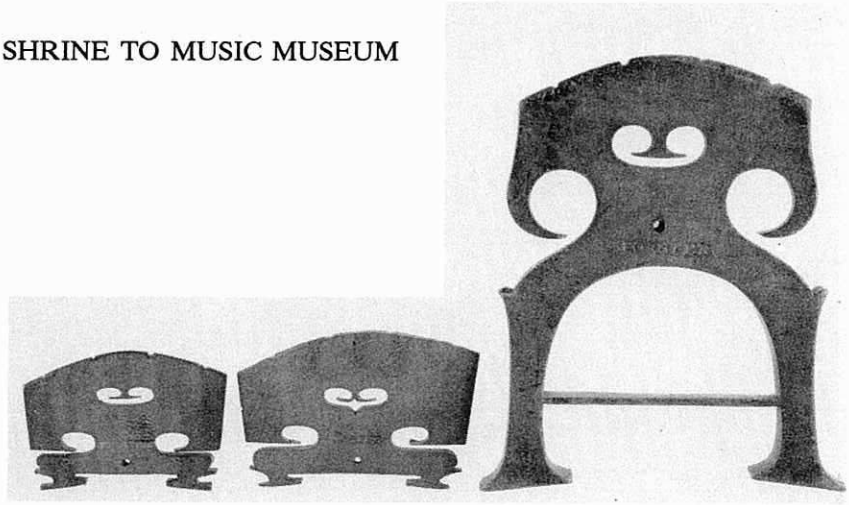
COLLECTION SHRINE TO MUSIC MUSEUM

64 Bridges for Violin Family (transitional)
William Forster Jr.(?), London, ca. 1820

Certainly from Forster's workshops, it is interesting to have such a grouping of bridges in the same style, although dating is very difficult.The bridges are all thin, and clearly anticipate "Aubert" models in common use today. The bridges are stamped: FORSTER, with the cello example in a larger type face.

Violin	*string spacing: 36mm*	*foot spacing: 38mm*	*foot thickness: 3.7mm*
Viola	*string spacing: 41mm*	*foot spacing: 43mm*	*foot thickness: 4.5mm*
Cello	*string spacing: 47.5mm*	*foot spacing: 80.5mm*	*foot thickness: l0.9mm*

COLLECTION SHRINE TO MUSIC MUSEUM

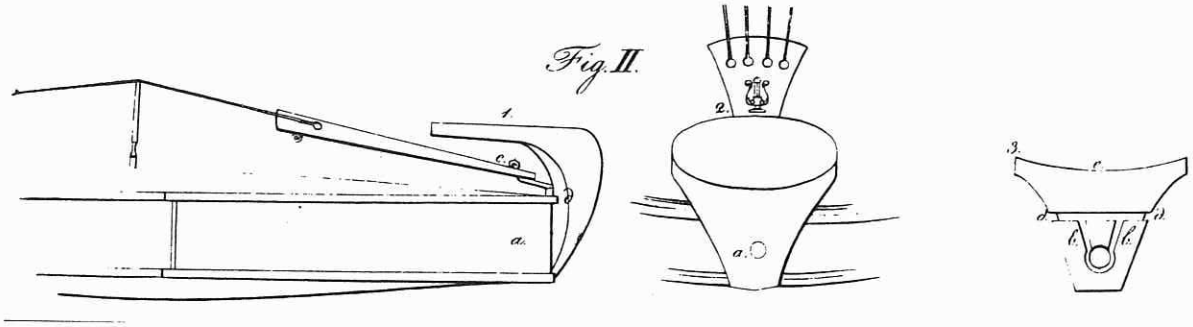


1. See the tutor on playing divisions, where bridge and fingerboard design are discussed, indicating that "viol-makers may take notice hereof" in Christopher Simpson's *"The Division Viol"* Second Edition, 1667, pp. 1-3, Facsimile Lithograph, Curwen, London, 1955.

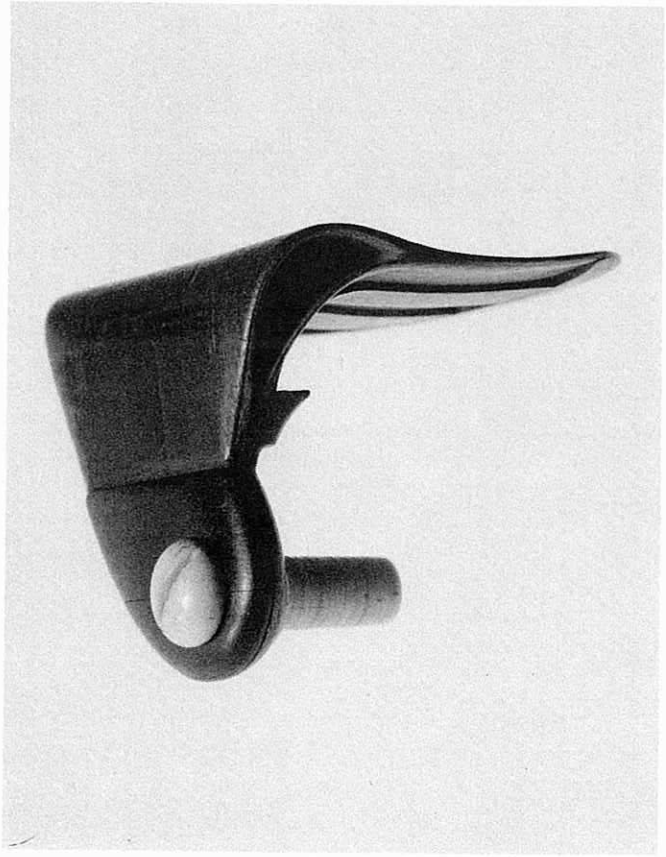
65 Chin Rest

Lundfred Lund, Copenhagen, ca. 1840

The chin rest emerged in the first quarter of the 19th Century as an aid for musicians to hold the violin or viola while changing or "shifting" left hand position. Louis Spohr, in his *Violinschule* of 1832, credits himself with the invention of the "violin holder" (Geigenhalter) and states that he has had more than ten years of experience with this device described and illustrated below.[1]



"The fiddleholder is made of ebony, of the form represented on Plate A., Fig. II., 1, 2, 3, (seen here from different sides,) and fastened with a peg (a) in the opening, which previously was occupied by the tail-pin. The catgut, to which the tail-pin is fastened, runs in a farlow (b) which is made for it. The knot (c) is tied over the tail-piece, but so as not to touch the fiddleholder. For the little nut on which the strings rest. as well as for the edges of the Violin a farlow (d) is also made, to enable the fiddleholder to be closely attached to the sides. The surface is hollowed out in the middle, (e,) which gives the chin a firmer and more comfortable hold. The peg (a) must fit the opening very exactly, that the force of the draught of the string may not push it out."



This is the earliest chin rest known to me, made by Lundfred Lund, an instrument maker who lived in Copenhagen, ca. 1800-1875. He was employed by Andreas Marschall, a piano maker in Copenhagen, and exhibited his "flexible" chin rest in 1840. In 1844 and 1852 Lund also exhibited guitars and a piano of his own manufacture.[2]

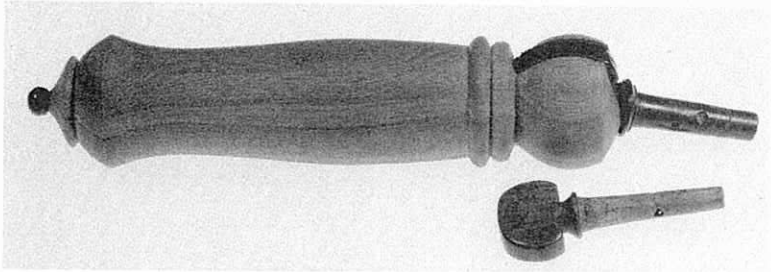
The Lund chin rest is made of plywood in 4 laminates of birch with an ebony exterior plate. A hollow bone endpin is threaded to accept a bone screw which holds the chin rest tightly against the saddle of a violin. The device is very light, weighing only 17 grams, and is painted black on the exterior surface. Three interior "ribs" reinforce the assembly and prevent flexing under pressure from the chin. It is remarkably similar in design to that of Spohr illustrated above.

COLLECTION EMIL HJORTH & SØNNER

1. Drawing from the original 1832 First Edition printed in Amsterdam by Theune & Company. Text in English taken from the English edition of *Wessel & Co.*, ca. 1850, translated by C. Ruldolphus and published by the Oliver Ditson Co., Boston, ca. 1852.
2. See biographical information in *Danske Instrumentbyggere 1770-1850,* by Dorthe Falcon Møller, 1983, pp. 210-211.

66 Peg Turner (Reproduction)

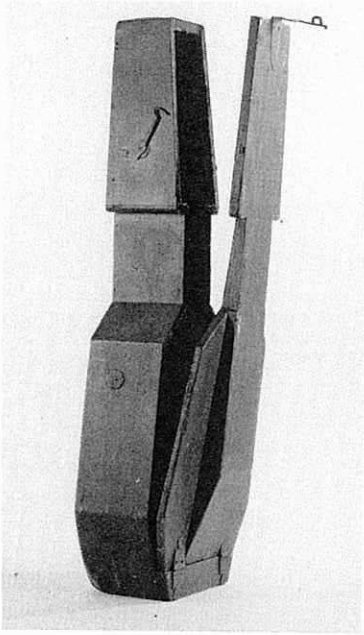
Old pegs very frequently bear marks on the turning head that appear very similar to tooth marks. One explanation for these dents could be the use of peg-turners. Praetorius shows such a device in Plate V; which is illustrated below, along with a practical reproduction turner of elm wood and original 18th Century violin pegs.



COLLECTION WILLIAM L. MONICAL

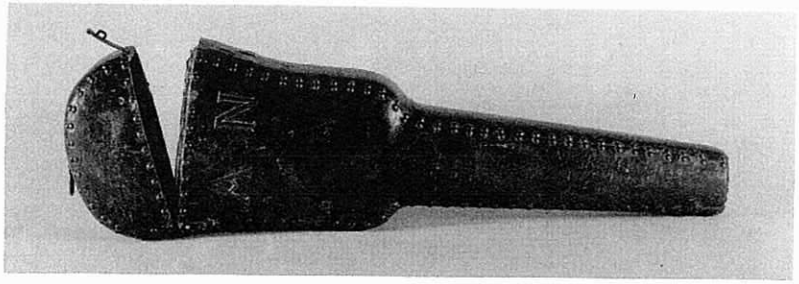
67 Instrument case, Pardessus
French, ca. 1745

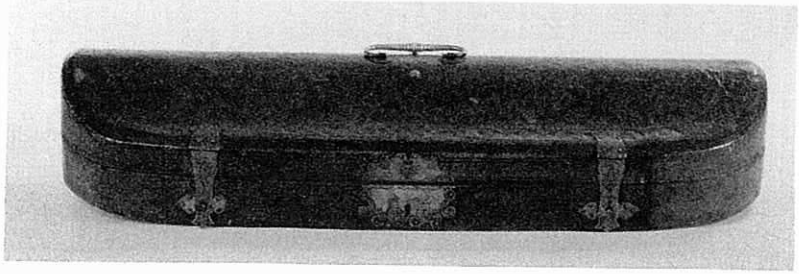
This shaped pardessus case of poplar wood is designed to open on the front with 2 hinges below the lower bout. The lid is closed with four side hooks (2 missing) and a locking hook at the upper end. Painted brown in color, the case shows signs of worm damage. The interior fabric is a modern replacement.
Length: 73.2cm
COLLECTION WILLIAM L. MONICAL



68 Instrument Case, Violin
Probably French, 18th Century

This end-opening case for a small model violin is possibly of extended length to provide for a bow. The leather and brass tack studded exterior bears the brass letters: A N fastened to the case with brass nails. Hinges allow end-access to the case which is held closed with a single brass strap and lock. A large brass ring on the lid end is probably for carrying with a leather strap.
Length: 81cm
COLLECTION JACQUES FRANCAIS





69 Instrument Case for 2 Violins
French, 18th Century

An oblong case with provisions for 2 violins and 2 bows, with an original red velvet lining. The case has 2 engraved brass closure straps and an engraved lock plate portraying a violinist playing for an elegantly costumed woman. A brass carrying handle on the lid has 2 protective brass studs. The leather exterior is deeply embossed with fleur-de-lis patterns on the perimeter of the lid.
Length: 78.2cm

COLLECTION JACQUES FRANCAIS

1. The peg-turner in Plate V is illustrated with a large bass in Praetorius; "*Syntagma Musicum II, De Organographia, 1619*", facsimile edition, Bärenreiter, Base 1, 1964. The Nürnberg Museum has an example of such a large violone size model in their reference collection.

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