

VIOLA DESIGN: SOME PROBLEMS

WITH STANDARDIZATION

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ABSTRACT

There has not been a standard-sized viola design to this day. A modern viola typically has a body length between 16 and 18 inches. Instrument makers and composers did not favor viola players, so the instrument has developed much more slowly than other instruments in the violin family since the sixteenth century. Throughout the twentieth century, interest in viola design has grown and many new shapes and sizes of violas have been developed. As the viola became more popular, players noticed issues related to injuries from playing large instruments. Makers sought a more appropriate size to fit individual players and became interested in making smaller violas that offered reduced tension in playing but were still able to produce a good sound and achieve a higher technical standard of playing.

In this project, I will describe and compare the search for the ideal viola size and design by five well-known viola makers who have designed unique but functional violas currently in use by performers: Otto Erdesz (1917-2000), Hiroshi Iizuka (b. 1945), David Rivinus (b. 1949), Joseph Curtin (b. 1953), and Gabrielle Kundert- Clements (b. 1957).

Based on this research, I will suggest an acoustically proper size for a standardized viola, but with a freer shape. In my analysis, I will point out the advantages and disadvantages of each design by comparing the shape, body length, string length, thickness of neck, and string height. The dissertation will also include interviews and surveys completed by five makers and thirteen players.

DEDICATION

This dissertation is dedicated to my parents. My father, Dr. Gwang-Yoon Jeong, passed away November 28, 2010. He was a leader for the disabled, an example of wisdom, and a self-made man. I admire him more than anyone I have ever met. My mother, Mrs. Do-Young Park, was not only a good Christian role model but also full of love. I cannot deny that God gave me nothing but great parents in my life. Finally, I want to mention my siblings, my husband, and my baby boy “Jun Justin.” I could not have completed my work without their support. I love you all.

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CHAPTER 1

INTRODUCTION

Though the viola has been part of the violin family since the sixteenth century, its size has never been standardized. The standard size of the violin is 14 inches (35.5 cm). The viola is tuned a fifth lower than the violin, which creates a vibration ratio of 3:2 (viola to violin). Therefore, to build an instrument of proper proportion, the body length of a viola needs to be $\frac{1}{3}$ larger than that of a violin. This would result in an instrument 21 inches long (53 cm), but this is far too large to place under the chin or to reach with the left arm. For practical purposes of playability, the average length of a modern viola is generally in the range of $16 \frac{1}{8}$ to $16 \frac{7}{8}$ inches (41 cm to 43 cm).¹ The proper size for a viola is still debated, but most violas are between $15 \frac{1}{2}$ inches (40 cm) and 17 inches (43 cm) in length. The English favor smaller violas, while the German maker Hermann Ritter (1849-1926) stated that $18 \frac{1}{2}$ inches (47 cm) was the ideal size, and the Italians preferred to make violas both large and small.² Historically, the role of the viola was to be a middle voice between the alto and tenor registers. A small viola makes a bright sound with more energy in the high frequency overtones while a large viola has a dark sound which is shifted toward the lower overtones.³ Fashionable violas in the sixteenth century were large, but in the seventeenth century they began to appear in various sizes and registers because

¹ Jeremy Montagu, "Viola," *The Oxford Companion to Music*, ed. Alison Latham, Oxford Music Online (accessed May 22, 2010).

² William H. Moennig, Jr., "What is the proper size for a viola?" *Journal of the American Viola Society* vol.2, no.3 (Nov.1986): 3-4.

³ Joseph Curtin, e-mail message to author, January 31, 2012.

ensembles with five parts demanded three violas to take the contralto and tenor parts.⁴ In the eighteenth century, a trend of violinists taking up the viola led to the demand for a smaller instrument. In addition, fewer violas were required in ensembles because four-part ensembles need only one viola. In the nineteenth and twentieth centuries, virtuoso violists such as Lionel Tertis (1876-1975), William Primrose (1904-1982), and Emanuel Vardi (1915-2011) played large violas for most of their careers, but later switched to smaller instruments.

In the sixteenth and seventeenth centuries, the Amati, Guarneri, and Stradivari families in Cremona and Gasparo da Salò (1540-1609) in Brescia produced more violins and cellos than violas because there were very few virtuoso violists. Instrument makers and composers did not favor viola players, so the instrument developed much more slowly than other instruments in the violin family. For example, there were only eighteen Stradivari violas made in the seventeenth century, compared to more than six hundred Stradivari violins.⁵

In 1574, Andrea Amati's tenor viola was 18 1/2 inches (47 cm) in length; in 1690, the body length of Stradivari's "Tuscan" tenor viola measured 18 4/5 inches (47.9 cm) and his "Medici" tenor viola was 18.9 inches (48 cm). However, violas longer than 17 inches were still too large to play with the arm, so after 1700, larger violas slowly disappeared. According to Mersenne's *Harmonie Universelle* (1636-7), typical Cremonese violas could be found in three sizes: 16 1/8 inches (41 cm), 16 7/8 inches (43 cm), and 17 1/2 inches (44.5 cm).

The term "viola" was being used to refer to any bowed string instrument by 1500. In 1535, the alto-tenor violin appeared as a member of the violin family; it later developed into the modern viola. The Venetians used the word "violino" to mean viola (alto violin) around 1600.

⁴ David D. Boyden, and Ann M. Woodward, "Viola," *Grove Music Online* <http://www.oxfordmusiconline.com> (accessed September 10, 2011).

⁵ Charles E. Harman, *The Standard Viola* (Bookings, OR: Old Court Press, 2006), 11.

The viola da braccio (arm viola) and viola da gamba (leg viola) were used in the sixteenth and seventeenth centuries. In the seventeenth and eighteenth centuries, the viola was used in ensembles and played in different registers such as the tenor and alto registers. Compositions employing these instruments included Albinoni's (1671-1751) *Sinfonie e concerti a cinque* op. 2 and Handel's (1685-1759) op. 3 no. 1 concertos; the latter specified "alto viola" and "tenor viola." The alto plays in the higher register and the tenor plays in the deep tenor register.⁶

Composers occasionally featured the viola in a prominent role during the eighteenth and nineteenth centuries, such as in viola concertos written by Carl Stamitz (1774) and Franz Anton Hoffmeister (1799). Mozart's *Sinfonia concertante in E flat major, K.364* (1779) for violin and viola is essentially a concerto for both instruments, and Berlioz's *Harold in Italy*, op.16 (1834) features a solo viola in a prominent role. Brahms wrote two sonatas for viola and piano, and Richard Strauss' *Don Quixote* Op. 35 (1897) features the viola as the portrait of "Sancho Panza."

Throughout the twentieth century, composers Paul Hindemith (1895-1963), William Walton (1902-1983), and Béla Bartók (1881- 1945) contributed works dedicated to viola players, including Hindemith himself, William Primrose, and Lionel Tertis. Hindemith's *Der Schwanendreher* (1929), and concertos by Walton (1929) and Bartók (1945) have become important to the viola repertoire today. A number of virtuoso violists have emerged in the past few decades, including Nobuko Imai (b. 1943) from Japan, Yuri Bashmet (b. 1953) from Russia, Tabea Zimmermann (b. 1966) from Germany, Pinchas Zukerman (b. 1948) from Israel, and Michael Tree (b. 1934) and Kim Kashkashian (b. 1952) from the United States.

⁶ Ibid.

As the repertoire increased in technical demands and more and more solo violists emerged, viola players began looking for instruments that were comfortable to play without sacrificing sound quality. The viola is a difficult instrument to play in the higher positions compared to the violin. The violinist just needs to stretch his or her fingers in the upper position but the violist needs to find a way to get the left arm around the upper bout from positions eight and higher. Instrument makers today face the choice of designing violas that are large and uncomfortable or small but lacking sound. As a result, interest in viola design has grown, and many new shapes and sizes of violas have been developed.

After reviewing the literature on current innovations in viola making in the United States, I use the work of the most innovative viola makers to argue for a standardized instrument. The five most recently influential viola makers are: Otto Erdesz (1917-2000), who came up with the cutaway innovation; Hiroshi Iizuka (b. 1945), who made a d'amore style viola with double cutaway and indents in the bottom; David Rivinus (b. 1949), who created a previously unseen melted shape called Pellegrina; Joseph Curtin (b. 1953), who applied new materials to make an experimental viola called "Evia;" and Gabrielle Kundert-Clements (b. 1957), who made various cut-down copies of the Amati and normal-shaped models and prefers making smaller instruments.

In this paper, I describe and compare the search for the ideal viola size and design by these five well-known viola makers who have designed unique but functional violas currently in use by performers such as Rivka Golani (virtuoso Israeli violist), Jeffrey Irvine (Cleveland Institute of Music), Scott Slapin (composer and violist, pupil of Emanuel Vardi), Don Ehrlich (former assistant principal violist of the San Francisco Symphony), Robert Jones (former violist of the Atlanta Symphony), Qiyun Zhao (student at University of Michigan), and Helen Callus (University of California, Santa Barbara). I will also include the answers to surveys of professors

who currently use modern violas, including Victoria Chiang (Peabody Conservatory and Aspen Music Festival and School), Maggie Snyder (University of Georgia at Athens), Daniel Sweaney (University of Alabama), and others to add an additional dimension to my inquiry.

The Historical Role of the Viola

Before 1740, most viola music was in the form of arrangements or transcriptions because there were no outstanding viola players. Therefore, little repertoire was developed. The viola was used in ensembles to fill middle voices, especially in the sacred and secular music of Bach (1685-1750) and Handel (1685-1759). After 1740, the viola began to gain notice as a solo instrument. Composers started to write specific viola concertos, including Georg Philip Telemann (1681-1769), Carl Friedrich Zelter (1758-1832), Johann Baptist Vanhal (1739-1813), Carl Philipp Stamitz (1745-1801) and Franz Anton Hoffmeister (1754-1812). However, composers did not consider the instrument's size and shape. From Haydn (1732-1809) and Mozart (1756-1791) to Beethoven (1770-1827), the role of the viola much further developed in chamber music. Mozart treated the viola equally as other string instruments in his last string quartet, *K590* (1790) and Beethoven wrote the viola part in the higher register of the C string (5th position) in the last movement in his string quartet *op.59 no.3*. In turn, players began to seek a viola design that they could handle better. In the twentieth century, composers then expanded the role of the viola in chamber music, writing technically difficult viola parts, such as in Arnold Schonberg's (1874-1951) string trio and Bartók's string quartets nos. 3- 6. Since the appearance of Tertis and Primrose, the viola's role has been prominent in the string family, and the size of the viola has been considered by makers and players.⁷

⁷ Ibid.

Beginnings of a standard viola design

Hermann Ritter (1849-1926)

In the nineteenth century, many German viola players were influenced by virtuoso Hermann Ritter. At this time, violists in orchestras played small violas which lacked sonority on the C string. As a violist Ritter sought to eliminate the muffled sound of a small viola by producing a large viola with the same resonant and brilliant sound as the violin.⁸ He began studying violin under Joseph Joachim at the New Academy of Tonal Art in Berlin (Neue Akademie der Tonkunst) in 1865. Later, he took a position as violinist in the Court Ensemble in Schwerin in 1870. He conducted the Heidelberg City Orchestra but quit his position as conductor to continue his education to study music, art history, and philosophy at Heidelberg University. As he studied the development of string instruments, he became interested in the viola. Ritter first dedicated his career to designing violas but later became a musicologist. He commissioned violin maker Karl Adam Hörlein (1824-1902) to make his “Viola Alta” according to his specifications in Würzburg, Germany.⁹

In 1876, the Viola Alta caught the attention of Richard Wagner (1813-1883), who saw Ritter perform with it in Würzburg. Wagner was searching for a new tonal color, especially a middle voice of instruments for his compositions and orchestra. He was often frustrated by the lack of technical ability in his viola sections; violists were often violinists filling in for the viola section and playing with smaller violas similar in size to violins.¹⁰ Under Wagner’s direction and

⁸ Watson Forbes, “Hermann Ritter,” *The Oxford Companion to Music*, ed. Alison Latham, Oxford Music Online (accessed October 20, 2011).

⁹ Gunther Joppig, Wagner Society of Dallas, <http://www.wagnerdallas.com/events2004/wsd050326.htm> (accessed November 5, 2011).

¹⁰ Maurice W. Riley, *The History of the Viola* (Michigan: Braun- Brumfield, 1980) 210-12.

with his approval, Ritter played Wagner's *Der Ring des Nibelungen* with a huge new Viola Alta at the new Wagner Theater in Bayreuth in 1876. Ritter's five students in the viola section later played the Viola Alta built by Hörlein in the Bayreuth Orchestra in 1889. Franz Liszt (1811-1886) was also impressed by Ritter's playing and instrument and dedicated the *Romance Oubliée* for viola and piano to Ritter.¹¹

Ritter arranged music for his instrument and also published the history of the instrument in his 1876 book *Die Geschichte der Viola Alta*. He designed instruments as big as 18 7/8 inches (48 cm) and added an E string.¹² Ritter himself was big enough to handle a large viola. However, this huge instrument was not widely accepted because it was just too big for the average performer.

Lionel Tertis (1876-1975)

Ritter's younger contemporary Lionel Tertis was a pioneer and true solo violist who performed in concert halls across the world. Many British composers wrote works for him, including Arnold Bax, Frank Bridge, Gustav Holst, Benjamin Dale, York Bowen, and William Walton. Between 1896 and 1939, Tertis experimented with different viola sizes based on instruments such as the 17-inch Carlo Antonio Tesore viola (made in 1735), the 17 1/8- inch

¹¹ Ibid.

¹² Gunther Joppig, Wagner Society of Dallas, <http://www.wagnerdallas.com/events2004/wsd050326.htm> (accessed November 5, 2011).

Domenico Montagnana viola (made in 1727) and the 17 3/4-inch Gasparo da Salo viola (made in 1590).¹³

Tertis was a small man of 5'6", but he did not want a small viola. He was the first to suggest a standard viola size because the many different sizes of violas made it difficult for players to switch instruments. He developed the idea of making a viola with a standard size, dimension, string length, and weight and worked with English violin makers Arthur Richardson, Lovett Gill, and George H. Smith after retiring as a concert player in 1937. The viola that resulted from Tertis' collaboration with Richardson was labeled the "R.T." and later renamed the "Tertis viola."¹⁴

Tertis' goal was to make a large viola that had not only a good sonority but also a suitable shape that was easy to handle and play.¹⁵ He desired a good C string sonority for the viola, but this requires a large instrument; Tertis proposed 16 3/4 inches (42.5 cm) as the ideal body length under the chin for a minimum satisfactory sonority.¹⁶ William Primrose stated, "Tertis ingeniously designed an instrument, the Tertis-Richardson model. He made a definite step in the right direction, it seemed, although I don't believe his model has taken over 'viola construction.'"¹⁷ Tertis and Richardson designed a 16 3/4-inch model that was smaller than the 17 1/8-inch Montagnana viola but tried to keep the same tone. Out of 207 violas Richardson made during his collaboration with Tertis, 178 were based on this design. After nine years of collaboration with Richardson, Tertis and Richardson stopped working together because of personal conflicts. Tertis was a perfectionist and genius in his playing, but he was not a practical

¹³ John White, *Lionel Tertis, The First Great Virtuoso of the Viola* (Great Britain: Woodbridge, The Boydell Press, 2006), 311.

¹⁴ *Ibid.*, 319.

¹⁵ Jeremy Montagu, "Viola," *The Oxford Companion to Music*, ed. Alison Latham, Oxford Music Online (accessed May 22, 2010).

¹⁶ John White, *Lionel Tertis, The First Great Virtuoso of the Viola* (Great Britain: Woodbridge, The Boydell Press, 2006), 311.

¹⁷ William Primrose, *Walk in the North Side* (Provo, UT: Brigham Young University Press, 1978), 183.

man. Later Tertis chose Lovett Gill to make seven violas with Tertis' specification. He also took the "Richardson" out of the R.T. viola, so it became known as the Tertis viola. However, Gill was not good enough to meet Tertis' expectations. Shortly after, Tertis found another maker, George H. Smith, who met his standards and between 1945 and 1953 they produced some good instruments. In 1949, Smith was awarded a prize at the International Luthiers Competition in The Hague for this viola. In 1950, the Tertis model viola was publicized in *The Strad*. Since 1965, more than six hundred Tertis violas have been used in 17 countries. His colleague Eugène Ysaÿe (1858-1931) commented about this success, "My friend Tertis is doing much missionary work for his viola."¹⁸ Even though Tertis' viola is not widely used professionally today, his effort in making a standard viola with proper size and shape contributed in many ways to current views on making and playing this instrument.¹⁹



Figure 1. Tertis with Tertis Model viola and luthier Arthur Richardson, 1938 (permission by erinartscentre.com)

¹⁸ John White, *Lionel Tertis, The First Great Virtuoso of the viola* (Great Britain: Woodbridge, The Boydell Press, 2006), 162-4.

¹⁹ *Ibid.*, 169.

CHAPTER 2

Modern Viola Makers

Otto Erdesz (1917-2000)

The inventor of the “Viola Virtuoso,” Otto Erdesz was a Toronto-based viola maker who made instruments from North American woods such as curly maple and sitka spruce.²⁰ I chose to include Erdesz’s viola in my analysis because he was the first person to suggest a certain dimension combined with an asymmetrical new shape for the viola. Erdesz introduced the Viola Virtuoso in 1977 to the public. It has a cutaway in the upper right bout to make the higher register easily accessible to players. By promoting these ideas he brought attention to the viola world. Russian-American violinist Yehudi Menuhin (1916-1966) had four of his violas and one of his violins. Erdesz’s cut-away viola is currently used by Rivka Golani, viola teacher of the Royal Conservatory of Music and University of Toronto, who is recognized as one of the best violists in Canada.

Erdesz made instruments during the Second World War while he was majoring in graphic and textile design at the Academy of Fine Arts in Budapest. He became a graphic artist, and his experience in this field influenced his instrument design. After the Hungarian uprising in 1956, he immigrated to the United States and opened a shop in New York. He was primarily influenced by the work of Guarneri del Gesù.²¹ In 1974, Erdesz made a viola called the “Douglas fir” whose f - holes are a copy of del Gesù’s design (figure 2). He always applied antique inspiration to his instrument designs, especially on the scrolls.

²⁰ Scott Wooley, *Journal of the American Viola Society*, vol.16, no.3, 58.

²¹ Antonio Guarneri, del Gesù (1698-1744) was an Italian luthier from the Guarneri house of Cremona.

Erdesz worked diligently and fast and completed a new instrument every few weeks. Over the course of his career, he produced more than 1400 instruments. Even though his instruments could be rough looking, their sound was huge, dark, and rich. In 1966 he drew a devil's head for the scroll (figure 3).²²



Figure 2. Douglas fir viola made in 1974 with copy of del Gesù's f - holes



Figure 3. Devil's head drawn by Erdesz

Erdesz first began to achieve fame in Israel. He offered a cut-away model to Israeli violist Rivka Golani (b. 1946), and she eventually became Erdesz's second wife. Initially, Golani was doubtful about the new design but tried it because of her mother's strong suggestion. After playing the new instrument, she was convinced it was a good design. When she played the viola with the Boston Symphony Orchestra, its sound filled the hall. The Israel Philharmonic Orchestra purchased a few of Erdesz's violas for its United States tour. In 1973, he even made two experimental violas out of pear wood during a stay in Tel Aviv. Erdesz moved to Canada in

²² Joseph Curtin, "Chip off the Old Block," *The Strad* vol.111, no. 1327 (November 2000): 1209.

1974 because he was looking for plenty of wood to work with, especially maple wood. He varnished with artist's materials such as shellac, mastic, and pigmented links. The new one-side cutaway design he created helped even out the sound and minimized roughness in the higher positions. Erdesz got this idea from the grand piano, whose higher strings have a shorter soundboard. Erdesz' first cutaway design was 16 5/8 inches long. He made approximately 35 of the one-side cutaway violas in his life.²³ He explained that cutting the right upper bout does not affect the depth and volume of the sound on the G and C strings.

One of his pupils, Joseph Curtin (b. 1953) remembered Erdesz as “extravagantly talented, funny, difficult, and a genius.”²⁴ Erdesz liked to constantly change every detail. He experimented with many kinds of wood such as pear wood and plank. He did not follow rules and forms to make his instruments, but adjusted his models. There is a taste of the antique in the scrolls. Erdesz made various sizes of violas, including a 17-inch (43.2cm) viola for Golani in 1977.²⁵ 1400 violas is a great achievement and should be acknowledged as having an influence on the standardized viola design.



Figure 4. Erdesz's cutaway Viola-Virtuoso.

²³ Ibid.

²⁴ Ibid., 1207-10.

²⁵ Daniel Whitman, "In defence of the small viola," *The Strad* vol.105, no.1246 (February 1994):127.

Hiroshi Iizuka (b.1945)

A viola player myself, I have to make confession: I have been playing an Iizuka viola since 2003. Before that I had a beautiful, small, old Italian viola for a long time, but I got frustrated playing contemporary music with this particular viola because it did not have enough power and volume. I had to work hard to make it sound good. When I visited Iizuka's workshop in Narberth, PA, I was looking for a viola that was a little bigger than 16 inches even though I have small hands, but he said, "No, you should have 16 inches exact." I never regretted choosing a 16-inch viola because his design is very resonant. I have been satisfied playing it because it is easy to produce the sound I want. The strings are well-balanced so it makes a smooth sound when transferring from one string to another and I can use the same brand of strings on all strings. In general, people use a different brand of string for the A string. Another advantage of his violas is their light weight. Iizuka made a hole in the scroll to reduce the weight of the instrument and the lower bout has a rounded bottom near the button so my neck fits into the viola. Now I am comfortable playing for long hours. The instrument changed my life. The only thing I was not sure about was the varnish. The first summer I had it, it peeled more than my previous viola. However, the sound was not affected.

Hiroshi Iizuka is a Japanese-American instrument maker who developed different viola designs between 1979 and 1993. His d'amore viola was the most popular model and was used by Emanuel Vardi. It is currently used by Michael Tree (violinist of Guarneri string quartet), Kim Kashkashian (New England Conservatory viola faculty), Jeffrey Irvine (faculty of The Cleveland Institute of Music), Scott Slapin, and many others. Hiroshi Iizuka was born in Maebashi, Japan on July 21, 1945. As a child, he loved crafts and built model airplanes from different nations. Trained in tenor guitar making, he designed an unusual cut-away guitar. Iizuka practiced making

the usual shape of the instrument with guitars before making the d'amore style violas. He apprenticed as an instrument maker in Tokyo under master luthier (Geigenbaumeister) Soroku Murata when he was 26.²⁶ This marks the beginning of his search for a new shape for instruments. In 1971, he attended a violin recital by Toshiya Eto, a Curtis-trained violinist, and became fascinated with making classical string instruments because "this sound and music were totally different from the guitar."²⁷

Since the 1970s, Iizuka has made about a dozen instruments per year. When he was an apprentice under Soroku Murata, Iizuka reproduced several Baroque instruments, including the viola da gamba, viola d'amore, violone, viola pomposa, and lira da braccio. Of his unusual training Iizuka says, "The violin hasn't been changed in over 300 years, but its predecessors were the Baroque-style instruments. As a craftsman it's interesting to learn the different styles and forms."²⁸ After two years of training in Japan, Iizuka moved to one of the leading schools of violin making in the world in Mittenwald, Germany, and worked under Joseph Kantuscher, one of Europe's leading teachers. His training and hard work paid off. In 1976, Iizuka earned a Gold medal and a Certificate of Merit at the Violin Society of America international competition in Philadelphia. In 1982, he received two certificates for workmanship at the Violin Society of America international competition in Salt Lake City, Utah, and he was one of only three makers to get high scores in the workmanship competition. In 1983, Iizuka finished fourth in the German violin making competition at Kassel.²⁹ In 2006 Iizuka said, "It's most enjoyable as a craftsperson

²⁶ Scott Slapin, <http://www.scottslapin.com/>(accessed September 10, 2011).

²⁷ Kate Kilpatrick, "Philadelphia Story," *Strings*, vol.22, iss.3 (October 2007):101-3.

²⁸ Ibid.

²⁹ Eric Chapman, "Modern Makers, Hiroshi Iizuka." *Journal of the American Viola Society*, vol.23, no.1 (2008): 42.

to create something unique.”³⁰ As a prolific instrument maker, Iizuka experimented a lot with shapes and sized and others recognized his risk-taking accordingly.

The demands of his European clients were different from the demands of his American clients. The largest viola he made while in Germany was 16 1/2 inches, but he found that violists in America play instruments that are 17 inches and sometimes even larger than that. Iizuka declared, “In America, sound has to be brash and stick out.” However, he heard players complain of tendonitis of the neck and spinal strains caused by long hours of rehearsal and performance with large instruments, so he experimented in order to produce violas which were impressive acoustically, comfortably playable, but also smaller and lighter. Iizuka’s philosophy of making instruments is balanced between acoustics and beauty. His goal was to make the instrument not only sound good but also look more aesthetically pleasing than the one side cut-away style.



Figure 5. Original viola d’amore³¹
(permission by violadamore.com)
Unusual shape of f - holes, rounded upper
shoulders, long neck, human head for the



Figure 6. Viola d’amore - Paulus Alletsee,
1717, with a 19th century pegbox
(With permission of the Viola d’amore
Society of America)

³⁰ Quoted in David Rivinus, “Design counsel,” *The Strad*, vol.117, no.1389 (January 2006): 52.

³¹ Thomas Georgi, <http://violadamore.com> (accessed July 21, 2011).

scroll design and 14 strings.

Iizuka maintained the shape of the Baroque viola d'amore (figures 5 and 6), with its round and arched back, but altered the modern style of neck setting with humped shoulders: "This way, when a player goes into the fourth position, the left hand can 'hit' a reference point." However, cutaway or sloped shoulders diminish the air volume. To compensate for this loss, he "increased the lower bout size and width. Not having violin-style corners makes this change of form possible." Iizuka put an indentation at the bottom of the viola to shorten the body length. (figure 7.)



Figure 7. Indentation of the lower bouts. (author's image)

His idea to add this to his design was shown in his successful debut in 1979 (figure 8).

Even with the success of his d'amore style viola, he still looked for a better sound.



Figure 8. Iizuka's first viola (1979) in viola d'amore style (permission by Iizuka)
With uneven fingerboard, the f - holes design similar to original viola d'amore, double cutaway style, and indented bottom.

In 1982 he changed the design again to create more volume (figures 9 and 10). A darker sound resulted from changing the outline of the lower bouts. He also repositioned the f - holes about 50 mm closer together to create a louder sound but keep the similar shape of the original viola d'amore.



Figure 9. Adapted viola d'amore style (1982) (permission by Iizuka) Figure 10. Detail (author's image)



Figure 11. Scroll with a hole (author's image)



Figure 12. Front view (author's image)



Figure 13. Detail (author's image)

His design for the scroll was based on the shape of the logo on a St. Louis Rams' football helmet he saw while he was watching a football game. In 1997, he carved a hole in the center of the scroll not only to reduce weight but also to give the appearance of a ram's head. Even this slight change made players more comfortable and made the sound clearer. In 1993, Iizuka branched slightly away from his viola d'amore-style model to design a "Rubenesque" viola (figures 14 and 15) with an indented bottom, shorter corner lengths, and slightly wider lower bouts. To further increase playability he made very slight asymmetrical adjustments to the right shoulder and left lower bout.



Figure 14. "Rubenesque" viola
(permission by Iizuka)
With normal upper bouts and indent in the
lower bout.



Figure 15. Back view
(permission by Iizuka)

The beginning of his business was slow because players were not convinced about the shape of his viola designs. However, in 1978 Ernest Walfisch (1920-1979) played a recital at Carnegie Hall with Iizuka's regular model and other musicians began to notice Iizuka's instruments.³² Iizuka makes instruments ranging from 15 to 17 inches with different string lengths depending on the player's physical conditions such as height and finger length. As of September 2011, Iizuka has made 215 violas including 130 in the d'amore style, 42 in the Rubenesque, and 43 in the traditional style.³³ Considered by many as one of the great viola players of the twentieth century, Israeli- American violist Emanuel Vardi said, "The Iizuka was my last instrument. I was extremely fond of it. It had a most beautiful sound, and projected exceptionally well. I think that Mr. Iizuka is one of the very finest string instrument makers today."³⁴ Scott Slapin recently praised these instruments: "Hiroshi Iizuka's violas have had a tremendous impact on the viola world. Well-known soloists and chamber musicians such as Emanuel Vardi and Michael Tree to leading professors such as Jeffrey Irvine at The Cleveland Institute of Music have played and championed his instruments. At one point there were seven violists in the Berlin Philharmonic playing on Iizukas! Without a doubt Hiroshi Iizuka has made a major impact on the viola world."³⁵ This assessment clearly outlines the contributions Iizuka has made to the attempts of standardization of the viola.

³² Kate Kilpatrick, "Philadelphia Story," *Strings* vol. 22 Iss.3 (October 2007):103.

³³ Hiroshi Iizuka, "The Evolution of My Viola Models," email from Iizuka (September 2011).

³⁴ Quoted in Kathryn Steely, "Breaking Boundaries: An interview with Emanuel Vardi," *Journal of the American Viola Society* vol.19 no.1 (Spring 2003):15.

³⁵ Scott Slapin, e-mail message to author, October 10, 2011.

David Rivinus (b. 1949)

David Rivinus created a viola with a sensational melted look called “Pellegrina,” which is used by Don Ehrlich, former assistant principal violist of the San Francisco Symphony, and Liz Soladay of the South Dakota Symphony Orchestra. His instruments were well received by viola players who sustained injuries after playing normal-shaped instruments for a long time. Rivinus’ design is striking at first sight, but as I researched his Pellagrina viola I became more interested in his work and ideas. I chose to study Rivinus’ viola design because his experimental viola shape is unique and interesting. His invention pushes the boundary of how far viola players and makers can go with the shape, practically speaking, and his example of innovation makes it very interesting for us to imagine the future of viola design. When I played the Pellegrina viola used by Robert Jones (former violist of Atlanta Symphony orchestra), I was very surprised at the volume of sound. It was huge and had a outstanding quality. The instrument projected the sound directly to my left ear because the f - hole on the left side is bigger than the one on the right side. It has a nice warm sound on the lower strings. However, I was not satisfied with the A string compared to the C string. Overall, the sound was very bright, and this is not my favorite sound. Compared to my Iizuka viola, however, it was less work to supinate my left arm to reach the C string. In my opinion this viola is beneficial for a player who has trouble physically, particularly after an injury.

David Lloyd Rivinus was born May 12, 1949, in Istanbul. He speaks four European languages because his father was a United States diplomat and the family traveled a lot. In 1970, he was accepted to the Hans Wiesshaar Shop in Los Angeles and studied there for four years. During this time, he learned the painstaking craft of restoring violins and built his own instruments in his free time. From the beginning, Rivinus was interested in researching the

instrument's origins. He took pictures of over 400 rare instruments and bows and worked as a photographer for the Colburn Collection in Los Angeles, California.³⁶ He also trained under Indianapolis violin maker Thomas Smith. Eventually in 1979, Rivinus opened a shop with Thomas Metzler in Glendale, California.³⁷

One day a small female Canadian violist came to Rivinus and requested a small viola with a big sound because she predicted that she would be injured by playing a larger viola. Rivinus became interested in solving the problem of injuries resulting from large violas. He is convinced that the traditional *da braccio* violas cause bad orthopedic posture because of the need to play them with an unnaturally stretched left hand. He addressed this concern with an asymmetrical design so that players could reach with the left arm more easily compared with a normal shaped instrument. In order to make an asymmetrical design, the body of the viola needs to be deformed as shown in Figures 18 and 19. The scroll and neck are placed off-center and more to the right side of the upper bouts because of the wider left upper bout and shortened right upper bout. These changes make it easier to use the left arm in the upper position. The viola also has expanded upper left and lower right bouts and a tilted fingerboard.³⁸ This shape provides more vibration surface area and an expanded acoustic chamber, especially on the lower string.

³⁶ David Rivinus, <http://www.rivinus-instruments.com/AbouttheMaker.htm> (accessed October 11, 2011).

³⁷ Ibid.

³⁸ David D. Boyden and Ann M. Woodward. "Viola," *Grove Music Online* (accessed September 10, 2011).

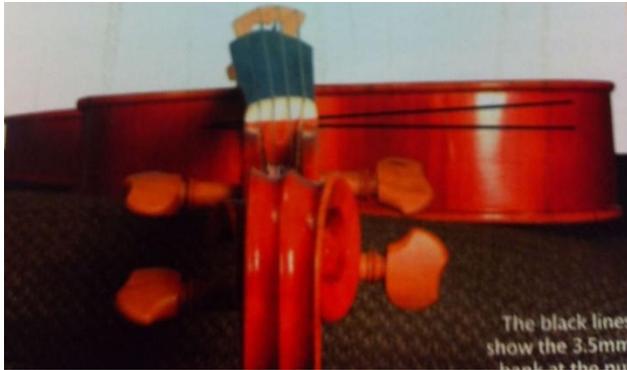


Figure 16. Uneven width (permission by Rivinus) Figure 17. Uneven shape of f - holes (permission by interviewee Jones)

The melted shape of the Pellegrina (which means pilgrim in Italian) was a sensation during the 1990s. Rivinus is the only modern violin maker to have an instrument commissioned for display by America's National Music Museum. Assistant principal violist of the San Francisco Symphony, Don Ehrlich played the Pellegrina ergonomic viola after his elbow had given him serious problems when supinating. He decided to play this unusually formed instrument and found that after he played it, the pain stopped.³⁹ Despite this success story, the Pellegrina did not sell very well. Rivinus was disappointed that violists tried the Pellegrina and liked it but were too afraid of buying it.

³⁹ Margalit Fox, "New viola makes sounds that start with laughter," *New York Times* (4 August 1997).



Figure 18. Pellegrina model viola with extra holes in the left upper bout and in the right lower bout (permission by Rivinus)



Figure 19. Back of Pellegrina (permission by Rivinus)

When building his instrument, Rivinus created two extra sound holes in the left upper bout and right corner of the lower bout to make the sound clearer (figure 18). He used lime wood with a veneer of phenolic resin for the fingerboards, reducing the instrument's weight by 10%. He likes lime because it is more environmentally friendly than ebony. Rivinus stated in 2004, "The first fingerboards were maple, often inlaid with purfling, ivory, or other elaborate design. And when ebony was introduced, it was used as veneer. Only much later were whole, solid pieces of this wood made into fingerboards."⁴⁰ One of Rivinus' customers, Joel Lipton, principal violist of the Netherlands Philharmonic Orchestra, shared his ideas with Rivinus. Lipton suffered from bursitis and was pleased by the improvement he felt when he used the Pellegrina. He suggested reshaping the tailpiece in order to fit the tuner to his preference and making the shape

⁴⁰ Quoted in Karin Bijsterveld and Martin Schulp, "Breaking into a World of Perfection: Innovation in Today's Classical Musical Instruments," *Social Studies of Science*, vol.34, no.5, (October 2004): 666.

of the fingerboard curved so that it matched the upper and lower curved bouts. These changes required less supination on the G and C strings. Rivinus' goal was to make a thinner neck so violists can more comfortably play double stops and the left hand does not have to work as hard. He made another innovation in the bridge to enhance the sound. Rivinus cut out the extra wood on the bridge, because 25% of the wood on the bridge is non-structural and dampens the sound. With these results his viola produces a clearer and more direct sound rather than a very dark kind of nasal and guttural sound.⁴¹ A comparison of a typical Stradivari model viola and the Pellegrina shows big differences in body length as well as the upper and lower bouts. Pellegrina has a 20-inch body length, while the Stradivari model has a 16-inch body. The upper bouts of the Pellegrina are 10 5/16 inches compared to 7 3/4 on a typical model viola, and the lower bouts of the Pellegrina are 12 3/16 inches compared to 9 5/8 inches on a typical viola.⁴²



Figure 20. Scroll with uneven shape and hole (permission by Rivinus)



Figure 21. Scroll with no varnish (permission by Rivinus)

⁴¹ Ibid., 656.

⁴² David Rivinus, <http://www.rivinus-instruments.com/DesignConcepts.htm> (accessed May 22, 2011).

Joseph Curtin (b. 1953)

Joseph Curtin was a pupil of Erdesz and an instrument maker who also innovated a viola with completely new materials. He applied physics and acoustic methods to his “Evia” and made it ultra- light with sloping shoulders. Curtis had very unusual training in that he did not receive traditional training at a violin making school. He observed Erdesz for over a year, then began to try constructing his own instruments, using Erdesz’s comments and instruction to guide him. In addition, he was inspired by many people in the fields of science, physics, and acoustics. This training led him to think of new directions such as making sloping shoulders and incorporating new materials.

Joseph Curtin was born in Toronto in 1953 to a father who was a Viennese photographer and a mother who was an English painter. As a child, he wanted to be a scientist and electrical engineer.⁴³ Curtin loved to draw, design, and build all kinds of things. He started playing the violin in England when he was eleven years old.⁴⁴ In his twenties, he became interested in physics but continued to study the violin. He attended the University of Western Ontario for two years and transferred to the University of Toronto, where he studied philosophy and literature.⁴⁵ After college, he met Israeli violist Rivka Golani, who was married to violin maker Otto Erdesz at the time, and took viola lessons from her for a while. Golani was a great inspiration musically but Curtin was not satisfied with his abilities as a solo player. Erdesz suggested that he learn instrument making as his apprentice. For a year, Curtin came to Erdesz’s house to watch him work on his asymmetrical cutaway viola model and by 1978 had learned enough that he could

⁴³ Bill Dietrich, “The violin’s genius and mystery : Nation’s top maker discusses the science of his craft,” *The Seattle Times* (March 1995).

⁴⁴ Stewart Pollens, “Curtins for Cremona.” *The Strad* vol 106, no.1267 (November 1995), 1162.

⁴⁵ “Joseph Curtin, Innovation and Creation in the violin-making world.” *The Violonetto* (February 2007), 57.

start making his own instruments.⁴⁶ Curtin kept his first violin as inspiration in his Michigan studio.⁴⁷ After spending a few years under Erdesz, he moved to Europe. In Cremona, Curtin met Gregg Alf (b. 1957), a violin maker who had graduated from the International Violin Making School in 1980 and was working in the shop of Stefano Conia (b. 1946) and Giogia Scolari (b. 1952) at that time. Curtin and Alf worked together making copies of old instruments by Guarineri del Gesù and Stradivari. After these experiences, they decided to start a business together in the United States. In 1985, they opened a shop in Ann Arbor, Michigan, because they thought it was a better place than Europe for marketing new instruments. Their business has been fruitful since then. They have made instruments for many renowned players, such as Yehudi Menuhin (1916-1999, Russian-Jewish-American violinist), Zvi Zeitlin (Israel-American violinist and faculty at Eastman School of Music), Erick Friedman (1939-2004, American violinist), Csaba Erdélyi (b. 1946, Hungarian violist and pupil of Lionel Tertis), Ruggiero Ricci (b. 1918, Italian-American violinist), Elmar Oliveira (b. 1950, American violinist), and Donald McInnes (b. 1939, pupil of William Primrose and viola faculty at University of Southern California). They have also built violins and violas for the Hagen Quartet, Berlin Philharmonic, London Philharmonic, Cleveland Orchestra, and Seattle Symphony, among others.

In 1997, Alf and Curtin went their separate ways to pursue their interests in their own studios. Curtin became more interested in acoustic research. Scientists, physicists, and electronic instrument makers influenced him. In 1986, he was inspired by a lecture at the Viola Congress in Boston given by Carleen Hutchins (1911-2009), a scientist and instrument maker. She had invented a vertical viola that is 2 1/2 inches bigger than a regular viola and is played between the

⁴⁶ Stewart Pollens, "Curtins for Cremona." *The Strad* vol. 106, no.1267 (November 1995), 1160.

⁴⁷ Cecillia Leung, "Joseph Curtin's Workshop Reverberates with Acoustic Experiments and Recorded Detective Novels." *The Strad* vol.119, no.1423 (November 2008), 87.

legs like a cello. Yo-Yo Ma (b. 1955, cellist) made a recording of the Bartok viola concerto with this viola. Curtin also happened to meet Gabriel Weinreich (b. 1928), who lives near his shop in Michigan. Subsequently, Weinreich as an expert in the field of musical acoustics and physics collaborated with Curtin on several projects, developing the Reciprocal Bow and modifying the violin's sound. Curtin was also influenced by French scientist and instrument maker Charles Besnainou, who was a pioneer in applying carbon-fiber components to instruments.⁴⁸ Curtin was not afraid of the aesthetics of graphite fiber because it could be covered by wood veneer or other materials. One advantage of graphite is that it is very stable in humidity. However, when using wood and graphite together, that combination of material could cause instability because of the difference in expansion rates.

Curtin's experimental viola "Evia" (figure 22) was the result of all these influences and innovations. After succeeding in making copies of old instruments, Curtin wanted to experiment with new aesthetics, new materials, and new designs. Evia has the viola da gamba shape (figure 23) with sloping shoulders which allows the player to reach higher positions easily and without a decrease in interval vibrating length. Curtin had spent a few years experimenting with graphite/wood combinations but decided to make the Evia with wood. In the end he was not against using wood in unconventional ways, if need be, such as in laminations. The simplified corners and f - holes give the Evia a modern look. Curtin designed the f - holes to minimize the resistance to air flow. The shortening and light rounding of the edges increase the amplitude of resonance. He also applied a different idea to the neck, putting a small single bolt through the upper block. This movable neck (slide mechanism) allows for an adjustable fingerboard height which is useful in humid or hot conditions. In addition, normal wear to the sound post often creates dents in the inner surface of the top, making it more difficult to move the sound post, but

⁴⁸ Tim Olsen, "Prepare to Meet the Maker: Joseph Curtin," *American Lutherie Journal*, (Summer 1998): 25-6.

Curtin found that additional stiffness in the sound post area helped the sound. Because denser wood resists damage better and maple is denser and harder than spruce, Curtin put a veneer of maple in the sound post area to prevent damage. It worked so well that he installed a wooden top on the Evia.⁴⁹

In 2005, Curtin was awarded a MacArthur Fellowship and received \$500,000 for his exceptionally creative work. Curtin said, “Historically, the evolution of the violin has arisen from the interplay between the imagination of the violin maker and the demands made by his clients. The more closely musicians and makers work, the better it is for violin making.”⁵⁰ Curtin’s attempt to apply new materials in instrument making led to further development of a new viola design.



Figure 22. “Evia”- Experimental viola.
(permission by Curtin)



Figure 23. Viola da gamba
(permission by Curtin)

⁴⁹ Joseph Curtin, “Project Evia,” *American Lutherie Journal* no.60 (Winter 1999), 22.

⁵⁰ Quoted in Jana Luckey, “The art of a Commission, Patience, Perseverance and Lots of Long-Distance phone calls” *All Things Strings*, (November, 1997):16.



Figure 24. Single-turn scroll
(permission by Curtin)



Figure 25. Wooden lute with a
graphite top by Charles Besnainou.
(permission by Curtin)

Gabrielle Kundert-Clements (b. 1957)

Gabrille Kundert-Clements prefers to make traditional-shaped violas, but takes into consideration players' individual demands and abilities. Her violas are used by Roberto Diaz (former principal violist of the Philadelphia Orchestra, currently president of the Curtis Institute of Music), Helen Callus (University of California, Santa Barbara), Daniel Foster (principal violist of the National Symphony Orchestra), Katherine Murdock (University of Maryland), James Dunham (Rice University), Toby Appel (Julliard School), Charles Noble (Assistant principal violist of the Oregon Symphony), Joel Belgiques (Principal of the Oregon Symphony), and Milena Pajaro-Van de Stadt (winner of the 2010 Tertis International Viola Competition), among others.⁵¹

Kundert-Clements's viola belongs into this discussion because I wanted to compare a traditional shape of the viola with the unusual shapes of the others. According to viola players, her instruments are very direct, have a varied color of sound, and have a soloistic quality. She tries to design violas that are small but that have the same type of sound as a large viola. In addition to making copies of Stradivari and Amati instruments, she custom-makes instruments with a traditional shape but always adds something different to each viola because she believes there is always room for improvement.⁵²

Gabrielle Kundert-Clements was born May 13, 1957, in Schenectady, New York.⁵³ She grew up with Swiss parents and was influenced by their love of all kinds of song, including Swiss folk songs, American and Brazilian folk music, samba, and classical music.⁵⁴ In high

⁵¹ Gabrielle Kundert-Clements, <http://www.kundertviolas.com/bio> (accessed 15 September 2011).

⁵² Gabrielle Kundert-Clements, e-mail message to author, September 10, 2011.

⁵³ Ibid.

⁵⁴ Cythia Davies, "Behind the green apron-A woman's view." *The Strad* vol.101, no.1198 (February 1990), 112.

school, she had a strong interest in art and music and eventually apprenticed with a guitar and lute maker. In 1980, she graduated from the Violin Making School of America in Salt Lake City, Utah, where she was able to design her own viola pattern and develop a love for the viola's range and voice. She also learned repair and restoration after school and on weekends at Prier's violin shop in Salt Lake City, Utah.

Paul Hart (violin maker) and Peter Prier (a founder of the Violin Making School of America) inspired Kundert-Clements greatly during her years at the Violin Making School of America. In Peter Prier's tonal evaluation class, she learned how to listen for a good quality of tone and find details compared with the different models. After graduation, she went to work for Vahakn Y. Nigogosian (1910-1997, world- renowned luthier) at Stradivarius Studios located across from Carnegie Hall in New York City. Nigogosian was a fine craftsman and had worked in the famous Wurlitzer shop. While there, Kundert-Clements had the opportunity to meet performers of top quality and to see and work on the Italian instruments they owned. She was able to learn her own set-up skills and came to understand the needs of the finest players. She also was invited to teach violin making and do repairs for the National Orchestra at the Escuela de Vida Y Movimiento in Mexico City, Mexico in 1982. While she was teaching, she learned more about the art of building and also realized that she preferred building the instruments to teaching others how to build them.⁵⁵ Eventually she opened a shop in Salt Lake City and repaired string instruments but focused on the viola because she liked its rich tone. In addition, she built violins from Stradivari patterns and violas after models from a seventeenth century German luthier, Grancino. Later she received the position of shop director with Peter Paul Prier, Inc.⁵⁶

⁵⁵ Gabrielle Kundert-Clements, <http://www.kundertviolins.com/bio> (accessed September 15, 2011).

⁵⁶ Cythia Davies, "Behind the Green Apron: A woman's view." *The Strad* vol.101, no.1198 (February 1990), 112.

Kundert-Clements designs violas based on the player's ability to handle the viola. Some people like a dark-sounding viola and some like something brighter and more piercing. A dark sound could be considered a tenor, while some might call a brighter sound might a soprano. Generally, a wider and bigger viola is darker sounding while a smaller, narrower pattern creates a brighter sounding viola. Harder, denser wood tends to be brighter sounding, and softer, more flexible wood tends to be darker in sound. The viola has a unique pattern among other string instruments body length, body width, string length and rib depth.⁵⁷ Kundert-Clements mainly makes violas, especially copies of older violas, but also makes violins and cellos. She measured and recorded every viola she had in her shop and studied the measurements, trying to find a model that inspired her to build something original instead of copying old instruments from other makers. She wanted to build instruments her own way so she could find a size that is comfortable for the player and still have a good quality of sound. Thus she chooses to build something different in every viola. For example, she made different patterns each time, including Amati, Gagliano, Guadagnini, Camilli, Castello, Testore, Da Salo, and Maggini. She also adjusted the sizes based on her models.⁵⁸ She thinks that a smaller viola is more beneficial for the player than a larger viola. She approved when Roberto Diaz used an Amati (1595) that was cut down from 18 inches to 15 5/8 inches long, keeping the widths of bouts and long f - holes. After restoring it the sound was even more powerful.⁵⁹ Kundert-Clements makes violas between 15 5/8 inches and at the very most 16 1/2 inches for very tall violists. In an email to the author she states, "Over time I think I have gained more confidence in my intuition as far as what wood to use and what model may be best for a person. For myself, a standard viola design would take the creativity out

⁵⁷ Gabrielle Kundert-Clements, e-mail message to author, September 10, 2011.

⁵⁸ Ibid.

⁵⁹ Ibid.

of the process. It may have a place in the beginning student instruments.”⁶⁰ Kundert-Clements was convinced that she could make a traditionally-shaped instrument that was not only smaller in size but better in sound.



Figure 26. Detail of Camillus Camilli copy (2010) (permission by Kundert-Clements)



Figure 27. Copy of 16 1/8-inch Camillus Camilli viola (2010) (permission by Kundert-Clements)

⁶⁰ Gabrielle Kundert-Clements, e-mail message to author, October 11, 2011.

CHAPTER 3

Advantages and Disadvantages

In my analysis of these modern violas, I point out the advantages and disadvantages of each design by comparing the shape, body length, string length, thickness of neck, and string height. I also include information from surveys taken by the four living viola makers and those who play their instruments.

From a player's point of view, sound is the primary issue in finding the right instrument. The next most important aspect is how easy it is to handle because it is difficult to make a good sound no matter what the player's level of expertise. Players have to be comfortable with their instrument's design and size. These violas have some traits in common, such as cutaway or sloping shoulders. There were seldom disadvantages with these instruments because once players liked the sound of the instrument, the other features such as shape, design, and materials did not really affect their choice. The disadvantages that do exist are usually minor issues such as accessories for the instrument; these could be fixed on an individual basis.

Table 1 summarizes the advantages and disadvantages of the four original styles I researched. I omitted Kundert-Clements' and Tertis' more traditional violas because although they were important to the discussion of various viola makers, this table addresses changes to modern shape and design.

Table 1. Advantages and Disadvantages

	Advantages	Disadvantages
Erdesz	-The cutaway adds evenness of sound and minimizes roughness to technical difficulty in the higher position.	-Players are reluctant to try anything unusual in the shape of the instrument.
Iizuka	-Double cutaway shoulders make it easy to reach the higher positions. -Indents in the bottom help the player's neck fit the instrument comfortably. -Light weight reduces tension created from holding the instrument.	-Most people do not want an unusually-shaped viola. -Indents in the bottom require a special chinrest to fit, so it is a little tricky to fit a regular chinrest. -Wider bouts do not fit a regular viola case.
Rivinus	-Expanded air volume gives more vibrating surface area. -Using phenolic resin fingerboards instead of ebony reduces the weight of the instrument by 25%. -Extra holes in the front of the body create a clear sound. -Tilted fingerboard requires less supination of the left arm and prevents injuries.	-Striking look of the off-center fingerboard, bridge, and sound post. -Left side of the f hole is a different shape and bigger than the other, creating more sound in the left ear, which may bother players because the unbalanced sound goes directly through the ears. -Players are reluctant to try anything unusual in the shape of the instrument.
Curtin	-Sloping shoulders facilitate the player's comfort in the higher positions but did not decrease the interval vibrating length.	No disadvantage

The typical standard measurement of the violas I have studied is 16 inches, with a body length of $16 \frac{1}{10}$ inches (43cm) and a string length (measured from the nut to the top of the bridge) of $15 \frac{7}{20}$ inches (39cm). In the table below, I compare the shapes and sizes of the violas I have introduced, including the Tertis viola. When making their violas, most makers consider how to reduce weight, make the instrument suitable to play especially in the upper positions, and create a beautiful design and good sound.

Table 2. Comparison of Body Length, String Length, Thickness of Neck, and String Height.

	Tertis	Iizuka	Rivinus	Curtin	Kundert
Shape	Similar to Montagnana	D' amore style with double cutaway in the upper bouts	Pellegrina (melted shape)	Sloping shoulders	Typical shape
Body length	$16 \frac{3}{4}$ inches (42.5cm)	16 to 17 inches (40.6cm to 43.1cm)	3 sizes of Pellegrina. 18 $\frac{1}{2}$ inches diagonally (14 $\frac{1}{2}$ inches length), 20 inches diagonally (15 $\frac{3}{4}$ inches top to bottom).	16 to 16 $\frac{1}{2}$ inches (40.6cm to 41.9cm)	15 $\frac{5}{8}$ to 16 $\frac{1}{2}$ inches (39.6cm to 41.9cm)
String length	$14 \frac{11}{16}$ inches (37.3cm)	14 $\frac{1}{2}$ inches to 15 inches (36.8cm to 38 cm)	12.7 inches, 14 inches, and 14.3 inches (32.4cm, 35.7 cm, and 36.5 cm.)	Between 14 $\frac{1}{5}$ inches and 14 $\frac{3}{5}$ inches (36cm to 37.5 cm)	Around 14 $\frac{3}{5}$ inches (37.1 cm)

Thickness of neck		19 mm at the first position and 22 mm at the heel or 4th position. This is an average thickness which includes the fingerboard's thickness.	Usually 18.5 mm at the first position and 20 mm at the heel.	Wider than about 24.3 mm at the upper saddle or less. From front to back, about 19.5 mm works with the above width.	19.5mm towards the scroll and 21mm towards the body. Maybe one-half mm thinner.
String height	A string: 5/32 inch D string: 6/32 inch G and C strings: 7/32inch	A string: 4 -6 mm C string: 6 - 8 mm	A string: 4 mm C string: 5 mm	Above the fingerboard, the normal range is 6-6.5 mm from center of C string to fingerboard, and 4 - 4.5 mm for A.	4.5mm from fingerboard to the middle of the string on the A side and 6.5mm on the C string; flexible lower by one-half mm
Other features	Violin pegs to reduce the weight	Changed shape but maintained Renaissance-style symmetrical f - holes around 50 mm apart. Baroque inspiration.	Higher bridge in order to make the sound clearer on the A string.	Combined wood with synthetic materials.	Lightened scrolls so the viola can be supported by the shoulder easily.

The makers I surveyed believe that a standardized shape and size for the viola is not ideal because the viola is a unique instrument in the string family. They still felt there is room for

improvement in the sound of their instruments. However, each of these makers studied for more than 20 years, and their experience resulted in their current success.

CHAPTER 4

SUMMARY OF INTERVIEWS AND SURVEYS OF MAKERS AND PLAYERS

My research was based on the idea that the size and shape of the viola should be standardized. I selected four makers who design unique shapes of the viola and one maker who uses the traditional shape but prefers to produce a smaller viola and surveyed them to get their point of view as to whether standardization is possible or requires further study (see Appendix 1).

Summary of Makers Surveys

I asked questions about how as makers they compromise body length, string length, thickness of neck, and string height. Iizuka, Rivinus, Curtin, and Kundert-Clements all stated that they make the violas based on the player's physical needs and playing style. Kundert-Clements also took into account the player's comfort.

Curtin and Kundert-Clements have observed that players today tend to want smaller violas. The question is how it is possible to produce a small viola with a dark, large sound. Iizuka chooses the thinner plate for making the smaller viola and applies the appropriate materials. Rivinus uses his years of experience to apply different components to create a large sound with a small viola. Curtin points out that a large sound is not dependent on size; he reduces the mass of the vibrating components of the top and back as well as details of the design and setup. He also mentioned that the f-holes of Guarneri del Gesù violins are a little bit smaller than Stradivari's and create a dark sound. Kundert-Clements uses an antique pattern as a basis; beyond that it depends upon the player's ability.

I also asked makers what it was they did that improved their violas the most. Iizuka answered that his d'amore style viola with a wide bottom produces a good sound in the lower registers. Rivinus believes his Pellegrina viola makes playing easier, especially for injured players. Curtin stated that reducing the weight of the plates and using veneers under the bridge and the top of the soundpost area to protect the instrument was his best improvement. He also applied sloping shoulders to the Evia, which allows easier access to the upper positions and experimented with using laminated fingerboards to make the instrument lighter. Kundert-Clements believes that using good quality wood in each pattern is the key to making a great instrument.

It is important to consider what the makers thought about the future of viola design. Iizuka responded that there will be room for change but the shape is limited by the laws of physics and the physical limitations of the human body. Rivinus hopes his idea of the ergonomic Pellegrina viola will survive in the future because the possibility of injuries demands makers' attention; he emphasized that the shape of the viola could help injured players. Curtin wishes that unresolved design found in the viola would motivate further study and promote further experimentation with new components. Kundert-Clements pointed out that there are limits to design whether the shape of the instrument is traditional or not. To sum up, makers believe that there is a limit to how innovative viola design can get, but that new materials can be used to create better instruments.

Four makers shared their comments about a standardized viola design. Iizuka believes that his d'amore style is close to a standardized viola design. Rivinus mentioned that historically the viola was not used for virtuoso playing as it is today, so needs have changed. Curtin stated that standardization would be useful, but violists would not all agree on the same tone quality,

string length, size, and so forth. He pointed out that a smaller viola has a brilliant soloistic sound and a large viola with a dark, blended sound added to the ensemble found in an orchestra. Kundert-Clements did not mention standardized design. I asked one other Brazilian maker, Luis Claudi Manfio Manfio, who stated that he believed a standardized viola design is impossible today because there are so many different opinions from players as to what they are looking for. Soloists, quartet players, and orchestra players prefer different sizes and shapes according to the sound required by their type of performance.

Summary of Interviews and Surveys of Players

The opinions of players about a standardized viola design and the future of viola design were sought using a survey and interviews (see Appendix 2 for questions addressed to players). Irvine, who uses Iizuka's violas, thinks the existence of various sizes and shapes is good. He believes there is a limit to how much the shape can change but did go on to say that he could not predict what will be in the future. Slapin thinks the future of the design should be influenced by the purpose of increasing responsiveness and projection but not the actual size. Zhao, who has used Curtin's viola for five months, would like to see viola size standardized but not the shape. Ehrlich and Johns, who both use Rivinus' violas, stated in their responses that standardization is not the best ideal because everyone's needs are different. Each design enables viola players to address their needs in a variety of ways. Furthermore, makers' experiments contribute to the future design of the viola. Johns said the Pellegrina shape may be the last attempt at the future of viola design unless there is added work based on additional scientific efforts. Callus uses Kundert-Clements' viola and is not in favor of a standardized viola because it will not allow

people with individual needs to find a viola that is suitable for them though she understands that someone might try to attempt a standardized model. Callus pointed out that even though violists sometimes sustain serious injuries, she does not see the future design of the viola changing at this time. She thinks that the current shapes that exist today are good enough.

Another question for players who use a modern viola requested their thoughts on a standardized viola design. Victoria Chiang would like one but thinks that it is a maker's task rather than a player's task. Maggie Snyder mentioned that whatever shapes work for players are the best, but slight variations would be beneficial, too. Daniel Sweaney is convinced that it would be useful if there was a standard viola size and string length because it would make it easier to switch instruments. Garth Kennedy does not agree with the idea of a standardized design because the individual needs of players vary greatly. He suggests that experimenting with different materials might be helpful for the future of viola design. Michael Fernandez doubts that there will be standardized sizes because of the varying needs of different players. He believes that the designs by da Salo, Stradivari, and the Amati brothers will be the standard for the future of viola design. Carbon fiber will be more popular, but wood will be the primary source of fine instruments. Koen Lambrecht and Virginia Lawrence disagree with the concept of standardization for both design and size altogether.

CHAPTER 5

CONCLUSION

Size and shape of the viola have never truly been standardized even though both Ritter and Tertis attempted it. Ritter tried to design a huge 18 7/8-inch viola in 1876, and in 1937 Tertis attempted to standardize the viola size as 16 3/4 inches. A modern viola typically ranges between 16 inches and 17 inches, with a string length roughly around 15 inches. Compared to standardized instruments such as the violin and cello, the viola still does not have a standard one-size-fits-all design.

Many makers of violas design instruments that vary greatly in sizes and shapes as well as the materials used. If there had been as many violists requiring various sizes and shapes a few decades ago as there are today, there might have been further developments. It has only been in the past 75 years that makers have seriously considered viola construction. It has been an ongoing project for many luthiers and players. Future makers will continue to explore more possibilities of size, shape, and the materials used. It is possible that over time a standard design for the viola will be made with makers' efforts. However, the variety of design and size today puts a spotlight on viola sections in orchestras, making them unique and special.

My research was based on the question of whether standardization is possible or requires further study. I selected five very famous and innovative makers because they have all been successful with their designs. Makers report that they are making what players request. Curtin and Kundert-Clements point out that a smaller viola is the current trend. The size of the viola does not have to be huge as long as makers produce smaller instruments with a good quality sound and they are able to project well.

From a player's point of view, it is important to find an instrument that has a warm tone quality, is well balanced throughout all four strings, is light weight and appropriately sized for the performer, has a thinner neck, and is comfortable to handle. I selected six performers who currently are using instruments that I chose for analysis. It was very interesting to see what other players thought about a standardized viola size and design. Slapin and Zhao said that it would be useful if a standardized viola existed with regard to size but not shape. I also received comments from seven players who currently use modern violas; I only received positive answers from four players out of thirteen favoring a standardized design. Violists might like it if there is a standardization of the viola size and shape but most did not think it was necessary. My primary concern is a good sound with resonance. Unlike players of other stringed instruments, violists have both the opportunity and the challenge to select an instrument that suits their needs.

There are some different approaches to viola design. One is to make innovations in the instrument but keep an antique inspiration, and the other is to create a completely new design. After close examination of the research it seems that a comfortable playing size is around 16 inches because this is a common size for most people. In addition, a standardized size would be beneficial when as player having to adapt easily to another instrument. Another interesting point that emerged pointed to a performer's age. Many tend to want a smaller viola than they used in their youth. For example, Irvine mentioned that he down-sized from a 17-inch instrument to a 16 1/2-inch one. Curtin, Manfio, Jones, and Kennedy also prefer a smaller viola.

After reviewing the surveys from five makers and thirteen players, I found most of them would like to find instruments that fit their bodies the best in size and shape. However, it would be much better if there is a standard size of the viola as there is for the violin. Using current advances in technology and materials, modern makers produce such good quality instruments,

that any player can get what he or she wants, whether for solo or ensemble playing. I do not see that a large viola is beneficial for most violists because there is the possibility of injury: even Primrose and Irvine used smaller instruments when they got older. Primrose stated the viola is a difficult instrument to handle well. Nevertheless, it is hard to say whether the viola should be standardized because players and viola makers do not seem to be able to agree on a perfect size, shape, and sound. A player's ability and physical condition seem to be factors that cannot be overlooked and make it difficult to envision a standardized "model." Violists have always been thought to be somewhat unique and this uniqueness may in fact be the best reason to continue to produce instruments in various sizes and shapes.

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Appendix 1: Questions for Makers

1. What changes have you made to viola design?
2. How do you compromise body length?
3. What is the ideal string length?
4. What is the ideal thickness of the neck?
5. What is the ideal string height?
6. What do you think is the best set-up?
7. How do you produce a small viola with a large sound?
8. How does a small viola design affect the height of bridge and length of neck and fingerboard?
9. What changes do you feel you have made which have improved your instruments the most?
10. What do you see as the future of viola design?
11. If you have made viola with a different shape, do you feel you have come the most ideal design or are you still searching for something better?
12. How do you feel about standardized viola design?

Appendix 2: Questions for Players

1. What instrument are you currently playing on?
2. What do you look for in choosing a viola?
 - 1-1 Do you prefer a modern or older viola and why?
 - 1-2 What type of viola did you use before this viola?
3. Describe your most successful performance with the viola.
4. How do you compensate for the changes in sound that occur as an instrument ages?
5. Do you feel there are any disadvantages to this viola? If so what?
6. Do you think this is the best shape and design for the viola? If so, why? If not, what would improve it?
7. How do you feel about a standardized viola design?
8. What do you see as the future of viola design?

Appendix 3: Surveys and Interviews of Makers and Players

Viola Maker: Survey from Iizuka

Q: What changes have you made to d'amore style viola?

“I had experienced making baroque instruments which made me to create new shape of the instrument. I also got inspired by making unusual designed guitar which the left upper shoulder was cutaway to better play in the upper positions.”

Q: How do you compromise body length, string length, thickness of neck and string height?

“To customize the viola for each player's need, these types of adjustments/compromises are very common. I make adjustments according to the player's physical need and playing style.”

Q: What do you think is the best set - up?

“Although this is very personal, my opinion is that the viola has to be played with less effort. The bridge should not to be too high for example.”

Q: How do you produce a small viola with a large sound?

“I choose the right material first, then according to the strength of the material, I have to make the thicknesses and varnishing changes. The smaller the size, the thickness of the plate needs to be relatively thinner.”

Q: What changes do you feel you have made which have improved your instruments the most?

“Both of my viola styles have a rather wide bottom which contributes to producing a good sound in the lower register.

Q: What do see as the future of viola design?

“There will be some room for change, but the shape is limited due to the law of physics and due to physical limitations of humans. The resonance chamber cannot be an outrageous shape. The distance away from the sound-post cannot be too great because the sound waves have to come out from the sound hole instantaneously. Otherwise, the viola will sound sluggish and muffled as you can hear on some violas.”

Q: If you have made violas with a different shape, do you feel you have come up with the most ideal design or are you still searching for something better?

“I think my d'amore style viola is probably very close to the best possible design. When comparing the two styles of my violas, the Rubenesque style viola is harder to play in the higher positions.”

Player: Iizuka's viola from Jeffrey Irvine

Q: What instrument are you currently playing on?

"I played a Iizuka's viola 17-inch standard model and I played a 17 inch model that had standard lower bout and now I play on 16 1/2 inch model which is called d'amore model where this is cut down in the upper bout and little of extended in the lower bout. As you know I am getting older I found I am 6.3 inches tall, I feel little bit big for 17 inches. So I down sized half an inch. I played Iizuka's viola since 1979."

Q: What do you look for in choosing a viola?

"I want to have something that speaks easily, something has a good combination of having a good viola sound but projects well and those are the main things. I think sometimes I get a very beautiful, dark-sounding instrument but sometimes those instruments could be hard to hear and then of course get a very bright instrument can project well but be the always such as fine right now. Some kind of balance between I think I start to find the viola projects. I don't concern so much. I like to have a different quality strings and different color."

Q: Do you prefer a modern or older viola and why?

"Well, if I had million dollars I will buy a great old viola, but I think if you're in the price range 30,000 dollars generally you can get a better sounding viola if you buy a modern viola. I think there are lots of old violas around that are expensive because of their antique value, but they don't necessarily sound good. So as you can tell, I sort of played a lot of violas for fun, but I always pick up mine. One of my friends, Martha Strongin Katz (viola faculty of New England Conservatory), she has such a wonderful Storioni old Italian viola (Lorenzo Storioni of Cremona in 1800) and I loved the sound of the viola but I don't have that kind of money to buy it."

Q: What type of viola did you use before this viola?

"I played a viola by A.E. Smith, 17-inch Austrian viola."

Q: Describe your most successful performance with the viola.

"I played quartet concerts when I played with New World String Quartet in 1992. We played quartet concert in Oak Ridge, Tennessee. There is a nuclear laboratory so there are a lot of scientists and physicists. So many of them who were so interested in chamber music and we play for them like a good group to hear the good size of audience. We would enjoy and be thankful for them. That was a great fun concert."

Q: How do you compensate for the changes in sound that occur as an instrument ages?

"I don't think I get any compensate because I feel like it gets better. Iizuka violas, when you first play them, they are very easy to play and they sound terrific. I would say during the first year they get a little bit better and over five years they get a little bit better yet."

But they start off with a wonderful sound yet. You don't have really to compensate for anything."

Q: Do you feel there are any disadvantages to this viola? If so what?

"No, I don't."

Q: Do you think this is the best shape and design for the viola? If so why? If not what would improve it?

"I don't think necessarily is the best shape, but the shape works for me. It worked for Iizuka and it made a good sound with that. Traditional shape sounds very good also. I played it because I like the sound of it and I like the cut down shoulders because they were easy to play in the higher positions."

Q: What do you think about standard size of the viola?

"I like the sound of the big violas but sometimes a small viola projects more, but it depends on the viola. There are some big violas that project very well. Tertis' model viola, I am not necessarily fond of those but of course if there is one of those (Tertis) sound good then I like standard viola design."

Q: How do you feel about a standardized viola design?

"No. I think that's fine there could be different sizes and shapes of violas."

Q: What do you see as the future of viola design?

"I don't think it will change much. It's possible that the cut down viola design may become a little bit more popular. The Rivinus designs are interesting, but I don't think they will become that much more popular. But a couple of standard models will continue to be become the most popular models. Who knows? Who can predict the future?"

Q: Do you want to add something about Iizuka's viola?

"Iizuka wants to only to do the best work possible and he wants to be very fair to everybody."

Player: Iizuka's viola from Scott Slapin

Q: What instrument are you currently playing on?

"I play a d'amore style Iizuka, made in 1985."

Q: What do you look for in choosing a viola?

"I like to have an even sound in all registers, projection, quick response."

Q: Do you prefer a modern or older viola and why?

“It doesn’t really matter to me. What matters more is how it is to play (and if I can afford it!).”

Q: What type of viola did you use before this viola?

“I’ve had the Iizuka since I was 12. The previous viola was a student instrument.”

Q: Describe your most successful performance with the viola.

“It would be really difficult to choose just one! I would say though that the Iizuka helps in playing the more virtuosic repertoire because it responds more easily than many other violas. (Not as easily as a violin, but more in that direction!)”

Q: How do you compensate for the changes in sound that occur as an instrument ages?

“I think it’s important to bring the viola in from time to time for sound-post adjustments, perhaps a new bass-bar etc. It’s always good to reevaluate what might be the best strings for the instrument. I always try to bring the viola back to Hiroshi Iizuka he has a great ear for these sort of adjustments.”

Q: Do you feel there are any disadvantages to this viola? If so what?

“It’s has a unique sound, even in comparison with other Iizukas. It’s maybe a little more alto than tenor, and some conductors seem to prefer tenor.”

Q: Do you think this is the best shape and design for the viola? If so why? If not, what would improve it?

“I really couldn’t say too much not being a luthier. From a player’s standpoint, Iizuka’s viola is very comfortable. It is light-weight, and the back is flat towards the bottom, which I find makes it easier to hold. As I mentioned, it responds more easily than many other violas.”

Q: How do you feel about a standardized viola design?

“I think the viola and the double bass will always be less standardized than the violin and cello.”

Q: What do you see as the future of viola design?

“More attempts to increase responsiveness and increase projection without increasing the size of the body.”

Additional answer from Slapin:

“Hiroshi Iizuka’s violas have had a tremendous impact on the viola world. Well-known soloists and chamber musicians such as Emanuel Vardi and Michael Tree to leading professors such as Jeffrey Irvine at Oberlin have played and championed his instruments. At one point there were seven violists in the Berlin Philharmonic playing on Iizukas! Without a doubt Hiroshi Iizuka has made a major impact on the viola world.” I was very lucky in that my parents bought me my Iizuka viola d’amore style viola when I was only

twelve years old. I have been playing on it now for twenty-five years. I made the first recording ever made of all of Bach's Sonatas and Partitas on viola, and I have recorded all of Paganini's Caprices as well. Frank Proto wrote me an entire CD of technically challenging Soundscapes which cover the entire range of the instrument. With many other violas, playing these pieces would simply be impossible. The Iizuka responds much more easily. I never have to use too much pressure to force the sound out. The tone is even in all registers, which allows for playing very high up on the lower strings while still getting a good sound. About the sound in general, I'd say the Iizuka allows me to play in a more relaxed way that many other violas allow for. The instrument is light, and the neck is thin. After twenty-five years, I've just been discussing acquiring a second Iizuka!"

Maker: Survey from Rivinus

Q: What changes have you made to viola design?

"There are many, many changes I have made and this is a question that would take a long time to answer correctly. All of the first changes were designed for ergonomics. The difference in shape and string length and other innovations were to make the instrument easier to play. Then, the rest of the changes have had to do with making it produce the type of sound violists want."

Q: How do you compromise body length?

"Violists play violas from the left side at the chin, to the right side at the fingerboard. If you shrink the viola in that direction to make it easier to play, then you need to stretch it in the other direction, otherwise it is too small and doesn't produce the right kind of viola sound."

Q: What is the ideal string length?

"There is no ideal string length. This all depends on the player. On a traditional viola, the longer the string length, the better the sound. But that usually ends with players becoming injured. So I have found a way to shorten the string length and still make the viola sound good. The Pellegrina comes in three sizes. The smallest has a string length that is the size of a violin. But the viola still sounds good. It is used in several orchestras."

Q: What is the ideal thickness of the neck?

"Again, that all depends on the player's hand. I have tall players with large hands and they prefer a thicker neck. But I also have very small players - some under five feet - and they prefer necks that are more like violin necks."

Q: What is the ideal string height?

"I make the string heights 4 mm for the A string and 5 mm for the C string. Other makers make these higher, but it is not necessary and these heights are more comfortable."

Q: How do you produce a small viola with a large sound?

“Again, this is a question I have been asking myself for nearly 20 years and it has involved years of experimentation and testing. It involves many different components.”

Q: How does a small viola design affect the height of bridge and length of neck and fingerboard?

“I can only speak for my instruments. On mine, I make the neck angle steep and the bridges high. That way, there is more angle where the strings go over the bridge, but the string heights over the fingerboard remain low.”

Q: What changes do you feel you have made which have improved your instruments the most?

“I have made them easier to play while still making them sound good.”

Q: What do you see as the future of viola design?

“I hope - and believe - that at least some of my ideas will survive me into the future. Players are becoming injured more and more and we violin makers need to do some things to help them.”

Q: If you have made violas with a different shape, do you feel you have come up with the most ideal design or are you still searching for something better?

“There may be something better, but I am sticking with my design. It takes many, many years to perfect a new idea and I am happy enough with the shape because it has helped so many players. Now my attention is on acoustic matters.”

Q: How do you feel about a standardized viola design?

“The viola was invented to play very simple melodic lines. The inventors never dreamed that it would be used for the kind of virtuoso playing that is done today. It is a beautiful instrument, but it is large, cumbersome and not suited for today’s music.”

Rivinus’s viola from Don Ehrlich,
former Assistant principal violist
of San Francisco Symphony.

Q: What instrument are you currently playing on?

“I am using a Pellegrina model viola made by David Rivinus.”

Q: Do you prefer a modern or older viola and why?

“I guess I’d have to say a modern viola. The lure of the old master instrument is strong, but because of injuries to my left side I can no longer play a normal viola. Also, I can’t afford an old master.”

Q: What type of viola did you use before this viola?

“I played a 17-inch viola made in 1964 by Max Frirsz. He made it to my order and my specifications. Since then, my specifications (needs) have changed a lot.”

Q: Describe your most successful performance with the viola.

“Tough question. I’d have to say three. The first was in 1969 or 1970 in a string quartet concert at the University of Michigan, where we played an amazing Bartok #3. The audience couldn’t respond. The second was a performance of Shostakovich’s viola sonata about 5 years ago. Again, the emotion of the performance had the audience unable to applaud. The third was a full recital a couple of years ago. I felt as though I finally was able to play the way I have always dreamed of playing.”

Q: How do you compensate for the changes in sound that occur as an instrument ages?

“Mostly, I value those changes in sound, I encourage them. I work for different sonic colors; as the instrument ages, I can get those colors more easily, and can work for still more.”

Q: Do you feel there are any disadvantages to this viola? If so, what?

“The ergonomic advantages of this viola are substantial, making it extremely easy to play. The one disadvantage I’ve found is that because of the way the instrument is set up, with spiccato on the A string, the bow is nearly vertical, so gravity won’t help. But it is easy enough to adjust, with a different pressure with the right hand, and perhaps with a slight bend at the waist to the left to compensate.”

Q: Do you think this is the best shape and design for the viola? If so, why? If not what would improve it?

“I have no idea if this is the best shape. It certainly works for me. Every viola is something of a compromise. For a viola to be as perfect as a violin, it would need to be 21 inches long. Nobody can play a viola that large (unless we put an end-pin in and played it down, like a cello). Stradivari’s few violas are the same design/shape as his violins, but longer. Most (all?) other viola makers vary the dimensions in some way. Perhaps the ribs are wider, or the bouts bigger in some way. This is to compensate for the too-small size. Mr. Rivinus’ Pellegrina model is just another compromise, although perhaps the most radical. He made a relatively short body, and morphed out the body on the diagonal, so it’s out of the way. The playing length of the instrument is 15 7/8 inches, but the long, diagonal dimension is 20 inches. Thus we have the big body and the short playing dimension.

Mr. Rivinus has purposely not copyrighted his design, for two reasons. First, he keeps making his own discoveries and adjustments. Second, he would like other viola makers to make their own experiments. Copyrighting his design would shut other makers out.”

Q: How do you feel about a standardized viola design?

“I’m not sure standardization is in our best interest as violists. Everyone’s needs are different. Different designs may help different people in differing ways.”

Q: What do you see as the future of viola design?

“I’d say to the makers, keep experimenting.”

Player: Rivinus’s viola from Robert W. Jones,
former violist of Atlanta Symphony Orchestra.

Q: What instrument are you currently playing on?

“I play a 16 5/8-inch Pellegrina viola made in 2002. It looks strange and bigger than 16 5/8 inches, but it feels very small once you play. This Pellegrina is so much less fatiguing to play and I am not embarrassed by its sound. It’s a tradeoff. I am one of 25 people who have a Pellegrina viola. There are members of the San Francisco Symphony, the Saint Louis Symphony, the New Orleans Symphony, the Philadelphia Orchestra, and the Atlanta Symphony orchestra. I also think one is somewhere in Belgium.”

Q: What do you look for in choosing a viola?

“I look for tone quality when choosing a viola.”

Q: Do you prefer a modern or older viola and why?

“I would prefer an old viola’s sound, but the problem is that the cost is too high. Good quality old violas, such as Guarneri or Klotz, would be expensive due to their rarity compared to violins. Around 1945, string instruments were much cheaper than other instruments such as flute, clarinet etc. Honestly it has to be affordable financially as well. A Keller instrument was \$28,000, but I paid \$12,000, which is inexpensive for a modern instrument, for a Pellegrina instrument. Pellegrina can compete with instruments that are twice the price.”

Q: What type of viola did you use before Pellegrina?

“In 1960 I used my former teacher’s second viola, Abraham Skernick, and played in the Stuttgart Symphony for two years. Between 1962 and 1967, I had a Klotz viola for five years in the Houston Symphony and the Cincinnati Symphony Orchestra. Since 1968 I have been using a 17-inch Helmuth Keller viola.”

Q: Describe your most successful performance with Pellegrina.

“Well, I played the Pellegrina for most of the Atlanta Symphony concerts. Actually, the most successful performance was when I played chamber music in Europe. Around 1960s, I played Beethoven’s Septet in Stuttgart, Baden-Baden, Frankfurt.”

Q: How do you compensate for the changes in sound that occur as an instrument ages?

“I do not know exactly. For example, when you taste good wine at first it is good, but then it gets older and better. I think this is the same for the instruments. If you do not like the sound at first from any modern or old instrument, then you will not like it later. Brand new instrument could change in sound a little bit, but not much in my opinion. Rivinus changes the color of his instrument depending on the customer’s wishes, but I did not want to change the original color of the instrument because I was concerned that it might change the sound.”

Q: Do you feel there are any disadvantages to this viola? If so, why?

“I have always wanted to have a good quality of sound on the lower strings. Pellegrina can sound a little bit weaker on the A string compared to the G and C strings. The A string’s sound projects well, but the sound is a little lacking in quality. Another disadvantage is that the bridge is higher than conventional style. In order to play on the C string I have to lift my right shoulder more than I need to.”

Q: Do you think this is the best shape and design for the viola? If so, why? If not, what would improve it?

“In 2000, I was out of work for five weeks because I had broken my shoulder during a 10K race in Atlanta, GA. When I got the Pellegrina viola I was able to attend orchestra rehearsals. I find that the viola helps most if you have health problems.

“Even though I like my viola, I don’t think Pellegrina is the best shape. I guess I chose the Pellegrina because I had broken my shoulder and was not able to play my Keller viola. If I become physically better then I will go back to my Keller viola. I would rather have a regular-shaped viola than the Pellegrina shape. I prefer the evenly cut upper shoulders. Personally this would be the best shape.”

Q: How do you feel about a standardized viola design?

“I would not agree with a standardized viola design, in size or shape.”

Q: What do you see as the future of viola design?

“I cannot see a more forward thinking viola shape than Pellegrina. I would like to see normal shape but scientific effort technology need to add it or it should stay basically same as now.”

Maker: Survey from Curtin

Q: How do you compromise body length?

“This depends on the player. Most players seem to want smaller violas nowadays – around 16”, where 16.5” was commonly asked for 20 years ago. I work on commission, and so build whatever size the player wants.”

Q: What is the ideal string length?

“According to string designer Fan Tao of D’Addario, the C string should be long and the A string short – an impossible combination, meaning there is no single ideal, but compromises based on the needs and tastes of the player. I’ve used string lengths between 36 and 37.5 cm with good results.”

Q: What is the ideal thickness of the neck?

“Unless requested by the violist, I see little reason to make the neck wider than about 24.3 mm at the upper saddle, and even less can work fine. From front to back, about 19.5 mm works with the above width.”

Q: How do you produce a small viola with a large sound?

“It’s important to remember that a large sound is not directly dependent on size – violins out-project violas and yet are smaller. The larger the instrument, however, the better the chance of radiating low frequencies well, and so of getting a darker sound. The question becomes ‘How do you get a large, dark sound from a small viola?’ The answer, I believe, is to reduce the mass of the vibrating components, especially the top and back, and then to pay attention to many small details of the design and setup – much can be learned from studying the arching and f-holes of Guarneri del Gesù violins, which are typically a bit smaller than those of Stradivari, and yet which are generally credited with a darker sound.”

Q: What changes do you feel you have made which have improved your instruments the most?

“I’ve reduced the weight of the plates, protected the instrument by using veneers under the bridge feet and on the inside of the top in the sound post area. For the Evia model I’ve adopted a sloping shoulder that allows easier access to upper positions – and would like to take this concept much further, using asymmetrical designs. I’m working on laminated fingerboards that are lightweight, never need planing, and don’t use endangered rainforest woods. I’m working on a bridge that won’t warp, is held securely in its intended position on the instrument, and which resists any tendency for the strings to dig into the top surface.”

Q: What do you see as the future of viola design?

“I hope that the many unresolved design issues found in the viola (and the violin and cello too!) will first of all be taken seriously by makers, and then addressed in imaginative ways. If violas built 20 years from now look the same as those built for the past few hundred years, I will feel that my generation of viola makers has failed at our task!”

Q: If you have made a viola with a different shape, do you feel you have the most ideal design or are you still searching for something better?

“I don’t believe in a single, ideal design for anything, let alone a viola, and so am constantly trying to find alternative approaches to instrument design.”

Q: How do you feel about a standardized viola design?

“Standardization would be useful in allowing violists to adapt more easily to instruments other than their own. Unfortunately, violists themselves are not standardized! They do not all agree on the same ideals for tone quality, string length, size, etc. This makes a standardized design pointless – better that there is a wide variety of models for violists to choose from. I myself feel the viola could usefully evolve into two separate instruments – one that is small, agile, with plenty of brilliance and projection for solo work, and another that is perhaps larger and darker, that blends into (rather than projecting over) an ensemble, and is therefore specially suited to rounding out the sound of a string quartet or orchestral section.”

Q: Do you mean solo viola and ensemble viola could be a different in size? What about a costumer that wants a small viola to make sound more for an ensemble rather than a soloistic sound?

“Yes, it should be quite possible to build a small viola that blends in, though it would be more of a challenge to get the depth of sound of a larger instrument.”

Player: Survey from Qiyun Zhao,
who used the Evia for five months.

Q: What instrument are you currently playing on?

“I used an Evia model viola for five months. I like its bright sound, which may be because of the innovation on its bridge by Mr. Curtin. The shoulder shape made me feel comfortable too.”

Q: What do you look for in choosing a viola?

“I would prefer a good sounding and easy projecting viola instead of considering whether it is modern or old.”

Q: What type of viola did you use before with the Evia?

“I use the traditional type viola before and after using the Evia”

Q: Describe your most successful performance with the viola.

“My performances with this viola were all well received. Some audiences thought it is an antique. The only one audition with Evia was the most exciting moment I have ever

experienced, the instrument gave me more confidence for sure. It is bright, loud, which means not warm rounded like a typical viola, it cannot be hidden inside a quartet or ensemble, cause its sound won't blend, it is outstanding and powerful, deserve to be a solo instrument. While it demand hard work to control the color change, cause it is easily to be all loud and bright.”

Q: How do you feel about a standardized viola design?

“I hope the viola size can be standardized rather than the shape, more creative rooms for the makers would be nice.”

Q: What do you see as the future of viola design?

“I don't know about the question much about the shapes the viola could have, the design of violas in the future might be even more diverse, which I will look forward to see.”

Maker: Survey from Kundert-Clements

Q: What changes have you made to viola design?

“I change something each time I build a new instrument depending on what I feel needs correcting or improvement. This could be the shape of the pattern, wood choice, string height, neck angle, varnish.”

Q: How do you compromise body length, string length, thickness of neck, and string height?

“I custom build violas according to each player’s needs. Comfort is key, so depending on the person’s build and playing style I choose the pattern along with them.”

Q: What do you think it the best set up?

“There is no ‘best set-up’ in general. This varies from player to player.”

Q: How do you produce a small viola with a large sound?

“It is helpful to have a pattern from a nice antique that you know can sound good. Then much of the sound comes from the new instrument getting played by a good player. This develops the sound.”

Q: What changes do you feel you have made which have improved your instruments the most?

“Using quality wood is key and working with each pattern to know how things are going to work to your benefit. There is no substitute for simply making many instruments to improve the quality.”

Q: What do see as the future of viola design?

“The sky is the limit as far as future viola design goes. It is a matter of staying somewhat within tradition or branching out and perhaps building something that may take getting used to as far as the eye goes. The trend, however, needs to be a pattern that is easily played. There are too many injuries from violists playing on large violas.”

Q: If you have made a viola with a different shape, do you feel you have the most ideal design, or are you still searching for something better?

“I am always searching for something better. The thing is “better” means different things to everyone. It is important to me that the viola is heard. The sound needs to cut through and be beautiful to listen to at the same time. The instrument needs to complement the player. The string set up needs to compliment the instrument. I do like the look of the traditional patterns so much that I have not strayed far from this. Every design has its plusses and minuses. Just like people!”

Player: Survey from Helen Callus

Q: What instrument are you currently playing on?

“I am currently playing on the Primrose Amati copy made by Gabrielle Kundert, 2004. The original is owned by Roberto Diaz and I have had the fortune to play it and perform with Roberto, the original and its copy together!

Q: What do you look for in choosing a viola?

“Generally, all I am interested in is that it is a well made instrument (so can project, have many color options and react fast) and sounds gorgeous. But it’s a two way street and so I am looking for something that suits my type of playing.”

Q: Do you prefer a modern or older instrument and why?

“Modern instruments often have something old fine instruments don’t and old fine instruments have something modern instruments don’t. So each gives you something and perhaps takes away something. You have to learn how to play an old instrument versus a modern. Sounding point, bow speed and placement and weight are all elements that create a totally different experience on each. On moderns you can feel like you can get right into the string, dig in and pull out the sound. On older instruments you cannot play that way - the sound will just become trapped so you have to pull out the sound with a faster speed and less weight.”

Q: What type of viola did you use before this viola?

“I have played all kinds of instruments anywhere from a \$10,000 English viola I had as a student and made my first recording titled with ‘Portrait of the viola’ to an \$800,000 Amati on loan for a summer festival and concerts. I don’t have a particular preference, but each is a totally different experience. I actually choose to play a modern instrument because I want to promote the message to all students that you don’t need to worry about buying a very expensive viola for your career - something good up to \$30,000 will be enough to give you a pretty major career. The rest of it is completely up to you. For my Walton CD I used a viola on loan from a collector in L.A. worth about \$120,000 by D’Espine; for the Prokofiev I used the Kundert after about 3 months of playing it from brand new, the Bach & Gordon Jacob concertos is the Kundert after several years. I have played other instruments on loan a Guadagnini that was very small for several concerts (a couple of years) was also a lot of fun and quite different (small).”

Q: Describe your most successful performance with the viola.

“With my current viola I think my two latest recordings which I consider performances are a good representation. I like the Kundert because it gives me a lot of power and allows me to be very expressive. I always tend to think my last concert is the best representation of playing/instrument ,etc.”

Q: How do you compensate for the changes in sound as an instrument ages?

“Taking it to be seen by a master luthier/repair person is the key to keeping the instrument sounding its best. As it changes, it usually mellows out more and becomes more resonant. There are issues with very old instruments that need supervision and repair but generally, we are talking about changes that occur over hundreds of years not the 10-50 years we might own it.”

Q: Do you feel there are any disadvantages to this viola? If so what?

“I feel that this particular viola gives me absolutely everything I require to do my best work. I feel it is up to me mostly. The only thing that might create a different projection/tone color comes from aged wood and playing for over a hundred years. There is a soul to those instruments a modern might not be able to recreate. But the one I own feels like it has plenty to say!”

Q: Do you think this is the best shape and design for the instrument? If so, why? If not, what would improve it?

“I think violas around 16 inches are the most comfortable to play. Very large instruments that give you a ton of sound also give you a ton of injury-related issues. I have played 17-inch violas in collections and they are super impossible long-term and some repertoire is just not possible. So again, you make the best viola sound you can with the limitations of the instrument design - not the maker’s limitations. I have tried one of those Pellegrina violas, with the off center fingerboard and unusual shape. They are quite easy to play too and rather radical. Some people do play them though and do well (former principal of SFSO). For the normal instrument to vibrate properly, the instrument itself would have to be much longer, so we are all swimming against the current from the start! String length is really more important in design than body length - you can have a long body and short string (easier to play) or the other way around.”

Q: How do you feel about a standardized viola?

“You must know about the Tertis model violas? He believed there could be a standard. What other people see as a disadvantage (no standard size like violin), I like because it allows different body shapes to find something perfectly sized for them. I don’t think it is necessary but I would understand why someone would try.”

Q: What do you see as the future of viola design?

“Injury is a serious issue - I read once that 75% of violists have injuries. We have all been there or will. Those who play long hours in orchestras are the worst hit and careers can end because of it. I believe that as we are artists, using historical instruments and techniques, for now, there doesn’t need to be any adjustment or improvement. I don’t think it will change much as furniture or cabinet making or wine making hasn’t changed much. It works and we have figured out a way to make it work with the level of players exceeding that of any generation before. Sometimes the older techniques are all that we always go back to and in this case - I think are good enough.”

I added additional surveys from viola professors who currently use modern violas in their career: Victoria Chiang (Peabody Conservatory of Johns Hopkins University and Aspen School), Maggie Snyder (University of Georgia, Athens), Daniel Sweaney (University of Alabama) and others.

Survey from Victoria Chiang,
who currently uses Erienne Vatelot
16-inch viola made in 1997.

Q: How do you feel about a standardized viola design?

“I like it.”

Q: What do you see as the future of viola design?

“Not sure. I think makers have to keep in mind that the sound and ease is paramount.”

Survey from Maggie Snyder,
who currently uses a Helmuth Keller
16 1/8-inch viola made in 1979.

Q: How do you feel about a standardized viola design?

“I know there are so many shapes. I think that whatever shape works for the player is fine. I have heard very nice sounds from many instruments that my students and colleagues use. I have a DMA student at UGA who has a hollow neck on her viola and it has an individual sound. Claire, your Iizuka is very individual and very different. Huge sound! My old teacher Victoria Chiang has a great instrument that I really like which is following in the tradition of the old Italian shape. My viola has the thick modern viola make. I think all the instruments sound different and have different qualities. It depends on the player, and the type of playing they will be doing.”

Q: What do you see as the future of viola design?

“I think there will continue to be experimentation and that generally the standard will be what it has always been, in the style of the great masters of Italy but with slight variation.”

Survey from Daniel Sweaney,
who currently uses a Hulmuth Keller
16 7/8-inch viola made in 1968.

Q: How do you feel about a standardized viola design?

“I think it would be great to have a standard viola size and string length. It would make switching instruments much easier. Although I don’t ever see us coming to that because there are too many variables.”

Q: What do you see as the future of viola design?

“I think people will always be experimenting. That's a good thing because instruments will continue to get better and better.”

Survey from Luis Claudi Manfio,
player and maker from Brazil.

Q: How do you feel about a standardized viola design?

“I find it impossible to have a standardized viola design because of differences in tastes and in the use of the instrument. You may need a different instrument if you are a soloist, a quartet or an orchestra player. You also have the ‘bright vs. dark sound issue.’”

Q: What do you see as the future of viola design?

“I think that the design is moving for smaller instruments that sound as good as the big ones.”

Survey from Garth Kennedy,
a regional “volunteer” orchestra player
who plays a 1986 Bartruff (St. Paul, MN)
16.5- inch viola with wide bouts
and a thick body.

Q: How do you feel about a standardized viola design?

“Culturally, I do not believe that violists will accept a standardized design. The other problem is that a viola is an acoustic compromise. For the note range, the instrument should be around 21 inches, way too big for anyone to handle on their shoulder. So to accommodate different players and different needs the design gets ‘tweaked’ for each player.”

Q: What do you see as the future of viola design?

“I suspect that different materials will be experimented with, maybe some will have advantages, maybe not. I would see a trend toward smaller instruments. That is, away from 16 -16.5 instruments to 15.5-16 instruments as the luthiers figure out how to make the smaller instruments work better.”

Survey from Michael Fernandez
principal violist of the Alabama
Symphony Orchestra.

Q: What instrument are you currently playing on?

“I play on a 1970 Sergio Peresson. (Stern had a copy of mine made for him. The 1971 ex-Stern is identical to mine in every way). The length is 438.15mm (17.25 inches) but has a string length of approximately 356 mm (14 inches) which is the only way I could handle such a behemoth.”

Q: How do you feel about a standardized viola design?

“It is doubtful that there will ever be a standardized size of violas simply because, as Luis Claudio Manfio said, there will be different needs and different body types and prejudices to violas of certain sizes, dimensions, etc. People may start to consider standard a viola between lengths X and Y, but to say there will be a single mold, a single-design as there basically is with violin and cello, is not something I see ever happening.”

Q: What do you see as the future of viola design?

“As to the future of viola design, luthiers will continue to experiment with body length, width, design (standard vs. Picasso, vs. creative), etc. but in the end, I truly believe that the ancient designs as created by da Salo, Stradivari and the Amati brothers will continue to be the standard. I also believe that wood will continue to be used as the primary source of fine instruments. Carbon fiber will become more mainstream but I doubt will surpass the popularity or tonal beauty of wooden instruments.”

Survey from Koen Lambrecht,
an amateur violist who has played
the viola for 40 years.

Q: What instrument are you currently playing on?

“I used to play on a fairly big German instrument (anonymous, Markneukirchen around 1935, 41.9 cm, string length 37.8 cm) but two years ago I changed to a new, smaller instrument (which confirms what Manfio is saying). My actual viola was made in 2009 by Marcin Krupa in Poznan (Poland). The dimensions are: length 40.8 cm (16 inches) and the string length is 37.2 cm.”

Q: How do you feel about a standardized viola design?

“I don’t think there will ever be a standardized viola design, simply because there are so many tastes about how a viola should sound (some prefer a clear voice, other ones a darker or softer sound). And of course everyone’s body is different, the main parameters being the length of the arms and the size of the hand.”

Q: What do you see as the future of viola design?

“I hope that violin makers will go on experimenting with violas. Personally, I don’t like the asymmetrical models, but there’s still room to create a new, more classical model I think.”

Survey from Virginia Lawrence,
Principal violist of the Santa Fe Symphony
and section player with the newly formed
New Mexico Philharmonic and viola teacher
for over 30 years.

Q: What instrument are you currently playing on?

“I play a David Rivinus’ Riviola and love it. Until about 11 years ago I had a very nice, small (15 inches) Banks viola with a good sound, but it was becoming difficult to get the tone I wanted out of it without a lot of tension and some pain. A colleague had ordered the Riviola on approval, but didn’t really like it. She suggested I give it a try, and after a week I was hooked. It has a rich sound and is much easier to play than my previous one. The little visual quirks are not even noticed by most people; they see what they expect to see. Without the light weight and the ease of playing this instrument, I would probably have had to retire by now. I am glad to still be playing. My friend now plays Rivinus’ small Pellegrina and is happy she waited until it was available. David is a delight. He does most of the maintenance on my instrument, since I make a pilgrimage to Oregon nearly every summer. His work is professional. He is continually fine tuning his designs, and he is happy to retrofit with his newer inspirations, such as a stronger bridge and

fingerboard. I am very happy with this tool of my trade, and enjoy playing it professionally and for my own edification. ”

Q: How do you feel about a standardized viola design?

“I agree with those who suggest that viola players come in many sizes, and viola styles should offer many choices.”

Q: What do you see as the future of viola design?

“I have no idea where the design is going, but I think the new directions various makers are pursuing are signs of a trend that is continuing to grow.”