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Full Length Research Paper

The cello: An amazing musical instrument

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The cello is truly a spectacular instrument to have survived for hundreds of years and to be steadily gaining popularity in the 21st century. There is a long history of the instrument and its accompanying components—the bow, rosin, parts of the cello—as well as of its players. With the cello's rich, deep, powerful sounds, it is no wonder that the instrument has been so successful and continues to be one of the world's most elegant and respected musical instruments today. This paper presents a systematic review of the cello's history, starting from the inventor of the cello, Andrea Amati of Italy, in the early sixteenth century, to the cello's evolution over the half century, and to its status in modern society. Famous players are presented, including Francesco Alborea (1691-1739), who was the first known cellist to use thumb position; Luigi Boccherini (1743-1805) who was the only outstanding cellist who was also a distinguished composer; and the contemporary cellist Yo-Yo Ma, whose talent and innovation have drawn unprecedented attention to the cello, while enriching music in various ways and uniting people and cultures throughout the world with the beauty of music. In addition, this paper describes interviews with a number of modern cellists about their perceptions as professional cellists.

Key words: Cello, cellist, history, music, instrument.

INTRODUCTION

The cello is an exceptionally remarkable and charming instrument. It possesses a long history, as do its players and composers. The cello is a crucial component of orchestras, string ensembles, and various other performing groups, while still maintaining its position as a powerful solo instrument (Stowell, 1999). Its grand, majestic, commanding tones make the cello one of the most elegant instruments to play and perform, and thus it continues to hold a position as one of the world's most admired instruments (Figure 1).

The goal of this paper is to present a systematic review of the history of cello. First came Andrea Amati of Italy, in the early 16th century, who was the inventor of the cello (Hillard, 2002). Then the cello's evolution over the centuries is discussed and its elevation to its current status in modern society. Famous cellists include Franciscello (1691-1739), who was the first known cellist to use thumb position, an "invaluable contribution to the technique of cello playing;" Luigi Boccherini (1743-1805), who was the only exceptional cellist who was also an outstanding composer; (Prieto, 2006) and the contemporary cellist Yo-Yo Ma, whose talent and performances have drawn unprecedented attention to the cello, while enriching music in various ways and dazzling cultures throughout the world with the beauty of music ("Yo-Yo Ma—Cellist," 2008). Finally, interviews with a number of professional cellists are also conducted and detailed in the paper.

MATERIALS AND METHODS

This paper is based on a term project called the "I-Search," which was written a long time ago as an 8th grader in middle school. The process by which the paper was put together was long and rigorous: First, possible ideas were brainstormed and topics of relevance and, after consulting the teacher, set up a plan detailing how writing this massive paper would be conducted. Research methods included searching for literatures in libraries, reading books and references, checking the Internet, physically observing a number of different cellos and their component parts, and watching concerts. Interviews were also conducted and recorded with several cellists through face-to-face, mail, or phone interviews.

It took nearly an entire year of researching and collecting information about the cello, and, in the end, the complete I-Search paper consisted of over 60 pages and won the school award for Best Overall Paper. The research presented here is a condensed version of the original I-Search paper.

Figure 1. The cello.

RESULTS AND DISCUSSION

The cello: anatomy and basics

Basic cello facts

The cello is a stringed instrument between the viola and bass in pitch (with some overlap), and is used as a solo instrument, ensemble member, and part of the strings section of an orchestra. Cellists generally read from the bass clef but may use tenor clef or treble clef as well. The cello's original full name was "violoncello" (in Italian), a term rarely used now. A cello's parts include the scroll, pegs, neck, fingerboard, f-holes, fine tuners, tailpiece, endpin, strings, and bow. The lowest note the cello is capable of producing when tuned correctly is the open C, which is two octaves lower than middle C; the cello's sound range reaches up to five octaves higher than this low C (Stowell, 1999). Techniques include vibrato, in which the players moves his left hand back and forth while fingering a single note to create an oscillation in the pitch; harmonics, softer notes produced by placing a finger lightly above the string in certain locations; glissando, sliding a finger up or down the string without releasing to produce a smooth rise or fall in pitch; spiccato, bouncing the bow on the string; and pizzicato, plucking the string with a finger (Janof, 1996).

Anatomy of the cello

The cello comprise of over 70 unique parts. The cello's front belly is made of two pieces of pinewood or spruce attached to each other; the back, similarly, contains two pieces of maple or poplar. A fine, special line called purfling "runs parallel to the two edges of the top and back" of the cello, serving dual aesthetic purposes: not only is it visually appealing, but it also improves tone quality and helps keep the cello's edges from cracking (Prieto, 2006). The rib or bout, which is wedged on the sides between the cello's front and back, consists of three segments—from the neck to the waist, from the upper waist to the lower waist (this section is shaped like a C), and from the lower waist to the end bottom of the tailpiece (Stowell, 1999).

At the top of the cello's head are the scroll and pegbox, which contains four ebony pegs used during tuning to increase or decrease the tensions of respective strings. The neck connects the cello's head to its body and is usually made of maple. The four strings (A, D, G, and C) run down the ebony fingerboard. When a cellist plucks or bows a string, sound waves are emitted through the two f-holes (named after their "f" shapes) on either side of the bridge. The bridge is made of maple, is held in place by the pressure of the strings, and transmits the vibration of the strings to the soundboard to produce music.

The tailpiece is connected to the bottom of the strings and was formerly made of ebony, boxwood, or rosewood, but is now typically plastic. It contains the cello's fine tuners, used to only slightly adjust the tuning of the four strings, as opposed to the pegs, which are usually used for bigger adjustments. Strings today are typically steel or a synthetic metal, while being made of catgut in the past (Hillard, 2002). The endpin allows a cellist to "conveniently set the cello on the floor."

History of the bow

The bow's first record of existence dates back to the 9th century in parts of today's Uzbekistan and Turkmenistan in central Asia. Certain documents show that bows were used regularly in tenth century Arabic and Byzantine empires; in fact, the Arabs introduced the bow to Europe. A Spanish picture dated 920-30 shows a "beautifully colored illustration depicting seven angels and four musicians playing bowed instruments" (Prieto, 2006).

Francois Tourte (1747-1835), born 10 years after the death of great violinmaker Antonio Stradivari, was the "most brilliant bow maker in history." He passionately worked on his art in his small workshop in Paris until his vision began to fail at the age of 85. By working with the most prominent musicians of the time, Tourte paved the way for modern bow-making, establishing an ideal model of the bow by "standardizing the dimensions, weight, and balance, and…by introducing or reintroducing pernambuco wood from Brazil, the only kind of wood that

provides the optimum combination of flexibility, elasticity, resistance, and weight." Tourte took his bow-making very seriously: he chose each of the 200 hairs for their "perfect roundness and uniform length" (Prieto, 2006). His bows were renowned for their incomparable beauty and perfection and ability to extract an instrument's full range of rich sounds.

What is the bow made of?

The stick of the bow is made of pernambuco wood, which comes from trees called brasilium or palo brasil. The frog is made of ebony; tortoiseshell and ivory were used in the past, but these materials are now prohibited to prevent the extinction of turtles and elephants. The ferrule is generally made of gold or silver. The protective wrapping where the fingers grasp the bow (above the frog) is made of leather, silver wire, or gold wire but was formerly whalebone. A steel screw at the end of the bow adjusts the tension of the hair, which is made from white horse hair, usually from colder regions (Faber, 2006).

Rosin

Rosin, which is obtained from the sap of certain kinds of pine trees, must be applied regularly onto bow hairs in order for them to produce sound when in contact with the cello's strings. Rosin is made up of millions of tiny solid particles that produce friction and vibrations upon contact with a string (Prieto, 2006). Certain kinds of rosin are better for cello bows, while others better suit violin, viola, and bass bows.

Cellos of the past

A history of the cello

The cello was invented in sixteenth century Italy a few years after the violin and viola were invented. The earliest record of its existence is a fresco dated 1535-1536 by Gaudenzio Fenali in Saronno, Italy. The fresco, which also includes the violin and viola, depicts a beautiful angel playing the cello (Prieto, 2006). Cellos back in the 1500's were noticeably larger than modern cellos. It was not until the early 1700's that most cello makers began to construct smaller cellos of today's size. The size change had certain advantages and disadvantages: it made the cello easier to play, relieving tension on the player's left hand (McFarlane, 2003).

In the nineteenth century, cellos were made more often in mass production than by hand. Mass produced instruments were "much cheaper and their tone quality was not as good" (Hillard, 2002). Though they do require slight hand adjustments, not as much care is taken with them than is with entirely handcrafted instruments.

Today, the cellos of famous Italian cello-makers like Antonio Stradivari and Giovanni Battista Rogeri are worth millions. Back then, the instruments were sold at prices ranging from $2500 and $40,000 (Hillard, 2002). Wealthy people would buy these instruments as investments; today, these investments have paid off tremendously.

Andrea Amati: The first-known cello-maker

Amati was the first known cello-maker; his two sons, Antonio and Girolamo, were also cello-makers. Today only six of his highly-ornamented cellos are known to exist, though the exact locations of three are unknown. One of Amati's more respected cellos is called The King, currently displayed at the National Music Museum, is "painted and gilded with the arms, devices, and mottoes of the French King Charles IV" (McFarlane, 2003). Figures on the sides of the King represent Piety and Justice, and there is a crown on the cello's back. Since cellos were all five-stringed until sometime around the 18th century, there is a fifth hole in the King's peg box. Many cello-makers of Amati's time also elaborately decorated their instruments like The King.

The Piatti, made by Antonio Stradivari

The Piatti was one of the best cellos that the renowned violinmaker Antonio Stradivari ever made. The Hills brothers observed, "The Piatti bass is indeed an admirable example, by itself a worthy monument of the maker. As a whole, it is above reproach and the more one contemplates such an instrument, the more one is struck by the complete harmony which reigns throughout" (Faber, 2006). The head and back of the Piatti were made of maple from a tree in the Balkans that produced a "rich, resonant sound" and had "beautiful delicate markings." Stradivari was very meticulous with the materials he used, and took a little over a month to make the Piatti.

It is uncertain who ordered the construction of the Piatti, but it is assumed that the special order came from an Italian city such as Mantua, Milan, or Naples, because under normal circumstances Stradivari only sold one or two cellos a year and "making a cello takes much longer to complete and is physically more demanding than making a violin." Thus it is unlikely that Stradivari made the Piatti out of his own spare interest (Faber, 2006). Added to this is the fact that Stradivari and Francesco and Omobono, his sons, did not sell the cello in 1720 but rather decided to keep it.

The Davidov, also made by Stradivari

Stradivari's famous Davidov cello is known for its "outstanding recitals, classic recordings and radio,

television, and film appearances." Jacqueline du Pre used it for her "short but spectacular" career, and upon her death the cello was inherited by its current possessor Yo-Yo Ma, who has performed with the instrument all around the world (Hargrave, 2001).

This instrument presents much to admire: whereas the varnish of violins and violas deteriorates rapidly as the instrument is played, cellos often retain most of their varnish through the years (Hargrave, 2001). Therefore, cello varnishes were thickly applied and can appear "soiled and dull." However, this is not the case with the Davidov's varnish: its wooden texture is "clear and clean" and its varnish is delicate and evenly applied, yet its color is still very "strong and intense." The Davidov's income-parable tone is linked to the instrument's unique varnish, ground, design, and construction. Both the cello's back wood and head were cut from maple. The tree's growth rings are of exceptional quality, but at the present time trees of this quality would be nearly impossible to find: they need over 1000 years to mature their rings (Stowell, 1999). Although of a smaller size, the Davidov's head is bold and broad in appearance: the pegbox is wide when viewed in front. The inner walls of the box increase in thickness toward the bottom, which is consequently narrower than the top. The purfling strips is stained pear wood and have a 2½ millimeter strip of maple in between them; they have retained their colors throughout the years, while surrounding wood has already faded (Hargrave, 2001).

Famous cellists and composers

Franciscello

Francesco Alborea (1691-1739), better known as Franciscello, was the first known cellist to use thumb position, an "invaluable contribution to the technique of cello playing" (Prieto, 2006). Very little is known about Franciscello, except that his contemporaries called him "supernatural." Johann Joachim Quantz, when he heard Franciscello playing, said that "only an angel could play like Franciscello." Franciscello's basic cello-playing principles were incorporated into a book by Michael Corrette in 1741, titled "Methode Theorique et pratique pour apprendre en peu de temps le violoncello dans sa perfection;" in English, this reads "Theoretical and Practical Method for Learning How to Play the Cello Perfectly in a Short Time."

Luigi Boccherini

Luigi Boccherini, born in a village near Florence, Italy, was the first great modern cello composer and the only outstanding cellist who was also a distinguished composer. When still very young, Boccherini dazzled audiences in Vienna and Italy by performing self-written compositions. In Milan he created the first standard string quartet with Filippo Manfredi on 1st violin, Pietro Nardini on 2nd violin, Giovanni Guiseppe Cambini on viola, and himself on the cello. In 1770, he was granted a position as a cellist and composer in the orchestra of Prince Luis, the younger brother of King Charles III. The members of the orchestra included the Fonts, a family of musicians with whom Boccherini immediately became close friends, later joining the Font's string quartet to create the two-cello quintet. He was an extremely prolific composer and composed ten cello concertos, thirty sonatas, and over 100 two-cello quintet pieces (Prieto, 2006).

Wolfgang Amadeus Mozart

Mozart had an apparent disdain for the cello because he composed so many impressive pieces for other instruments, but not any pieces particularly for the cello. Of importance is his Sinfonia Concertante, for violin, viola, and orchestra. Unfortunately, Mozart discarded the solo part for the cello when he was still in the process of composing it. King Fredrick William II is responsible for commissioning several great string quartet pieces from Mozart that gave the cello an important role. Since at Mozart's time nobody composed except on commission, perhaps Mozart did not compose cello pieces simply because not many people asked him for them (Prieto, 2006).

Ludwig Von Beethoven

Beethoven composed five sonatas for the cello. His third sonata, op. 69, was composed in 1808. In this sonata Beethoven "achieved the ideal balance between the piano and cello parts." This sonata, the most frequently played of Beethoven's cello compositions, is said to be one of the best works for the piano and cello (Hillard, 2002). The easy, lighthearted flow of the piece suggests that Beethoven could have composed it during one of his rare episodes of happiness, though this is also unlikely because the words "Inter lacrimas et luctum" ("Between tears and sadness") appear on the manuscript. Beethoven's two variations on Mozart's Magic Flute and variations on Handel's Judas Maccabaeus established the piano-cello duo.

Franz Schubert

Schubert's Arpeggione sonata, composed in 1824, is a special piece in cello repertoire because it was originally composed for the arpeggione. Invented by Johann Georg Stauffer, the arpeggione was an instrument with characteristics of both a cello and guitar, having "six

strings, no corners (like a guitar), and frets on the fingerboard;" it was held between the knees and played with a bow (Prieto, 2006). Unfortunately, the instrument was so unpopular that it was abandoned almost immediately; hence Schubert's sonata had no instrument to play the piece on! Since the most similar instrument to the arpeggione was the cello, transcriptions were soon made for the new instrument. Today, the Arpeggione has survived as a unique cello and piano sonata.

Felix Mendelssohn

Mendelssohn (1809-1847) composed four pieces for cello and piano: the Variations concertantes (1829); two sonatas (1838 and 1843); and Song Without Words (undated, around 1845). The Variations concertantes, one theme with eight variations, received very limited approval and enthusiasm from the public. The first sonata is a fine work, but is "somewhat superficial," and the cello part is weak compared to the piano part (Eisler, 2001). The second sonata, which has a "more dramatic, expressive character and better balance" than the first, is much more interesting and consists of four movements: Allegro assai vivace, Allegretto scherzando, Adagio, and Molto allegro vivace (Hillard, 2002).

Robert Schumann

Schumann (1810-56) was a cellist in his youth and later composed Funf Stucke im Volkston (Five Pieces in the Popular Style) for cello and piano. His Concerto in A minor is a piece with one of the most "thematic beauty" in the entire repertoire (Prieto, 2006). Schumann conceived his concerto as a concert piece for cello with an "accompanying orchestra," which is precisely what it turned out to be: the orchestra is very powerful and yet the cello is always heard. Schumann was quick to complete the concerto: he began the first draft on October 10, 1850, and finalized it only ten days later.

The piece remained unperformed, however, until ten years later after his death in June of 1860; the Oldenburg Chapel Orchestra in Leipzig and Ludwig Ebert, its principal cellist, played it for the first time in honor of what would have been Schumann's fiftieth birthday (Hillard, 2002). It took a long time for the concerto to be incorporated into today's standard repertoire, as the piece was performed only a second time in 1867 by David Popper in Breslau.

Camille Saint-Saens

Saint-Saens (1835-1921) wrote two sonatas for cello and piano: op. 32 (1873) and op. 123 (1905). Op. 32 has been taken out of today's repertoire, and op. 123, although "vastly more interesting" than op. 32, is now also rarely performed (Eisler, 2001). The Swan is an extremely popular cello piece from Saint-Saens' Carnival of the Animals, originally written for a cello and two pianos. Saint-Saens also composed two sonatas for cello and orchestra: op. 33 (1873) and op. 119 (1902). Op. 33 has "earned a privileged position as an indisputable favorite among audiences and cellists alike;" although it is not very deep musically, the concerto is "perfectly structured, and its orchestration is ideal for a cello concerto" (McFarlane, 2003).

Richard Strauss

Strauss (1864-1949) composed two works for the cello: Sonata in F Major, op. 6 (composed in 1883 when he was only 19), and the symphonic poem Don Quixote, op. 35 (1897). The cello part of the attractive sonata reflects Strauss's thorough understanding of stringed instruments, as he received early training as a violinist (Hillard, 2002). Don Quixote is a symphonic poem for cello, viola, and orchestra and consists of an introduction followed by ten variations and a grand finale. The composition was based on the novel Don Quixote by Cervante: the cello represents Quixote and the viola represents Sancho Panza. Each variation is based on a chapter in the original book and *closely represents the chronological events that occur in the book.*

Antonin Dvorak

Dvorak (1841-1904) composed his first cello concerto in 1865 as a youth, but he was not satisfied with the piece and neither gave it an orchestra part nor an opus number. Bohemian cellist Hanus Wihan, Dvorak's friend and classmate at the Prague Conservatory, tried for several years to convince Dvorak to compose another cello concerto, but Dvorak only agreed to write him two short works for the cello and piano: Rondo, op. 94, and Silent Woods, op. 68, no. 5.

In March 1894, Dvorak heard Irish cellist and composer Victor Herbert play his own Concerto no. 2 for cello and orchestra in Brooklyn. Impressed, Dvorak finally decided to compose a cello concerto—the final result was his Cello Concerto in B minor, op. 104. He began working on the concerto, which was dedicated to Wihan, near the end of 1894 and finished the third and last movement in New York in February 1895. Dvorak accepted all of the changes proposed by Wihan except for the addition of a great cadenza that "ran totally contrary to his ideas." Dvorak states in a letter dated October 1895 to his publisher, Simrock: "there is no cadenza…the finale concludes with a gradual diminuendo, like a sign, reminiscent of the first and second movements. The solo cello decreases to pianissimo, only to increase once again,

leading into several bars of orchestra tutti, bringing the piece into a tempestuous conclusion" (Eisler, 2001). Many musicians consider Dvorak's cello concerto to be the number one indisputable king of all cello concertos (Prieto, 2006).

Pablo Casals

Pablo Casal's "incomparable artistry and powerful personality transformed him into a public figure, who, beginning in the early part of the 20th century, succeeded in awakening unprecedented interest in the cello" (Prieto, 2006). At Barcelona's Municipal School of Music, he was given a letter of introduction for the Count de Morphy, secretary of Queen Maria Cristina. For over two years Casals pursued his musical studies and performed in concerts in Madrid, Spain, under the guidance of the count. At nineteen Casals was granted a scholarship by the Queen to study at the Brussels Conservatory. The following incident is what occurred at the academy, in Casals's own words:

The next day I appeared at the class. I was very nervous…I sat in the back of the class, listening to the students play. I must say I was not too greatly impressed, and I began to feel less nervous. When the class had finished, the professor…beckoned to me: "So," he said, "I gather you're the little Spaniard that the Director spoke to me about." I did not like his tone. I said yes, that I was the one.

"Well, little Spaniard," he said, "it seems you play the cello. Do you wish to play?"

I said I would be glad to.

"And what compositions do you play?"

I said I played quite a few.

He rattled off a number of works, asking me each time if I could play the one he named, and each time I said yes—because I could. Then he turned to the class and said, "Well now, is not remarkable! It seems that our young Spaniard plays everything. He must be really quite amazing."

The students laughed. At first I had been upset by the professor's manner–this was, after all, my second day in a strange country–but by now I was angry with them and his ridicule of me. I did not say anything.

"Perhaps," he said, "you will honor us by playing the Souvenir de Spa?" It was a flashy piece that was trotted out regularly in the Belgian school.

I said I would play it.

"I'm sure we'll hear something astonishing from this young man who plays everything," he said. "But what will you use for an instrument?"

There was more laughter from the students.

I was so furious I almost left then and there. But I thought, all right, whether he wants to hear me play or not, he will hear me. I snatched a cello from the student nearest to me, and I began to play. The room fell silent. When I had finished, there wasn't a word.

The professor stared at me. His face had a strange expression. "Will you please come to my office?" he said. His tone was very different than before. We walked from the room together. The students sat without moving.

The professor closed the door to his office and sat down behind his desk. "Young man," he said, "I can tell you that you have a great talent. If you study here, and if you consent to be in my class, I can promise you that you will be awarded the First Prize of the conservatory."

I was almost too angry to speak. I told him "You were rude to me, sir. You ridiculed me in front of your pupils. I do not want to remain here one second longer."

Later, the Count de Morphy and Queen Maria Cristina, after a concert at the Royal Palace, presented Casals with an Italian Gagliano cello. Casals's legendary Paris performance in 1899, where he played the first movement of Edouard Lalo's Cello Concerto in D minor, was "the first step in his glorious career as a world-famous cellist" (Prieto, 2006). In 1950, the bicentennial of Bach's death, Casals and an eminent group of musicians established the Prades Bach Festivals in France, which continued from 1950 to 1960.

In 1959 Casals returned to Xalapa, Mexico, where he attended the Second International Cello Competition, which took place from January 19 to 31, 1959. Blas Galindo presided over the judging panel, which included such famous cellists as Pablo Casals, Mstislav Rostropovich, and Gaspar Cassado. With his wife Marta Montanez, Casals finally instituted the Pablo Casals Music Festivals, which "attracted the world's musical elite."

Emanuel Feuermann

Feuermann (1902-1942), born in Kolomea, Ukraine to a very musical family, was one of the greatest cello virtuosos of the twentieth century. His "technical perfection, exquisite tone, and elegant interpretations" are legendary and make him one of the greatest cellists that ever lived. Feuermann and violinist Heifetz's successful collaboration is reflected by the many recordings they made together: Brahm's Double Concerto, with Eugene Ormandy and the Philadelphia Orchestra; Mozart's Divertimento, and Dohnanyi's Serenade op. 10, both with William Primrose on the viola; and trios by Beethoven, Brahms, and Schubert, with Artur Rubinstein on the piano. In early 1938, Feuermann performed in a series of four concerts at Carnegie Hall in New York with the National Orchestra Association; many of the pieces played in the unprecedented program were incorporated into the modern cello repertoire. Feuermann's career would have attained spectacular heights if a tragedy (surgery followed by a fatal infection) had not deprived him of his life in 1942 at the early age of 39 (Prieto, 2006).

Gregor Piatigorsky

Piatigorsky (1903-1976) was not only one of the 20th century's greatest cellists but also a very charismatic figure. His "personality, sense of humor, and joie de vivre" made him very successful in promoting and popularizing the standard cello repertoire in the United States (Prieto, 2006). At 14 Piatigorsky was given the highly honored position of principal cellist in the Bolshoi Theater Orchestra, and he also joined the well-known Lenin Quartet. In Berlin, Germany, Piatigorsky studied with the famous Hugo Becker, and in Leipzig with the equally famous Julius Klengel. Furtwangler, conductor of the Berlin Philharmonic, invited Piatigorsky to an audition and was so impressed that he immediately appointed Piatigorsky the position of principal cellist.

His love for contemporary music generated a considerable number of commissions and world premiers, including concertos by William Walton, Paul Hindemith, Mario Castelnuovo-Tedesco, Ildebrando Pizzett, Vladimir Dukelsky, and Bloch's Schelomo. Piatigorsky's relationship with composer Prokofiev resulted in the Cello Concerto, op. 58. In 1961 Piatigorsky and violinist Jascha Heifetz founded the Heifetz-Piatigorsky Concerts, dedicated to chamber music. The group often performed in big cities like Los Angeles and New York and made numerous recordings with Arthur Rubinstein, William Primsrose, and Leonard Pennano, among others.

Mstislav Rostropovich

Rostropovich (1927-2007) was a cello virtuoso and conductor who commissioned a number of works that have enriched the cello repertoire. In 1947, at the age of 20, Rostropovich's audacious performance of Prokofiev's Cello Concerto, op. 58, a piece that "did not quite satisfy the composer and had been the target of unanimous criticism...at its premiere, nine years earlier...for its so-called ideological bourgeois content," impressed its composer so much that he spent two summers rewriting the concerto, producing the new Symphony-Concerto for Cello and Orchestra, op. 125.

On August 2, 1959, composer Shostakovich presented Rostropovich with the recently completed Concerto in E-flat Major for Cello and Orchestra. Rostropovich's passion for contemporary music paved the way also for Benjamin Britten's five compositions for cello: the Symphony for Cello and Orchestra, the Sonata for Cello and Piano, and the Three Suites for Solo Cello (Wilson, 2008).

At the Soviet Embassy, Rostropovich created a sensation by playing the piano. He was an excellent pianist, but what really shook everyone up was the fact that he played the piece from three different positions: sitting in front of the piano, sitting with his back to the piano, and lying under the piano (Wilson, 2008).

Yo-Yo Ma

Yo-Yo Ma's (1955) extraordinary talent and charisma have "drawn unprecedented attention to the cello while enriching music in many ways and building bridges of understanding across cultures throughout the world." Ma grew up surrounded by music: his father was a violinist, composer, and musicologist; his mother was a singer; and his sister played the violin ("Yo-Yo Ma—Cellist," 2008).

In the past few years, Ma has premiered countless compositions for cello and orchestra; among these works are pieces composed by William Bolcom, Ezra Laderman, David Diamond, Peter Lieberson, Tod Machover, Stephen Albert, Leon Kirchner, John Harbison, Christopher Rouse, and Richard Danielpour. Ma's interests are not limited to works only by American composers: for instance, in 1997 he premiered a piece commissioned for Chinese composer Tan Dun "on the occasion of Hong Kong's reintegration with China" (Eisler, 2001). He has performed jazz with Claude Bolling; Appalachia Waltz with Mark O'Connor and Edgar Meyer; Hush with Bobby McFerrin; various Brazilian music and tangos; Chinese music played on native instruments; and the music of the Kalahari bush people in Africa ("Yo-Yo Ma—Cellist," 2008).

In addition to having a very busy concert schedule as a soloist with the most dominant orchestras in the world, Ma is also very devoted to chamber music and has recorded numerous pieces with Isaac Stern, Jaime Laredo, and Emanuel Ax. Ma also devotes a considerable amount of time to master classes and frequent appearances on educational programs and concerts on television. He has already appealed to many young audiences by performing on popular children's shows, including Mr. Roger's Neighborhood, Sesame Street, and Arthur (Eisler, 2001).

Ma mainly plays on a 1733 Montagnana Cello from Venice and the 1712 Davidov Stradivari, which he now uses only to play Baroque music. He also has two modern cellos: one was made for him by Moes & Moes, the other by Mario Miralles, an Argentina-born craftsman. Ma plays with a Tourte bow, and his strings on all cellos are Jargar and Spirocore ("Yo-Yo Ma—Cellist," 2008). To transform the Davidov into a Baroque instruments, Ma took out the endpin, put on gut strings, and used a different bridge and tailpiece; these changes removed the "pounds and pounds of pressure" from the cello. Ma uses a Baroque bow to play the Davidov.

Twentieth century cellists

Jacqueline Du Pre (1945-1987) was a prominent English cellist, having performed her legendary recording of Elgar's Concerto, which "catapulted her into musical stardom" (Easton, 2000). Du Pre and her husband Daniel

Barenboim (a pianist and conductor) were among the most "celebrated" couples in the history of music. Du Pre's soaring career was cut short by multiple sclerosis (Hargrave, 2001).

Pierre Fournier (1906-1986) was an eminent cellist who studied at the Paris Conservatory and performed with the greatest conductors of his time—Furtwangler, Herbert von Karajan, and Rafael Kubelik. In addition to his incomparable recordings of principal works in the cello repertoire, Fournier also performed chamber music with violinist Henryk Szeryng and pianist Artur Rubinstein. Fournier premiered Pouenc's Cello Sonata, Matinu's Cello Concerto No. 1, among other works dedicated to him.

Leonard Rose (1918-1984) was one of the 20th century's most distinguished American cellists. Principal cellist of the NBC Orchestra and several orchestras in Cleveland and New York, Rose diligently devoted his time to his career as a soloist and as a teacher at Julliard, where he taught such illustrious musicians as Yo Yo Ma, Stephen Kates, and Lynn Harrell. He was also a member of the Stern-Rose-Istomin Trio.

Janos Starker (born 1924) was one of the greatest virtuosos of the 20th century. He devotes all his time as an international soloist and teacher and has made over 150 recordings of the most varied cello repertoire and has premiered numerous works dedicated to him (Prieto, 2006).

Cello repertoire

Usual repertoire before 1700

In the 17th century the cello was used mainly as an accompanying instrument. It was usually hung from a musician's neck so it could be played while standing or walking in processions (Prieto, 2006). The cello gradually gained solo parts near the end of the 17th century, such as Corelli's Twelve Trios for Two Violins and Cello (1683) and many ricercares (similar to fugues but meant for technical exercise) by Giovanni Antoni and Domenico Gabriello.

By 1700, cello composition soared to new heights with prominent composers as Alessandro and Domenico Scarlatti, Nicola Porpora, and Antonio Vivaldi. Vivaldi was the first composer to write concertos for cello and orchestra, of which he composed over 27.

Bach's 6 unaccompanied cello suites

Bach's Six Suites for Unaccompanied Cello Solo, composed from 1717-1723, was one of the first cello solo works of "such musical richness and technical difficulty." Since cello technique was not very developed at his time, Bach ventured into unexplored realms with a "desire to explore the potential of the cello." The technical difficulty of the suites increases from one to another (Stowell, 1999).

A typical baroque suite consisted of four movements: allemande, courante, sarabande, and gigue; Bach, however, added a prelude as the first movement and inserted a pair of galanteries between the sarabande and the gigue. The preludes are introductory movements introducing each suite with its general theme. The Baroque allemande was a dance, usually written in 4/4 time; the courante was dance with a faster tempo. The Spanish sarabande was very slow, the gallant resembled old French dances, and the gigue was a lively dance probably from the Irish word jig.

Suite 1 in G Major and Suite 2 are the least complicated, both musically and technically, and use the cello's "easiest tonal registers." Suite 3 in C Major takes advantage of the resonance produced by the C string and of chords featuring open strings. Suite 4 in E-flat major presents new challenges with abrupt bow jumps from the A string to C string, which are the most distant strings. Suite 5 in C minor is the most dramatic of the six and "requires an exceptional understanding of music and absolute technical command of the cello" (Eisler, 2001). The suite starts out in a somber tone and then transitions into a fugue. It was originally written for a discordato cello with the A string moved a whole step down to a G; this scordatura (the state of being out of tune) allows the execution of certain chords (Janof, 1996). Suite 6 was originally composed for a cello with five strings instead of four. Bach believed the cello had an "untapped potential" of playing higher notes, today which can be accomplished simply by shifting into thumb position. Suite 6 is challenging and differs from the other suites with its "numerous double stops, chords, and extremely fast tempo." Its grandiose and joyful spirit makes it the perfect culmination of the suite.

Eighteenth and nineteenth centuries

The eighteenth and nineteenth centuries lacked such cellists of great magnitude who were needed to raise the cello to the same level as the piano or violin. There was no cellist comparable to the violinist Paganini, nor were any cellists as impressive as pianists Mozart or Beethoven (Prieto, 2006). Most composers of these times were therefore more attracted to composing works for the violin and the piano rather than for instruments like the cello. Nonetheless, there has been a number of works composed in these periods which have been added to the standard repertoire: Beethoven's Triple Concerto (1804), Schumann's Concerto (1850), the first concerto by C. Saint-Saens (1873), Tchaikovsky's Rococo Variations (1876), Brahm's Double Concerto (1887), Lalo's Concerto (1887), Dvorak's Concerto (1895), and Richard Strauss's Don Quixote (231) (McFarlane, 2003).

Recent compositions

Cello compositions are now being rapidly written all around the world (Hillard, 2002). In the United States, Samuel Barber wrote both a sonata and a concerto for the cello; John Cage the challenging and fascinating One8 for cello and a curved bow; and Elliot Carter another Sonata. In South America, Hector Villa-Lobos developed a unique cello piece with his Bachianas Brasileiras. Astor Piazzola brought the tango to the cello with his Grant Tango, which was written for Rostropovich. In Canada, Jean Coulthard, Jacques Hetu, Andre Prevost, Bruce Mather, and Brian Cherney have all composed pieces for the cello (McFarlane, 2003).

Interviews with a number of cellists

Interview with Rachael Koffer (Koffer, 2008)

Rachael Williams is a professional cellist who organizes the Suzuki cello graduation in Los Angeles. She completely loathed the violin in her six years of playing it, and finally decided to play the cello; at 8, Rachel began her studies Gretchen Geber. She has also studied with cellists Richard Mooney, Richard Allan, Matthew Cooker, Peter Rejto, John Walz, and Andrew Cook. Rachael has always loved the Dvorak Concerto: in her childhood she made her mother buy the music and then attempted to play the easy parts.

She likes to begin practicing with scales, arpeggios, thirds, sixths, and octaves, using "various bowing patterns and tempos." Sometimes there is time for etudes, but then again it's more important to focus on actual pieces. As a student, Rachael often got "bored" when practicing the cello because she didn't always understand why she was practicing. She became less bored as the realization dawned upon her that no matter what kind of music she was playing, there was always something to improve, something that could be "taken to a new level."

Becoming a cello teacher was not a choice; it was more of "something that just happened." The day after graduating from high school her mom immediately sent her to a Suzuki Teacher Training Camp. Rachael began teaching that summer, and within two years she had a studio of around 30 students.

Rachael started to ice skate a few years ago. She was very nervous before her first ice skating competition, and when she got onto the ice panic took over. She progressively became more confident after more competitions, and at the same time her nerves performing the cello got better, as well, and disappeared almost completely. More performances and experience, as expected, helps get rid of nervousness and tension when performing. Rachael, however, has not performed solo in about four years and now rarely has time to play the cello with two children.

Interview with Kathleen Howards (Howards, 2008)

Kathleen Howards is a professional concert cellist and cello teacher in Los Angeles. Kathleen has been surrounded by music since she was a child: her mother was a professional cellist, her grandmother a singer. At 7, Kathleen started learning piano, and she took up the cello at 10 when she grew to a reasonable size for playing the instrument. Among the orchestras that Kathleen has attended are the Orange County Symphony, Pasadena Symphony, and Santa Barbara Symphony Orchestras. She says it's always a great experience to participate in an orchestra and perform with musicians of varying abilities.

Kathleen majored in music in college and studied in the Los Angeles Suzuki Teacher Training Camp before teaching the cello. Kathleen teaches her students the Suzuki series, sequentially completing each piece up to the tenth book. Students also complete side curriculum books, such as Positions Pieces for Cello and Thumb Position for Cello by Richard Mooney, and more advanced pieces as Bach's Six Unaccompanied Suites for Cello; William Henry Squire's Bourree; Kol Nedrei, a traditional Jewish song; and Saint-Saen's Concerto No. 1 in A.

She was inspired to become a teacher by her mother, who was a professional cellist; in fact, her entire family was musically talented. In addition, Kathleen has studied with a number of elite cellists, including Rafael Craneer and Ronald Leonard, former principal cellist of the LA Philharmonic. She notes, "All of my teachers have been taught by the best teachers of the previous generation." Her husband Edgar Lusgarten was also an amazing cellist and a student of cello virtuoso Emanuel Feuermann, and could have "made a fortune just doing concerts and public performances."

Kathleen does not have a practice schedule set in stone but prefers to get her practicing done after breakfast to "get it out of the way." Of course, student lessons always count as "practicing" and she occasionally has time for a few pieces between lessons. Kathleen has a number of favorite pieces (she claims there are too many to list), but if forced to pick a single composition she select the Bach suites. "I love the first three the best, and the sixth is the hardest. You can't just sit down and say you're going to play it; you actually have to practice it."

Conclusion

Although the cello has been around for over 500 years, its elegance and musical beauty still astounds the world. While appearing simple, the cello actually consists of many parts, each possessing a different and unique

function for the cello to produce its graceful sound. Its deep, rich, powerful tones cannot be imitated by any other instrument: not the violin or the piano, not any past instruments or any modern electrical instruments. Through the centuries, the cello has always profoundly enriched people's lives and has astounded and entertained people of all ages

Throughout history, there were many great and respectable cellists who were very talented and made significant contributions to the cello's playing techniques and reputation as an artistic musical instrument. These cellists created the foundation for contemporary cello repertoire and playing style, which have been enriched and passed down from generation to generation.

Every cellist has a unique and interesting background. Most of them started their music education at quite an early age and have continuously been practicing diligently for many, many years. Their solid training and passion for the cello has made them excellent teachers dedicated to training new generations of cellists.

Let us hope that even more students will decide to play the cello, allowing the art of the cello to be passed from generation to generation, and thus the cello's unique and charming voice will forever be a part of human lives.

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