

Pieces of Eight

♪ Newsletter of the Singing Woods Violin Shop ♪

SPECIAL EDITION

THE EXTENDED VIOLIN FAMILY

AN INTRODUCTION



The Hutchins Consort of Encinitas, California-- the world's first ensemble to play on instruments of the Extended Violin Family.

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The Extended Violin Family

New Manifestations of an Old Idea

The new violin family consists of eight acoustically matched violins ranging in size from a treble violin with a body length of about eleven inches to a contrabass almost seven feet tall. This octet spans almost the entire range of written music, from the silvery sheen of the treble violin, through new voices like the soprano and tenor violins, to a contrabass that literally shakes the floor.

Individual instruments have individual characteristics; played together they display a splendid balance of tonal

qualities due to their common underlying physics. Conceived at the request of composer Henry Brant for a matched ensemble of violins, the eight instruments of the new violin family octet represent one of the most important successful advances in violin design in almost three hundred years.

A Brief History.

Sparked by Brant's request, an intense period of research, develop-

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Treble Violin

The Little Violin With the Big Voice

The treble violin, tuned an octave above the conventional violin (g' d' a' e'") is the smallest and highest member of the eight new violin family instruments. Its dimensions approximate those of a quarter-size violin, but in construction it is quite different.

To achieve the transposed violin sound, the treble often is made with a thick top and back. To bring the air resonance of the body to the desired frequency requires extra-large f-holes. The string length of the treble is adjusted to allow secure fingering of consecutive semitones, and carbon rocket wire with twice the tensile strength of ordinary steel wire is used for an E string that must be tuned to a stratospheric 1320 Hertz.

The treble is a little violin with a big voice. It produces an effortless brilliance on its two upper strings, which soar above the sound of a full sym-

phony orchestra in much the same way as a piccolo does. The sounds of the two lower strings are surprisingly mature and combine well with other octet instruments, especially the soprano. All of the nuance and technique of the violin is available in ranges that can exceed the highest notes on the piano. It is the only instrument in the world capable of this.

Players have found that the short string length of the treble violin makes it possible to tremolo on intervals of up to one octave on any single string. Double stops up to a twelfth are possible on any two strings. With practice, giant leaps can be made with the flick of the wrist.

Literature for the treble violin includes many compositions written specifically for the octet in addition to a growing library of arrangements of

standard works. The entire repertoire of works for the violin must also be included as it can be played beautifully on the treble, sounding an octave higher than the original.



Treble violin virtuoso Grigory Sedukh of St. Petersburg , Russia, acknowledges his accompanist, Emi Saki, after a performance given in Tokyo, Japan in the Oiji Hall, February, 2008.

Treble (Piccolo) Range and Tuning

Standard Tuning



The treble (piccolo) violin is a transposing instrument with parts sounding an octave above written pitch. It is written in treble clef in all registers. Extremely high passages are typically noted "8va" and written an octave below the desired pitch. Composers may write for competent players up to

an octave above the first string, which yields a working range that approaches three octaves.

In the hands of a skilled player, the piccolo has an immense range of over four octaves. It is the only instrument in the world that can play in the

extreme upper registers and do so sweetly and lyrically, with the same full range of dynamics, expression, and bowing techniques available on traditional violins.

Soprano Violin

A New Leading Voice for the 21st Century

The soprano violin, tuned a fourth above the standard violin (c' g' d" a"), is the 21st-century version of the violino piccolo, for which Bach wrote important parts in works such as the cantata "Wachet Auf" and the First *Brandenburg Concerto*. Although the ancient soprano violin faded from use by the end of the 18th century, it has returned in a modern version that utilizes the scaling theories of John Schelleng, the plate-tuning techniques pioneered by Carleen Hutchins, and the geometric parameters of the Stradivari Model G worked out by Robert Spear.

The width of the soprano neck has been adjusted to that of a conventional violin and the peg box widened to accommodate adult hands. The soprano is a natural solo instrument well-suited to the demands of composers for a bright and powerful leading voice. Passages of extended range can be played with great preci-

sion and clarity on the soprano without the whistling or scraping sound produced by standard violins in the same range. Its dimensions are similar to those of a child's three-quarter-size violin, but it sure doesn't sound like an instrument for kids!

Literature for the soprano violin includes many compositions written specifically for the octet in addition to a growing library of arrangements of standard works.

The soprano is equally at home as the highest voice in most chamber music groups where it provides extra brilliance and roundness to the ensemble. The first violin parts in quintets and sextets usually lie perfectly in the range of the soprano. Many of the great works in larger chamber forms by Beethoven, Mozart, Brahms, Dvorak, Bruckner and others can be arranged for the soprano without changing more than one or

two notes. As the highest member of string quartets composed for soprano, mezzo, alto, and tenor violins, the soprano truly comes into its own.



Igor Tchetchko plays soprano violin in concert with the Hutchins Consort

Soprano Range and Tuning

Standard Tuning



The soprano is a non-transposing instrument with parts sounding at concert pitch. It is written in treble clef in all registers. Extremely high passages are typically noted "8va" and written an octave below the desired pitch. Viola players take naturally to the soprano because of the similar-

ity in tuning, and most already read treble clef. However, in some cases it is helpful to provide a transposed part in alto clef for them. Violinists already read treble clef, but some will require a part transposed down a fourth, especially those who are position players. Composers may write for com-

petent players up to an octave above the first string, which yields a working range that approaches three octaves. In the hands of a skilled player, the soprano has an immense range of over four octaves.

Mezzo Violin

What's old is new again

The mezzo violin is an enlarged version of the conventional violin, ranging in size from 14.5 inches (368 mm) to 15 inches (381 mm) body length. Early makers of the Amati family, and also G. P. Maggini and A. Stradivari produced large violins, so this idea is not new. The mezzo violin was created after it was found that even a fine concert violin could not match the power of the other new family instruments.

Maintaining the ideal resonance placements of the standard violin while increasing its size and power was no easy task. In addition to the application of modern plate-tuning theories, the ribs are reduced in height to keep the volume of air in the body the same as that of a standard violin.

The mezzo is tuned the same as the conventional violin (g d' a' e"). By keeping a near-normal nut-to-bridge

string length, the mezzo can be played immediately by most violinists and violists with little adjustment. No special bow is required, nor must special playing techniques be employed. Many players are delighted with the true mezzo quality of this violin, which gives an old instrument a fresh appeal.

The mezzo violin can be heard clearly in ensemble, and it remains an ideal solo instrument because its extra power and wide dynamic range, particularly on the lower strings, give it a distinct advantage. In large chamber groups, the mezzo becomes an indispensable middle voice.

Violin literature in its entirety is available for the mezzo, and the instrument also fits beautifully into the violin sections of symphonic ensembles.



Ethan Busteed of the Hutchins Consort playing an original Hutchins-model mezzo violin in performance at the 2006 Guild of American Luthiers Convention.

Mezzo Range and Tuning

Standard Tuning



The mezzo is a non-transposing instrument with parts sounding at concert pitch. It is written in treble clef in all registers. Extremely high passages are typically noted "8va" and written an octave below the desired pitch. Viola players take naturally to the mezzo, and many have called

the experience "liberating." Since most violists already read treble clef, it is usually not necessary to write a transposed part for them. Composers may write for competent players up to an octave above the first string, which yields a working range that approaches three octaves. In the hands

of a skilled player, the mezzo has an immense range of over four octaves.

Alto Violin

The viola becomes vertical

The new family alto violin, tuned the same as a conventional viola (c g d' a') brilliantly solves many problems of the viola at a single stroke. The body length of approximately twenty inches (508 mm) and resulting cavity dimensions give the alto's wood and air resonances the same ideal placement as found on the violin.

While a few have played the instrument on the shoulder viola-style, the alto is ever more manifesting itself as an endpin instrument. This has earned it the affectionate nickname of the "vertical viola."

An alto played vertically eliminates tension and strain in the player's left arm and hand. Small players can now play a large alto without the problems caused by overstretching the left hand. Either viola-style or cello-style fingering may be employed, and the use of thumb techniques gives the player access to the highest positions

with a facility and ease that are impossible with the conventional viola. While the players of shoulder instruments will need to adjust to holding their bow cello-style, the result is worth the effort and can be a career-saver in some instances.

Cellists come naturally to the alto; one said it took him no more than ten minutes to get used to it. Yo-Yo Ma played Bartok's viola concerto on the alto with several orchestras and recorded it in 1993 with the Baltimore Symphony under David Zinman (the "New York" Album: Sony SK 57961). Ma called the experience "amazing." Listening to this CD will dispel any doubts about the instrument's sound.

The tonal qualities of the alto far surpass those of standard violas. The sound of the C string is a revelation. An alto will not get lost in an ensemble! The clarity, power, and increased dynamic range caused the famous

conductor Leopold Stokowski to exclaim, "No viola has sounded like that before—it fills the whole hall."

The entire repertoire of works for the viola can be played on the alto. It is especially effective and blends well playing the lower part in pieces that call for two violas.



A second-generation alto violin by Robert Spear on classical Cremonese proportions.

Alto Range and Tuning

Standard Tuning



The alto is a non-transposing instrument with parts sounding at concert pitch. It is written in alto clef; in high register it is written in the treble clef. Because players come to the alto in roughly equal numbers from the cello, the standard viola, and the violin, it is often necessary to provide

parts transposed into treble or bass clef. Composers may write for competent players up to an octave above the first string, which yields a working range that approaches three octaves. In the hands of a player skilled in thumb position, the alto has an immense range of over four octaves

and composers need no longer defer to the "weak notes" on the small viola as these resonances have been strengthened.

Tenor Violin

More than just a small cello

Although the new family tenor is similar in dimension to a three-quarter-size cello, it is not a small cello, but rather a large violin constructed on the same acoustical principals common to all the new family instruments. The tenor is tuned an octave below the normal violin (G d a e'), and shares the same singing quality and brilliance as its higher relative. It fills the gap between the viola and the cello and provides a new voice in a range absent for several centuries from the conventional violin family.

The tenor violin appears often in history, built on the principal of the octave violin with all violin dimensions exactly doubled. With the benefit of modern physics and acoustical testing, however, the new tenor is somewhat smaller yet even better-suited to its frequency compass.

Many compositions for the tenor apparently remain to be discovered in

various archives, and modern composers as late as Sergei Taneyev (1856 - 1915) have written beautifully for the tenor instrument. Practically the entire body of violin literature can be played on the tenor, sounding down one octave.

In chamber works for five or more strings, the tenor can be used to seamlessly play the lower alto part when two violas are indicated, or the upper cello part where the composer calls for two cellos. Some of Bach's works for gamba that are awkward to play on the cello lie perfectly under the hand on the tenor.

Cellists can play the tenor with almost no problem since most of them read tenor clef and the techniques of playing the two instruments are nearly identical.



Sera Jane Smolen, a founding member of the Albert Consort, performing on tenor violin during a 2004 concert at the Unitarian Church in Ithaca, NY.

Tenor Range and Tuning

Standard Tuning



The tenor is a non-transposing instrument with parts sounding at concert pitch. Although it is written in tenor clef, many cellists who come to the instrument prefer that their parts be written in bass clef for the lowest two strings. In high register it is written in the treble clef. Composers may write

for competent players up to an octave above the first string, which yields a working range that approaches three octaves. In the hands of a player skilled in thumb position, the tenor has an immense range of over four octaves and in its highest register sounds astonishingly like a violin.

Baritone Violin

The small cello gets big again

The baritone violin harkens back to the early Venetian *bassetti* and other large cellos of the early 17th century. Past makers responded to the need for greater playability by reducing the size of the cello until it was very nearly as small as our modern tenor! The octet baritone solves many problems through the application of modern acoustics plus design adjustments to retain a standard string length.

Early baritones came in two types, a deep-ribbed model with a more bass-like quality on its lower strings and a shallow-ribbed variety that was more in keeping with the acoustic principals of other new family instruments. Over the past thirty years, players have shown a clear preference for the shallow-ribbed models. The placement of resonances in the shallow-ribbed baritone creates an instrument with equal power on all four strings, unlike the conventional cello which favors the upper strings

and the original design that favored the lower strings.

The baritone is tuned like a standard cello (C G d a). As its name suggests, it is no longer treated as the bass of the violin family, although it can serve this function admirably in ensembles for which it is the lowest voice. In the octet, the baritone's range of more than four octaves may be used flexibly to play with the tenor, giving composers more options than ever before.

The entire body of cello literature can be played on the baritone. In solo works the added power on all four strings allows a better balance between the soloist and the accompanist. One professional cellist, playing one of the early deep-ribbed baritones, remarked, "This is the first time I have ever been able to talk back to the piano in a Brahms sonata."



Elisa Evett, a founding member of the Albert Consort, shown behind a second-generation baritone violin by R. J. Spear.

Baritone Range and Tuning

Standard Tuning



The baritone is a non-transposing instrument with parts sounding at concert pitch. In high register it is written in tenor clef; in very high register the treble clef is used. In general, composers may write for competent players up to an octave above the first string, which yields a working range

that approaches three octaves. In the hands of a player skilled in thumb position, the baritone has an immense range of over four octaves. In its highest register, the baritone produces a very clean sound not found in most conventional cellos.

Bass Violin

Big bass from a smaller space

Throughout the history of western music, the biggest instruments have appeared in many sizes and tunings. This heritage is reflected in the new violin family octet, which has two basses. The smaller bass is tuned AA D G c, a fourth above the normal orchestral bass. A pragmatic tuning, historical precedent is found for basses that use A as the lowest string with the remainder tuned in fourths or fifths. These are frequently called "solo" tunings, and there is a wealth of solo pieces, arrangements and transcriptions for the small bass.

The placement of resonances in the octet small bass creates an instrument with exceptional power, clarity, and responsiveness on all four strings, and a pizzicato that is clear and lively. In many pieces, it can replace the conventional bass in solo tuning and provide the player with superior projection in the extreme upper registers.

The smaller size and lighter weight of this bass make it easy to play and adaptable to many forms of music. Jazz musicians find the small bass to be an ideal "gig" bass that makes a strong argument for the use of an acoustic instrument. Likewise, folk groups and string bands find that this bass can be employed without amplification. Most orchestral literature is also playable on the small bass.

The high C string allows the bass to play up into the middle range of the cello, bringing it into the world of chamber music where it finds many uses. In large chamber works scored for two cellos, it is often possible to use the small bass for the lower cello part. It is also excellent in ensembles where a bass range is desired but not the weight of the large orchestral bass. The small bass provides a homogenous blend for better integration with the ensemble.



German bass virtuoso Silvio Dalla Torre with a small bass violin (bassetto in Europe) by the Belgian octet maker Joris Wouters.

Small Bass (Bassetto) Ranges and Tunings

Low A standard bassetto, fourths tuning



Low G bassetto, fifths tuning



The bassetto is a transposing instrument with parts sounding one octave lower than written. It is normally tuned in fourths, but many advantages are obtained using a fifths tuning. In high register it is written in tenor clef; in very high register the treble clef is used. In general, composers may

write for competent players up to an octave above the first string, which yields a working range of two octaves and a third. In fifths tuning, the bassetto's range approaches three octaves. The low register provides a solid foundation when this bass is the lowest instrument in the ensemble.

Contrabass Violin

A true contrabass violin at last

The old violin family never has had a true contrabass, but with this largest of octet instruments, the wait is over. The big bass is normally tuned the same as a conventional contrabass viol (EEAADG) and retains the same string length, but all other similarities end there. With a body length up to 51" (1300 mm), this bass produces notes in the nether regions that are organ-like in their sonority.

The impressive size of the contrabass and the violin-shape of the upper bouts make it less practical for playing in the higher positions, but this bass is all about going low and doing so with authority. Bassists such as Joe McNalley of the Hutchins Consort regularly tune the lowest string to D for greater low-frequency extension. A low tuning of BBB EEAA D works extremely well on these basses, and extends their compass into the 32-foot range.

The sheer acoustic weight of the contrabass' low register astounds most listeners. A member of the audience at a concert of the Hutchins Consort remarked afterward that he could not only hear the contrabass with his ears, but he could also feel it with his feet!! The composer Henry Brant, upon hearing the contrabass for the first time, remarked that he had waited all his life to hear such sounds from a bass.

The violin-like placement of resonances in the big bass creates an instrument with exceptional impact on all four strings and a pizzicato that is clear and lively. The clarity and projection of the bass is remarkable. In a symphony orchestra, just a few of these great bass violins can enhance the sound of an entire section. Most players are unanimous in their opinion that despite its great size, the contrabass responds quickly and is easy to play.



Nicholas Walker, assistant professor of bass at Ithaca College, playing a 1200 mm contrabass by Robert J. Spear

Contrabass Ranges and Tunings

Low E standard contrabass



Low B Sub-contrabass



The contrabass is a transposing instrument with parts sounding one octave lower than written. It is normally tuned in fourths, but other tunings beside those shown here are possible. In high register it is written in tenor clef. In general, composers may write for competent players up to an octave

above the first string, which yields a working range of two octaves and a third. Players coming to the sub-contrabass might require a part transposed up a fourth. The tone of the instrument is clear in all registers, as are harmonics. Pizzicato is full and ringing.

Photo Gallery



Above: A photo taken at the 2008 New Directions Cello Festival that gives a clear view of the tenor violins. A second-generation baritone is partially obscured behind the table.



Right: The Aust Octet with conductor Roderick Skeaping (center) playing on the octet set from the University of Edinburg.

Below: A quintet in Belgium playing on new instruments built by Joris Wouters of Westerlo.



Left: Luthier Robert Spear with his first small bass violin.

Right: The Archus String Trio; Suzanne Miller and William Hurley, mezzo violins, Elisa Evett, baritone violin.



Photo Gallery



Above: Display table for instruments of the extended violin family at the 2008 New Directions Cello Festival held in June at Ithaca (NY) College. In the foreground are two alto violins. The three middle instruments are mezzo violins, while the two at the rear are sopranos. Two tenor violins are on the floor. Rear, left, Lin Tollefsen; Right, Robert Spear standing behind a second-generation baritone violin.



Above: The Hutchins Consort in performance at the 2007 workshop of the Guild of American Luthiers.



Above: The original Albert Consort in performance at Mansfield State University in 2004. Beginning left, Rachel Evans, soprano violin; Carrie Reuning Hummel, mezzo violin; Stephen Stalker, alto violin; Sera Jane Smolen, tenor violin; Elisa Evett, baritone violin.



Left: Trio Anon, consisting of Bill Hurley, mezzo violin; Elisa Evett, baritone violin; and Karen Melamed Smith, piano, perform at Kendal of Ithaca on June 25, 2008 as part of a program produced by Music's Recreation, a non-profit organization.

What's New in the New Violin Family?

Every coin has two sides. The new violin family instruments offer many advantages over conventional instruments, but we find that there are always improvements to be made. In the following article, let's look at what still needs to be improved and what is actually being done to address some problems that have arisen. We think that you deserve to know.

Treble (Piccolo) Violin.

The tiny treble (also known as the piccolo violin) has been the problem child of the new family since the day it was born. But now, even this little monster is seeing a great deal of new research being applied to its design and construction. Many musicians were put off by the large and unsightly f-holes of this instrument, the extremely short and hard-to-play string length, and the thick belly that reduced low-frequency response to almost nothing. After a promising start, interest in the treble violin fell off as violinists became frustrated dealing with all its drawbacks.

There is now a redesigned piccolo violin that uses f-holes that are not as large as on the original, although they are larger than they normally would be using typical design proportions. At least one researcher has found that top and back plates can be graduated according to the Hutchins method of free-plate tuning just like all the other instruments, and that, coupled with adjustments to the placement of the main air mode, these have produced a piccolo violin with surprising bass on the G-string.

The complaints about the short neck are, of course, due to the lack of a string material that can withstand such high tuning over a greater length. In consequence, normal violin neck proportions could not be used

on the piccolo violin. The neck length was determined by the physical characteristics of high-tension carbon rocket wire, the only material the original designers had at their disposal in the 1960s. While there appears to have been no breakthroughs in metallurgy since then, synthetic fibers used in the aerospace industry have been developed that are immensely strong and that can withstand the high tension easily. Several long-neck trebles have been built, and at least one prototype string using new core materials shows promise.



Three piccolo violins. L to R: Original Hutchins model short-scale, intermediate Spear model model, correct-proportion Spear model awaiting improved E string.

Soprano Violin.

The soprano violin has been refined and several models have been made recently with correct-proportion string lengths. The original designers specified an overly long neck in hopes that it would make the instrument feel more comfortable to players of the standard violin. It turns out that the width of the neck and the string spacing seem more important to the players than does the neck length. New models have shorter neck lengths that are in correct proportion, but with widths at the nut that are wider to fit an adult hand. The new sopranos are slightly longer and have a bit more bass, but in general follow

the original soprano violin design, which was a good one from the start.

For players of this instrument, one irritating problem has been the lack of a case that will hold the soprano, which has dimensions very nearly that of a three-quarter-size violin, and a full-size bow at the same time. Many use a standard violin case and pack towels or face cloths around the soprano to keep it from sliding inside the case. One importer now says that he is having cases made that will hold the soprano snugly while still having a place to put two standard violin bows. Even a small advance can be welcome when it addresses an irritating problem.

Mezzo Violin.

With the new information about the placement of air modes, the mezzo violin can now actually be a mezzo violin with a true mezzo quality instead of simply being called a mezzo violin to distinguish it from the soprano.

The demands of orchestral and chamber players for an instrument that blends acoustically and visually with the standard violins has been met by at least one new "orchestral" model. Although the new model is slightly smaller than the original, it does not lack in power. By using the information available to him, the contemporary violin maker can now tailor an instrument even more exactly to the requirements of his patrons.

Alto Violin.

There has been a surprising amount of activity around this instrument. The alto is in many ways both the most indispensable member of the octet

and the most frustrating. Increasing scrutiny from a pedagogical standpoint is beginning to show the drawbacks of using a fingering style developed for a shoulder-held instrument on an instrument that is played vertically. The string length of the original model, based on that of a 17.5-inch viola, is still too large for most hands, even when utilized vertically. New altos with correct-proportion necks are now available that make cello-style fingerings quite comfortable. This change has been well-received by musicians, although some players coming from the viola still prefer the short-neck version.

The alto player and maker have also suffered for years from their involvement with an instrument for which there were no suitable parts and accessories. The player could not get a case that fit the alto, and the maker was left to fend for himself finding fittings that would actually fit. Endpins, endpin assemblies, tailguts, tailpieces, and tailpiece tuners all had to be adapted from cello fittings, usually with poor results. Singing Woods Violin now offers all these items to the octet community, including proportionally correct bridge templates. A new, lightweight oblong case is now under development from an Asian source, and design work is already in progress for an upgraded case from another manufacturer.

Tenor Violin.

Tenor players have complained at length about the strings available for their instrument. Work in this area is currently active and ongoing, with results and changes expected within the next few years. Work is also underway to design a case that will hold a full-size bow. Currently, the bows most players use must be kept in a separate bow case, which is cumbersome and awkward.

Early attempts to make the tenor more accessible to cellists by providing as

long a string length as possible have proved unnecessary. The latest model with a proportionally correct neck length has been well received and created a more uniform application of the common proportions of the violin.

Baritone Violin.

Most players have felt that the Baritone is too big, needs a shorter string length, and lacks sparkle on the A string. These were characteristics noted by the first design team. They were surprised when the placement of the lowest air modes of the original model was three semitones lower than projected. The large size of the instrument is partly due to a scaling error in the original design, but until recently no luthiers have been making newer and smaller models. Robert Spear's new baritones are about 80 cm in body length, but his experience with proportional design has allowed him to create a large baritone with a standard string length. Although shorter than the original Hutchins model, the new design provides a more violin-like quality compared to the somewhat "bassy" character of the original. Cellists like the new model because it integrates seamlessly into conventional orchestral and string chamber groups, yet retains the ability of the original to stand up to a grand piano.

Bass Violin.

One of the best of the original designs, the small bass has proved a useful instrument for classical, jazz, and folk ensembles. Makers are still refining the design in order to satisfy the needs of their customers. The extended length of the original neck has been replaced with a correct-proportion neck that is shorter. The change has been welcomed by most, but not all, players.

New acoustic findings will allow for an even smaller version of the bass with adjusted shoulders to make it more comfortable to play. The new

body size will retain the acoustic underpinnings of the other octet violins and will result in a short string length of 810 mm. The new bass is a chamber bass that is tuned in fifths G-D-A-E an octave below the tenor violin and a fourth below the cello and baritone violin. This will allow the player to use cello-style fingering above 1 1/2 position. In the lower positions pivoting thumb technique can be used for four-finger playing.

This instrument should appeal to ensembles of all kinds because of its sound, extended range, and easy transportability. It will be especially useful in ensembles where very nearly the range of a bass is desired but not the tonal weight of a standard orchestral bass. One player has predicted that such a bass will at last eliminate the obstacles that have kept



R. J. Spear with new chamber bass violin tuned in fifths

bassists out of the world of classical chamber music for over 300 years.

Contrabass.

For sheer impact, nothing has a Wow! factor like the 1300 mm (51") original contrabass. For all its depth and sonority, however, players grumbled about its huge proportions and found the violin-shaped shoulders difficult to accommodate. Makers have had extraordinary difficulties finding wood large enough for the back, and a travel bag for the contrabass is always a customized-- and expensive-- item.

Early on the bass ribs were reduced in size by the original Hutchins design team who found that the extraordinary deep bass sound became less boomy but no less powerful. Subsequently, a bass was constructed with a body length of 1200 mm. It possessed all the desirable qualities of the original design but was much easier to play. The next iteration of the contrabass will address the problem of the broad upper shoulders. A prototype is currently under construction that retains the critical proportions of the upper bout to the lower, but which should make playing in the upper positions much easier.

Composition.

The original intent of the new family was that they be played together as a complete ensemble with one instrument on each part, but almost from the beginning some composers wrote for subsets of the group. This trend has continued, partly driven by the reality that when groups of new family instruments are formed, they rarely have either the bass or the treble violin at first.

We have seen a number of arrangements written for quintets consisting of the soprano, mezzo, alto, tenor, and baritone violins, and sextets consisting of the middle six instruments (a bass is added to the quintet) have proved to be very

satisfying. As more octet instruments are taken up, we expect to see a demand for even smaller groups such as quartets and trios as well as for less common groupings of instruments.

Composers and arrangers have also discovered that it is the soprano violin, not the treble, that makes the best leading voice. Even though the treble has emerged as the first solo instrument of the set, in very large works it is increasingly utilized as a color instrument, much as the piccolo flute is used in wind writing. When skillfully employed by a good composer, the sound of the treble violin soaring above the ensemble is unforgettable.

There has also been a trend recently toward more orchestral forms of the ensemble in which, for one example, first and second mezzos are employed. An additional section of altos or tenors, or use of the sections *divisi* where needed, is sometimes called for. One would think that with so many different ranges available there would be no need for even thicker middle textures, but when masterfully used, the sheer density of sound from the ensemble cannot be duplicated by conventional instrumentation.

Acoustics.

This is an area where major advances have been made over the last 5 to 8 years. The original designers dealt with 2 main scaling characteristics, placement of the "main air" and the "main wood" resonances, but research has shown there's even more to it.

Today, makers are dealing with at least five characteristics. The main air mode, which acousticians call "A0," is now known to couple so strongly with the next higher mode, called "A1," that it is no longer possible to consider one without considering the other. Since the frequency of

A1 is controlled by the body length, rather than just corpus volume, it has serious implications-- and exciting possibilities-- for the violin maker.

Corpus-mode-driven volume-change radiation through the f-holes for B1 and higher corpus modes is another new factor. Although unknown to the original design team, the interaction of the two air modes plus radiation through the f-holes caused by wood modes can actually dominate for specific modes. Recent research has shown that large instruments have a different dominant air mode than do the smaller ones, which has many interesting implications for the baritone, bass, and contrabass violins.

If this were not enough, corpus compliance becomes a major factor affecting air modes, especially in the larger instruments, and now there is increasing evidence that the shape of the instrument influences the A2 and A4 modes, the transverse modes in the instrument's lower and upper bouts, respectively, and hence the sound of the instrument's higher harmonics. The good news is that all of these are parameters that can be manipulated by the violin maker to influence the final sound of the instrument.

Luthier Robert Spear has already put some of the new information to use, and says that the breakthrough moment for him occurred when he stopped thinking about the placement of the 2 original modes as his goal and started thinking of them as parameters to be manipulated. He says when he was Hutchins' student, she always reminded him to question everything, and that it is the nature of progress to build on previous work, to discard what is not valid, and to try out new ideas.

Learn More About the Expanded Violin Family

Browse to Web Links.



<http://nvfa.org>

The web site of the New Violin Family Association, Carleen M. Hutchins, founder. Although this web site is dormant for the foreseeable future, it contains a wealth of information and history about the Hutchins/Schelleng version of the original violin octet. Of special interest are the downloadable back issues of the *Violin Octet Newsletter*, which can be found at the bottom of the "news" page. You will need the free Adobe Acrobat Reader to view these files.



<http://hutchinsconsort.org>

The Hutchins Consort, now entering its ninth year, is the first and foremost musical ensemble performing on instruments of the original new violin family. Their web site contains some interesting photographs and a concert schedule of this Southern California group. Merchandise and recordings are available from the consort on line.



<http://violins.be>

The home page of Belgian luthier Joris Wouters, luthier and octet maker in Belgium. Some information about the octet instruments and some interesting and informative photos of Wouters at work are available for viewing. Wouters is only the third maker to have completed at least one full set of new family instruments.

<http://singingwoodsviolin.com>

A comprehensive site of luthier Robert J. Spear, maker of nearly two complete octets on his own Cremonese-inspired designs. Much historical information is presented here that is currently not available anywhere else. Spear makes and sells conventional instruments as well as octet violins individually and in sets. He is at present the only source for imported and shop-adjusted octet violins at markedly reduced cost compared with handmade instruments. Spear also makes available hard-to-find parts for other octet makers.

See Full Octets.

Metropolitan Museum of Art

1000 5th Avenue
New York, NY 10028
212 535 7710

<http://metmuseum.org>

The octet exhibit is currently dismantled. Special viewings may be arranged by calling in advance.

Musikmuseet

Sibyllegatan 2
Box 16, 326
10326 Stockholm, Sweden
08 519 55490

<http://museum@musikmuseet.se>

The octet exhibit is currently dismantled. Please contact the museum in advance to arrange viewing.

University of Edinburgh

Old College
South Bridge
Edinburgh EH8 9YL Scotland
<http://ed.ac.uk>

communications.office@ed.ac.uk

The octet is not generally available for viewing. Contacting the University in advance is strongly recommended.

National Music Museum

414 East Clark Street
Vermillion, SD 57069
605 677 5306

<http://usd.edu/smm/>
smm@usd.edu

The current status of the exhibit is unknown. Please contact the museum in advance.

Hear Performing Groups

Hutchins Consort

OctaVivo! (formerly Albert Consort)

The Archus Trio

Continued from page 1

ment, and the construction of prototypes followed, spanning the years from 1957 until 1965. During this period, the work progressed largely under the supervision and direction of Carleen M. Hutchins in Montclair, New Jersey. Working in a wonderful collaboration with Prof. Frederick Saunders, a retired Harvard professor and acoustician; John Schelleng, an electronics engineer at Bell Labs; and others too numerous to mention here, Hutchins toiled indefatigably through the myriad problems that had to be resolved.

One of Hutchins' most outstanding achievements was to take the ideas of Ernst Chladni on vibrating plates and apply them to the tuning of free violin plates (the top and back before they are glued to the body). She identified the three modes most critical to the creation of a fine violin and then discovered the relationships between them that resulted in even better instruments. Her method of free-plate tuning allowed her to obtain a consistency of acoustical parameters that had never been possible before. When coupled with Schelleng's scaling theories, it revolutionized the craft of violin making and contributed in no small way to the more uniform tonal quality for which the octet is famous.

When the first set was ready for public performance, a concert was given at the YM-YWHA in New York City in 1962 at which Brant conducted his "Consort for True Violins." Members of the audience were enthralled by musical sounds they had never heard before. An astonished Leopold Stokowski, conductor of the New York Philharmonic, was especially impressed with the big alto violin and encouraged its acceptance by professionals, albeit unsuccessfully.

Although the instruments were still works in progress at that time, their debut convincingly affirmed their potential. Encouraged, the collaborators, now working within an organization called the Catgut Acoustical Society, continued their efforts. After 1965, work focused more on the construction of octet sets, although basic research never stopped.

Several additional sets had been constructed at a great cost of time and money when comments from musicians indicated, and reviews of scaling theories confirmed, that the rib heights of the four lowest instruments were excessive. A redesign produced a second variety of the original Hutchins model with much lower ribs. A consensus of opinion was that these models produced an even more balanced sound, and thereafter the group constructed no more deep-ribbed models.

Throughout this period, the pressing need for special strings was addressed by the Cavanaugh family, owners of the SuperSensitive String Company. Their greatest success came with the manufacture of a high E string for the treble violin. It was made of carbon rocket wire, the only material strong enough to withstand tuning an octave higher than the standard violin E string. To this day, the Cavaughns continue to develop and refine sets for all the octet instruments. Without their support, the octet would never have progressed as far as it has.

Hutchins ceased work on octet sets by 1985. In all, she and her colleagues constructed six complete octets and two additional octets that lacked only the large basses. Four sets are in museums or universities in

several countries, and two are owned privately by the Hutchins Consort, a Southern California group that performs on them regularly.

The Hutchins Consort, organized by the mother-and-son team of Sharon and Joseph McNalley, was the first large and well-organized ensemble to dedicate itself exclusively to the new octet. Organized in 2000, the group performs extensively in Southern California and travels widely in their mission of bringing the octet to audiences everywhere.

In the Eastern United States, work on the octet was taken up by Robert J. Spear, who had been a student of Hutchins in the 1970s. Spear's work on the upper air modes not considered by the original design team led to additional refinements in the models of the octet family. Spear also organized performing groups that included string orchestras comprised entirely of octet instruments.

Spear finished his first octet on his models in 2005, the first complete octet to be built in 20 years. Another set on the original Hutchins models was completed in 2008 by Belgian luthier Joris Wouters, working with unfinished sub-assemblies supplied to him by Hutchins. There are now eight full octets, and both Spear and Wouters are working on their respective second sets.

The first commercial venture to expand acceptance of the family was begun by Spear in 2007. Models made in China to his specifications were imported into the USA and are now available at significantly lower cost and in far greater quantities than have been possible before.