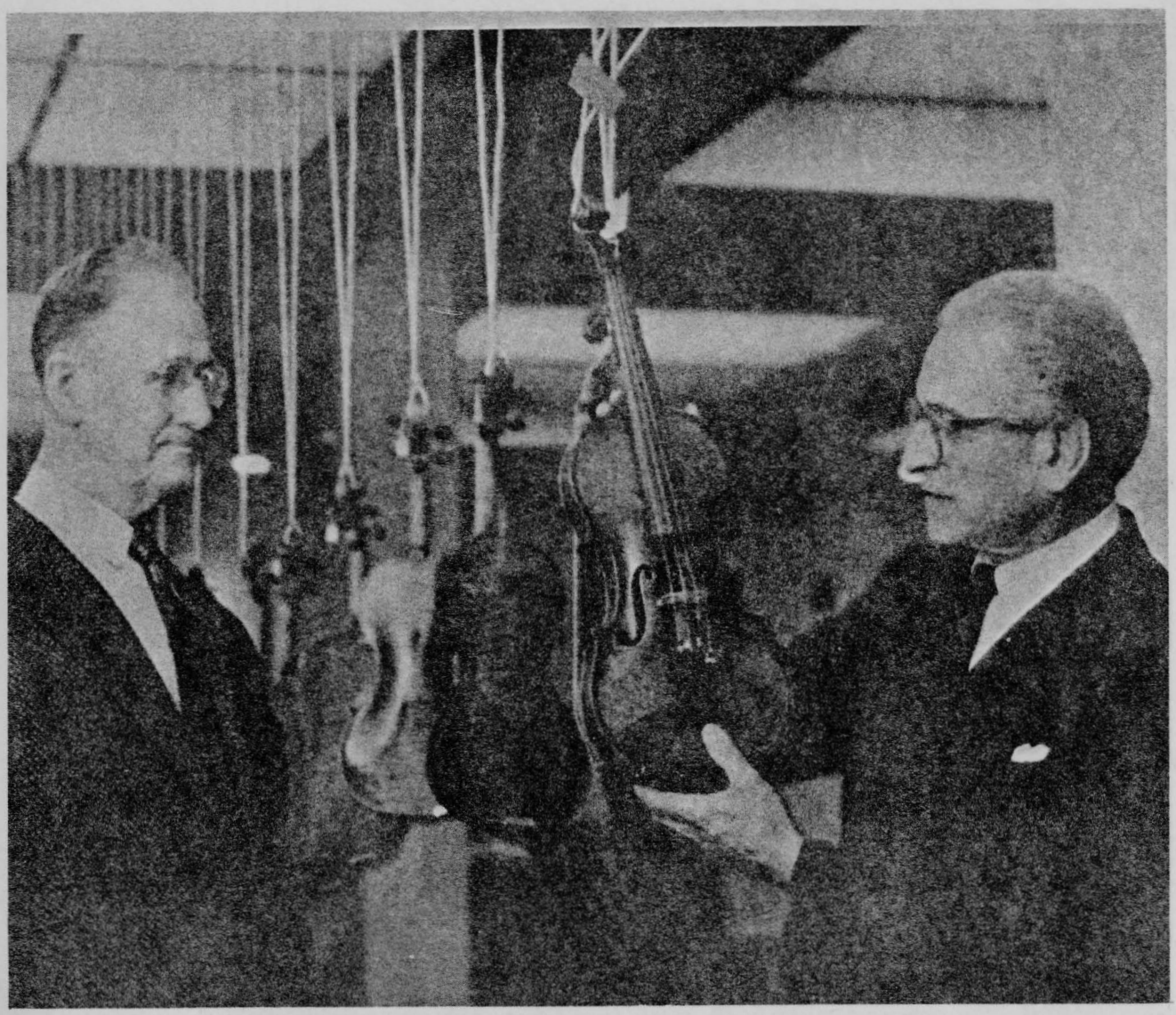
# The Violin Makers Journal

AUGUST, 1962

## THE OFFICIAL PUBLICATION OF
## THE VIOLIN MAKERS ASSOCIATION OF BRITISH COLUMBIA



Mathias Dahl, proud winner (left) and distinguished craftsman, and Judge Simone Sacconi.
(Courtesy Minneapolis Tribune)
(See Story Page 4)

Issued as an Educational Feature to encourage and develop the art of violin making.

# The Violin Makers Journal

A Non-Profit Magazine Published every six weeks
by The Violin Makers Association of British Columbia

MEETINGS HELD THE SECOND SATURDAY OF EACH MONTH AT 4360 MAIN STREET.



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# EDITORIAL PAGE OF *The Violin Makers Journal*

DON WHITE, EDITOR-MANAGER

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Many makers when asked why they selected such an out-of-the ordinary hobby as violin making, are more or less confused as to the real reason. It appears to be something that "just grew" on them.

Someone once answered this question very adroitly when he said "Violin Makers are frustrated violinists!" This is probably true in a great many cases. Disappointed in not being able to attain real proficiency in their chosen instrument they turn to violin making as an emotional outlet for their admiration of the instrument.

Some few makers are unable to play even a simple piece of music. This is decidedly a great handicap. Part of a maker's training should be lessons in violin playing. He should, at least, be able to play his own instruments, for how else can be implant in his instrument the ideal tone that he should be striving for?

But even this slight proficiency is not enough for he is building a violin for a virtuoso not an amateur. Even so he will have sufficient background to understand the violinist when he criticizes his instruments. For instance, he will understand what the artist means when he tells him the violin does not play true in fifths.

So far, so good. The maker being able to play with some slight proficiency has produced what he believes is an instrument with the tone qualities desired by the soloist. He has built a violin which he, the maker, considers ideal. It only remains now to have his instrument tested by the soloist - to hear it played by an expert.

It is more than likely he will ask the soloist to play several violins made by different makers so that he, the maker, can compare the tone of his violin with others. This is often done for entertainment and instruction at our local meetings. However soloists are sometimes too kind hearted to criticize the instruments fully, with the result that the maker starts to form his own opinion as to the merits of the different violins played. Right here he runs into trouble for "a little knowledge is a dangerous thing". With his slight acquaintance with violin playing he is accepting the position of critic. Not only is he unqualified to fill this position but an added handicap presents itself, namely, prejudice. We do not blame him at all for this. It is human nature and, to be completely fair to him, is mostly a subconscious reaction. At any rate he is ruled out as a critic, at least where his own instruments are involved.

How then is the maker able to have his creations correctly appraised?

Undoubtedly the final decision must rest with the person who is likely to use it. The concert soloist or the orchestra player! Their decision must be final. All the nice things your friends have said about your violin and your own perhaps biased opinion, will go for naught if the violinist himself turns it down.

The maker must in some way get his instrument into the hands of a first-class violinist, one that will give him a frank and honest opinion and fearless criticism. The maker will find that it is not always tone that captures the admiration of the player but a certain delightful handling quality, a responsiveness, an illusive something, that entirely fits the temperament of the artist. Let us not suggest that tone will not take a prominent part in his decision!

To sum up then -- It is not the listener who is the final judge but the performer. For him the instrument was made and he is also your prospective customer!

# LOCAL NEWS

by N. P.

The Local Boys are very busy these days polishing up their fiddles for the Hobby Show. Music stores in the city will be sold out of strings to fit instruments for this annual event.

At the meeting held July 14th a committee was appointed to arrange and decorate the Booth which our association has entered. Already over 30 violins, violas, cellos and double-basses have been promised for competition.

We hear from the Secretary that several are coming in from outside points, one from far off Australia. Also Mr. Earle Sangster hopes to bring his violin here, in person. We hope he may do so and he will receive a decidedly warm welcome.

By the time you read this the show will be over and the winners busy hanging up their ribbons in their workshops.

The main event at this same July meeting was provided for by Mr. Horace Plimley who arrived with an old Master violin he had lately acquired from Hill and Sons, London. This violin is a Joannes Baptiste Rogeri made in 1697 and is a splendid example of this maker's craftmanship and in perfect preservation.

Mr. Plimley in past years was an ardent collector of masterpieces. At one time he owned several Strads, yet such is his generous spirit, he had not one in his home to play himself. He once owned The Lord Nelson Strad. This instrument was almost on permanent loan to the late Jean de Rimanoczy, one of Canada's leading violinists.

Besides the Rogeri violin Mr. Plimley brought with him a reproduction of a painting of Paganini. This picture was presented to Mr. Plimley by Hill ¢ Sons. The original hangs in the entrance of the Hill shop. Paganini is said to have expressed his pleasure at the painting, saying he considered it a very good likeness. The Hill people had 25 reproductions made and presented them to their most intimate friends, among them Mr. Plimley. Another one was graciously accepted by the Queen of the Netherlands who on every occasion has helped and encouraged music.

We were very fortunate to have at this meeting Mr. George Tate, a new Associate Member, who played the Rogeri for us. Mr. Tate is an accomplished player with splendid technique and delighted the audience with many numbers.

The Rogeri i
plenty of reserve power, and in the hands of Mr. Tate gave all it had.

We thank both Mr. Plimley and Mr. Tate for the privilege of hearing this rare treat.

Later on Mr. Tate played several of the member's violins and it must be admitted that from the viewpoint of the audience they stood up very well against the Rogeri. However, from the player's reactions, one could see that Mr. Tate was completely enamoured with the responsiveness and tone of Mr. Plimley's instrument.

Besides the above, the Rev. George Wright gave the members a talk on the many different kinds of wood he has experimented with for making violins. Altogether a very enjoyable evening.

## ASSOCIATE MEMBER WINS

## NOTABLE PRIZE

NEWS Minnesota Statehood Centennial
1858-1958

1958 University Avenue Saint Paul 4

To: National Music Publications

From: Gerard Samuel
Don Padilla

Simone F. Sacconi, of New York, internationally-known maker and restorer of stringed instruments, chose a violin by Mathias Dahl, 89 S. 10th St., Minneapolis, as the best in the Minnesota Centennial Violin Makers' Competition held recently.

This event - first of its kind in the United States - was part of the Minnesota Centennial Music Festival, a three-week program featuring twenty concerts of varied types of music. Designed to honor the many fine makers of stringed instruments in Minnesota and to encourage excellence in the craft, the competition had 21 entries.

The instruments were judged for craftmanship, playability and sound. The fourteen violins and one viola selected for best craftsmanship were played by Richard Adams and Gaetano Molieri, of the Minneapolis Symphony Orchestra, who, together with Sacconi, judged responsiveness and sound. In addition to the grand award, special mention was given to instruments made by Joseph E. Duval, Minneapolis, Lothat Meisel, Owatonna, and Oscar Nash, Adrian, Minnesota.

Robert Jamieson, the Minneapolis Symphony's principal cellist, was chairman of the competition.

* * * * * * * * *

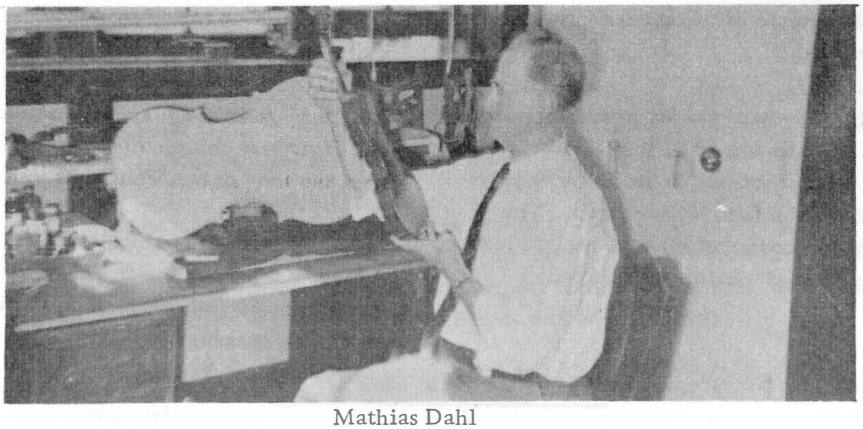
The following is from one who knows Mr. Mathias Dahl and his violins.

Gentlement of the violin world:

Every violinist, violin lover, knows the history of the old violin makers of Cremona, Brescia, Venice, Turin, Milan, etc. and about the old secret of varnish and filler they were applying on the violin before varnish, which produces the famous Italian tone, especially the Cremona violins of Stradivarius, Guarnerius, Amati, etc. called as the lost art, even the great French violin maker Vuillume put in the oven several hundred of various Italian old violins to dissolve the varnish and filler, and discover the real formula, and failed. But today is a famous violin maker by the name of Mathias Dahl, who is the only man in the world today who really has discovered the original filler and cremona varnish, and has succeeded to get the real cremona tone, equal to the best Stradivarius and Guarnerius violins if not better, besides his artistic workmanship is far superior to any Stradivarius and Guarnerius violin, and his varnish work is astonishing. It is really impossible to describe how great a man is Mathias Dahl, because every so often you read how somebody has discovered this and that, and when you see them for yourself, they are nothing but ordinary, but not as in the case of this great artist.

It is simply fantastic to believe but when you lay your eyes on one of his instruments, you think of dreaming the impossible. I wish everybody would come to Minneapolis and pay tribute to this great genius, just like the old pilgrims, and forget for a time about the lost Italian art.

Peter Zotalis,
Minneapolis, Minn.



Mathias Dahl

# A TESTIMONIAL TO MR. GUNNAR SANBORN

# AND HIS "HARMONIC TUNING SYSTEM"

by

Gustav Hammarlund
Torna - Haellestad, Sweden
Translation: R. von Reis

Editor's Note: We have given a great deal of prominence in the Journal to the Microtone system of violin making as practised by Mr. Kristian Skou of Denmark.

Another pioneer and edvocate of this system is Mr. Gunnar Sanborn of Göteborg, Sweden. He is possibly the first maker and investigator to realize the significance of the microtone. Mr. Sanborn calls it "The Cremona Tuning Method." It is also called "The Harmonic Tuning Method."

As far as we can ascertain, Mr. Sanborn's system differs somewhat to Mr. Skou's methods. Sanborn "builds around the air tone". Microtones are employed which are sympathetic to this tone. Skou, on the other hand, sets pretty definite notes which he will use on both plates. Both makers appear to have great success with their individual systems. We hope that when Mr. S kou completes his present series on the microtone system, we can prevail upon Mr. Sanborn to outline his methods.

The following article is by a very close friend of Mr. Sanborn. An admirer of both Sanborn and the system he employs.
D.W.

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When I, 47 years ago, made my first violin, this happened because I wanted to satisfy a strong desire to have a violin with a real brilliant tone. To those knowing what violin making is it is unnecessary to mention that my first attempt turned out to be a disappointment. This violin was followed by a few more, but with no better results. After some years interval I started again with intensified interest. However, during this interval my thoughts often circled around the tone problem, and now I really wanted to attack the problem and try to get better results.

As far as time permitted, I devoted it to experiments and studies of available literatures in the matter and making new violins by different methods or from drawings of the old masters' violins. Many changes and adjustments were also made on the completed instruments in order to improve the tone, but in most cases with negative results. Well, when the whole thing was built upon guesses, assumptions and lack of knowledge, what else could be expected?

After the second world war I started to travel in our country with the purpose of visiting as many as possible of my colleagues in the Swedish Violin Makers Association. Naturally I wanted to exchange experiences with them and in this way come a bit nearer to the solution of the tone problem. I have really travelled thousands of Swedish miles (6 English to a Swedish mile) on our roads for the purpose. But again the results were very poor and my violins weren't much better.

Well, time passed, and at the beginning of 1958 our Assocation's publication, "Slöjd och Ton" started a series of articles by Gunnar Sanborn, who there introduced his new Harmonic Tuning Method, adaptable, by the way, to all string instruments, guitars, mandolines, pianos, also anything where vibrating membranes are used, for instance in loudspeakers or microphones. Here I found something new, which I never before thought of or ever saw printed. But his ideas and experiences in practice looked very logical to me and seemed to explain much that I never before had been able to understand. A hectic time began with analyzing, training the hearing and with experiments. It certainly wasn't as easy, as I thought at the first moment, to hear these very weak sounds in the violin wood, and it took nearly 2 years before the ear had got enough training, and I was able to decide about the tone pitches. And to possess this ability of tone distinguishing is a must!

Even in my very first attempts to follow the new method I found that the tone of the violins became much better than by any other method I had previously used. Still the new violins had many serious faults, which I could detect later on, when more experienced. In order to study the art and learn it as soon as possible I chose to rework nonexpensive instruments, and to my deep delight they gave, when completed, a tone far superior to which I had produced before. When my first excitement and eagerness had cooled down a bit, I worked with more care, and the results were better and better. Now, I definitely know that the closer I can

reach to the perfection of this system, the more brilliant will be the tone. I have been practicing this theory now in its every detail, and I claim and state that it is 100% accurate.

I have now reworked 18 violins and I assume and believe it has been done according to the same principles that made Stradivarius and Bergonzi paste a label inside some of the instruments with the inscription: "Ruisto, e corretto da me". Some of the last instruments I repaired were expensive old Italian master violins, considered to be "out", and with defective tone. After repairing them the instruments had regained their brilliant tone, and they were returned to the delighted owners. Again and again I have asked myself, what I should have done with these violin "ruins", if I hadn't spent my time on learning the Harmonic Tuning Method. Where should I have begun and where should I have finished?

All these good experiences have encouraged me very much, and hardly a day goes without feeling the joy at having a "sure fire" method and system to trust upon at my work. Sometimes people ask me if I am not afraid of failures and mistakes. I have replied that there are no such risks, as long as I carefully and with precision follow the method. If I make "side steps", or I am careless, this will invariably result in a bad tone quality.

I know very well of the objections made against the Air Tone and its importance. Here is my view on the point: A person should never make any declaration or statement in the matter without having experienced the great - nearly revolutionary, perhaps, improvement of the tone quality which will be the result when two harmonically tuned plates have come in close resonance to the Air Tone.

A long row of persons are asking for help to cure their sick violins, and I now have a job for unsurveyable time in the future. I naturally will use the new method. But I finally just want to ask this question: "Is there any reason why I should now return to the stage where I was before learning the Harmonic Tuning Method? To my primitive conception of wood sizes, thicknesses, my attempts with different systems with their complicated geometrical and mathematical rules, to miracle, working varnishes, impregnated wood, and I don't know of all?" My reply is: "There is only one method to follow, and this means right now, a Proceeding! By the use of a method, entirely built upon the acoustic principles and where the great and main thing is our hearing, our ear. I have tested the method thoroughly, and because I know it gives a richer experience of music both to the player and listener, I am quite sure it will create a new culture to the violin.

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## THE DALLA VALLE COLLECTION CREMONA

by John Murray
(Stationed with the armed services in Germany)

Readers of this Journal may be interested in my impressions of a recent visit I made to the little town on the Banks of the River Po, which has produced so many world famous Violin Makers and so many Master instruments/Cremona.

Parts of the town, especially in the vicinity of the Cathedral, have the characteristic narrow winding streets which do not seem to have changed much since the heyday of Stradivarius, Guarneri and all the other Artist Craftsmen of the Violin making world.

The house in which Stradivarius and his family settled soon after his second marriage can still be seen at what is now 55 Corso Garibaldi. The other famous house in St. Dominico Square was unfortunately demolished in 1889. The site of the house and the surrounding area has been made into a Public Garden, now the Piazza Roma. However an excellent description of Strad House and an amusing account of the difficulty he had in locating it can be found in My Musical Life by the Rev. H. R. Haweis. Apparently in the Cremona of his day very few people even knew, much less cared about Antonius Stradivarius. While on this subject, there is, in the Stradivari Museum, a painting by Alessandro Rinaldi showing the Master at work. It was painted in 1886 and Rinaldi is said to have used the actual workshop as a basis of the painting.

It is the Dalla Valle collection in the new Town Hall that would have the primary interest of the fiddle makers, however, so I will describe the various items as best I can. I have taken a number of photographs, not very good ones I'm afraid but nevertheless they should help a little.

The pieces on show are housed in six cases, the first on one side of the room comprising wood and metal clamps

of different sizes, a bass bar clamp, compasses and dividers. There are also two wooden and three heavy wire sets of thicknessing calipers; these are without any sort of measuring scale - a number of scrapers, gouges and knives, a small folding rule, and, finally, particularly intriguing - a small metal funnel still liberally coated with red, red brown, and gold colored resins.

The next case contains 16 Violin and 3 Viola Moulds all of the inside type and all cut from the same wood, a variety of Yellow Pine. On the top shelf centre is the block Stradivari used as a rest in scooping out the tables. The moulds by the way are all about an inch thick so what system did Strad use for regulating rib height?

The adjoining case shows paper and wooden models for fittings (bridges, tailpieces, etc.). There are various designs for bridges of the Tartini type.

The last case on the side of the room which I have been describing, is devoted to the Two Violas made in 1690 as part of an order commissioned by the Duke of Tuscany. It shows the two moulds for the Viola Contralto and the Viola Tenore. There is a complete set of drawings for each instrument, scroll, sound holes and so on, as well as models in wood and paper for the fittings for each instrument. Each set of drawings is complete and has a diagram for the positioning of the FF holes.

The Viola Tenore is today in the Museum of the Cherubini Conservatory of Music in Florence. It still carries the original fingerboard, tailpiece and bridge. The Viola Contralto disappeared during the French invasion of Italy by the Revolutionary Armies under Napoleon.

On the other side of the Room there are two cases. The first contains the drawings and paper models for a Cello, for a Lute and its fittings and a diagram for the positioning of the FF holes for a Violin. There is also a mould complete with blocks for a small Violin of about six inches body length. This is accompanied with drawings for the scroll sound holes, bridge, etc.

The last case of the Stradivari collection proper displays drawings and stencils Stradivari made for the ornamentation of such Violins as the Hellier, the Greffuhle and the Rode. These drawings which are in ink must be seen to be appreciated; they are wonderfully detailed and beautifully drawn. There is one drawing in particular of a Griffin which is drawn on square paper. This is a little work of art.

Readers of course are familiar with the device Strad used on his labels - the Maltese Cross, with his initials enclosed in a double circle. The case shows actual stamp with which Strad stamped so many of his labels. It is carved from hardwood (Maple), and is well stained with black ink. This case also contains many more paper models for fitting as well as a set of Arching templates in wood for Nicolo Amatis' "Grand model".

The room houses five more cases. The first contains Mandolins and Guitars by Nicolo Bergonzi and Pietro Grulli. The second with a Violin by Carlo Bergonzi (11), one by Dalla Costa and a Violin and a Pochette by Pietro Grulli. The third case displays three cases, one of which is by J.B. Ruggeri; the second unnamed, and the third a modern instrument. The remaining two cases show a half sized Violin of the Amati School and a badly damaged 3/4 sized Amati Violin (I think this was by Andrea). At the foot of the room is the carved marble top from the well which was in the yard of Strad. House and on the wall a fragment of his bench. There is also a fragment of the carved wooden Facia with part of his name from the sign which hung outside his shop. The Collection is completed with the large painting by Rinaldi which I mentioned earlier. It is interesting to note that there is a department in the town hall just below the Stradivari Room which now houses an International School of Violin Making. This was unfortunately closed when I was there.

May I say in closing this short article that on my two visits to the Dalla Valle Collection I was very much impressed by the meticulous care evidence in the models and drawings there. It was certainly worth the trip and one day I hope to go there again. (Photos on next page.)

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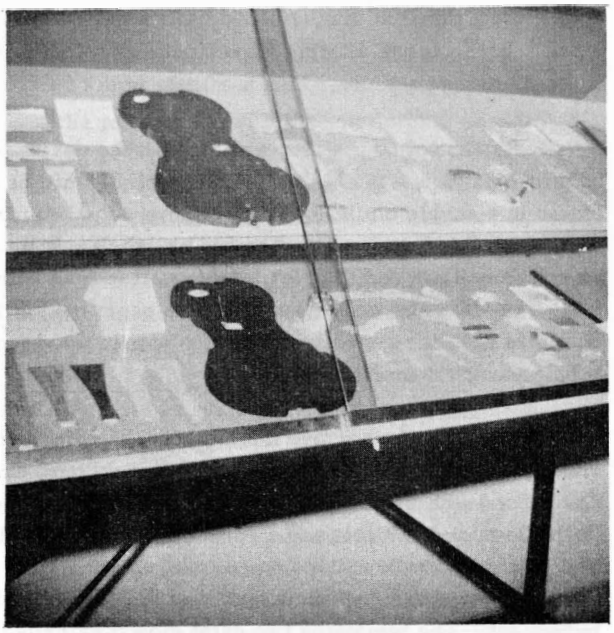
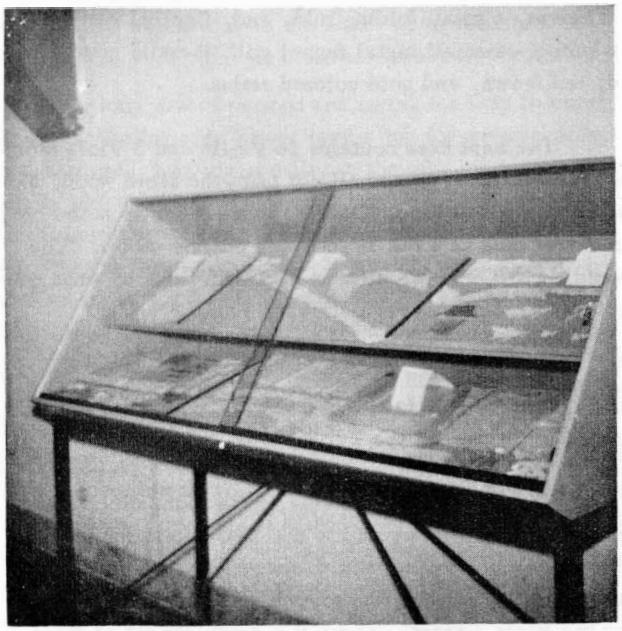
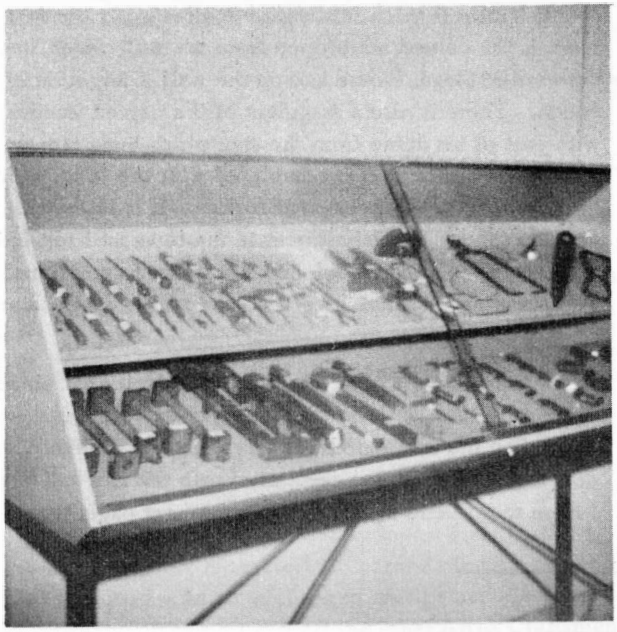






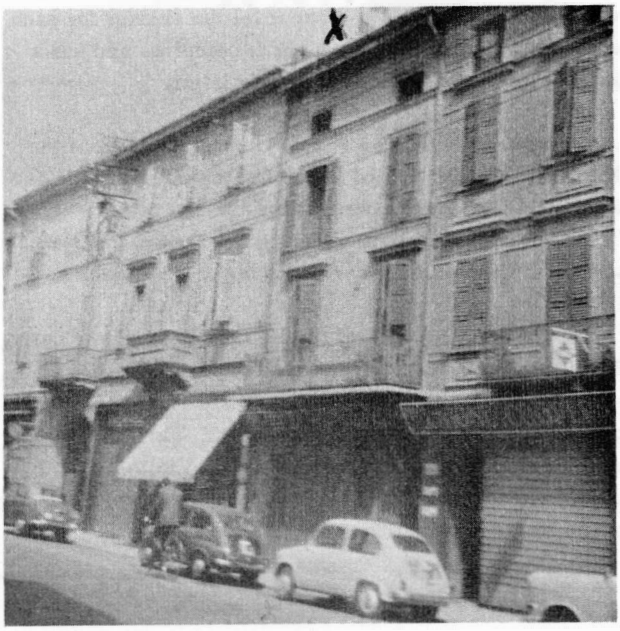
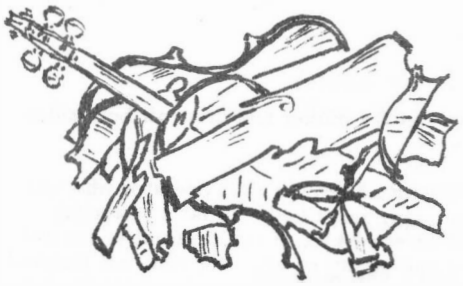



Exhibit cases of the Dalla Valle Collection and Strad's House (marked X)



# Fiddle Fix.

By H.S. Wake.

No. 17

The scroll of a violin takes a lot of abuse and it has always been a wonder to me how they manage to survive at all. I had one recently for repair that had the projecting ear on one side broken off and lost; it was a clean break, indicating that a fairly severe blow had knocked it off; most likely someone had been beating time with it. Being broken off at the root, it took with it a small portion of the descending curl as shown in the shaded area Figure 1 and Figure 2 at A. In making the repair, or maybe it should more appropriately be called a restoration, you will recall that the piece has been lost so the first operation will be to prepare the work for a piece that we will glue on, and then trim to match the opposite ear.

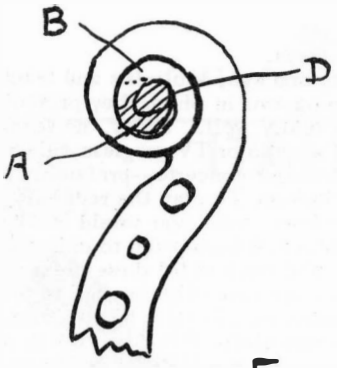



Fig. 1.

HSW.

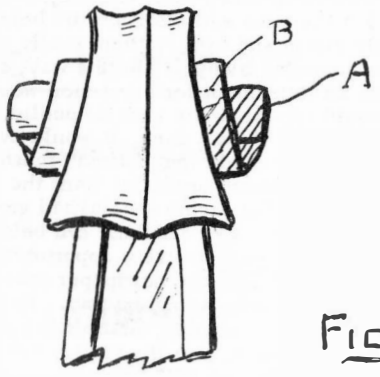



Fig 2.

HSW

With small chisel, level off the spot on the scroll where the pair is indicated and trim square the side of the spiral on a line level with the top of the missing button or ear as shown at B Figure 1 and Figure 2.

Now for the replacement piece, cut a piece of maple having a top view as shown at Figure 3. This piece


Fig. 3.

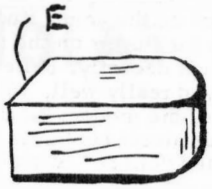



Fig. 4.

HSW

will have one rounded end C having the same radius as the missing piece at the point D Figure 1, the side view of the replacement piece will be as shown in perspective at Figure 4, this piece will have the grain running horizontal according to Figure 4, cut edge E Figure 4, square as shown and make the piece small enough to fit in the area of the break; make sure you get a clean fit at point B Figure 1 and the rounded heel of the replacement piece will take care of point D.

Glue this piece in place with fresh hot glue and leave overnight. It will then be a comparatively easy job to trim the added piece to the required form, matching the opposite side of the scroll.

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## A VIOLA IN THE MAKING
(1962)

Having finished my most recent project; A thirty inch Strad model 'Cello, and being more than satisfied with the tonal results, I started thinking about what should be next; another 'Cello? A lot of hard work, but so gratifying when brought to successful completion; especially so when you are a player of the instrument; or should it be another violin? Perhaps I should catch up on the myriad of other things that had to be done. Well, it happened that I didn't have much choice in the matter because in a sense it had been decided for me quite some time ago (although I didn't know it at the time).

A good friend gave me a plank of curly maple; he explained that he got the board fifty years ago from another person who'd had it for 25 years; he had kept it all those years with the thought in mind that someday he would make a violin; however, he never did get started on that fiddle and being well advanced in years he had been looking for a worthy recipient. He had read an article about me and my work and had looked me up; he said he was giving me the wood as he wished to see a finished instrument made from it.

The plank didn't look like much, it was very rough and soiled, and had a warp in it, it was one inch thick and 14 inches wide, by about six feet long; however, that old gent knew what he had and I had a hunch that he was right; one sure couldn't tell by the appearance of it. As you might guess, I didn't lose much time in taking it to the mill where I had them run it through the planer and dress off both sides to a thickness of 3/4".

It was a revelation. Even the mill operator who was anything but a fiddle man, remarked, "What a beautiful piece of wood", and he was right. I could visualise several fine one piece backs and plenty of wood for ribs, all finished and varnished, and that beautiful grain shining through, but it didn't work out that way.

I was visiting the esteemed violin maker Mario Frosali at Los Angeles, and the conversation got around to violas and the relative merits of different lengths and models; he showed me a set of outline patterns that he had for a 16 3/4" Guadagnini model that he had got from Sacconi in New York many years ago; it was then that I thought of that nice plank of curly maple and the outcome was that my friend Frosali loaned me the patterns to copy and I didn't lose any time in getting started on that viola; the back and ribs are finished, the scroll is carved and the rest coming along nicely.

This morning I called the old gentleman who gave me the wood and invited him to come and see what is happening to his plank of curly maple. You can be sure that he won't lose any time getting here. Will give a further report and pictures when the instrument is finished.

Harry S. Wake

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(cont'd. from page 36)
or some modern composer.

This is not to condemn modern music--far from it. It has a definite place in our scheme of things, but too often, it is put on the young student before he is ready for it and he breaks his fingers on the stuff before he can play "Andante" by Gluck decently. Believe it or not, the latter little piece, if played really well, will make as fine an impression as some of the modern "sonatas". If this trend away from the smaller pieces continues, we will soon have a small but well-schooled "cliche" of violinists and students who play and appreciate nothing but major works. They can then play for each other, but not for the public, as Kreisler and Elman have done. They can and will look down on the average music lover with something of disdain if said music lover does not go into some fit of ecstasy over their performances of strident and discordant "modern" music--which means we will hear more talk among the ordinary music lover of a hatred for "long haired" music. Such pieces as "Humoreske" by Dvorak are not heard these days, but Kreisler and Stern have played it with great success--so have a few other artists. But any fresh graduate in violin would look down his nose at you if you asked him to play it--he wants to play Paganini and Prokofief instead!

I have often asked the string teachers in these string classes if they ever play for their students. Their answer is always the same; they do not have time to practise or play, but sometimes, they pick up the violin for just a moment during the class to "demonstrate" a certain bowing. That is all. To me, it is not enough. Teachers should play for their students, and play well. They should play music the student can understand and music the student can hope to play himself in the not too distant future. Only in this way can the musical taste of the student be developed and cultivated as it should. It is better to play "Souvenir" by Drdla really well for the student than to run to the hi-fi set and put on the Paganini Caprices for the student to hear. The student feels that he could learn the "Souvinir" and play himself, but he knows he can never hope to play the Paganini Caprices as Ricci plays them.

Thirty years ago, violinists and teachers often had regular radio programs in which they presented these smaller pieces really well. Today, no teacher or violinist would think of a radio or TV program unless he was prepared to present a major concerto--preferably a new or modern one not heard before. To play the repertory which has made the violin loved the world over would be "hackneyed". Actually, it would be hackneyed to only a few violinists and musicians who have heard these older pieces until they claim they are sick of them--but to the general public, such performances would really be welcome. And I have seen violinists who claimed they were sick of "Andante Cantabile" come out of a Kreisler or Elman performance of it with starry eyes. Why? Because the music was played in a touching manner. That touching manner didn't just happen with Kreisler and Elman--these artists worked on smaller pieces with the same devotion and sincerity of purpose they put into major concertos. My advice to every violinist would be to throw away the major works for two weeks and put the time and effort on the beloved smaller works for the violin and to play them really well and in a finished and touching manner. In this way, the love for the violin as an instrument for expression would grow and grow. It would appeal to the general public, to the casual listener, and if well done, it would even appeal to the sophisticated lover of "long haired" music. This procedure should be adopted unless we want the violin to be confined to a small but highly specialized group of performers and listeners. Get out these old beloved compositions and play them well at every opportunity for the younger students. Forget the newspaper critics and music critics--they are usually wrong anyway. Remember, they crucified Beethoven in his day, Brahms in his day, and of course, they will crucify you if you play Schubert's "Ave Maria"--but the audience will love you for playing it if you do it well. The object of all this, of course, is to promote a love and appreciation for stringed instruments and for string music. Is there a better objective?

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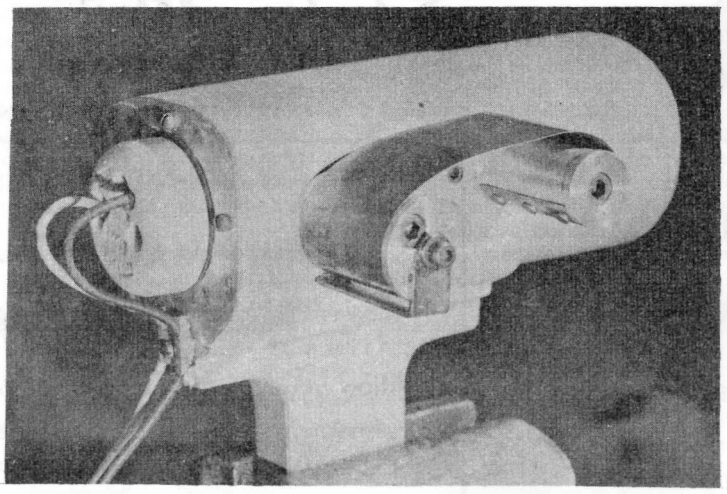

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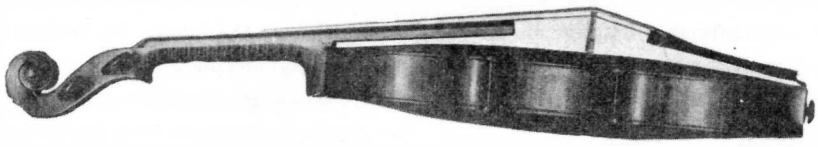


# Living makers AND their instruments

In our Living Makers series for this issue we have with us none other than our friend Mr. Harry Wake. We take special pride in presenting him for very few Members have assisted with our Journal more sincerely than has Mr. Wake.

Harry is without doubt one of the leading makers on this continent. His violins not only possess a rare quality of tone but workmanship and finish portray the master-craftsman.

We are indebted to Mr. Maurice Roy of La Jolla, California (pronounced La Hoya) for the description of this master's work. Mr. Roy is a Master Photographer and violinist of considerable ability and a fellow member of our association.

H. Sebastian Wake

by Maurice Roy

Among the contemporary American Luthiers there are a few having outstanding talent for producing instruments possessing exceptional tonal qualities together with superb modelling and finish: Among these is the little known maker whose work is pictured this month.

Henry Sebastian Wake is a highly skilled artisan, possessing that sixth sense which enables him to produce violins having a tone of volume and quality rarely found in a new instrument.

Patterned on the lines of Stradivarius this violin shows exquisite detail in the slightly raised and well defined edges, these edges being masterfully handled in the corners where the greatest difficulty lies. The purfling is narrow and well executed, a pleasing distance from the edge and artistically calculated to blend with the whole concept rather than with any one part of it.

The "F" holes are cleanly and boldly cut and show interesting individuality in the lower sweep which pleasingly and HARMONIOUSLY completes the picture.

The scroll is well carved and of bold outline, having graceful curves and good character in keeping with the rest of the instrument.

The modeling of the instrument is medium, however the arching is slightly higher across the lower bouts; this, together with the deeper ribs here, gives it rather robust appearance.

This maker has, by carefully selecting the best European wood and studiously matching and graduating the plates, achieved the results so much desired but seldom found in a new instrument; tone; rich and full, well balanced over all strings and with a quality totally unexpected. This indeed is the work of a master of whom much more will be heard of in the future. The label is hand printed and reads:


Measurements of the instrument shown are

| | |
|---|---|
| length ..... | 14" |
| upper bouts ..... | 6 3/8" |
| center bouts .... | 4 3/4" |
| lower bouts ..... | 8" |

Mr. Wake was born in England at Newcastle-on-Tyne, July 1900. His father, Ernest Wake, a protege of John Dunn, was well known as a musician and violinist, later took up the 'Cello and became a master concert performer on that instrument; although he was a master on both instruments he was perhaps better known as a 'Cellist than a violinist; now residing at Douglas, Isle of Man (1962) and approaching his 90th year, he will be remembered by many living today.

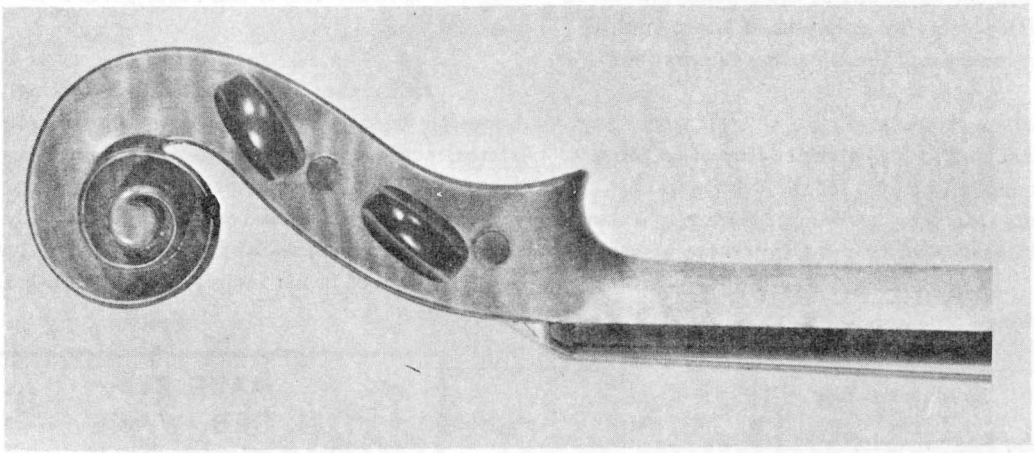
Henry Sebastian had a natural aptitude with tools and was at an early age restoring and adjusting violins and 'Cellos for his father; this was followed by a desire to

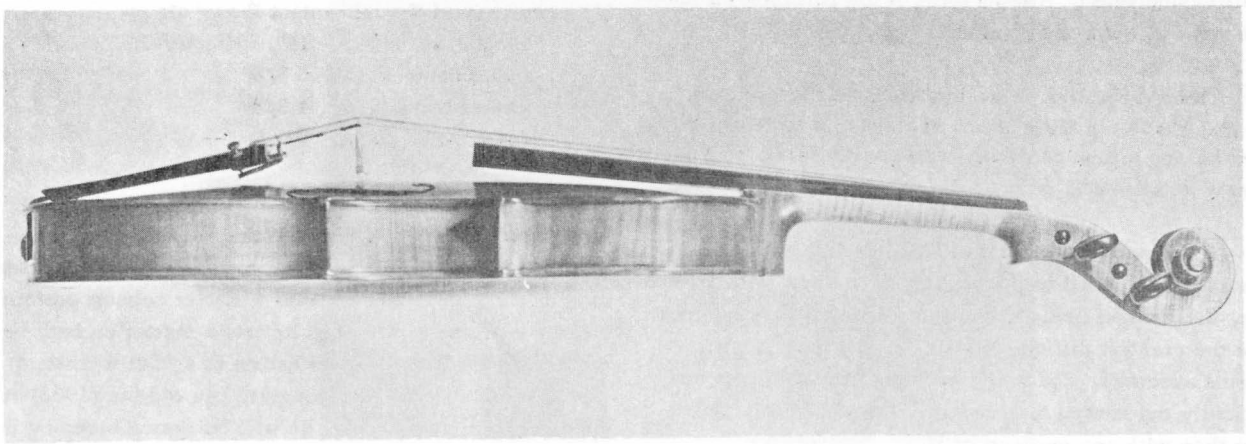
make violins: Much experimenting was done and several violins were turned out bearing the label Wake and Son. Then came a period of study of varnishes and again much experimenting which resulted in the development of a fine rich red brown varnish similar to that used on the instrument shown.

By his 21st year the son was a skilled artisan and an accomplished 'Cellist, and decided to make his future in America; resided in New York City for four years studying music and developing his 'Cello technique; being by this time an excellent performer on the instrument, his time and talents were much in demand and little work was done with violins.

In 1926 Mr. Wake married and settled at Philadelphia where he remained for almost thirty years; these were busy years and although his keen interest never diminished, there was little time for violin making because Wake the musician, the artist, the craftsman, now took to the study of engineering seriously, while making a livelihood as a professional musician; and by 1940 had abandoned his career in music entirely for that of engineering in the aircraft industry, and devoted the next twenty years to that profession.

Now retired in the balmy climate of Southern California at San Diego where he has resided for the past ten years, Mr. Wake maintains a nice collection of Antique Violins and enjoys an enviable reputation as connoisseur and restorer of old instruments, however, he is making masterpieces in the art, and fortunate is the man who possesses one of them.





Side view and Scroll of violin by Harry Wake.
(More pictures on page 16.)

# A VISIT TO LUTHIER LODGE

by J. V. Glade

While in Los Angeles recently on a visit, I decided that I would extend my trip a little and drive down to San Diego for a visit with Harry Wake at Luthier Lodge: I must say right here that it was a most rewarding visit and will be long remembered by me.

Arriving at the Lodge in mid afternoon I was greeted warmly by Mr. and Mrs. Wake, and it didn't take long for us to get acquainted when we got on the subject of fiddles and fiddle making.

Harry is a man of light stature; active and wiry; I could see at once that he is a man of boundless energy; a good talker in precise English, and as I soon discovered, a good listener too.

The Lodge is a neat motel of sixteen units with the violin department occupying the front of the building on the main thorofare; the front entrance leads into a small vestibule where the pictures and framed award certificates on the wall let you know at once that you are in the right place; adjoining is the collection room where large showcases line the walls; these contain row upon row of old violins; French, Italian, English, German; all by famous old masters and all in top playing condition: One case contains the violins that Harry has made, and the trophies they have won; I was particularly impressed with the workmanship and the varnish of his violins, and with Grand A ward trophies to show for tone, they must be O.K. in that department also. Adjoining this violin room is the workshop where you see not only the tools and equipment of a violin maker with the usual bottles of varnish, violin forms, etc. but those of an Engineer, designer, and Mechanic; because Harry Wake is all of these as proved by the machines and special tools he has produced, and the patents he holds.

I was shown to my room which proved to be modern, comfortable and complete: T. V., Radio, Heat, shower, etc. what more could one want? And at a price less than one would pay at a Travel-lodge or similar motel. After resting awhile I was thinking about dinner and discovered that there are all kinds of eating places within short walking distance, so I settled for the Fishermans Wharf Restaurant across the street, overlooking the Bay and all the boats; I had an excellent dinner and the surroundings were most enjoyable.

Getting back to the fiddles again in the evening, Harry showed me a 'Cello he has just recently completed; it is still unvarnished but is strung up for playing; I was truly amazed to hear how this man can play the 'Cello and the marvelous tone of that instrument; it was then that I learned that Harry has been playing since age seven and has played with the major Symphony Orchestras.

I examined a viola that Harry has now in the making and which he hopes to have ready, together with the 'Cello for next October Violin Makers Competition in Arizona, the viola has a beautiful one piece back and I was shown how the delicate edge work is done on the 'Luthier' edge router machine which is designed and built by Mr. Wake: I also was shown the new rib bending iron that has some excellent new design features.

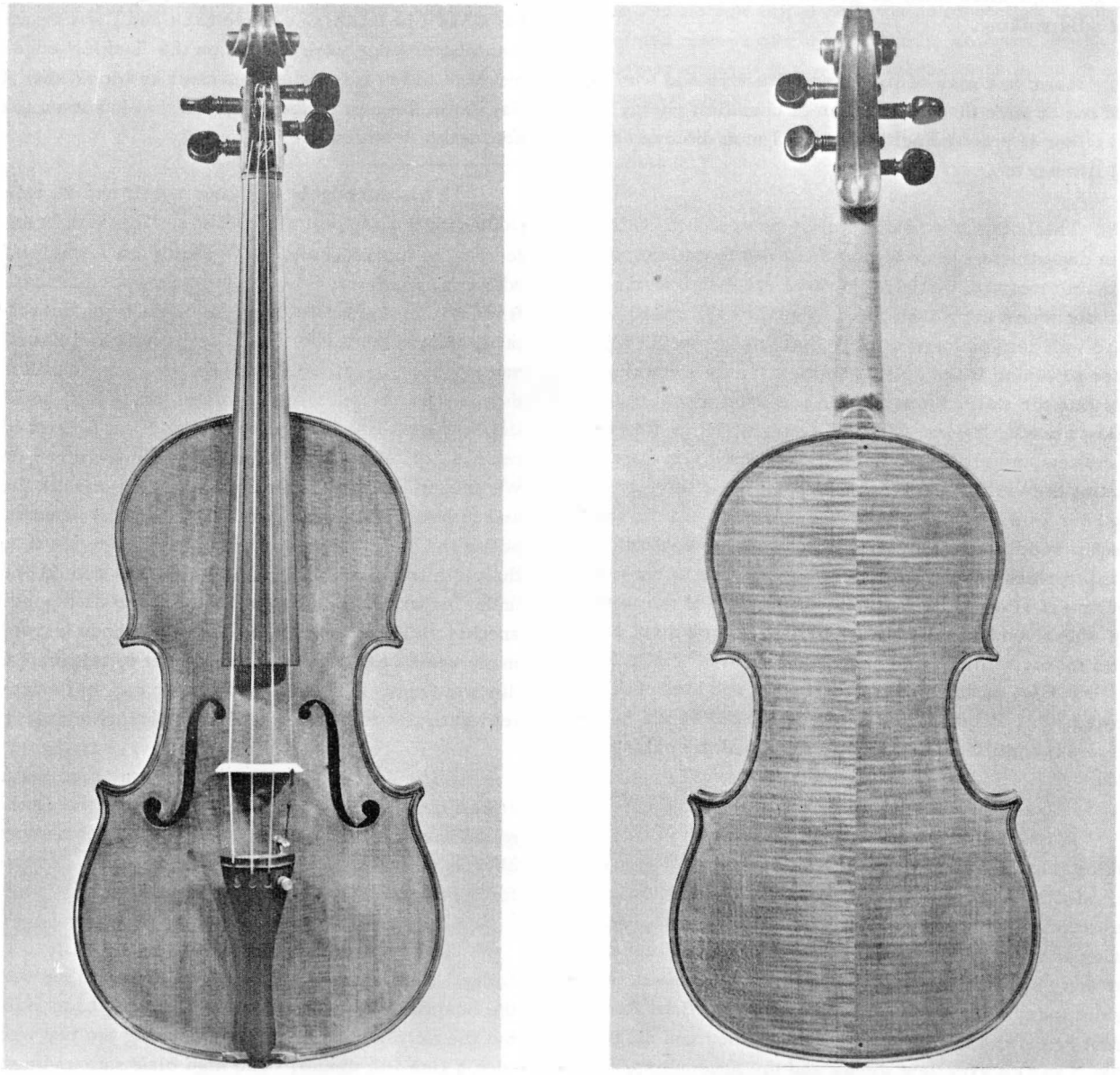
I was thoroughly enjoying myself and we talked fiddles until away past my bedtime: This man holds no secrets; he speaks freely and evidently enjoys helping you with your problems, however he makes it clear that 'this is his way of doing something' and that that does not necessarily mean that it is the most correct way. I had always had some difficulty with the finishing of my violin necks; they lacked that nice smooth finish and polish, so I mentioned this to Mr. Wake; he smiled and without any hesitation said ' would you like me to show you how I do it? Whereupon he reached for the linseed oil and the shellac and in less than five minutes I had the most beautiful French polish job on the neck of one of my violins: He then handed the cloth to me and said 'Now let me see you do one' and under his watchful guidance I was able to do a good job on another violin. I was elated because nobody knows how many years I had looked for an answer to this problem. We discussed many things until it was for me, quite late and I retired to rest for the night having thoroughly enjoyed myself.

The next morning I found that my host was up and around quite early; he explained that he always has coffee ready at seven for departing guests; we continued our discussion, covering many subjects until finally the time came for me to reluctantly make my departure.

On looking back and reviewing my visit to Luthier Lodge, there are a few things that impressed me very much; the beautiful bay with the colorful fishing boats right close by; the excellent restaurant overlooking the bay where I had such a fine fish dinner. The high class surroundings; so many fine establishments adjacent to Luthier Lodge: The park on the hill with its historic background: The Greek Theatre nearby: The beautiful homes built along the bay: However the most interesting thing to me was Mr. Wake's fine

collection of violins and the way he cares for them; the Cello he has made; its marvelous tone and the way he can play it. His inventions of machines to assist the violin maker. Above all I was impressed with the man, and the experience he has gained in a lifetime of honest work in a profession that I love, his unselfishness and willingness to help others. I appreciate the way Mr. Wake helped me with the French polishing of my violin necks. I have since done all my violins and they look fine.

Since my visit to Luthier Lodge I have written to Mr. Wake and my closing words to him were then, as they will be now, you are indeed a lucky man to be able to do the things you love to do and to have such an understanding wife to encourage and support your efforts: I salute you both, Harry and Dorothy Wake.



Top and Back of Harry Wake's Violin

# NATIVE WOODS OF BRITISH COLUMBIA SUITABLE FOR VIOLIN CONSTRUCTION, by Don White

This series has been somewhat interrupted owing to lack of space in the last two issues.

On July 14th a most interesting and instructive lecture was presented by Rev. George Wright to the Local "Active" Members. I am inserting the highlights of this lecture as I feel it contains important information for the maker.

It will be noted that some of the woods mentioned are not native to B. C. They are included because of the experimental results obtained from them.

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Chapter 5. Violin Wood Experiments by George Remington Wright, of Vancouver, B. C.

I have been asked to give a report on my findings from experiments I have made over a period of sixty five years (65) on fifteen different wood for Bellies and eighteen different woods for Backs.

I do not consider I am an authority on this sort of thing as I have only made thirty-one violins, a viola and one cello.

I will start with the Bellies first, in view of the fact that they are on top.

Jack Pine -- As we called it in Alberta, (Pinus contorta). It is very white and beautiful, but brittle compared with other pines. Also usually too broad in the grains. O.K. for amateurs to practice on.

B.C. White-Bark Pine (Pinus albicaulis). Also beautiful and white, but too soft for good violin wood. Bruises too easily. But works perfectly.

Yellow Pine -- The most common in B. C. Very resonant and works smoothly. Also takes a good finish but, like all the pines, the gum oozes through the varnish even after two or three years.

Ponderosa Pine (Pinus ponderosa) -- This is my choice of wood for violin bellies, but for one fault (the gum). The wood is very strong, very resonant, works beautifully, and takes a perfect finish, especially if one wants to take advantage of the two-tone colouring of the red and yellow sap wood. But the gum is very persistent - if I ever try it again, I shall boil the roughed out belly in wood alcohol until all the gum is out.

Western Red Cedar (Thuja plicata) -- Very resonant and beautiful, but too soft - marks too easily and splits too easily. It seems to be good for viola bellies.

Engelmann spruce (Picea engelmann) -- Very good for resonance and very beautiful with its little bright fleck in the soft grain. My personal opinion is that it is our best wood for bellies, especially if gotten from the northern part of B. C. I have some from Barkerville B. C. and it is superb, for resonance, working and appearance. It is harder than the Sitka Spruce.

Western White Spruce (Picea glauca) -- This is beautiful, also very resonant, but too soft. It bruises easily.

Red Spruce -- from Nova Scotia -- (Picea rubra) This is a hard spruce. Very resonant, with strong winter grains, works well and makes good tone. It is recommended in my tree book to be good for musical instruments. I like it too but seems hard to procure.

Rocky Mt. Juniper (Juniperus scopulorum) -- Very beautiful with red heart and yellow sap wood -- Finishes like satin - is very resonant and its pores contain minute crystals, which, some say, add to its sensitivity. Juniper with a Sycamore back has made the sweetest toned violin I have ever made, so the players say. Nevertheless, it is not without fault. It is too soft and splits too easily.

Sitka Spruce (Picea sitkensis) -- Very good and fibrous, clear, straight, even grain. Is used for piano sound boards particularly. Some of my best violins have Sitka bellies, also a Cello which is of excellent tone, although my choice is the Engelmann Spruce from Barkerville, B. C.

Black Spruce (Picea mariana) -- This is our hardest Spruce and makes a violin with a sharp tone. Good for dance fiddles, etc. It is also heavy like Ponderosa Pine. It has a very high tap tone.

Douglas Fir (pseudotsuga taxifolia) -- Extremely resonant and very beautiful. Works nicely and finishes perfectly but gives off a very powerful rough tone. (Not pleasant to the ear.)

Alpine Fir (Abies lasiocarpa) -- Very light and resonant, easy to work and takes a nice finish. A bit too soft but produces a good tone.

European Spruce or Norway Pine -- This always seems to be a little harder and tougher than our B. C. Spruce, although I have been able to produce better toned violins with our B. C. spruce than with the European.

Grand Fir (Abies grandis) -- This is our (Balsam Fir) (or White Fir). It is beautiful and white, with straight, even grain; has good resonance and makes good violin bellies. One fault is that the pith between the grain is too soft, which causes trouble in cutting the purfling groove.

This pretty well covers my observations on bellies. Now some woods suitable for Backs.

Poplar (Quaking Aspen) (Populus tremuloides) --This is what I used for my first violin, when I was only 12 years old.

I still believe poplar could be developed into a very good wood for backs, if cut in mid winter and seasoned properly. I noticed as a boy in handling fence rails, once in a while you would come across one that had the spring of hockory and rang like a bell when it was dropped on the ground. It also takes a good finish.

Pacific Willow -- It is very beautiful, fibrous, nice to work, has good resonance, takes a good finish, but I think a bit too soft and light. It is harder and more resonant than the English brown Willow.

Western White Birch (Capyrifera)-- This as well as Black Birch sometimes comes in a Bird's Eye pattern which makes a very beautiful job. It is dense, nice to work and takes a beautiful finish, not very resonant.

Pacific Dogwood (Cornus nuttallii) -- Dogwood is very tough and strong, not very resonant, but good to work and takes a very good finish, maybe better than we think, if properly seasoned, no fancy graining.

Western Yew (Taxus brevifolia) -- Very beautiful and takes a finish like a piece of Ivory. It works nicely and the ribs bend like a strip of celluloid. It is very resonant and makes a good toned violin. But its main fault is, it splits too easily. The keys will split the head unless you use Patent Pegs.

Eastern Bird's Eye Maple -- It is very beautiful and takes an excellent finish. Not very resonant, but very difficult to work on account of the eyes being too easily picked out. One must do ALL his work across the grain on the outside. It made a sweet toned violin but not very powerful.

Broad Leaf Maple (Acer macrophyllum) -- I have used more of this for backs than any other, and always found it GOOD. Although I have found there is a great difference in its resonance and texture. This of course is due to the different valleys, slopes and altitudes it was grown in. It works perfectly. Is resonant and takes an excellent finish. I can truly recommend it as first class violin wood.

Douglas Maple (Acre gladrum) -- This is tougher and more fibrous than the Broad Leaf Maple. It is lovely and white, nice to work, not very resonant, and never seems to with curly grain. The leaf is very much like the Eastern Sugar Maple Leaf. It is quite scarce in B. C. But makes a very good violin back and is especially good for ribs and neck.

Arbutus (Arbutus menziesii) -- This wood is mostly white and very beautiful. Very hard and dense. Nice to work, especially cutting purfling grooves. Almost no resonance, but makes a good toned violin when matched with proper belly.

Myrtlewood -- Only grows in State of Oregon and in Palestine. It is very beautiful with its different shades of colours. It works perfectly and is quite resonant. It produced a very sweet toned instrument that I sold for $300.00. The neck carved nicely and the ribs bent like copper. I would class it with the first class woods for backs.

Domestic Cherry -- Very beautiful, but too brittle. It takes a beautiful finish and is easy to work. The neck will break off at the least provocation, at the first peg hole. Not hard enough for good backs and necks.

Black Walnut -- Very beautiful and carves like tallow. Have to use wood-filler before varnishing, to fill the pores. Produces weak tone, but is attractive with white purfling.

European Maple -- This is beautiful and white, and is always good, although I have produced better toned violins with B. C. Maple, even when I used their Professional Makers' Tone Wood which cost $66.00 and was seasoned for 30 years or over. I had to use their best wood to be fair with B. C.

African Gumwood -- This is very beautiful with its streaks of rich reddish brown, streaked with chocolate, etc. The wood is very hard and cross grained, therefore hard to work. It finishes beautifully and is a picture to look at when nicely finished. The ribs bend nicely, but the tone seems to remain inside.

Camagong Mahogany. From South Phillipines. It is a mixture of black with soft brown stripes through it. Harder than ebony and harder to work. It was so dense you could not obtain a tap-tone. It was almost like tapping a piece of lead. Yet when matched with a proper belly it beat any violin I have ever made. I only gave it an oiling and rubbed it to a polish. By this experiment, I am convinced that the back is a reflector of tone and does not need to be a resonant wood.

Brazilian Rosewood. I am using this wood because it is very beautiful and, because it is very resonant. It is very hard and hard to work. So I am using B. C. Hemlock Belly which has a high pitch Tap-Tone. It is not strung up yet, but it is very beautiful. I might say I have never worked on such resonant hard wood.

Canadian Sycamore (known as Button Wood). European Makers so often confuse Sycamore with Maple, when they are not even in the same family. It is very beautiful. Takes a lovely finish and with a Juniper belly it has produced the sweetest toned violin I have ever made (so the players say). I would say it is equal to the best maples for backs, ribs.

Eastern Sugar Maple. Grown in B. C. This in my estimation is the best maple for violin backs, I have ever used. It has a good appearance. Works perfectly under the chisel and scraper. Takes a good finish. Has good resonance and made one of my best instruments. I have a standing offer of $300.00 for it that I can pick up any time.

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## THE DISHARMONICS ABOUT AN EDITORIAL

by Arturs Butelis, Philadelphia

I have read with interest the Guest-Editorial in the June-July issue of the VMJ. After reading it I came to conclusion that the idea was good. I say "was good", but not "is good" because the idea is too late at the present time. Now the question is - why? Because I could not get rid of the thoughts why exactly Mr. Joseph Reid has come as the initiator of the campaign for searching and collecting the "secrets" of violin making.

Mr. Reid has written an excellent book "You can make a Stradivarius". After such a golden book is available in the market I think it will be only waste of time and efforts to collect, record, classify, determine the formulas etc. of violin making. It is obvious to everybody that to make a Strad (in form and also in tone, that is) is the goal of many if not all violin makers, as amateurs and likewsie the professionals. If Mr. Reid had the courage to entitle the book "You can make a Stradivarius" he surely knew what he did, so that everybody could understand that the contents of the book disclose all the secrets (carpentry, acoustical, varnish) etc. to make a violin, like Strad did. If the book discloses all this, there is no necessity to collect them - simply take Mr. Reid's book, read it and EUREKA!

Perhaps there is opportunity for somebody for another book entitled "You can make a Guarnerius (del Gesu)". Although this is my idea, I have no courage to realise it in a book form, because, frankly speaking, I do not know how to make a Guarnerius, also not the Strad. All I can is to make violins of my own, like Strad., Guarne and Stainer did.

And now, for the second, more serious part of this article, I want to tell the whole audience, who read this excellent Journal, that the proposal expressed in the Guest-Editorial contains the most dangerous consequences, one can imagine, to the whole family of violin making enthusiasts (amateurs and professionals alike). It is self-evident that after the so-called "secrets" of violin making will be disclosed and obtainable to everybody in a printed form, the Fine Art of Violin Making will cease to exist and will be buried under its own TOMBSTONE.

Everybody should understand that if it will be possible for anyone to work in accordance with complete instructions, there will be in the world so many thousands of the f i n e s t violins, that it will not pay to make them separately (what means "Im Memoriam" to all violin enthusiasts). The violins of finest calibre will be manufactured by some big companies, like household articles, shoes, cars, etc. The Fine Art of Violin Making by hand and by brain will be totally d e a d. To follow the initiative of the Guest-Editorial is like to saw off the branch one is sitting on.

Besides, there is a big question mark if somebody will not take advantage of all the priceless material pouring in from the suiciders of the Violin Art from all corners of the Globe. I do not want to offend anybody in this respect, and my intention is only to expose the things from different points of view, because such things had happened and happen today with many other things besides violins.

In conclusion I wish to everybody to continue with the help of our excellent Journal to discuss the countless ideas and experiences of violin making, so any person can take whichever idea he likes best from the pages of the Journal. I can predict that very few persons will disclose their knowledge in violin making for advantage of others.

# THE CASE FOR THE MODERN VIOLIN

## by C.F.G. WELSTEAD

(continued from June-July, 1962 issue)

The University of New South Wales

Broadway, Sydney, N. S. W.

9th January, 1959.

Mr. C. Welstead,
28 Mount Lewis Avenue,
PUNCHBOWL.

Dear Mr. Welstead:

Herewith is a report on the spectrographic analysis of the violin varnish you submitted:

Aim: To determine the nature of the ash in respect of metals present.
Method: Sample was ashed in a platinum crucible aided by addition of concentrated $M_2SO_4$ and $MNO_3$ to avoid overheating and loss of some volatile metals. 10 mg. of ash burned in A.C. arc under standard conditions and spectra recorded.
Results:

| | |
|---|---|
| Principals | |
| $K_2O$ ( 20%), | $NA_2O$ (3 - 30%) |
| Strong 1 - 10% | |
| $Al_2O_3$ , $Fe_2O_5$ , MgO | |
| Moderate 0.1 - 1% | |
| CaO, MnO, $SiO_2$, CuO. | |
| Weak 0.01 - 0.1% | |
| $Cr_2O_3$, CoO, $TiO_2$, BaO, PbO. | |
| Traces 0.001 - 0.01% | |
| NiO, SrO, $V_2O_5$ , $Ag_2O$. | |

Additionally small quantities of Zn were detected also ( < 0.1%).

Conclusion:

The principal constituents of the ash are alkali metals K and Na (K dominating with a strong addition of $Al_2O_3$ and to a lesser degree $Fe_2O_3$ and MgO.

I hope these results will be of some use to you. The charge for the above analysis is £6.6.0. which should be paid to the Bursar, University of New South Wales.

Yours faithfully,
D.P. Mellor
Professor of Chemistry, Head of School.

* * * * * * * * * *

BALANCED CONSTRUCTION

"Italian Tone' is the result and reward of Balanced Construction.

Of this fact I became certain as my investigations proceeded; without this integra 1 factor being considered as paramount, the instrument has little chance of being

anything else but mediocre, even if it were possible to coat it with old Stradivari's Mystic Brew.

To commence the practical side of violin construction, I first produced a prototype from some local timbers approximating the densities of genuine tonewoods, in order that I could familiarise myself with tools not belonging to the watchmaker's bench and also to obviate the certainty of spoiling some perfectly good timber from overseas.

After much experimenting along these lines, I soon learned the pitfalls of a heavy hand on the gouge etc. However, I finally decided that I had reached a stage where my research could, with moderate safety, be transferred to practical work - and so to my first fiddle.

The dominant theme in my mind from perusing data emanating from the Italian and Brescian periods, was a mental picture of the famous men of that time, producing violins, not with the gouge and chisel, but eliciting them with magical thin-lipped incantations, and then dipping them in a steaming cauldron of this historical Magical Brew of Cremonese varnish.

This is strong language, I admit, but if we are going to be honest researchers of this worth-while pursuit, then let us throw overboard for good, all of this romantic nonsense, and we shall get somewhere; the mind picture above of Stradivari and his co-workers, is the mind picture of the majority, and until we get down to molecules and atoms, we shall remain stagnant on this wonderful field of research, for what the ancient Italians produced two hundred years ago, modern man can do again and better!

As the Americans would say, this field of research badly needs a 'New Deal'. The approach should be direct and scientific; also let us have a new terminology, and get things in their right perspective. For instance, the two plates of a fiddle, bonded by a band of 'ribs' are, scientifically speaking, diaphragms; let us refer to them as such. The 'sound bar' and 'sound post' are respectively the horizontal and vertical vibration conductors which harmonise and integrate the entire unit. If concentration is centred on these simple basic facts, and we continually feed our conscious minds with these basic facts, our subconscious mind will present us with the true conception of what and why is a violin. These last remarks, with reference to only four of the dimensions which constitute the instrument's anatomy, are the integral parts. The correct relation between their respective dimensions, represent the future production of 'Italian Tone'.

If any of these four factors, on completion of an instrument, are out of harmonic balance with the other three, then ten gallons of Cremonese varnish would make little difference, and another noise box would join the countless thousands which have been 'carefully' constructed, but thoughtlessly planned in ignorance of the true factors which I believe constitutes Italian Tone, HARMONIC BALANCE PLUS ISO-OSMOTIC VARNISH!

To interrupt my contribution for a few moments, I have little doubt at this point, the reader may ask, 'Who is this man? From where does he come? Who trained him as a violin maker, and from where does he conjure all this assumed knowledge?' And so on, Ad Infinitum.

To answer these questions which will no doubt be asked, I reply that in this country (Australia) violin making is not taught in classes at the University, Trade Schools, Technical Colleges, etc. If one chooses this stony path, then it remains for the individual to be his own teacher. In other words, one must become a 'Pioneer' of this profound science, and establish his own library, workshop, laboratory, in a search for this 'elusive Italian Tone'.

Mr. Cowell's assertion that most of the modern instruments on which he has played have good tone, and that all are 'different' would be, I should say, quite correct. It also is known for fact that the old Italian instruments are 'different', which proves exactly nothing.

Each and every violin in existence have tonal variation whether we are speaking of the old or the new, which is just as it should be, for to make two violins of identical nature, requires a full knowledge of those factors which create and control Italian Tone - these same factors which constitute the essence of these pages.

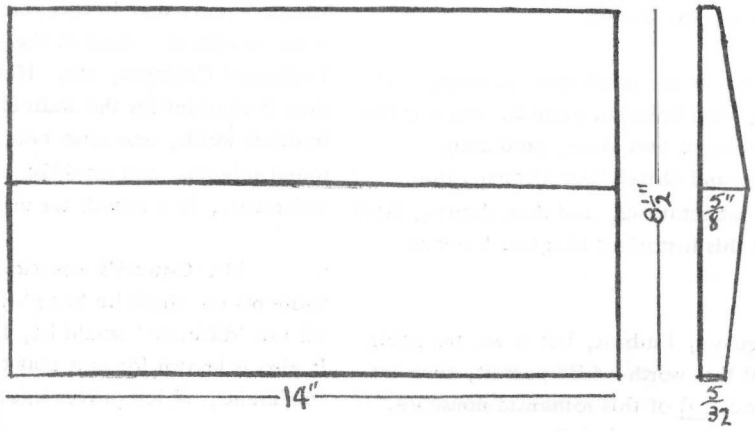
There is nothing strange in the phenomenon that two instruments made on the same mould, from the same planks of timber, and covered with the same varnish, have a distinctly 'different' tone quality - this is as it should be - unless the integral factors previously mentioned are fully comprehended - HARMONIC BALANCE! Which can only be evaluated from the density of each piece of tonewood utilised.

Investigators would do well to consider the overall weight of the instruments they make, minus the fittings, of course. If a violin has been carefully constructed in so far as the body or sound box is concerned, I have established that this careful work can be ruined by fitting a neck and scroll which is too heavy or too light. The tolerance here is confined to a fine limit. Unless the powerful vibrations generated by the instrument reach the very end of the scroll, the development of Italian Tone is not possible.

The general practice of taking a 'sample' 2" x 1" x 1/4" and from this misleading piece of what is going to be our back or belly, establishing the 'density' is not sufficient evidence on which to base our calculations. I have taken two pieces or samples of the above dimensions, one from each end of a back or belly, and have found a great discrepancy in weight of each; in other words, I have seldom found the two pieces to consist of identical density; if the mean of these two were taken as a guide we would be nearer the truth in trying to establish the future tone of the instrument, but not near enough if we are going to aim high at giving the instrument a 'soul' of Italian Tone.

Before one can even contemplate what is going to be the final dimensions of the thicknesses of the plates, they must be first reduced in their entirety to a standard 'mass' and then the relative weights established in a dry atmosphere.

Few violins exceed 14" in length. 8 1/2" across the lower bouts, 7" across the upper bouts, by a total arching of 5/8" and 5/32" at the edges. Let us then reduce each plate to a safe minimum by using these measurements. By doing so, we shall have a back and belly reduced to a trapezoid section which becomes our guide and standard.




The mass of this standard will vary according to the inherent density of each piece of tonewood used, and by making this practice a rule we have a standard starting point in matching our plates for future harmony. The illustration shows diagrammatically the correct conception.

If we treat each diaphragm in this manner, then we have a perfect method of establishing the relative density of back and belly for a given instrument. This gives us the first integral clue for which we are searching. If it is found that the pine for the belly approximates the maple for the back, then it is automatically known that these two pieces of timber are incompatible for the purpose of making a first class violin.

From these comparisons we learn that the only way in which a mis-match such as just mentioned could be utilized to produce an instrument of even mediocre quality, would be to leave the final thinning of the pine so extremely fine that it would not even support the pressure of the strings.

This system of course is merely a starting point in establishing Harmonic Balance, as I have found it necessary to remove the belly as many as eight times before the entire unit is capable of giving maximum output of volume and penetration.

My first real clue on violin acoustics became apparent to me during the reading of the life of Stradivari, in that he had around his workshop many semi-finished plates cut from various logs of tone wood. The writer gives as the reason, that the Master was in process of 'seasoning' these pieces, but looking at this aspect logically, I favour the theory that these semi-finished plates were brought to a certain stage primarily in order that he could select from them a pair to match, and, secondly, that he realised the fact that once having removed as much of the surplus wood as was safe, the area to represent the finished thicknesses was just beneath the surface; also that maturity of the plates would occur much sooner, and again, that any shrinkage of these plates would become manifest prior to finishing the instrument.

He would then from this established 'stock' select his pair for a given instrument, and commence the final adjusting of the thicknesses. (This theory is borne out by the fact that his sons Omobono, etc., did, after his death endeavour to 'match' some of these plates on instruments of their own, but obviously without the Master's knowhow.)

My own system of final adjusting has followed this scheme with much success. To test play my instruments,

and search for final acoustics, I finished the instruments completely in the white, attaching the belly by the corner blocks only with thin glue, and the remainder of the edges were secured with miniature clamps designed similar to the mechanism of an ordinary chin rest, and embracing approximately one inch.

The instruments were then brought up to pitch for 48 hours, and then the acoustics tested from open 'G' to top of 'E' string. It was necessary to remove the belly many times before the instruments acquired a powerful and sonorous tone, or as it has been termed, Italian Tone.

Both of my 'guinea pigs' were born in this manner, and I am elated with the resulting tone values evolved.

I am not aware as to whether Stradivari had in his workshop any such clamps, I can only surmise that if he did have, then they were lost before interested people began collecting mementoes of his life for the benefit of posterity. If any such tools did exist, it is my fervent hope that they exceeded in quality the much photographed and publicized 'Calipers' which one sees in every book published on the life of this great man. I would not risk adjusting the plates of a fiddle with such an instrument as this; one does not use such a flimsy tool for even measurements of crude dimensions, let alone accurate ones, and if this is the tool used by Stradivari (which I very much doubt), then he was indeed a genius or the luckiest man ever born. This crude instrument would be in its right setting if found hanging on the wall of a market gardenere's shed for the purpose of measuring the girth of carrots and parsnips, but fiddles, never. The mere fact of this instrument being in contact with the operator's hand would compress it to the point where any degree of faith could possibly be expected from it.

To sum up, Stradivari was neither scientist or chemist, but achieved his mark via the time-worn process of trial and error; if we aspire to equal or exceed his achievements and greatness, we must also adopt this lengthy principle for there are hidden factors which so far elude mathematical expression, for once having established density/mass ratios between belly and back, I have found this far from being the final judgment on that which will give Italian Tone.

Possibly, these hidden factors are represented by side linings, corner blocks, etc., but whatever it transpires to be, the only way in which to establish Italian Tone is to process the final adjusting by continual removal of the belly in order to adjust the thicknesses of back and belly.

It is evident from this that surely, before picking up a gouge one must establish the foundations on which we intend to construct a fiddle .... HARMONIC BALANCE.

There is no doubt in my mind whatsoever, that, to get at the root of things, we must as previously stated, reduce this art to molecules and atoms. The basic essential, as in nuclear fission, is - critical proportion, and we must reduce each plate to a critical mass. The diaphragms, during reduction, must reach a critical proportion. This critical proportion must in turn harmonize with a critical interior capacity. The horizontal and vertical vibration conductors must be so installed that maximum and critical distribution of the primary vibrations do not exceed the inherent power of the plates to absorb and amplify, in order that there is no 'feed back'. In other words, the vibrations must always be directed outwards. THE MASS OF THE NECK AND SCROLL EXERT TREMENDOUS INFLUENCE HERE.

All this may appear a tall order, but to construct a leader, it must be done or left to the chancy method of Jeffrey Gilbert, in other words, 'It's all bloody luck, my boy'.

I have, as a lone investigator, made two such instruments over a period of eight years - six years of extensive research, the latter two years in producing the actual instruments in order that the theoretical part of the work could be proved or disproved.

Mr. Cowell has intimated the possible value of the remarks of M. Nicholas' observations with regard to the relation between the upper and lower bouts representing two circles of a given area totalling a certain interior capacity, but this once more is much ado about nothing. We all know (if we have studied violin acoustics) an approximation of this volume of air, and M. Nicholas has merely indicated another method of measuring same.

Many curious and apparently related measurements are observable if one has time to consider the abstract and extraneous side of violin making, but these same are not the yardstick with which we measure Italian Tone; they are symmetrical coincidences which have evolved along with the instrument - the proof of this is borne out by the fact that most of the famous instruments in existence today have been scientifically duplicated, but somewhere along the line the much sought after penetrating tone has been mislaid, and the world of music presented with another fiddle either thin and reedy, or deep and woolly, and the maker promises himself that time, the fourth dimension, will impart to his 'Strad' a soul of Italian Tone - wishful thinking!

The vast majority of people are observationists to some degree, but to analyse this further, the majority of this vast majority merely observe and let it go at that;

(to be continued)

# The Technique of Violin Making

**By Harry Wake**

Chapter 5.

With the top back and sides of our violin now completed, we can put the box together, but first we will be sure that everything is clean and shipshape; sand thoroughly the entire inside, ribs, back, and belly; remove all glue from places where it doesn't belong and prepare some fresh hot glue.

The new wood is quite absorbent and will soak up the glue like water in a sponge, especially on the end grain of the blocks, so you must prepare the wood before glueing just as you prepare the wood before varnishing, only you will use hot glue as the size or filler.

First put the back and ribs together with the small dowels in place and clamp lightly to see what coaxing will be required to make a nice even edge all around; if everything looks alright you can take off the clamps and brush hot glue on the surface of the blocks that will be in contact with the back, also on the edge of the ribs; allow this glue to dry completely BEFORE you join back and ribs together: Now, as there is bound to be a little coaxing and persuasion required here and there, you will find it easier to not try to glue all around in one shot, but to do one section at a time starting with the upper and lower blocks; get these glued and tap the dowel pins in place, put your clamps on and leave to set; work next on the corners and between the corners, putting the glue in with a thin bladed knife; an artist's pallet knife is good for this; wipe away all excess glue with a small brush, rag, and hot water, when using the hot water and the excess glue is all removed, wet the entire rib frame inside and out and then wipe off; this will take the stresses out of the wood.

With this much accomplished, go over the inside once again with very fine sandpaper and secure your ticket or label in place; if you don't have a printed label you can write your name and date on a piece of good grade paper with waterproof india ink, or better still have a good rubber stamp made and use a high grade of permanent indelible ink on the pad; there are several grades of good stamp ink available through the stamp manufacturers: Should you wish you can also brand your fiddle with a suitable initial or word.

Prepare the top ends of the blocks and the edges for glueing as you did before for the back, having first lined up the top and drilled for dowel pins; don't fill the dowel holes with glue as you will need to use them later: Follow the same procedure as before and glue the fiddle top in place; it is good policy to thin the glue a little for glueing the top on as you may have to remove it for some unforeseen reason later, anyway someone will have to remove it for repairs someday so you might as well make it a little easier for him.

You now have the box completed and it should have a good sound when you tap it with the end of the finger, put it aside in a safe place and we will proceed with the neck and scroll.

Many makers prefer to buy a ready made scroll, this they work a little here and there and assemble to the instrument; this procedure may be all right if for some reason you are in a great hurry to finish the fiddle, but I don't believe in using them; I don't think that a person can truthfully say that he has made a fiddle until he has carved his scroll; it is really not too difficult and I can assure you that there is a lot of satisfaction in making them. The first requirement of course is a pattern and a good selection of these is available through dealers in violin makers supplies; or you may copy the measurements of an existing neck that you may particularly like; Transfer the outline of neck and scroll to the upper face of a piece of white paper that has been folded double; leave about a half inch extra at the bottom to give yourself some leeway for fitting later; now place folded carbon paper (with the carbon side out) between the folded white paper; trace the first outline that you drew on the outside of the white paper with a sharp pointed, medium hard pencil, and mark a centerline through the scroll eye or button, to the outer edge of the scroll; make also two marks for the location of the nut which will also be the location of the bottom of the peg box; make another mark for the bottom end of the neck at 5 3/4" from bottom of peg box: Now this mark which indicates the bottom of the neck is drawn across the paper at an angle of seven and a half degrees; this will be your true cut off line giving you the correct angular set back of the neck when fitted into the block; you can now make another line across just a quarter inch below the last one, this quarter inch is where you will make the first cut off and is your insurance against making the neck too short: with this much done, you can separate your paper and remove the carbon, you will find that you have a double tracing on the inside, a right and a left; make a straight cut with scissors along the line that represents the fingerboard face of the neck on both tracings. (to be cont'd.)

# Supplementary Information about The Microtone System

by Kristian Skou

Part 2.

Kristian Skou

After this I shall treat the physical basis for the microtone system and the physical laws for the microtone pitch as far as I have found them out. But let me point out in the start, that microtones as a physical phenomenon are a new field for research, and I make no claim to have solved the problems in all details. There will still be a lot to find out for the phycists and for the experimenting violin maker. This passage will be somewhat theoretical, but I hope the endeavouring violin maker will be interested to know not only how to perform the attunement, but also why. Something of it will be what I have written to Dr. Saunders in our correspondence, a correspondence I have enjoyed very much. I hope it is reciprocal. Not that I think we agree in all of it, or even in the main part of it. Nor have we collaborated, but only exchanged our points of view on the problems, and the following will only stand for my own account. But Dr. Saunders' scientifically sound and intelligent scepticism and his ability to point out indistinctnesses in my statement has forced me to sharpen my thoughts and - I hope - to give these a more explicit formulation, as well as it has caused me to perform a lot of experiments. For that I am very grateful, and I hope Dr. Saunders will have no objection to my use of it here, as I have told him, I intended to use something of it for the Journal.

To define just what a microtone is will be difficult, if not impossible (as is the case with all physical phenomenons, if we will go to the farthest end of the problems. We can only attach some terms to the phenomenons, and use these terms to tell something about the phenomenons). Instead I would rather tell how we can produce a microtone.

Take a plane plate of wood (dimensions subordinate, but say 20 x 40 cm - equal thickness all over, say 0.5 cm). Place it on a soft, damping support (foam rubber e.g. or in a box filled with sand). By means of your finger tips press the plate slightly against the support. Then tap the plate slightly (with the edge of a nail, or with a bit of thin electric wire covered with rubber) very close to the damping finger tip. The faint sound you will hear then is a microtone. If you will test the plate all over in that way you will notice that the lowest microtones (lowest in pitch) will be in the middle of the plate, and the pitch raises towards the edges. That is what I mean by saying "the more wood (in plane extension) surrounding the area for the microtone the lower pitch". I have been asked how I can produce microtones of the same pitch, and microtones of different pitch in the same plate. If you will test two points of the plate equidistant from the edge (and symmetrically with the middle line) you will find the same microtone in these points (supposed the plate has the same wood qualities in these points), and if you will test a point in the middle of the plate, and another point nearer the edge you will have two points in the same plate with microtones of different pitch, and you can test them one after another, or you can test them simultaneously - that is all. You can test other plates not of equal thickness all over, plates arched in different ways, or plates not of equal

wood quality, and you will find the rules for the pitch of the microtones.

I shall sum up the rules for
1) tap tone pitch (plate ring) and for
2) microtone pitch,
and then we may be able to compare.

Rules for tap tone pitch:

1. The greater thickness of the plate, the higher pitch.

2. The greater area of the plate, the lower pitch.

3. The greater modulus of elasticity of the wood, the higher pitch.

4. The greater specific weight of the wood, the lower pitch.

Rules for microtone pitch:

1. The greater thickness of the plate, the higher pitch.

2. The more wood surrounding the area for the microtone, the lower pitch.

3a. The greater modulus of compression elasticity of the wood, the higher pitch.

3b. The greater modulus of fluxural elasticity of the wood, the lower pitch.

4. The greater inner friction of the wood, the lower pitch.

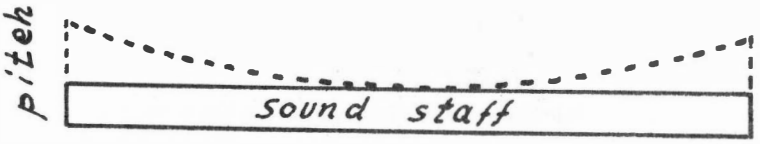
5. The more acute arch of the plate, the higher pitch.

And let us compare.

Rule 1. Quite the same for tap tone pitch, and for microtone pitch.

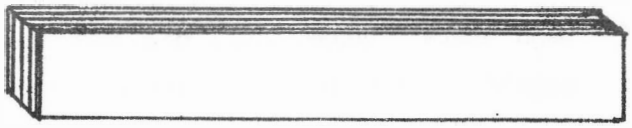
Rule 2. Rather related, although somewhat different.

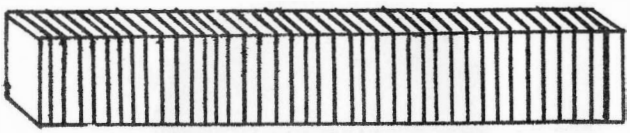
If we will test a plate or (for the sake of simplicity) a sound staff for its microtones from end to end, we will find the microtone pitch raising towards the ends in a way we can symbolize with a parabola line thus:




This is not the case with the taptone pitch.

Rule 3. The greater modulus of as well compression elasticity as fluxural elasticity (twist elasticity will scarcely come in) gives higher taptone pitch, but regarding the microtone pitch, there is a remarkably difference. If we take two sound staffs of spruce, say 18 mm x 18 mm x 36 cm (I have two such) taken from the same piece of wood, one of them with the grains in lengthwise direction, and the other one with the grains in transverse direction, the

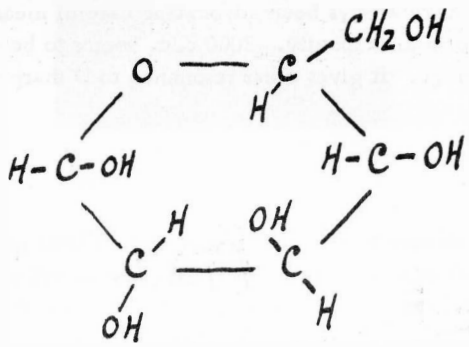




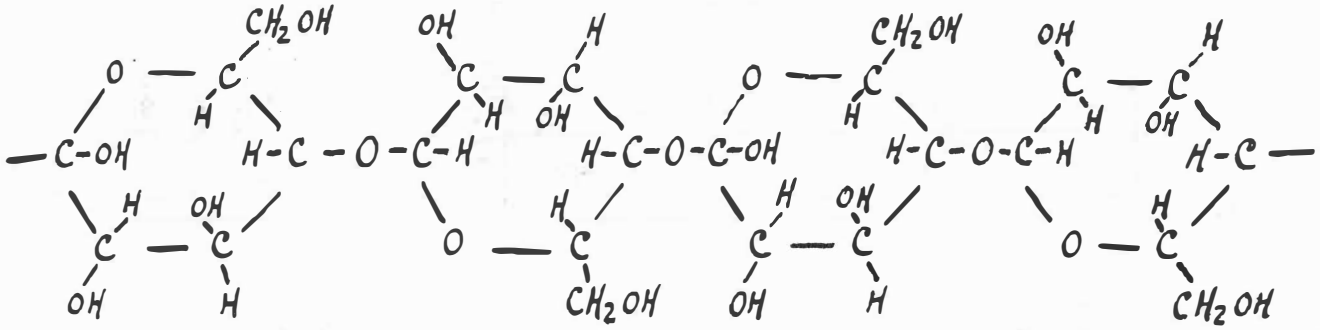
two samples will have the same modulus of compression elasticity for a pressure from above, whereas the modulus of fluxural elasticity (for a pressure from above) will be much greater for the sample with the fibres in lengthwise direction, and this sample will give much the highest tap tone pitch (more than an octave above the other sample), but the sample with the fibres in transverse direction will give the highest microtone pitch.

Rule 4. Apparently there is no relation between the rule for tap tone pitch and the rule for microtone pitch, but perhaps there will be a sort of relation all the same. In my first article on the microtone system, I have also said as a rule for the microtone pitch: The greater specific weight, the lower pitch. This seemed to me to be obvious, but my future experiments have taught me that this is not the case. A piece of heavy, but crisp wood (that will commonly be wood with relative low inner friction) may have a much higher microtone pitch than a piece of the same dimensions of light, but less crisp wood (greater inner friction). The question is: what acts as a brake on rapid vibrations in a plate? The answer will be: as well the mass of the wood (here the specific weight comes in) as the inner friction of the wood. But there will be a remarkable difference regarding the effect of the two factors for tap tones and for microtones. For taptones where the whole plate (with its mass) vibrates, the specific weight will be so dominating that the inner friction of the wood compared with this can be put nearly = o. Otherwise with microtones where only a little part of the plate vibrates. Here the vibrating mass is so little that the importance of the specific weight can be put nearly = o, while the inner friction of the wood will be dominating.

As we can see, there is a sort of relation between the two formulations of Rule 4. For violin wood Rule 4 can give surprising results. Maple will commonly have lower inner friction than spruce. If we have two pieces of wood of exactly the same dimensions, one of spruce, the other of maple, that of spruce will commonly have the highest tap tone pitch, but at the same time that of spruce will commonly have the lowest microtone pitch. And if we compare two pieces of spruce under the same conditions, or two pieces of maple, it will often be such that the wood with the highest tap tone pitch will have the lowest microtone pitch, although this is not valid in all cases. As said, it has something to do with the "crispness" of the wood, which in turn has something to do with the inner friction of the wood, and this again has something to do with the cellular structure, and especially with the character of the molecular chains in the microfibrils of the wood, which e.g. in very old and "crisp" wood have been broken into smaller sections, this giving less inner friction. Perhaps some words to elaborate this. In collaboration with an interested friend, I have performed X, ray investigations of wood samples of very different ages (by means of an X-ray diffractometer). The cellulose in recent wood behaves as if its molecular structure were crystalline, and in a wider sense of the term we can say that it is. If we consider the structure of the glucose molecule:



We may derive the cellulose molecule as a sort of polymerised glucose:



and further on in a long, long chain, the molecule elements still alternating, and thus forming the periodicity which accounts for the crystalline behaviour. The cellulose molecule chains are collected in bunches (called microfibrils), each containing several hundreds of molecule chains, and held together by hydrogen linkages, the OH-groups in the parallel chains placed very close to each other. The microfibrils form spirals in the cell wall, spirals in several layers (spruce cell walls containing 4 layers), and the spiral layers are held together by lignins.

But only recent untreated wood has this microstructure in full sense which the x-ray diffractograms are indicating. The diffractograms show great maxima ("peaks") by respectively 5,5 Ångström and 3,9 Ångström, matching intervals in the diffracting elements of this amount, and the height of the peaks is a measure for the degree of crystallinity.

The older a sample of wood is, the more reduced is also the height of the peaks, indicating that the chain of alternating molecular elements is no longer an unbroken chain, but the chain is divided in smaller sections. Also the treatment of recent wood with alkali is able to produce a similar decomposition of the molecular structure. And the same is the case with irradiation of the wood with ultraviolet light of certain frequencies, namely such frequencies that will cause strong own vibrations in the molecular elements. Unfortunately I have not enough samples of wood from old age-dated violins to say if also the vibrations from much playing in the course of time - besides the age in itself - should account for a decomposition of the molecular structure. In "The Strad" (May 1948) Mr. N. Nicholas (now Ventimiglia, Italy) has published x-ray diffraction rings for a Joseph Guarnerius (del Gesu) violin, these showing a considerable decomposition.

Wood workers (cabinet makers, violin makers, etc.) will say about such old wood that it is "crisp" or "short" in wood, and that is just what it is, it is short in its molecular structure. (to be continued)

# Our Letter From Italy

Dear Fellow Members:

I have plenty of work and very interesting too. As I go along repairing old masters and making my own, points for thought arise and I would like to share them with members. As I am working entirely on my own--an excellent old violin maker, M. Vial, with whom I used to discuss interesting points, recently died--I hope that my writing in your Journal will raise some comments. To my sorrow I have found that many people take in information but do not want to part with any. This is not grumbling but merely an invitation to others to open their mouths and talk shop. Well! Here are the points:

Violas come for repair with wrenched neck or dropped finger board. I have made a careful drawing of their side elevation and in every case found that the top nut of the finger board - the spot where the strings come over it - was above the line passing through the upper edge of the violin ribs. From the attached drawing one can see what I mean. The line of the upper side of the ribs should pass right through the top of the nut. A few calculations show that this condition considerably reduces the couple of forces which tend to wrench the neck upwards. In the enclosed sketch (Fig. 1), in the triangle CFP the line CP is the top line of the ribs. Point p is the nut where the tension of the springs is applied. If we prolong the line CF up to the point A we can obtain a line AP = b which permits the construction of a formula to obtain the value of the compressing force P.

$P = \frac{Fa}{c}$ where a is the distance from the nut to the bridge projection on the ribs line. If we take the bridge pressure as 28 lbs - distance a = 12.9" and c = 5.44", we shall get P = 66.2 lbs. In millimetres $P = \frac{12.7 \times 328}{140}$ = 30 Kilograms. The angle between strings and ribs line is about 7° and the upwards pull is small. If the top of the nut is not on the ribs line, but higher, then we introduce a distinct couple which will tend to wrench the neck upwards. For example, if the strings are parallel with the ribs line, we have a couple like Fig. 2. If the top of the nut is on the ribs line and the end of the fingerboard about 20 mm. over the top of the belly, we then have the correct angle for the neck.

I have always been advocating careful measurement of the violin air capacity. 2000 c.c. seems to be a very good average. It gives clear resonance to D sharp note on G

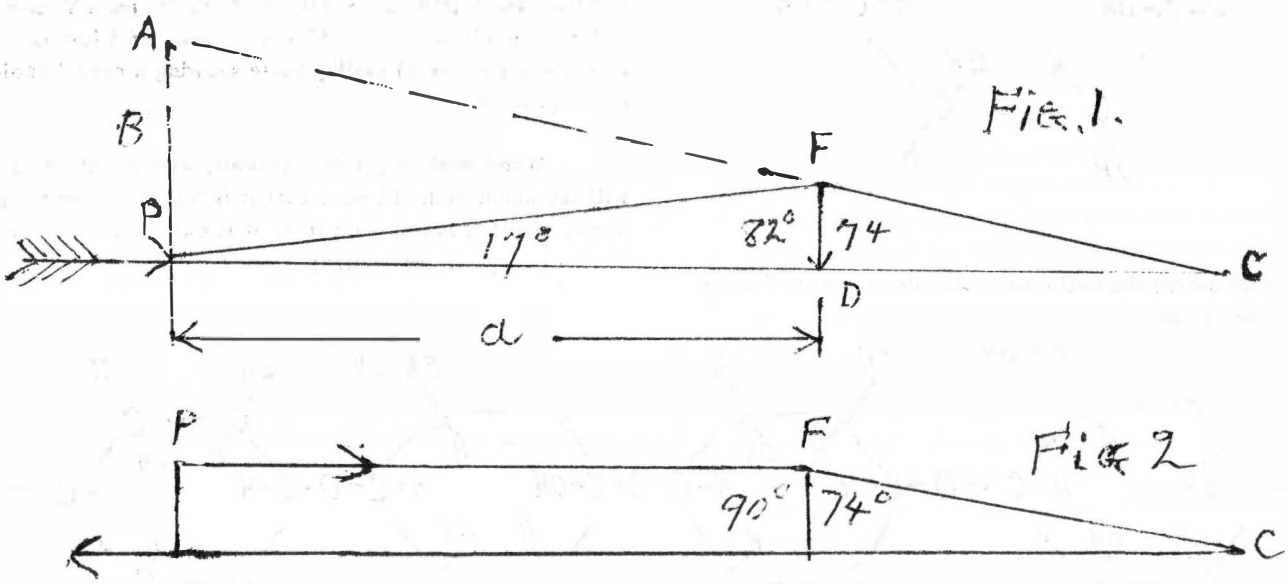



Fig. 1.

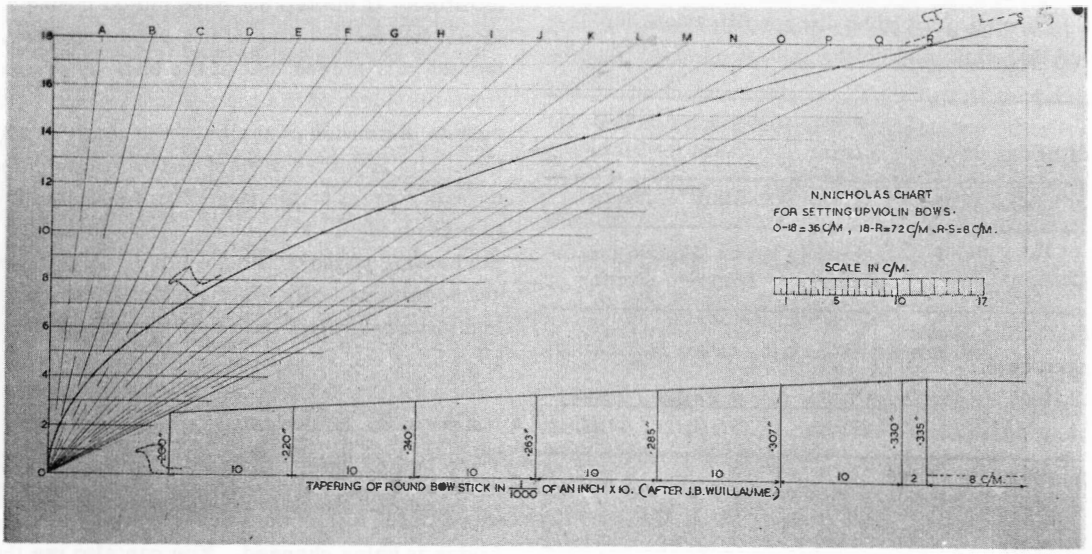



Fig 2

string. If you slide your finger along G while drawing the bow, you can hear very clearly when this resonance is reached. Dr. Saunders suggested that body resonance should be 7 or 8 semitones higher. From D sharp it will be A. I have one fiddle which has it at B flat on A string. I noticed that on some fiddles B on D string is sounding muted. On the above fiddle it is very clear. Whether increase of the distance between these two resonances affects the other

notes I could not say. It will be interesting to hear about it.

I have had an opportunity to compare an early Strad with a big Magini. While the Strad was sharp under the ear and clear in a big hall, the Magini was equally pleasant in both cases, but not powerful enough. It shows that a bigger violin should not necessarily be more powerful, but I have made two practically identical fiddles, same wood, shape and thicknesses, but one 3 mm. larger in outline. Capacity I kept the same by smaller ribs. The larger one is much more powerful and equally sweet. Now what you say? John Bolander has sent me his booklet on bows. An interesting work and useful. I have been making bows quite a long time, taking as a guide Hill's gold fitted one. I am making copies of his tortoiseshell frog by using plastic imitation of tortoiseshell, and it looks genuine. I have tried to work out a curve for bow bending. The one which I enclose works all right for certain bows. Some of them with very small head however require less curvature. I think that the Vuillaume method of fitting the frog to the stick by a semi-circle and two shoulders slide is more mechanical than the port of octagon.




In 1937 I made several samples of varnish suggested by Fry in his book. I could not use it in England because it refused to dry. Just now I discovered one bottle of No. 13 (Venetian type). After 25 years it has turned into a very nice varnish. It dries in two days and produces a fine transparent film, colouring a bit pale, but I had only two coats. It is interesting to note there is no tendency to congeal, like of some other varnishes in the bottle.

The other thing to which I want to draw attention is the appeal in "The Strad" by violin repairers not to use the new type of plastic glues for glueing up plates. This type holds too strongly and separation produces difficulties. Just a few days ago an Italian chap brought me a Tomas Carcassi violin, 1749. Both its plates were partly apart. The part which still held was glued up with plastic glue. It was very old wood, and very brittle. I remembered that plastics in general are very sensitive to heat, so I warmed up my paring knife till it nearly but not quite marked the wood and inserted it into the join. My knife went in as if into butter and plates parted without any chippings. This may be useful to remember.

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N. Nicholas
9, Via Vittorio Veneto,
Ventimiglia, Italy.

July 7, 1962

# The Adjusting of String Instruments

BY HENRY S. LITTLEBOY

Comments and Questions Welcomed.
Address communications to Mr. Henry Littleboy, 7 Sentry Hill Place, Corner of Pump Lane, Boston, Mass., U.S.A.

Part II - Bridge Cutting (continued)

The following chart gives the specifications for bridges for violin, viola and cello.

| | Violin | Viola | Cello |
|---|---|---|---|
| Thickness of bridge at top | 2mm | 2mm | 3mm |
| Thickness of bridge at feet | 4mm | 5mm | 12mm |
| Separation of the outside strings | 34mm | 38mm | 45mm |
| Height of first string above end of fingerboard | | | |
| (for gut string) | 4mm | 4 1/2mm | 6mm |
| (for steel string) | 3mm | 3 1/2mm | 4 1/2mm |
| Height of fourth string above end of fingerboard | | | |
| (for gut string) | 5mm | 5 1/2mm | 7mm |
| (for steel string) | 4mm | 4 1/2mm | 5 1/2mm |
| Clearance of adjacent strings at the bridge | 2mm | 2mm | 3mm |

You should be careful to note that the heights above the end of the fingerboard differ for gut and steel strings.

In fitting the feet of the bridge to the fiddle I would suggest that as much wood as possible be taken from the bottom of the feet. The reason for this is that the position of the heart in the center of the bridge should not be too high. This is especially true in the case of summer bridges for cellos.

During the final stages of cutting a bridge, wood is taken from the top of the feet. This part of the process of finishing a bridge should be carefully done since it greatly affects the appearance of the finished bridge.

Now, about summer and winter bridges, which is often a concern for the player: the cause of the problem is that the spruce of the top and the maple of the back have a different rate of expansion across the grain as they absorb moisture. If the top has been put on during a dry day (as it should be) the swelling of the top during the humid summer months will exceed that of the back by several percent and since the edges of the top are constrained by the ribs to the outside dimension of the back the result is that the top of the fiddle is pushed upward which in turn pushes the bridge up with respect to the fingerboard and then it's time for a summer bridge. You should check the bridge a month after the heating system has been turned on and a month after it has been turned off. At these times the corresponding winter and summer bridges should be checked. Cellos should always have two bridges and all violas and violins should be checked since the problem can be found on some of these instruments. High arched fiddles very often require two bridges. For those that require a second bridge I suggest the use of a "string lifter" which is available at most fiddle shops and is a jack that will hold up the strings while a bridge is being changed. You can also use this to take the pressure off the bridge when it tends to pull forward and must be straightened. For the violin and viola it is an easy matter to pull the top back to position but this is not so with cellos. The "string lifter" is useful also in that it prevents the falling of the soundpost when the bridge is being changed.

Let me saw a word also for those cutting bridges when they are working on a fiddle that has the feet marks well dug into the top. Here a suggestion is to fit the bridge to the top as close to the proper place but on the fingerboard side of the nicks, using knife and sandpaper, and then do the final fitting with a knife at the proper location. Wetting the feet helps in this process to make the wood easier to cut.

As to the hardness of bridge wood, I would like to comment that the best quality (i.e., most expensive) bridges are always softer and easier to work. But they tend to bend more easily on the instrument and require attention so that they are always kept straight. The tonal result of good bridge wood always repays the additional cost. Don't skimp on price in this area!

In ordering bridges it is well to remember that a range of sizes is available. The dimensions specified is the width at the bottom of the bridge (between the extreme edges of the feet). This is specified in millimeters. If you have a large viola to fit be sure to order a corresponding size of bridge. The reason for the width is to allow the center of the left foot of the bridge to be directly over the bass bar when the bridge is properly positioned. The string spacing should not be adjusted in a corresponding manner but remains fixed as shown in the table above.

The bridge should always be positioned so that the strings are centered on the fingerboard (sighting down the fingerboard helps in this adjustment). Never center the bridge with respect to the "f" holes. The neck can be off true and a player is greatly hindered if the strings are not centered over the fingerboard.

In cutting the nicks for cello strings in the bridge, care should be taken that they are equal in depth to half the string diameter. A good cellist will pull an A or a C out of its groove if this isn't observed.

When changing from steel strings to gut or vice versa, the depth of the nicks for the strings should be carefully observed. If a string sinks more than half its depth into the bridge the string's winding will be caught which spells the end of its career. Where a string has cut into a bridge and the bridge is otherwise okay, I usually fit in an ebony insert to correct the string clearances.

The proper cutting of the bridge will make the instrument easier to play and will improve its tone.

## Questions and Answers

Dear Editor:

A big welcome to Henry S. Littleboy for the new section on The Adjusting of String Instruments. While I am a "constant admirer" of the violin-maker's skill I have maintained, in and out of season, that proper adjustment and equipment is crucial, and too often neglected.

So it is good to have some expert opinion on bridge cutting and setting. I've read what I can get hold of in the standard books, but there are very few which explain convincingly, exactly how and why the bridge should be placed. To raise one critical detail alone. Is there any possible place for the bridge other than that in which the centre of the feet are in exact line with the "stroke" of the F holes? (I have read of a top rank cello in which the bridge was set high up towards the end of the fingerboard, but have never dared to try anything so drastic!)

Also, is there anything to be said for a specially thin bridge for certain kinds of instruments. I have heard this advocated. Also is it true that the "lower" foot of the bridge must sit exactly over the bass-bar; and that if this is not so, the tone of the lower strings will suffer. Is there any experience among makers and repairers which confirms or contravenes this?

May I ask Mr. Littleboy particularly to tell us all he knows when he comes to soundposts? Once again, I've read all I can about their placement and adjustment; and everybody agrees of course that this is absolutely vital to producing the best tone of which the instrument is capable. But are there some really established rules for setting the soundpost? How much behind the "upper" foot of the bridge? How much room for adjustment is there, to secure balance between the upper and lower strings? Is the only test of the correctness of position that of listening to the instrument being played, or is there any other test?

If there are any measurements which can be used as working rules, can we have them for cello and viola, please, as well as for violin?

With renewed good wishes to the Journal, and congratulations on its constant improvement.

Leonard Marsh,
Vancouver, B. C.

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Dear Mr. Marsh:

Thanks for the kind remarks.

I have included a chart which includes measurements for bridge cutting for violin, viola and cello in my article this month.

With regards the position of the bridge, I would say that the requirement that the string length be 330 millimeters might require that one adjust the bridge if the length differs from this value by more than three millimeters. Within this range you can select from a variety of string thickness to allow for proper tonal adjustment (I will have a whole column on string selection later). If the length varies more than three millimeters then the instrument is not properly constructed and the bridge can be moved as a temporary expedient but the instrument should not be considered to be playing its best.

Now in the case of violas and cellos, where the string length varies considerably with the corresponding range

of instrument size, I recommend placing the bridge with respect to the nicks on the "f" holes and using the choice of string diameter to aid in tonal adjustment.

I am sure that your comment on the cello bridge refers to a bridge on a Strad "Church Bass". These instruments, that were built by Strad before 1700 are considerably larger than our standard-sized cellos as perfected by Strad after 1700 and some success has been had in making them useful for modern technique by shortening the string length to normal proportions by moving the bridge towards the fingerboard. This size of instrument is seldom met and this particular compromise I would consider an exception to the general rule.

Another exception to the general rule occurs when a player has two instruments which have differing string lengths. The case that comes to mind is the cello that is used in "Pops Concerts" where the danger to the player's fine instrument causes him to play his "other" cello. In this case I would recommend moving the bridge position on the seldom used instrument to give the same string length on both instruments. This makes "switching" a lot easier and the player need not adjust for each change in instruments.

I personally don't recommend "thin" bridges. I feel that, if the bridge is thinner than the previously recommended thickness, the bridge flexes, causing a loss of energy, especially in the two higher-pitched strings. This tends to disguise a deficiency in the lower-pitched strings. I'd rather get the most out of the upper-pitched strings and then bring up the lower strings to give an overall better response. How to accomplish this will be discussed in a later article.

I strongly advocate that the left foot of the bridge be placed over the bass bar. In the case of larger violas and cellos I would use a wider bridge. If the bar is correctly placed this is all that would be needed. However, I have seen many fiddles where the bass bar was incorrectly placed and know of cases where a change in the bass bar position has shown great improvements when performed in accordance with this rule. I'm sure you've seen the classic case of incorrect positioning where half the bar has been cut away to show the upper circle on the "F" hole.

I'll be discussing soundposts in the near future so I'll wait until then to discuss your questions in this area. I don't want to steal my own thunder!

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Dear Editor:

I have a violin that is fair though not excellent. It has no name in it that I can find. My last teacher told me the finger board was too law; that the angle was wrong and suggested a wedge. I had this done--I didn't know how nor had the tools--now the A string touches the D peg and the bridge I'm told is so high the violin looks like a viola. A repairer here says the wedge job was very poor and completely unnecessary. All I should have done was lower the bridge (my teacher claimed the strings were too nigh from the finger board but the bridge was OK--who's right?)

This repairer says I should remove the wedge and fit a new bridge. I'm confused. I had a peg job done just before the wedge was put in and it seems the pegs were all right then.

John P. Archambaut
Anchorage, Alaska.

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Dear Mr. Archambaut:

Concerning your violin I would recommend first checking the set of the neck by the following procedure. First, tip the violin up on its side with the scroll away from you. Then, sight along the edge of the back of the fiddle and you should find the "eye" of the scroll in the same line (the "eye" is the part that extends furthest to the side, it is the eye of the "volute"). Do this from both sides since this will check to see that the neck is not twisted. If this is okay then follow my description in Part 1-Bridge Cutting , for a check of the bridge itself.

From what you say I would guess that the check sighting down the back would find that the instrument was constructed properly, in which case a wedge should not be necessary under the fingerboard.

Another thought is that if the fingerboard has been thinned by many resurfacings the bridge would be too low. Of course, what should be done here is to put on a new fingerboard and this may be what should have been done in the beginning. I usually call the thin fingerboard problem the "diving board" problem. Playing on one is like walking on a diving board.

It is my hope that my series will enable the player to check his instrument and know if it is in proper adjustment. I believe that this will help remove some of the "black magic" approach which seems to be the rule in too many fiddle shops today.

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# Wolf Notes

by The Editor

The Mail Bag

Our postman continues to drop off a heavy mail each day, yet I still manage to answer each letter. Quite a chore but most interesting. Sometimes I forget the pile waiting for attention and write several pages to someone who, in some manner, has excited my strong love for an argument and we have a good time. Then our B. C. wood is selling fast and this takes up more time.

Excellent reports are already coming in as to its exceptional tonal qualities.

There are new members to attend to, names to be booked and letters of welcome to be written. We have an average of 20 new members each month. All fine earnest fellows, and also some of the fair sex.

Our Advertisers

You will notice changes of "copy" in several of our advertisements for this issue. Joseph Wallo, famous Guitar Maker, offers his own Guitar Plans and booklet for a most reasonable price. Many famous violin makers also built guitars. Why not try your hand at one? Guitars are a distinct challenge as regards workmanship and finish. Having built one, you will notice, when you return to the violin, that your craftmanship has vastly improved. Also there is a ready sale for guitars.

The House of Weaver are now concentrating on the selling of varnish. Mr. Herman Weaver wrote me saying he discovered this varnish in Italy. It is without doubt the finest he has ever used, all the superb qualities of the best old Italian varnish. I am told Herman sells his violins for prices running into four figures. The finish on his instruments is equal to any of the old masters. Why not try it and see for yourself.

Mrs. Carleen Hutchins

Time magazine has just published an article on the work of Mrs. Hutchins who is now considered one of the best (if not the best) viola makers in America. She is a pioneer in scientific investigations of violin and viola, being a co-worker with Dr. A. F. Saunders. Carleen has recently been awarded a substantial Guggenheim Grant to carry on her work, part of which will be investigations into the use of a new kind of wood. We hope, as soon as we can, collect data to highlight Mrs. Carleen Hutchins in our "Living Makers" column.

The Violin and Guitar Makers Assn. of Arizona Competition

A most successful competition of old master violins against modern instruments was held last June by the above association.

Judging by the marks given there must have been some exceptional instruments shown. First Prizes were awarded to S. W. Daniels, Bob Wallace, D. W. Stevens and Fred Graig, the latter with 3 violins, all firsts. All first prize winners received 99 marks out of a possible 100. Second prize winners with 98 marks were Harold Briggs and Geo. Scott. Third prizes, 97 marks, Fred Graig, Geo. Scott, W. G. Hood and Irvin Sunday. Lowest score was 96 points by D. W. Stevens, Fourth prize, still a high score and a magnificent violin. Harold Briggs, mentioned above as second prize winner, was an active member of our association. Well done, Harold. There was only one old master shown, a Gagliano, owned by Rodney Gehre, 99 marks.

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This could only happen in England.

The smart young man approached the music counter: "Will you give me an E string, please?" he asked.

The young lady brought a box of strings out and remarked, "You look 'em over. I can't tell the 'e's from the she's."

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# The String Section

Conducted by
CARMEN WHITE

Let us talk this month about developing musical taste and cultivating a love and appreciation for fine music. Too many of our violinists graduate from colleges and universities with a major in violin who really cannot play the violin. True, they can use the bow and fingers well enough to play a "graduation recital" which in these days must always include Prokofief and Hindemith Sonatas and a major violin concerto played in the manner of some great artist after having listened to his recording of it about one hundred times on the Hi-Fi set. But it is so seldom that these graduates really play anything else! For example, if the young graduate plays the Brahms Concerto in absolute imitation of the favorite recording of it, we are impressed. But immediately we are let down when we ask him to play some of the Mendelsohnn or Beethoven Concertos and he says, "Oh, I haven't studied those and wouldn't attempt to play a note until my professor has marked the fingerings and bowings for me." It is the same with the Bach solo sonatas for violin--too often, the graduate plays one, or a part of one of these great works on his recital, but cannot read the first five measures of any of the <u>others</u>. This is the same thing as a minister learning word for word the book of Matthew, but should we ask him to discuss Mark, Luke, or John, he would be terrified and say, "Well, you know, I haven't studied those."

Does such a student really have musical taste and appreciation? What was lacking in his development? I believe we can answer this question. First, there is the rush and pressure for public performance of major works for the violin before the student is ready for such performances. Secondly, there is the complete neglect for the fine lighter works for the violin; in fact, among the students, there is a certain distaste and disdain exhibited when they are asked to play some piece like "Traumarai" by Schumann, or the Schubert "Ave Maria". Such pieces are now supposed to be "hackneyed"--sometimes, even the major concertos are put into this same class, and too many of these sophisticated students want to try modern compositions before they know how to play the older compositions with intelligence and musicianly interpretations. Even the great artists who make recordings are perhaps at fault here. We often hear of new releases of such and such a concerto played by some artist with a noted orchestra and a noted conductor. But how often do we get a release of recordings of some of the best loved smaller pieces? Fritz Kreisler was among the great artists who often released such recordings. The value of these smaller pieces to the younger students cannot be overemphasized. The smaller pieces are so seldom heard. The younger graduates will not play them--the noted artists too often do not play them, hence, these pieces are now neglected.

Once a noted teacher of the violin told me that it was much more valuable to play a small piece really well than to perform a major concerto before the player was ready to do it. I believe he was exactly right about that idea. But today, too few of the younger graduates and established artists will take the trouble to prepare and finish these compositions such as "Andante Cantabile" by Tschaikovsky, played so well on an old recording by Fritz Kreisler, but now practically impossible to obtain in the new stereo and hi-fi recordings. If a young student in his formative development of musical taste wishes to hear the violin played now, he is told to listen to major concertos and modern compositions by noted artists--most of which performances and recordings are simply over his head musically. To most young students, such a procedure makes no sense at all. Far better that he listen to good performances of lighter pieces and works for the violin. If these lighter works are played really well, they make just as fine a musical impression as the modern sonatas and concertos-perhaps a more intelligible impression to the developing student of violin. Teachers, why not finish off these pieces and play them well for your younger students? Why not put them on your programs for encores instead of Hindemith Sonatas and the like? If you play them really well, your musical audience will react favorably to them, and those who are unmusical will love you for taking the time and trouble to play for them--Kreisler did, you remember. And the younger students will take home a message that may develop and cultivate a real love and appreciation for the violin as a musical instrument instead of a machine to reproduce the strident and discordant sounds of Hindemith

(continued on page 10)