The Violin Makers Journal

MARCH, 1961

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

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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FRONT COVER STORY

The photograph shows Yehudi Menuhin, the late William Robinson, and violin made by Robinson who used one of Sir Winston Churchill's cigar boxes for top wood. Billy had to wait several months for cigar box, such was the demand by souvenir hunters. Violin had excellent tone and was played by Menuhin on a British radio program.

EDITORIAL PAGE OF *The Violin Makers Journal*

DON WHITE, EDITOR-MANAGER

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GREAT EXPECTATIONS

It is said, "Things don't always turn out as planned. "This is often only too true. Just the same we earnestly hope that this, our "new" Journal, will measure up to the high standard we are anticipating for we have Great Expectations.

We have spent a great deal of time and thought over the new set-up and hope we have come up with something of which we may all be proud.

For months we have been hinting at a change and several factors have finally induced us to take the plunge.

First, there was the necessity for a more professional-looking magazine. Secondly, we suffered a great handicap by not being able to reproduce photographs, and, finally, the amount of work involved was far beyond anything your editor could cope with. Let us deal shortly with these three points.

The increased circulation which we now enjoy demands something better than a mimeographed effort. Our advertisers, who help keep the Journal out of the red, expect something more attractive than some of the work we have in the past produced.

In the matter of illustrations, there is no argument--the lack of any is so obvious.

We now arrive at the subject of your poor overworked editor! Let it never be suggested that he has ever complained but there are only so many hours in one day and nine hours are immediately taken up making a livelihood. His remaining time could be spent far more profitably than in turning the handle of a mimeographing machine. Fellow members have been more than helpful in this regard, nevertheless to meet the deadline the editor has always been obliged to do at least half the printing. He will now find time to handle his correspondence in a more intelligent manner and also be at liberty to put more effort into producing a better magazine.

We must now mention finances! (horrible word!)

The new Journal will naturally cost a great deal more per issue. We had several alternatives to meet this extra charge: Reduce the issues to one every two months; raise the price of subscriptions; or overcharge our advertisers. N.B. We cannot cut salaries. There are none!

We have always dealt fiarly with our advertisers, and to raise the cost of subscriptions did not appeal to many readers or to ourselves. This left us with the consideration of publishing every other month. We felt that two months was a long time to keep our eager readers waiting, but any person who has attempted to run a monthly magazine in his spare time realizes how quickly "deadline" approaches. Even with the burden of printing off his shoulders, the editor would still find it exceedingly difficult to produce copy in four weeks. We have therefore selected a middle course:

The Journal will be published--not monthly--not every other month--but every six weeks. This will keep our readers happy, we hope. It will also please your editor who feels that this is the only way he can properly carry on the work of encouraging the building of better violins--something which our association believes has a real educational value, and in which your editor is happy to be of some small service.

LOCAL NEWS

by FLOYD HOLLY

Helen, admiring the "Ernie Lindbergh Violin" presented to her by the Association together with $50.00 Scholarship

Many moons ago this Journal was no more than a monthly newsletter, the brain-child of our very hard-working and enterprising editor, Don White.

Now we take the biggest single step forward, in the steady development of this now much looked-to-Journal.

This issue is the first professionally printed one, what a tremendous step forward.

This column extends its congratulations to Don White because without his initiative it would never have been conceived, and without his zeal, tenacity and drive, it would have foundered long ago.

May we ask every reader to dedicate himself or herself, to finding at least one new subscriber. This will not only consolidate the new venture financially, but it will say the biggest "thank you" possible, from all of you to our editor.

Remember that it is a labour of love for him.

We can for the first time present illustrations, and we let our out-of-town and overseas subscribers, take a look at Helen Hagness. You see her with the Ernest Lindbergh violin, which we have told you about previously, and also the silver cups which she won at the Vancouver Musical Festival 1960.

AN ORGAN BUILDERS APPROACH TO VIOLIN MAKING

by H.J. Sammer

My profession is in the Pipe Organ and Piano field, general service. I have many years background in that field and from my experience in past years, am of the opinion that the building of Violins and other string instruments is approached from the wrong angle in the main. There is so much printed word about Fiddles, etc., varnishes and what not, that to follow it all ends up in confusion. So I have thrown most of it overboard, and approached this Fiddle business from a comparative angle, namely from Piano and Organ construction and the effect of atmospheric condition on these instruments.

Organs and Pianos are their best at 70-72 degrees F. If basically of sound construction then it is a pleasure to tune them. Let the temperature vary a couple of degrees (the above mentioned) one way or another, then you will find oneself in trouble, insofar as the Artistic tuning is concerned. All tuning forks are made to coincide at 70-72 degrees F. Years ago, they had no airconditioning humidity control, etc. to keep the desired temperature constant. We have all these assets at the present day, and they are more and more in use in Pianos and Pipe Organs. The tuning can be done without any radical temperature rise or drop, within neutral ground.

Now if the plates are graduated (Fiddles, Cellos, etc.) under constant temperature control, then and according to the density of the plates, for the desired tone is aimed at, then if measurements are correct for the instrument being made, then the results for uniformity of tone will be more readily realized. The wood must be well seasoned, not kiln dried or baked. I have never made a Violin but gave the Cello many years of constant study.

In Italy the temperature is near constant for several months of the year. It is my belief that the fine Instrument made by Stradiviri were made during this constant temperature. He made somewhere close to a thousand violins, some 400 or so unaccounted for. Some of them are lousy, not worth anything. The good ones are superb. So it was also with Bergonzi, and others of note. My opinion is that Bergonzi made better Cellos than Stradivarios. There are some bad Bergonzi Cellos.

The varnish of the masters age, especially in Italy, was a simple thing, common and in general use, on about everything, furniture, etc. The Linseed oil theory does not appeal to me at all, and I doubt if the past masters used it to any great extent. The Painters (Artist) used a slow oxidizing product and that product is known to the Artist of the present day, as it was used by the masters of years gone by. Poppy Oil was a common product in the past long years, and the paintings done a hundred years or so ago are just as fresh and beautiful to this day. Linseed oil never can match this. Poppy oil or varnish is slow drying, so it was in the old days. It took months to dry the the instrument so it could be used. In fact it never does completely dry out, but remains flexible. I am also of the opinion that the wood or plates and sides inside and out was treated with a wash of poppy oil to retard the moisture of getting into the wood, and raising havoc with the instrument and its tone. Casals had a fine Strad that was made in France, over there the tone was beautiful, then he came to America, for concert, the ocean voyage completely destroyed its tone, from which it never recovered. Play your Fiddle on a damp day when the air is full of moisture, and high humidity or visa versa, and you will wonder what has happened to your Fiddle. Our physical bodies are also so affected by the elements. Now we have air conditioned homes and humidity control to make our lives more tolerable. So it is with everything, Fiddles and what not. The old masters did not use any aids to tuning the plates, they understood the density of the wood and aimed for the desired tone accordingly by good judgement in the graduation.

Now we have about everything in confusion by the written word, etc. If a maker of a Violin or Cello has has been successful in producing a good instrument, it was built under constant or near constant temperature, likely without the builder knowing it.

In playing a string instrument the Artist does his bowing more on the relaxed passive side, than on the active side with force. When you draw a tone with force with the bow, you dampen or mute off the harmonics. Its the harmonics that reinforce the fundamental tone that gives the fine blending and cohesion, and beautiful tone that grows and grows at a great distance. Your Fiddle does not sound loud to your ear in producing these artistic tonal results.

Take a set of chromatic tuning forks. They are accurate within one thousand of a second at 70-72 degrees F. Not attempt to tune a piano note for note with the forks, the results are a failure. It is scientific. In theory, science is correct, but not practical in the tuning respect. The forks are made in accordance for each note in the equal temperament. In other words the Organ or Piano is a fixed tone instrument, whereas the string family is tuned in true intonation. The String performer tempers his notes in unison with the Piano or Organ. He fingers his notes with the aid of his ear, sharp or flat within the limits of neutral ground coinciding with the intonation of the fixed instrument, Piano or Organ. You may wonder what all this Piano and Organ business has to do with the making of string instruments? It has a great deal to do insofar as the physical aspect is concerned. Science is important but not always practical.

Let us venture into the so-called neutral ground present in all fixed tone and true tone instruments, in string

tone, reed tone, and flute tone. In Violins, Cellos, etc., there are no two identical alike in tone quality. In violins, etc., as a good solo instrument reed tone and good resonance is sought after in the main. Its in the density of the wood and graduation, if the plates are hard the instrument will produce more of a soprano voice, if too soft and especially in the larger instrument, the tone takes on more of the cavernous quality of the bass. In making a violin, cello, etc., we aim at a soft top plate against a hard back plate, or visa versa. Personally I prefer the wider grain in the top plate. If the grain is too close at the heart, I cut away some of it, so that I get about 12 reeds to the inch, and if necessary join on wings from the inner bouts, if the plates are not wide enough. This lowers the pitch of the wood. All this tone of great variety and the desired quality is a matter of good judgement, and wide experience. If the wood or plates are worked up under constant or near constant temperature the wood and quality remains uniform. It is the radical change of temperature that upsets the tone quality. Under these conditions of constant temperature you save yourself a lot of grief and eliminate the danger of otherwise ruining a well made instrument, by regraduating.

In the Pipe Organ field, the pipe maker, aided by science, can and does produce a good Diapason, the foundation tone of the Organ, having all the inherent harmonic structure. To test a good Diapason is simple. Blow or so-called overblow the pipe by mouth, if it by so doing jumps to the first harmonic and lingers there, IT IS NO GOOD. It will not blend nor cohere with the harmonics of other stops. If, on the other hand, it gurgles from one harmonic to another in upward series, it is good. Such a Diapason will blend and cohere. Now in setting the temperament, we have a neutral ground. Every pipe or string sounding the octave to another pipe possesses what is termed "neutral ground" between the point either above or below where a sharp beat arises from undue sharpening and a flat beat from undue flattening. On the CC of the Open diapason there are nearly two commas of neutral ground representing about an inch of length in the pipe.

It is in dealing judiciously with this quantity that BRAINS and art in tuning come in. No amount of mathematics, monochords, pendulums or the like will produce anything but theoretically correct results. Some persons grasp this readily and by cross tuning attain a sweetness and cohesion of tone completely beyond the capacity of the mere routine tuner who again is invariably better than the theoretical "crank" who approaches his work with a mind filled with algebraical formulas. Science is important in some respects, but on the contrary not practical in other respects. This is mainly to impress the difference between a saturated science person and a real artistic one. Science can teach us much about wood and its construction, but its what we do with the wood where BRAINS and ART come in. So we have in the minority Artists in fine craftmanship and performers, and a great majority in the mere routine. In making a Cello I get the best wood obtainable and well seasoned. The only model I follow is the Bergonzi. The archings are not high, but more on the flat side. Careful not to hollow out the cheeks, by so doing resonance is lost. I give the instrument a wash with Poppy oil inside and out. This leaves a pale yellow color on the wood, more on the natural wood color, but in time it takes on a darker color. Careful not to use a heavy bass bar as this unbalances the instrument on the G and C side of the Cello. I use Thomastic strings and tail piece for the tone purpose as well as the ease and freedom of harmonics. The bridge I cut out from the inner bouts of the maple of the same wood (Aubert model). Bring the Cello up to pitch and leave it there, as it takes about two or three weeks for the instrument to settle. Then I make after playing on same, other adjustments with the soundpost if necessary. I play this instrument for about six months in the white. Use no filler or sizing, but varnish right over the wash of Poppy oil. I care nothing about eye appeal, a highly polished instrument. It's TONE I want, and so far have been well satisfied. Look at some of the old instruments and especially on Bergonzi's and you can still see brush marks. Some look like H----- but they are vibrant and possess the soul of human quality. What is more near the human voice than a good Cello? I find, too, that the above treatment with the Poppy oil wash resists the elements.

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THE IMPORTANCE OF GOOD VIOLIN WOOD

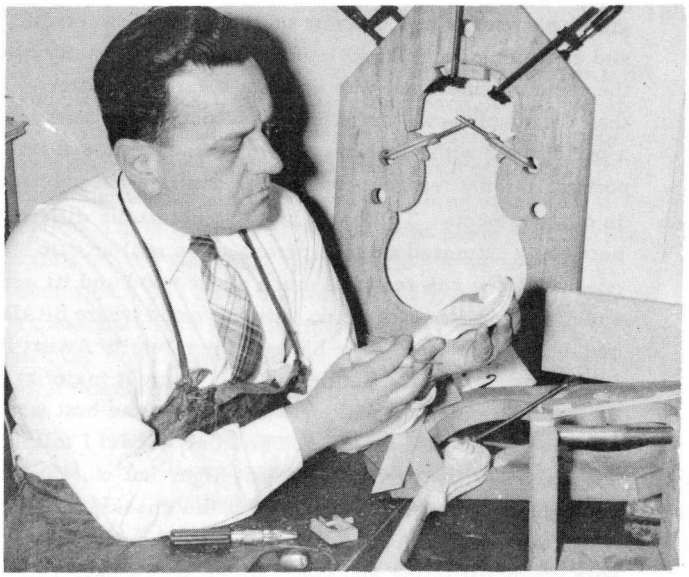
by John Schnieder, Cupar, Sask.

In the 1956 Sept. issue of the Strad magazine the violin plate featured is one by Alfred Charles Langonet, London, 1952. The Langonets represent the accumulated experience of four generations of violin makers who between them have restored many of the world's finest instruments. Members of the family worked for the Hill Brothers. Mr. Langonet makes few violins, for,one,it is not very profitable for one with extensive connections as a restorer, receiving instruments for this from all parts of the world. Secondly, there is the difficulty of obtaining suitable wood. Langonet attaches the utmost importance to the wood chosen, considering that this is the dominating factor in producing a fine toned violin, and unless the right wood is available it is not worth making up, as the result would be unlikely to enhance the maker's reputation, at least so far as tone is concerned. Mr. Herman Weaver, noted American maker, is of the same opinion, the materials used are what decides the tone. You probably have his booklet "The Violin House of Weaver."

From this you can gather that the wood used is the No. 1 factor. All the scientific and mathematical approach will not make a good violin from poor wood. People like Mr. Langonet can go through many dealers stock of wood and have trouble finding what they want, so what is the wood we get worth?

Random Thoughts While Sanding Plates

By NORMAN MILLER



In one of the articles on micro-toning in an old Strad 1914. The proposer used a set of chromatic pitch-forks, and placing the foot of the fork on the plate of a strung up fiddle, moved it about over the face of the plate whilst he twanged the string at the same pitch as the fork. He says that when the fork was over the spot which responded to the note the fork would sing instead of just jangle. He said that the fork would respond to the note-position on the plate,of the note being twanged and vibrate in sympathy and thus show exactly where the plate vibrated to that, and each particular note. I have tried this with the only fork that I possess, A 440, and did not have real success. It does vaguely happen. I find that different fiddles respond in different areas to a particular note, and is why I ask where do you scrape, and why?

I have given a lot of thought to your Micro-tone method and frankly many years ago when I first saw such a principle written about, my first conclusion was to jump at it and to endeavour to make my fiddles to that principal. But with a bit of cold thought and considerable mulling over the principles, aided by many letters and articles against such a method that I can only see that it is not the way to make a fiddle for lasting quality, and true tone. I have sent you one article giving a few of the extracts quoted, and at the risk of repetition again, I must draw your attention to these given below:

Reply by Miller Tiffin to Mr. Schonewald. (Strad May 1912). (Mr. Schonewald found that only one particular part of the table responded to one particular note. Strad April 1912).

Reply: "...Mr. Schonewald's theory calls for one remark. There are twelve notes in the scale, exclusive of octaves, hence, according to Mr. S.'s theory that 'there is only one spot to respond to every note or part of a note', the belly is divided into twelve spots, and only one of these twelve spots is responding to the note one is producing. It is very difficult to prove negative. I, (Mr. Tiffin) won't attempt it, but I do say that commonsense teaches that if only one-twelfth of the belly responds to each note, the volume of sound will be so small and feeble as to be useless ...."

Some number of years ago Backhous gave diagrams and much theory of where the plates of a fiddle responded to each note produced. By studying these diagrams it will be seen that if you are to thin a plate where each particular note that you are striving to enhance, responds, you will eventually keep on thinning until you have covered the entire area of the plate. Then you are back where you started except that the plate has much less wood in it. The thinning, spot by spot, could go on ad infinitum, until you have a mere shell of useless material.

What happens to the lovely curves and conformations of the archings, when you scrape and sand a bit off here and there?

Reference to a method of attuning plate by one Wm. Hawes. (Article by Towery Piper; recognised authority in violin matters. Strad Oct. 1912.)

"... in dealing with old instruments by reputable makers, it is stated that the thicknesses are never interfered with, but remain as the maker left them, unless as frequently happens they have already been sandpapered or thinned by unskillful repairers. (The underlines are mine. N.M.)

Strad July 1914.

"...soaking the wood in oil is simply vandalism, quite as bad as scraping the wood thin. I know of one handsome Stradavarius that is spoiled by the latter crime, also another by Nicholas Amati. Both these have now a poor thin tone which can be restored only by patching"

Wm. Hawes.

Ref. to an article in Strad Nov. 1917

"... there may have been in the past, some faking

practised by thinning the breast under the bridge, but I have not met with it in good work, and doubt if it obtains nowadays, for it is quite unnecessary...."

These extracts show that micro-tuning and thinning is nothing new but has often been tried, and to all accounts, found to be fatal to the production of real violins with tone of lasting quality. In my last article I gave similar proof that violin judges throughout the years have nothing but condemnation for such practices. I wonder what our friend the author of the last statement above would think to see that it has again revived, even though it is still as unnecessary now as it was then 40 odd years ago.

Linseed Oil; Egg-Tempera.

I would recommend a book that would possibly be available in most libraries. It is called "The Artists Handbook of Materials and Techniques" by Ralph Mayer published in 1945.

Under the article "Resins with Oil" it says about Amber:

"...Amber varnish has a traditional reputation as the varnish par excellence but it is doubtful whether any such product was ever in wide use. --if any amber varnish offered for sale actually contains amber, it will be in only very small proportion to the oil and other resins. The various early words for amber and varnish have been the subject of much etymological research and conjecture. The mediaeval Greek name Bernice or Beronice, the B of which was altered to a V sound, many names have been used: vernice, verenice, vernition, vernix. The liquida is employed in early writing and refers to a thick heavy varnish composed of cooked oil and resins, which was rubbed into wood then being exposed to the direct rays of the sun until dried. The old recipes represent numerous variants of a cooked linseed oil-sandarac-venice turpentine mixture."

Wonderful food for thought here, and may shine some light on the need for sunning!

There is a wonderful chapter on Linseed Oils, and mentions the many ways of extracting the oil from the seed. It is a lengthy chapter and must be studied by those who want to argue the pros and cons of the use or not of linseed oil.

Of Boiled Oil, it says:

"Boiled Oil is a misnomer; the oil commonly sold under that name is not boiled, but heated with driers until very slightly thickened. A good deal of the boiled oil of commerce is raw oil to which liquid driers have been added."

The chapter mentions; Varnish Linseed Oil, Stand Oil, Boiled Oil, Raw Oil, Sun-refined Oil; and tells how these oils are prepared, and their properties. It deals with Poppy, and Walnut Oil; Soya Bean Oil, Tung Oil, Safflower Oil, and many others.

Egg-Tempera

The recipe given in the November Issue of the Journal seems to be somewhat at a variance to the method of preparing egg-tempera as given in this book. You will note the emphasis on being sure that only pure egg-yolk is used. Much care is taken to keep out the white of the egg. I do not know which would be more correct, as I have not used Egg-tempera on a fiddle, but fully believe that it has possibilities as a medium for preparing a ground before varnishing.

Some extracts from the Handbook:

"Tempera paintings are characterised by a brilliant, luminous crispness, which is never exactly duplicated by the use of oil or other mediums.

Tempera is an emulsion, and a natural one, pure egg-yolk. Egg-yolk is an example of a paint medium which contains a non-drying or semi-drying substance with a quick drying substance, the whole mixture drying successfully. The pure egg-yolk film becomes insoluble, tough, leathery, and permanent.

The traditional pure egg-yolk technique proceeds in the following way.

The yolk is first separated from the white. Some are extremely careful to keep it free from any traces of the white; others less particular, but a pure yolk, free from any white is the standard material. The white is practically pure albumen and water, and there is enough albumen in the yolk alone for a well-balanced tempera-emulsion. An excess would increase the speed of drying and cause difficulties in manipulation. After the yolk has been separated from the white by the use of an aluminum egg-separator, it is held in the flat, not cupped, palm of the hand, and picked up by the thumb and forefinger of the other hand gently so as not to break the skin, and suspended over a jar or cup. The skin is then punctured at the bottom by stabbing it with a knife or other sharp point, and if desired, after most of the yolk has flowed out the little that remains can be squeezed from the skin with the fingers. Some merely break the eggs into a coarse strainer, and after the white has drained off, puncture the yolks and allow them to run into a container. If this is done it is well to strain the yolk again through muslin, but the result will not be so pure a yolk as that separated with greater care.

panels paint

Mention is made of the ancients whipping the egg-yolk with the freshly cut shoots of a fig tree, or the use of fig-tree sap. The book declares it to be a preservative and suggests vinegar.

Egg-yolk; 2 parts. Water 4 parts. Vinegar 1 part.
Shake well.

The chapter now proceeds to introduce many variants of Egg-Tempera with the addition of stand-oil and varnish, and sometimes venice-turpentine. These are referred to as egg/oil emulsions.

It is extremely possible that such an emulsion may have a place in the problem of violin varnishing. The Handbook says: "The foregoing account is intended to be an outline of the pure or classic method of egg-tempera as practiced in Italy from some time before the fourteenth century until the improvements of the fifteenth century; all other tempera procedures stem from it."

I would like you to contratulate Floyd Holly and his article in the November issue. It agrees with so much that I observe. It is really something that every maker should try and keep uppermost in his mind when, and during the construction of his instruments. I feel that at least once a year you should again publish that article so that the newcomers to the fold will be able to read and that the older members can again be given food for thought.

Through the Journal could you ask for information on the following:

Who was the first to mortice a neck into the block, and what year.
When did bass-bars first become longer and larger, and by whom was this innovation made.
Who increased the length of the fingerboard in in what year?

THE TONE-PITCH OF VIOLINS

by Bruce Yantis

Tone-Pitch varies in violins in the same manner that the human voice varies. We can identify voices as being Baritone; Tenor; Alto or Soprano. Whereas the human voice is destined at birth to be of a certain timbral quality, we can pre-plan the Tone-Pitch of a violin at the time of construction. We can also alter the Tone-Pitch of a violin after construction to a certain degree; particularly if we desire to lower the Tone-Pitch, whereas, to raise the Tone-Pitch after the final construction offers a more limited range.

All other factors being satisfactory in a violin, Tone-Pitch should indicate whether the instrument is a solo instrument; orchestra violin or suited for general purposes.

To use an orchestra violin for solo work is not likely to gain good audience response, nor is the use of a solo violin for orchestra work desirable. A violin for orchestra use requires a higher Tone-Pitch (soprano) to survive the interference from other instruments. Only a higher Tone-Pitch, with its abundance of high overtones, is capable of defying the ensemble to overpower it.

Tone-Pitches of violins and their proper use are as follows:

	G & D Strings	A & E Strings
Solo violin	Baritone	Alto
Orchestra violin	Alto	Soprano
General purpose violin	Tenor	Soprano

The Joseph Del Gesu Guarnieri violins are noted for their massive baritone Tone-Pitch on the low strings, whereas the Amati violins have a lyric soprano Tone-Pitch on the higher strings; unless the sound-board was reduced in wood at a later date.

The Tone-Pitch of a violin should not be extreme between the low strings and the high strings, i. e., the violin with a baritone G string and the other strings jumping to a soprano Tone-Pitch. The Tone-Pitch transition from the lower strings to the higher strings should be gradual and in good taste. There are violinists who love the former type of disconnected G string; playing on the other three strings only because the melody will eventually permit them to return to this unique G string. Unfortunately the listener also awaits (or dreads) this returning.

The Tone-Pitch of all four strings should be so related to each other that a feeling of 'oneness' is felt by the listener.

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GERMANY SEEKS ITALIAN VIOLIN MAKERS

An article appearing in the Italian newspaper "L'Artigianato d'Italia" states that an invitation has been sent from Germany through the German Commission at Verona for Italian luthiers (violin makers) who would like to move to Germany.

They are offered permanent employment with free housing, a good salary, and a 45 hour week. The salary offered is 67800 L. per month. Since the cost of living in Germany amounts to about 13500 L. this appears to be a very attractive offer and indicates the very high esteem still held for Italian Makers.

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FORTY YEARS MAKING VIOLINS

by E.H. Sangster

It was with a great deal of interest I read the last copy of the Journal and I am writing this to you and you may print it if you wish. I don't know how much you have read on the subject but I write this to try and make you do a little thinking.

I do not for one moment believe that they can find out by any scientific means what over 100 makers accomplished to a greater or lesser degree prior to 1750 without any science at all. All this tap tone method is so futile. If Stradivari and Guanirius had worked on the tap tone method every one of their violins would be ruined by the insertion of heavier bass bars. From 1700 to the end, Stradivari made violin after violin, the finest that has ever been produced, yet no two of them are alike. I would infer from this, one of two things, either he was experimenting or was building each violin individually. In Hills' book "The Life and Work of Antonio Stradivari" page 190, they say "Much has been written and various more or less ingenious theories based on scientific principles have been propounded to account for the unsurpassed tonal qualities found in his instruments. We cannot agree with such deductions and the views we express are the result of reflection founded on daily study of Stradivari's works and on comparison of them with those of his forerunners patiently carried on through a long period of years." (End of quote.) Experience has taught me to agree with Hill and Sons in this and I think they would be doing the Violin Makers all over the world a great favor by publishing a third edition of the work.

A point not generally known. If you hold the back of a violin up to a strong light and look through the F holes and can see light through the back you know that the violin is not more than twenty years old. You cannot see light through the back of any old Italian violin. Age makes wood opaque. If you make a violin from a back one hundred years old you cannot see light through it. What bearing this has on the tone and articulation I cannot say, but that it does have a bearing is unquestionable. Strong sunlight makes wood opaque. In other words, if you make a violin in the white and hang it in strong light for five years before varnishing it becomes opaque.

A word about varnish. To make as fine a varnish as was ever used by Italian:

Pure raw linseed oil	1 oz.
Pure Venetian Turpentine	2 oz.
Pine Resin	1/2 oz.

Put ingredients in a small cast iron frying pan and cook 15 minutes stirring all the time with metal stir stick. When cooked 15 minutes put in one tablespoonful of linseed oil and cook 3 minutes more. Turn off heat and let cool ten minutes and dilute with pure spirits of turpentine until thin enough to apply with a brush. Varnish dries best in the sunlight. Very simple to make and easy to apply.

I would like to record in the pages of the Journal my experience as a violin maker.

In 1920 I moved from Falmouth, Nova Scotia, to Vineland, N.J., and in 1922 opened my first shop at 25 N. 6th St., Vineland, N.J. In 1923 I was lucky and procured a second hand copy of the second edition of "Antonio Stradivari, His Life and Work" by Hill & Sons, London. (I might add here that Hill & Son would do the young violin makers all over the world a very great favor by printing a third edition.)

In 1925 I returned to Nova Scotia and in 1930 opened a Shop at 86 Granville St., Halifax, N.S. While there I read Hill's book on Stradivari thoroughly and on page 193 they give the thickness of eighteen Strad violins in fractions of an inch, all of noted specimens. Five of them from 1693 were only 6/64 all over the top. This made me think that I was making my violin much too thick, so with a fine back and top I made a violin - back at center 10/64 and 6/64 all around the edge - top 6/64 all over. The violin played fine above the third position but the lower register especially on the two lower strings were hollow sounding and very poor in quality. This puzzled me and I had to come back to 8/64 in center of top. In 1946 I came to Texas and in 1949 I had occasion to remove the top from a fine old French violin. It had been played a great deal and the varnish was completely worn off the upper right hand rib. The perspiration from playing had gone through the rib and over the years the dust had collected on inside of rib, making it very dirty. I noticed it but did not pay too much attention but about three weeks later I had to take the top off a fine old Italian violin. The varnish was completely gone from the upper right hand rib. When I got the top off I found that the rib inside was perfectly clean, no perspiration had gone through the rib. This led me to believe that the old Italians had put something on their violins that was impervious to dampness. The only thing I could think of that might do the job was pure raw linseed oil. The only oil I knew of that would oxidize and harden. I sent and got a violin in the white regraduated top and back, put it together and gave it a coat or pure raw linseed oil. I only oxidized it for three weeks in the sun but as soon as I strung it up and tried it I knew I had what I wanted. Over the last nine years I have gradually progressed in the use of raw linseed oil and have best of reasons to believe that Stradivari never varnished a violin until he had oxidized it at least two years.

Now if any violin maker wishes to make a violin equal to an old Italian, get a well seasoned back and a good

European top. Make the back 10/64 in the center graduating to 6/64 at the purfling. Make top 7/64 in center or 6/64 if a strong piece of wood and 6/64 at the purfling. Cut F holes and fit a bass bar of the finest material, straight grained and clean. Put bar in violin 3/8 inch from the center join at upper end and 17/32 from center join at bridge point.

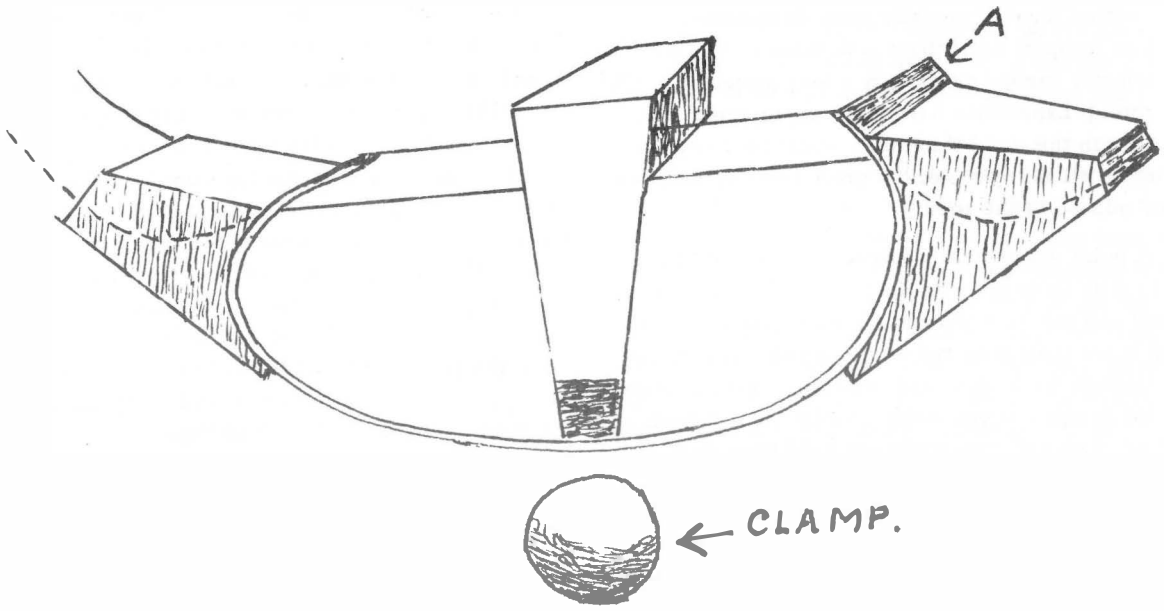
Put violin together and give a good coat of pure raw linseed oil, put violin out in the sun and oxidize it one whole summer. Keep in a warm room all the next winter (on top of piano is fine) and next May varnish it. You will have a violin equal to an old Italian and you won't need any microtone system, tap tone or weighting of the plates. It seems foolish to me that we should try to find out by science what several hundred violin makers were able to accomplish two hundred years ago and I would venture to say ninety percent of them could not read or write. I think it would be wonderful if there could be a Violin makers Guild formed by all the violin makers on this continent U.S. and Canada, and every two years hold a contest with such great violinists as Heifetz, Stern, and Milstein for judges. Great players who are using the finest violins. Let each maker pay an entry fee of $10.00 to pay the judges and help defray expenses.

It will probably never happen but it would be a great step forward in violin making.

* * * * * * * * *

"Knowledge and timber shouldn't be much used till they are seasoned."
..... Holmes
(Yantis' collection of quotations.)

SKETCH FOR FIXING RIB IN MIDDLE BOUT



Herewith is a sketch of my method for fixing ribs to the blocks of the two middle bouts (inside mould) which I think is self explanatory.

The lower block at A needs the curve to be extended beyond the corner, so as to keep the cramping block from rising, when the pressure is applied, thus it keeps the block well down, and the wedge, when cramp is applied, causes not only downward pressure, but lateral pressure also, making a perfect job when gluing. If the wedge is slightly greased it is an advantage.

J.E. Hardwick, known as "Edward" Hardwick, 9 Harriott's Lane, Ashtead, Surrey, England.

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JAN HILBERT NORLANDER

GUNNILSE, SWEDEN

HOW ABOUT THE WORD "RESPECT"?

by G. Sanborn

Translated by Peter Svindsay

As I am sitting in this quiet corner of this world (Sweden), and thinking about violin makers in Canada, I have great respect for the distance that divides us, for in spite of modern communication, it is still too expensive to move around from place to place.

In our country we have great respect for your Canadian hockey players, they usually beat us. But we are dreaming of revenge and the time we shall win. Then you will have to respect us!

Personally, I have great respect for all journalistic work and on occasions I have had the opportunity to try it. It is with real admiration I note that your Energetic Editor is able to get the Journal out once a month. It is not only the direct work but also the indirect work, which is challenging. I hope that you also share my respect for his efficient work.

Now I shall give a good example of poor respect. In this country the authorities will spend 25 million (Sw.) krowns on a golden tavern but not a penny to the Swedish violinmakers Society. And yet the instrument makers are laying the foundation on which the whole musical world rests. How is it in Canada? Are the government officials standing in line outside your door with their pockets full of dollars ready to help you? No, I don't think so. It makes us angry when we look at the generous contribution to Art and Culture in the totalitarian countries.

Another example of poor respect: A few years ago a fleet of warships lay at anchor in the harbour of Sötebarg. As a polite gesture to the people on the wharf they played the Swedish national anthem but in--jazz time--no respect for our national flat!

And now comes the question of respect for the law of acoustics. Concerning Stradivarius, there are two alternatives by which he might have worked.

A. Constructing the instrument according to certain mechanical rules and only when finished proceeding with the acoustical, or tuning procedure.

If we presume that alternative A includes rules unknown to us, since we cannot obtain the same tone as he, then we have only alternative B to analyze. Here we meet no unknown conception, only concrete facts, which confirm our conviction that this method was the only possible one.

B. Let us take a look at the most important features of alternative B.

1. The materials to be used as plates, etc. can be studied with the help of the microtone.

2. When the outer curves of the plates are shaped according to the microtone we obtain the same form or shape (depending on model and structure of the material) as is found in the Old Masters instruments.

3. The relationship of the plate thickness can be fixed with the help of the microtone, and the measurements obtained conform with the old patterns.

4. The bass-bar is built and takes the shape of the curved wave line that is known in the old instruments when it is tuned together with the top and at an octave with it.

5. The ribs can be tuned to the same microtone as the plates. This important detail has only recently been observed.

6. All the acoustic parts (membrane) can be tuned to the air-tone.

7. The process of oxidization in the varnish can be studied with the help of the microtone and adjusted to a set relationship.

Moreover it can be pointed out that the same principles hold true about the adjustment of the Bridge and the soundpost.

And when all this is correct, and it can in every case be proven, we have cause to view the laws of acoustics and its function with all profound Respect.

Only under this theory (or assumption can we hope to achieve really great results and beautiful tone.

My first investigations and experiments with the micro-tone led me to believe it might be a doubtful procedure with larger instruments, especially the double bass.

This takes on a different aspect when we base it on the disputed air tone and adjust the surrounding wood (membrane) to an acoustic resonance with it. Then the size of the instrument makes no difference since the thickness of the plates are decided by the air tone (height of ribs, size of soundholes, arching) model and the hardness of materials.

Regarding the violin, this is usually on the note C, or slightly higher or lower. But the viola comes in many different sizes. Naturally I have not tried all of them, but those I have tuned with this method from the smaller models up to Tertis size, the result has been good, so I have no reason to doubt that this method will work for the rest of them.

The cello has an air tone usually around F.. Also here you will find different sizes, but this is no problem.

I have also tuned a 3/4 violin with the same method so the only things left to do are 1/2 violin and contrabass (double bass). But I know it is possible.

Besides the bow instruments this method can be used for guitars and mandolins and also in such cases where there is no need to take the Airtone into consideration, even the telephone and loud speaker-membranes. The last is a tip for hi-fi enthusiasts.

Regarding the cymbals I remember how it was during the last war. The import was blockaded and there was a big demand for cymbals. The problem was solved by pressing the cymbals out of suitable brass-plate. The cymbals looked beautiful, but there was something wrong--the musicians did not want them. The reason was that the metal plate had the same thickness all over and not graduated thinner towards the edges as in a Tildjan cymbal.

The principle of making them thinner towards the edges can also be found in the church bells.

I don't doubt for a second that Mr. Svindsay has also found the microtone.

In my series, "Cremonas tunemethod" (or syntony, Mr. translator!) I have tried to show that through the generations from the time of Stradivarius there were violin-makers that had discovered more or less the acoustic law that regulates the building of the tone in a violin. I got the idea of this in 1942.

Regarding the Airtone I should like to advise every one that has access to a violin to do the following experment: Mute the strings and the plates and blow hard straight down in one F hole, but in three different places, in the upper hole, in the middle and in the larger lower hole. The tone varies in the 3 cases and the reason is that the air stream breaks at the edges of the F holes--and this acts as a pipe. This can be used to adjust the 2 F holes to an acoustic likeness. But later instead, blow in the same manner but with a weak and narrow stream of air, preferably in short puffs, and observe that the tone becomes the same wherever you blow in the F-hole. This is, in my opinion, the air tone.

In closing, I hope that Mr. Svindsay and I are in complete agreement and away with all secrets regarding sizing, varnish, colour and methods of tuning, and let us Respect only that which can be proven true.

* * * * * * * * * *

Carmen White

Don White

The Two Whites

Two blacks don't make a white, but two Whites help to make the Journal. Carmen White, Editor of "The String Section" and Don White, General Editor.

Your General Editor would like to apologize for delay with the March issue. There was a considerable amount of work involved in reorganizing the "New" Journal. Future issues will appear on time!

REVIEW YOUR STANDARDS

by Clifford A. Hoing

It has been mentioned in the Journal that some fiddles lose their tone after a period of time. This may be true for several different reasons.

Let us first note that a fiddle may be condemned from the start by making the plates too thin or using a filler such as linseed oil which may revert to a substance that may mute the tone after a while. So it is best to be certain that your methods do not condemn your fiddles to a shortened musical life.

I do not favour using a minimum of wood to produce a maximum of tone. So I do not agree with making fronts too thin in the centre or with very thin edges either! I prefer a power and quality of tone emanating from an efficient sound box that can only be made with an adequate thickness of material. This method does not produce a fleeting tone.

It has been suggested that prejudice against modern instruments may be more prevalent in America than in England. If this is so, it does not explain why more than 50% of my output over the last three years have been exported to U.S.A. Furthermore I should be surprised to hear that any U.S. fiddles have been sent to England. Why do American makers ignore the English market if they think it easy to sell modern instruments in this country?

I find that whenever I have introduced an instrument in any area or group of musicians I continue to get orders. Several professional players have two of my instruments. You do not continue to get orders if your instruments lose their tone.

The fact that an instrument loses its tone may not be the fault of its maker! I would suggest that repairers may in no small measure be responsible. Few repairers take enough trouble and care in adjusting instruments. I have had to give instructions to owners of some of my fiddles living as far as 3,000 miles away, on how their instruments should be adjusted. In one case, dry conditions had caused the soundpost to become too tight. The repairer not only shortened the post but also made it thinner and replaced it in the wrong position. Either of these mistakes would spoil the tone of a sensitive instrument!

I have for a long time marked the correct position of the soundpost on the inside of the back, but a New York repairer did not bother to make sure that the post was upright when he replaced it on the marked position on the back. So now I mark the position of the soundpost on both the inside of the back and also on the inside of the front. I was able to restore the tone of these instruments by correspondence after hearing a description of the faults that had developed in the tone.

There is a very handy tool that is quite simple to make of either thin card or soft metal which can be used to check the positions of soundpost and bridge. I doubt if this is very well known on the American continent according to reports and the results of the 'adjustments' that have been carried out on some of my instruments in America.

Take a piece of thin card or soft metal about 3" by 1 3/4". A piece of post card or a visiting card will serve. Cut this up the centre for about 2 1/2" as diagram. Fig. 1.

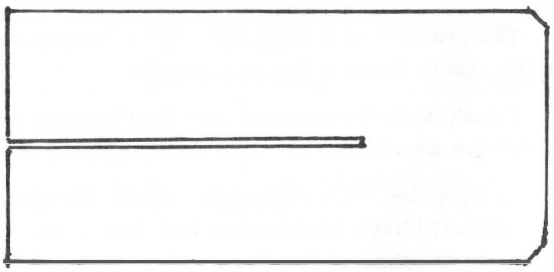


Fig. 1 Feeler Gauge of Thin Metal or Card

To use this, insert one leg of the gauge into the left hand F hole.

If the gauge is previously bent slightly and inserted concave side upwards, it will touch the side of the bassbar close up on the underside of the front. The leg that extends over the outside of the front should be arranged to lay partly alongside the front of the bridge. This will then give the relative position of the bar and bridge. Marks can be made on the gauge to show the exact position of the edge of the F hole and the outside of the bridge foot. The bridge should of course be exactly central.

Take out and pass in one leg through the <u>right</u> F hole. The marks should indicate the same distances from F hole to bridge and soundpost as to bridge and bar on other side. If not, make necessary adjustments.

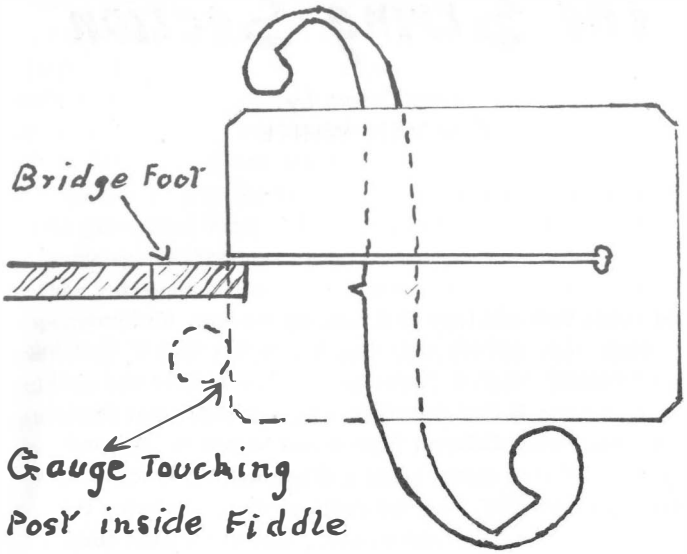
To make the operation quite clear, in a correctly adjusted instrument the soundpost and bassbar should be exactly the same distance from the central line of the front. The bridge should also of course be central.

The gauge is used to indicate the relative distance of the bassbar from the center or from the F hole and the soundpost should be correctly fitted in its proper position in relation to the bridge and bar, as indicated by the "feeler gauge", fitting perfectly to front and back.

The soundpost should be exactly upright and the only adjustment then required is the distance of the post behind the bridge. This will vary with the thickness of the plates. It can be exactly positioned in your own instruments by measurement before the front is fitted, but

it must be a matter of trial and error in a strange instrument by another maker.

Here is a diagram of the "Feeler Gauge" in operation.



This is a good Strad soundhole for you to copy.

Incorrect adjustment of the soundpost is quite likely to give the impression that the violin has lost its tone. The unsuitable or badly fitted bridge can also be another source of trouble. So I would ask all repairers to treat the instruments that are submitted to their care with as much respect as they would treat one of their own make of instruments. It would be wise to review your standards of repairing and adjustments to make sure that you yourself are not to blame for instruments losing their tone.

.....

Makers who have the opportunity of examining fine old (or new) instruments are in a fortunate position because they have the highest standards to guide them. But amateurs who lack the opportunity of seeing fine work have a great disadvantage. Perhaps that is the reason for the many items based on the word "WHY". Question after question is asked in the Journal in the hope of someone else doing the thinking and supplying the answer. It should be remembered that any fool can ask "Why", but a wise man will try to find the answer for himself.

I suppose it may be that some amateurs are unwilling to accept advice without a full explanation. This may arise from a certain self satisfaction or even conceit about their work and a reluctance to accept advice even of proven worth. Some amateurs think that any differences between their work and that of fine instruments is unimportant and might be regarded as a distinctive style. How wrong this can be! I think that this attitude is an obstacle to progress or improvement.

Despite the successes I may have had, I have never been entirely satisfied with any instrument I have made to date. It would be bad policy to point out anything in which I was not satisfied to any client, I admit, but I think that a self critical attitude to anyone's work is to be encouraged. It enables one to strive for every possible improvement. It also helps one to assess any other instruments.

I have noted a number of contributions in the Journal that are only re-hashed from other sources. Some of them not even proven methods. To the authors of this sort of "tripe" I would advise a little more considerate thought for those who, not knowing better, might waste time and good material in accepting such things as facts. Your favoured method may not be adaptable to other models and your idea of fine tone may not be the same as other peoples. That is still another reason why fine instruments should be studied from all aspects.

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A SLIGHT MISUNDERSTANDING

Below we print a short note from Mr. G. Sanborn of Sävedalen, Sweden in which he describes a feeling of guilt for certain remarks he made which caused our good friend, Mr. Kristian Skou, of Soborg, Denmark, some displeasure.

Let us hasten to explain that during translation the exact meaning may have become slightly distorted and appeared in our pages far more blunt than the writer intended. For this we extend to both parties our fullest apologies.

We know that Mr. Skou will understand this and being a gracious person will accept the apologies of both the Journal and Mr. Sanborn. For this, we feel, Mr. Skou has already paved the way, when after "reprimanding" Mr. Sanborn (in the August issue) he ends by saying: "and here - my hand in reconciliation!"

Here are Mr. Sanborn's remarks: (quote): "I feel that I have offended Mr. Kristian Skou when I mentioned the tone of his violins, prior to the time he (Mr. Skou) started building with the new micro-tone system.

"I must admit that I have never heard Mr. Skou's violins and that the description of his tone was based on second, hand information but from a person whose judgement I thought should be good.

"I should very much like to withdraw my statement as I feel I have done Mr. Skou an injustice. I also ask Mr. Skou's pardon for what has happened and wish to assure him of my sincere friendship and personal respect."

(Signed) G. Sanborn

The String Section

Conducted by
CARMEN WHITE

Our thanks to Dr. Leonard Marsh, 3405 W. 18th Avenue, Vancouver, B. C., who has written a fine encouraging letter about the adding of this column to the JOURNAL. Dr. Marsh is a well known and highly respected Vancouver musician, and his discussion of strings is so challenging that we are taking the liberty of quoting his letter in full. The letter follows:

Dear Don:

Congratulations to you and to your equally devoted namesake in opening the STRING SECTION in the JOURNAL. I am sure this will lead to new readers and contributors--and here's one of the latter to help start it!

Many thanks to Carmen White for opening up the subject of strings. I am not a maker, but a long-time user of all three instruments of the quartet family; violin, viola, and cello--and I am convinced that the importance of strings in completing the work of the violin builder has not been given its due. If you can bring attention to this subject as successfully as you have done to such matters as graduations, wood, varnish, "tap-tones", and the rest, you will be doing a great service to the owners of both old and new instruments (and of course, I am one of those who believe there are first-class examples in both categories).

Here is hoping your readers have more than a good technical--and practical--discussion. I think we need the kind of analysis which Consumers' Research pioneered for much less important products (like food and clothing, etc. !); and it must be done musically as well as technically. It may be a perfect example of modern industrial skill, etc. --but, how does it sound? And let us assume when we are talking about "sound" that we mean only for the poor orchestral player who is constantly being urged, by conductors and public alike, it seems sometimes, to produce MORE sound. Beautiful sound is quite often soft! I think fiddle makers as well as fiddle users may be found to agree on this?

Could we start our discussion with a good plain-words description of exactly what we mean by "gut" and "metal" strings? This seems to be getting more and more confused. What do we call a string which is metal wound on gut (a very old type of string, by the way, in some forms). Has anybody ever objected to this type of G-string on a violin? What is "rope-core"? The only thing I feel certain about is that it isn't rope! Why is a metal wound on metal string different from metal wound on gut, and does the kind of metal make a difference? If we could get these straight first, then we could go on to analyzing the effects of increased tension, etc., and under what conditions, if any, "metal" strings may be beneficially used. Being careful also to specify what kind of instruments we are employing for our demonstrations (for instance, how many of your readers have heard good old instruments played with bad old gut strings, and good new instruments played with cheap, wiry, new strings?)

Yours in keen anticipation,
Leonard Marsh

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Editor's comments:

To help clarify some of Dr. Marsh's questions, it seems pretty generally agreed among concert artists, chambermusic players and orchestra players that the steel E-string is a must for the violin--it is so universally accepted everywhere that there seems to be no argument about it--we can dispense with that part of the problem. As for the violin A-string, artists prefer fine plain gut, or aluminum wound on gut, both of which are commonly referred to as "gut" or "gut wound" strings. By metal A-strings, we usually mean a metal wound on metal A-string, or an all metal string, and it would not matter whether the metal center of the string was called "rope" or metal. As for D-strings on the violin and viola, most artists prefer the aluminum-wound on gut D-string, which is commonly called "gut-wound". Very few violinists use plain unwound gut D-strings, as these strings seem to lack the brilliance and durability of the aluminum-wound on gut string. As for the G-strings for all three instruments, violin, viola, and cello, most artists prefer the silver wire wound on gut G string, which is called a gut wound or gut string. So, when we say "gut strings", we can understand that we include all aluminum and silver wound strings with gut centers as well as all plain gut strings.

Most controversies about strings seem to center around the question of whether gut strings as described

above are superior to all-metal strings--it has been pointed out that most fine artists, chamber musicians and orchestra players in the major symphonies use gut strings as described above; while many students, cowboy fiddlers, hill-billy type players, and some few fine players use all-metal strings with results apparently satisfactory to them. The more expensive types of all-metal strings have a metal center of some sort, and usually a winding consisting of either flat or round wire made from special alloys which are claimed to give the same softness and tonal quality of a fine gut-wound string. This is indeed a subject of much controversy, as these alloy-metal strings are durable; more so than gut-wound strings, but some claim they are not as responsive, not as easily tuned, that they wear out bow hair faster, and finally, that they may actually damage a fine delicate old violin. In a recent article on this subject, I said that I have never heard a fine solo performance of a major or classical work done in a touching and artistic manner on these all-metal strings--I stand by that statement, but must add that I have not heard all the good players! So we welcome your experiences with this string problem, as it is indeed a problem to many players who seek the final answer.

* * * * * * * * * *

Mr. Walter H. Brown, 725 Rathbourne Ave., Woodstock, Ontario, writes:

"... People have a queer sense of value of the violin. A Music Store man told me he had a man come in to buy a Saxophone for one boy for $300; bought a piano-accordion for the girl, $400, and a $25.00 violin for the other boy..." Food for thought here, for you teachers and players! Any comments?

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HELPFUL HINTS FOR THE FIDDLER

Carmen White

Editor of

The String Section

1. Take your time! Most players take their tempos from records, which is a bad practise, as most recordings are slightly faster and higher in pitch than the original tempo and pitch. Take it easier and try to sound better; don't join the "loud and fast" school of violin playing!

2. After playing, wipe the strings from upper nut to bridge with a white rag or handkerchief wet with ordinary rubbing alcohol, or denatured alcohol. This cleans off all rosin, perspiration from the fingers, and it also swells the gut center of your wound strings slightly, thus keeping the wrapping from coming loose. Strings may buzz if this wrapping comes loose--you can frequently correct buzzes and restore new string performance with this simple procedure. Make it a habit.

3. Treat your pegs twice a month with soap and chalk. Take them out one at a time, first, apply soap to the shiny surface of the peg, sparingly, using the oldest, hardest, and driest soap you can find. Then, using the softest chalk you can find (common school chalk), apply it sparingly to the shiny surface--replace the peg, turn it gently back and forth, and repeat if necessary. Any teacher or student can do it in a few minutes, and it saves your temper, religion, nerves, and various other factors necessary for a good performance!

4. Always rosin your new bow hair with POWDERED ROSIN before applying it to your cake rosin. Before applying powdered rosin, apply a rag soaked in denatured alcohol to the new hair to remove all dust, and grease. Allow to dry for a half hour and then rosin freely with finely powdered rosin, then apply to your favorite cake rosin. Be sure to wipe off surplus rosin from the instrument! Do not leave it even for overnight, as the finer your varnish, the more likely this powdered rosin is to damage it!

5. If your favorite instrument SUDDENLY goes sour, don't get panicky! Check carefully all around for gluing--nine times out of ten, this is your trouble. It may <u>appear</u> to be glued up fine, but the top may be about to fall off! Your top wood is soft and porous, and the maker or repairer may have clamped it too tightly and squeezed too much glue out of the joint--thus, your top may be just "hanging there by a thread"! In that case, all that is necessary is to remove and reglue it. DO NOT RUSH IN TO CHANGE THE BASS BAR, or to make any major change--assuming of course, that your instrument was satisfactory in the first place and that it pleased you. I know a concert violinst who bought a Stradivarius with which he was delighted--three weeks later, it suddenly "lost its tone" in the dry climate of the Southwest, and he foolishly sold it. He has regretted it ever since, as all it needed was a simple regluing of the top to restore its fine tone. Think what would have happened to it if some <u>clever</u> repairer had changed the bass-bar!

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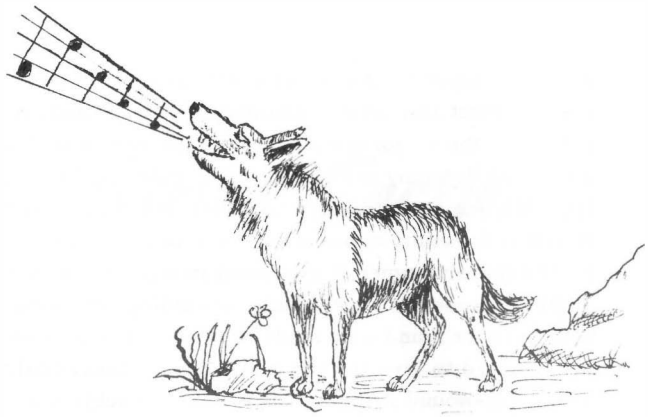
Wolf Notes

by The Editor



The New Journal

Our editorial has covered the case for a new Journal pretty thoroughly but there are perhaps a few more details that should be explained.

First the publication dates: owing to the six week publication period there will be some months when no Journal will appear. On these occasions, the next Journal will also bear the title of the previous month. For instance, there will be no Journal in April, therefore our next issue will be called April-May, 1961.

We hope our readers will react favourably to the reduction in the number of issues per year. Actually, with the old set-up it was often 6 weeks between issues.

We hope our front cover design and headings will prove as attractive as, in their planning, we have visualized them. We have tried to keep the headings of departments fairly close to those of the Journal you all know.

Thanks are extended to our printers, the Apex Printing, 4370 West 10th Avenue, for kind cooperation and suggestions which have led to the neat appearance of this, our "New" Journal.

Let me also take this opportunity of thanking local members of the Association who have, in the past, assisted in the production of the old Journal. Also Mrs. Leona Redosuk who has cut so many hundreds of stencils for me--a very much underpaid secretary indeed!

I should mention that no member, or myself, has ever accepted any remuneration for our services. This fact I feel should be known. We cannot stop without mentioning our advertisers and all those who have so kindly contributed articles for publication. Without these two groups, there would be no Journal.

And now I must sit back and await the reactions of our readers. I sincerely hope they will be favourable. As William Tell exclaimed, "I have done my best, no man can do better."

Smiley's "Science for the Maker"

We have a few remarks to make regarding this new "Supplement" to the Journal. We reprint the first instalment so that the work when completed may be one of uniformity. A few alterations in the first lesson will be noted.

This series is already going over in a big way. Many readers have written me stating they have completed the Reference Monochord and speak in glowing terms of its usefulness.

If you have not made yours, better get busy. Lesson 2 will show you why and in the 3rd instalment you'll wish you had it! Special mention should be given to three readers who have completed their Home work" and even exceeded "Beyond and above the call of Duty". Dan Rowland's "heroic" effort has been mentioned by "Smiley", but Bill Hall and Bill Salby have both submitted "very helpful information". We might tell you that Bill Salby is at present confined to a sick bed and to pass the time not only submits problems to "Smiley" but has commenced a complete glossary of the Journal from its commencement. A Herculean task and one which will prove of immense value. We could be selfish and say "We hope Bill will remain ill long enough to complete his task--No, Bill, we don't mean that--your health is more important than any Journal."

"Smiley" says "Would you invite makers to send to the Journal "Tap-Tone Dept" the exact manner in which they determine the Pitches of their plates? Exact holding point, which end up, knuckles or finger-taps, etc."

My Series of Graduation investigations

I feel this series should draw to a close very soon as we have this new "Smiley" series started. I omitted it this month but would like to do just a little summing up. Also I think Kristian Skou's next article should be included. He has promised to describe the micro-tone system in detail from the commencement of plate graduation to the completed violin. I regraduated one of the first violins I made (1956). Tone was not too good. Now it is my best fiddle!

I had no pitch notes to go by, simply micro-toned each square inch of both plates to match the corresponding part of each plate. Try it on one of your old "Duds" --or do you have any??

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SCIENCE FOR THE MAKER

by "Smiley"

Introduction by Don White

This is a series of articles entitled "Science for the Maker" and written so that those not well versed in the sciences may at least become better acquainted with the art.

The scientist would be the very first to admit that he has yet much to learn about the mysteries of violin-making, but he has learned a great deal, especially in the field of accoustics. This series will show the maker how this accumulated knowledge may best be used to the advantage of building better violins.

The author is certainly a well qualified instructor holding the position of Science Consultant to a company putting out basic science club kits.

I hope I may be forgiven for presenting a short quote from a letter I received from the author. I feel this will give the reader an insight into character and approach which will be used to attack the problem of violin making.

Quote: "The Violin Makers Journal is a great undertaking, I hope some day to see "Art and Science" as your cover motto. Science is in good fiddles whether their makers realize it or not. The best fiddles are superb examples of Science, poor fiddles are due to breaking the laws of science." End Quote.

Who will attempt to argue against such a statement. D.W.

FIRST LESSON

Precision tools and methods were available to the old masters and an adequate science of accoustics had been developed--but this is not intended to be a history lesson.

You need practical testing-equipment and a reliable way of comparing your results with those of other investigators.

Plate and cavity resonating equipment is essential and "the makings" are lying around your chops waiting to be put to work. But ....

The first requirement is a precise method of frequency determination which will enable you to locate pitches within a few cycles per second. So let us adapt an ancient piece of equipment to modern needs.

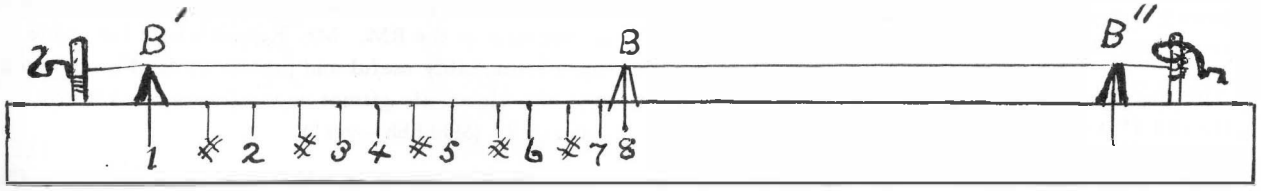
Start peg by hammering, then twist in with wrench or tuning hammer.

Piano wire (5 feet) approximately 1/32 inch in diameter.

Use accurate carpenter's square in making measurements from left bridge (B'), scribing lines with a fine point when satisfied they are accurate.

S.C. #1

Distance Measured from B'	Scale-step	Note	Frequency (cps) Tempered scale
0	1	a	220.00
2 26/32	#	#	233.08
5 15/32	2	b	246.94
8	#	c'	261.63
10 12/32	3	#	277.18
12 19/32	4	d'	293.66



The Reference Monochord

Construction:

Maple stick 1 x 1 1/2 x 58 inches.

Maple bridges (3) about 3/8 in. high. (Inter-bridge distance B' to B" is 50 1/4 inches.) Glue fixed bridges B' and B" near pegs. Observe that B is movable bridge. Tops of bridges 1/16" or less.

Piano pegs (2). Use 1/4 inch bit to drill pegholes.

14 23/32	#	#	311.13
16 23/32	5	e'	329.23
18 19/32	#	f'	349.23
20 12/32	6	#	369.99
22 2/32	#	g'	392.00
23 20/32	7	#	415.30
25 4/32	8	a'	440.00

Tuning:

Set movable bridge at 8 and tune monochord to A-440 by matching to WWV standard if you have a short-wave radio. Your monochord will now give you any of the frequencies listed in the table--and all frequencies in between. (If you tune the open-string to A-440 you will have the octave above available. If you use this range multiply all frequencies by two.)

If you don't have short wave, borrow a tuning fork --or at the worst, buy a pitchpipe.

In reference to paragraph 3, Don has asked for information on the Smiley-Plate-Tuner--a simple device that should enable you to determine the sets of resonant frequencies of your plates.

The copy is ready to go into my typewriter if there is sufficient interest on your part--and some indication of eagerness to co-operate in a little research.

Since you can't use the tuner without the monochord, if enough of you send me snapshots of yourselves holding a completed monochord which you built and tell me what you are using for a tuning standard--so that I can be sure you are ready for the new apparatus--I will send the copy to Don.

Your Homework in Standard Terminology:

Octave groups are named from C to C, rather than from A to A. Middle-C is called one-line C and is written c''. (The notes in between should each bear the one-line mark, for example a' is A-440).

The C below middle-C is called small c and is written c. All the notes between this one and middle-C are written without the hash mark and with small letters. For example, a is an octave below a'. The pitch of the former is 220 cps. Problem: What is the pitch of g'''? What is the pitch of g? Send answers along with your snapshots. Since we will not be concerned with all the octaves in our work it is not necessary to go into it--is it? Now anyone who looks up those pitches in a Handbook of Chemistry and Physics is cheating.

The scientific standard of pitch is now the tempered scale and a' is 440 cps, which you have known all along. If you have qualms about the tempered scale, don't worry, we are not going to play the monochord. We are using it as a tool to determine frequencies. Need I say that its pitch should be checked against WWV or your fork or your pipe both before and after your experiments?

Now that you have the tool and the terminology, please, no more guessing with a tired piano and no more rough estimates of "somewhere between C and D" --what C and D--do you mean c and d or c' and d' or c'' and d'' or c''' and d'''?

Until someone comes up with the calculation for tenths of a half step for the monochord, we can measure the distance beyond a marked interval if we have to. At least each person will know what the other one is talking about.

The monochord goes back to the ancient Greeks. You could see a beautiful illustration of a very refined (not simple like ours) monochord in Syntagma Musicum by M. Praetorius (1620). Or if you have $30.00 you can read what Pere Marin Mersenne said about the layout for one in his Harmonie Universelle (1635) as translated by Roger Chapman and published by Martinus Nijhoff, the Hague (1957).

G. Smiley--Sunnyslope, , Ottumwa, Iowa, U.S.A. Those snaps, please!

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Mr. Rowland's contribution follows. Received only three weeks after the above was published.

D.W.

COMPUTING TABLE

by Dan R. Rowland

Note by the Author

Mr. Roland's effort is heroic. Although he is only on his second fiddle he has made a substantial contribution to the useful literature. His work should encourage others to "give a lift" on the problems as soon as they discover they have the particular skills or equipment that could solve a "toughie". Believe me he had to do a little "brow-beating" before he could "dash off" that "little job" on the calculator. He did not say how many hours he put in on it--or days, and then the tedious rechecking for human errors.

Just look at that beautiful table! I can hardly wait to subdivide my RM into tenths of semitones. Do you realize that we can now determine any frequency within a couple of cycles. The fabulous set of forks of Ellis were tuned 4 cycles apart--the cost must have been tremendous. My electronic signal generator cannot work so precisely as the RM. Mr. Roland's help has made this a remarkably useful and precise tool. No one need envy the electronic gismos now. Do we need it this accurate? (Shhhhhh--yes!)

The "International Cooperation" I dreamed of but did not count on--is materializing. This "lift" on those tedious computations is heartening encouragement. Without the Journal and its Editor it could never have happened. It is going to take a great many people of different backgrounds and much generous cooperation to unravel some of our problems.

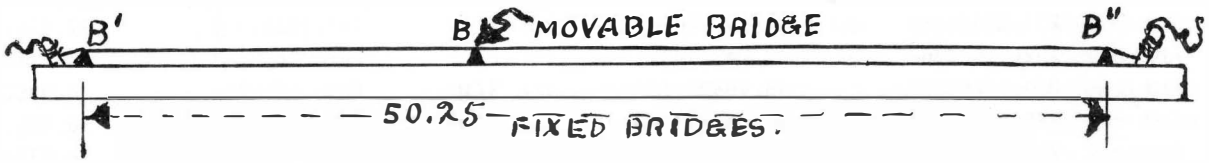
G. Smiley

Tone	Frequency	Distance from B" to B
A3	220.0000000	50.250000000
A3 1/10	221.2744600	49.960562787
A3 2/10	222.5563029	49.672808216
A3 3/10	223.8455715	49.386711001
A3 4/10	225.14230889	49.102261606
A3 5/10	226.44655829	48.819450528
A3 6/10	227.75838795	48.53826834
A3 7/10	229.07779224	48.258705663
A3 8/10	230.40483985	47.980753168
A3 9/10	231.73957050	47.704401574
A#3	233.08204437	47.429641658
A#3 1/10	234.43228868	47.15651219
A#3 2/10	235.79035495	46.884906107
A#3 3/10	237.156288426	46.614864375
A#3 4/10	238.530134778	46.34637800
A#3 5/10	239.91193987	46.079438024
A#3 6/10	241.301749667	45.814035533
A#3 7/10	242.699610736	45.550161665
A#3 8/10	244.105569544	45.287807632
A#3 9/10	245.519673064	45.026964672
B3	246.94196856	44.767624076
B3 1/10	248.372503424	44.509824162
B3 2/10	249.811325312	44.253462130
B3 3/10	251.25848230	43.998576663
B3 4/10	252.71402268	43.745159252
B3 5/10	254.17799503	43.493201437
B3 6/10	255.650448125	43.242694821
B3 7/10	257.131431145	42.993631035
D4 6/10	304.02088719	36.362635962
D4 7/10	305.78209205	36.153199074
D4 9/10	309.33516901	35.737937211
D#4	311.126831525	35.532098379
D#4 1/10	312.929201368	35.3282157902
D#4 2/10	314.742012467	35.1247368179
D#4 3/10	316.56532525	34.922429825
D#4 4/10	318.399200474	34.721288054
D#4 5/10	320.24369948	34.521304786
D#4 6/10	322.09888374	34.322473362
D#4 7/10	323.96481509	34.124078714
D#4 8/10	325.84155590	33.927535177
D#4 9/10	327.72916874	33.732123671
E4	329.62736877	33.537837670
E4 1/10	331.536913002	33.344705871
E4 2/10	333.457519266	33.152651270
E4 3/10	335.3892517141	32.961702839
E4 4/10	337.332174715	32.771854213
E4 5/10	339.286353143	32.583099055
E4 6/10	341.251852175	32.395431059
E4 7/10	343.228737488	32.208843968
E4 8/10	345.217074962	32.023331557
E4 9/10	347.216930978	31.838887641
F4	349.228003667	31.655506059
F4 1/10	351.251095145	31.47321388
F4 2/10	353.285906392	31.291938472
F4 3/10	355.33250543	31.111707139
B3 8/10	258.62099348	42.7460017818
B3 9/10	260.119184915	42.499798793
C4	261.626055338	42.255013854
C4 1/10	263.141655038	42.01168311649
C4 2/10	264.66603461	41.7697095579
C4 3/10	266.199244938	41.5291296865
C4 4/10	267.741337226	41.289935486
C4 5/10	269.292362766	41.0521189607
C4 6/10	270.852373457	40.8156721846
C4 7/10	272.421421299	40.58058726236
C4 8/10	273.99955859	40.3468563487
C4 9/10	275.58683804	40.11447164885
C#4	277.18331255	39.883425415
C#4 1/10	278.78903542	39.6537517629
C#4 2/10	280.40406028	39.425359126
C#4 3/10	282.02844102	39.198281945
C#4 4/10	283.662231758	38.972512658
C#4 5/10	285.305487108	38.7480437308
C#4 6/10	286.95826178	38.524867669
C#4 7/10	288.62062220	38.3029770322
C#4 8/10	290.29261272	38.0823644157
C#4 9/10	291.97428912	37.8630224477
D4	293.66464823	37.644943819
D4 1/10	295.36585895	37.4281607465
D4 2/10	297.07692483	37.2125867809
D4 3/10	298.79790301	36.9982544468
D4 4/10	300.52885090	36.7851566029
D4 5/10	302.26982625	36.573286128
F4 4/10	357.39096046	30.9325138847
F4 5/10	359.46134027	30.5772177149
F4 7/10	363.638150734	30.40110294147
F4 8/10	365.74472068	30.2260025303
F4 9/10	367.86349413	30.0519106379
F#4	369.994151277	29.878821462
F#4 1/10	372.13754184	29.706760566
F#4 2/10	374.29334909	29.535659339
F#4 3/10	376.46164506	29.365543598
F#4 4/10	378.64250209	29.196407670
F#4 5/10	380.83599288	29.028245903
F#4 6/10	383.04219065	28.861052705
F#4 7/10	385.26116894	28.694822484
F#4 8/10	387.49300187	28.529549686
F#4 9/10	389.73776397	28.3652288122
G4	391.9951164787	28.201854370
G4 1/10	394.26595949	28.039459155
G4 2/10	396.54995757	27.877961039
G4 3/10	398.84718696	27.717393100
G4 4/10	401.15772430	27.557749978
G4 5/10	403.48164664	27.399026352
G4 6/10	405.81903151	27.241216921
G4 7/10	408.16995697	27.084316425
G4 8/10	410.53450147	26.928319615
G4 9/10	412.91274387	26.773213031
G#4	415.304325248	26.619008076

Tone	Frequency	Distance from B" to B
G#4 1/10	417.71019935	26.465719218
G#4 2/10	420.13001087	26.313285328
G#4 3/10	422.56384043	26.161729406
G#4 4/10	425.01176920	26.011046401
G#4 5/10	427.47387895	25.861231275
G#4 6/10	429.95025175	25.712279039
G#4 7/10	432.44097037	25.564184724
G#4 8/10	434.94611780	25.416943382
G#4 9/10	437.46577762	25.270550104
A4	440.00000000	25.125000000

$$2^{\frac{120}{}} = 1.005793039$$

$$2^{\frac{12}{}} = 1.059463008$$



1.) Put movable bridge in center and with (B) to (B") toned to A4 = 440.

2.) Distance from B" to B is 25.125 when A4 is 440 cycles/sec; then to G#4 the distance from B" is $25.125 \times 2^{\frac{12}{}}$; then the distance from B" to G4 is $25.125 \times 2^{\frac{12}{}} \times 2^{\frac{12}{}} \times 2^{\frac{12}{}}$ etc. for the rest of the octave.

3.) The $2^{\frac{12}{}}$ multiplied by itself 12 times is 2 and we thus arrive at B" to B' being 2 times as long as B" to B. The above method of multiplying each succeeding note by the $2^{\frac{12}{}}$ is what is meant by equal tempered.

4.) Now if we want to produce an equal tempered scale in which there are 10 equally tempered notes between each tempered note of the keyboard we start with any given note and multiply by $2^{\frac{120}{}}$ for increasing frequency, and divide by $2^{\frac{120}{}}$ for decreasing string length corresponding to this increasing string length.

To get 120 equally tempered notes instead of 12 equally tempered notes, we multiply each succeeding note by the $2^{\frac{120}{}}$ instead of $2^{\frac{12}{}}$

I would like to consider this my small contribution towards this wonderful periodcal from which we have all learned so much.

Dan R. Rowland
1716 Newberry
Saginaw, Michigan

2/17/61

#2 Science History Notes
Smiley -- Copyr. 1961*

Pitch and the Pendulum

Pere Marin Mersenne (1588-1648) perfected and published in 1635 his 17 Vol. foundation for our science of music and acoustics. Musician, musicologist, organologist, mathematician, physicist, astronomer--his works present a wealth of long-forgotten facts which are of especial importance to "modern"violinmakers.

Mersenne correctly formulated the EQUAL TEMPERED SCALE (astronomer M. Bouilliau collaborated to compute it to 5 decimal places) and tabulated the results and wrote that his text was for posterity.

With similar foresight, Mersenne tabulated the frequencies of musical pitch of his day in cycles-per-second! The timing device, a 3 1/2 foot string-and-bob "seconds pendulum", cost a farthing. A 100 cm. pendulum gives one-return = 2 half-cycles = one complete cycle every 2 sec. (Error per sec. = 0.6%). The "foot he used figures at 28.39 cm, which is nearly the 28.56 cm Brunswick Foot of Praetorius, not our foot 30.48 cm, nor the King's Foot of 32.8 cm. He computed decay of string-vibration to the 60th power. May the ingenuity and accuracy of this scholar astound you!

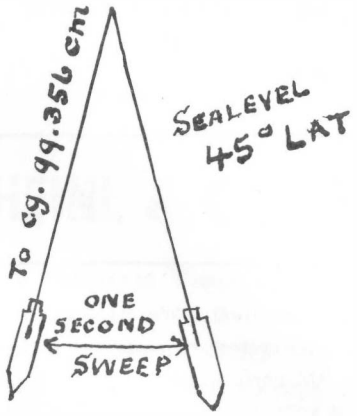
Suppose Mersenne addressed you, "I am playing g, the lowest open-string on this Amati violin." You would protest, "Oh, no, our Modern Forks say you are playing a." After a short discussion you would both agree that he was playing 220 cps (less 4 beats) and there could be no further argument--even if there be a gap of 325 years between you and the practical Franciscan Friar.

Or, putting it another way, suppose he invited you to bring your 1960-tuned-violin and join with him and the 24 King's Violins (Made c 1566 by the first Andreas Amati for Chas. IX) in consort. After one measure, he would stop the music, rap you with his bow, and say, "You are flat, flat, FLAT! No time to retune; just transpose our 1653 scores up a wholetone in cps, Mr. 1960, so that we may quickly get on with the tune."

Mersenne, correspondent of Galileo, translated the latter's 1638 "Two New Sciences" from Italian and had it published in French. Galileo's father (Vincenzio Galilei), lutanist and musicologist and contemporary and almost-neighbour of Andreas Amati, is quoted by Mersenne. Music and science were old friends.

Men were eager for the knowledge of other fields--they mastered it--and used it. Let us retrieve it!

(Continued on page 7. But first read and perform the experiments of Science #2.)



SC #2a			
1635 (a' 480) MERSENNE		1960 (a' 440) MODERN	
Tone	His name	Our name	Tone
480 cps	a'	b'	493 cps
288 cps	c'	d'	293 cps
216 cps	g	a	220 cps
192 cps	f	g	196 cps

#2 SCIENCE FOR THE MAKER

Resonance Experiments

1885c Ellis** and Helmholtz, experimenting with a remarkable set of 80 tuning forks "proceeding by differences of about 4 vibrations from 240 to 560" did a pioneer work in accurate determination of the resonance in cps of some famous members of the fiddle family.

** "Sensations of Tone" by Helmholtz (Ellis, trans.). Dover. $4.75. Pages 86-88 Contains the Ellis Pitch-Study!

1946 Saunders,* employing electronic equipment verified their work.

196C Any maker who has constructed the Reference Monochord (RM) has an elegant and convenient tool with which he can reproduce these experiments - on his own instruments.

CR = Cavity (air) Resonance

Br = Body (wood) Resonance (s)

VIOLINS (ST #2a)		Cr	Br						Investigator
P. Guar. (Hipkins)	1701	262	None				472	520	E
Strad. (Huggins)	1708	264	252		428			520 540	E
Strad.	1696	264	252						E
Maggini (1560-1640)		264	252						E
Strad. J. Guar, N Amatus		270	252						E
Bausch (approximate)		270				450			H
Strad. (Halir B)	1694	---					465		S
" (Titian W)	1715	270					476		S
" (Tom Taylor G)	1732	275				454			S
" (Darnley D)	1712	276			427				S
" (Spanish S)	1723	277				451			S
" (Marq. de Riv. J)	1718	277							S
" (Joach. Kneisel E)	1715	279				457			S
M.V. Yurkevitch	1938	286				460			S
B.F. Phillips		280					473		S
E.H. Sangster #35		266					480		S
Violin X (A Pot)		278						527	S
VIOLAS									
Amatus (Nic ?)	1677	g#	e'		g'#				S
Strad (MacDonald)	1701	a	f'#					b'	S
Gaspar da Salo	c1570	a#	f'#			a'			S
Storioni (M. Dick)		228		392					S
A viola		b				a'			H
Dieudonne'	1939	240		381					S
Gaspar da Salo (??)		255	348						S
CELLO		F or G							H
CELLO (Strad-Vaslin)	1725	F#	f						S
CELLO (Montagna)		F#	f#						S

At the start and conclusion of your experiments see that RM is tuned to a (220), using WWV or 440-Fork as a STANDARD. (The human ear is remarkably accurate. It can learn to detect beats which occur once in 10 seconds!)

Repeat each experiment several times, recording dated data in a bound notebook.

In your experiments, RM and violin must be placed on a padded surface (thick rug?).

RM alone is almost silent. We are going to use RM as an "harmonic generator" of variable frequency. We shall also make RM perform as a "driver" when we place RM in contact with violin body: RM activates the body (which serves as an "amplifier").

No violin body amplifies all frequencies to the same degree. The maxima, i.e., pitches that are amplified more (are louder!) than others, are called the Resonances of the Violin (Cr and Br). (To be continued.)

* Jan. 1946 Saunders Paper--Jour. Acoustical Society of America. Pages 169-186