The Violin Makers Journal

JULY-AUGUST, 1961

THE OFFICIAL PUBLICATION OF THE VIOLIN MAKERS ASSOCIATION OF BRITISH COLUMBIA

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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

Our photograph shows the immense size Sitka Spruce sometimes attains. It has been widely known for some time in airplane manufacture and for piano sound boards. Now found to be one of the finest woods for violins.

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EDITORIAL PAGE OF *The Violin Makers Journal*

DON WHITE, EDITOR-MANAGER

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WHO WAS GUARNERIUS?

Perhaps one of the greatest controversies of the last century or so is that which involves the authorship of Shakespeare's works. Those who argue that the writer was someone other than William certainly put up a good line of reasoning for the factual evidence of Shakespeare's life can be printed in less than 200 words, the rest is simply speculation and conjecture.

Historians "assume" he was educated at Stratford grammar school. It is "likely" he obtained his knowledge of law from attending law courts (he held horses outside!). Other pet phrases are "We can imagine that in all probability" and "In some way or another" etc. etc.!

It was therefore somewhat of a shock to discover that the life and works of Guarnerius Del Gesu are covered with a somewhat similar veil. This was "discovered" from an article appearing in the "new" Violins and Violinists, now published quarterly and delightfully interesting - and obtained free from Wm. Lewis & Son.

The article, written by Deane Narany attacks Francois Joseph Fetis who was, it seems, responsible for many of the legends built around Guarnerius Del Gesu. The Prison Story, for instance! It is also doubtful if Guarnerius, the maker of the now priceless instruments, was even the "Del Gesu".

But we will leave this argument to "Violins and Violinists" and switch to our esteemed friend, Stradivarius.

Regarding this great genius much wild conjecture is also written Writers declare "We can 'assume' he could hardly read or write for books were scarce," -- "We can imagine that in all probability" -- "in some way or another" he gained his knowledge from experience! It is "likely" he knew nothing of chemistry for there was no opportunity for such study.

Those of us who believe Strad was not only a man of out-of-the-ordinary intelligence and knew his sciences, do not, however, attempt to declare it as a fact. We only suggest that the opportunity for complete education was there, he had only to reach out and grasp it. Other great men of that period did just that.

To those who doubt this statement we would say, "Look at his contemporaries, Micaclangelo, Mersenne, Tartini, the two Scarlatties and many others. Are we to "assume" thesemen also could hardly read or write? It is far more "likely" that Strad knew some of them personally! Conjecture? Yes, but far more likely to be true than to suggest Strad could hardly read or write!"

What we object to is the hero worshipping of Strad, admitting he was a genius, and in the same breath declaring he "had little education". Let us at least give credit where it is likely to be due.

Let us "assume" that Strad would take every advantage throughout his long life to acquaint himself with all knowledge likely to assist him in becoming, as many believe, the greatest violin maker of all time!

LOCAL NEWS

by George Friess

It must have been the weather and the vacation season which accounted for the small attendance at the June meeting. This being a business meeting, various items were discussed, and several motions passed until someone suggested that we count noses. This was done. (You guessed it.) No quorum! Whereupon the chairman, Mr. Heyworth, promptly brought down the gavel declaring the whole business null and void.

The July meeting showed considerable improvement in spite of the hot weather. All unfinished business was cleared up and some new transacted.

Once again our Association will put on a display at the Pacific National Exhibition which will be held the last two weeks in August.

On the sick list have been Mr. Heyworth and Captain MacDonald. However, both are back in circulation again.

Mr. John Tuzel, who sometime ago left the coast to take up resident at 100 Mile House, paid us a visit and brought some specimens of high altitude top wood. He informed us that he will keep his eyes "peeled" for good tonewood, of which there should be a good supply in his area. Our best wishes, Mr. Tuzel.

A Gentlemen of Distinction

On August 18, 1961, Dr. Frederick A. Saunders, one of the Journal's foremost admirers, and one of your editors best friends, celebrates the anniversary of his 86th birthday.

Many will say "What a ripe old age!" But years are only a measure of time and are little indication of the physical state of an individual, for Dr. Saunders is "young at 86"! If you doubt this, then become involved with him in an argument on the science of violin making. You will soon meet a severe test of mental agility!

For 50 years Dr. Saunders has devoted his life, almost completely, to the scientific aspect of violin construction. During this time he has invented and adapted much technical apparatus for his experiments. Results of these studies have been published from time to time for the benefit of all makers.

Dr. Saunders has many critics but few of these are willing to meet him on his own ground and argue the subject. Those that do so, generally come off second best for the Doctor soon produces undisputable facts to floor his adversary.

For the purpose of a permanent record in the pages of the Journal I would like to give some quotes from the American "Who's Who". Quote: "Saunders, Frederick Albert. Physicist. Born London, Ontario, Canada, Aug. 18, 1873. B.A. Toronto University. Ph.D. John Hopkins 1899. Married Grace A. Elder June 2, 1900. Instructor physics Syracuse 1901-2. Assoc. Prof. 1902-05. Prof. 1905-14. Prof. Physics. Vassar College 1914-19. Assistant Prof. Harvard 1919-20. Prof. 1920-23. Prof. 1923-41. Prof. Emeritus 1941. Visiting Lecturer in Physics Mt. Holyoke 1942-48. Fellow of the National Academy of Science A.A.A.S. Am. Physical Soc. Acoustical Soc. Am. President 1937-39. Member Phi Beta Kappa, Sigma. Residence, South Hadley Mass. U.S.A."

Those are but cold facts--the real man is not revealed, his boundless energy and brilliant mind come to light with close acquaintance.

To Dr. F.A. Saunders (to me Fred) we say "Happy Birthday and many more to follow."

D. W.

THE "RING"

by Jack Batts
Johnston City, Illinois

There is such a vast difference of opinion, even among good violin makers, that it seems an almost hopeless accomplishment to continue on with mere theory regarding the subject. I feel it can be safely said that good violins are being built many different ways. But when these cases exist, you may be sure that the maker has the controls at hand from beginning to end; they are not accidents. And the method he uses could be summed up as a series of balance and counter balance which in the end produces the character of this maker's fiddles, different but good. That is why violin making is a fine art.

The mechanical part of violin making has a lot to do with that final tonal result. We have some tools which are not known by every maker and should be at hand in every shop. One of these is a simple and very necessary device which I call "The ring". In fitting the bar to an old and fragile top, it is a must. When repairing cracks in a plate removed, it is a very handy thing to have around. When fitting a bar with spring, it is the difference between a professional job and a homemade one.

The most simple way to build this ring is with plywood. Take a piece of 1/2 inch plywood, cut it to the size of a violin plate; cut the corners guitar shape. Measure in 3/4 inch and run a margin all the way around. Cut the inside out; keep the ring. Round the rough edges off nicely and oil or varnish with a hard varnish. Now use a short plate or rib clamp to secure the top to the ring placing a short clamp on each C bout. Your bar clamps will work nicely over the ring if they have the usual 1 1/2 inch throat. The purpose of this ring in fitting a bar with spring is to force the bar to the plate rather than allow the plate to warp to the shape of the bar. I suppose it is possible to make a good violin with fitted bar, no spring, but some of our best makers use a bar with tension; so do I. In this way the top is given added support and is poised on the bar side ready to respond to the slightest action of the bow. It also seems certain to give the violin greater life and postpone the day when bar would go into a reverse cramp due to age and bridge pressure.

I find that a very nice bar can be made this way. Measure 42 mm. from lower edge of plate and make a point. Measure 46 mm. from upper edge and make a point there. The distance between these lines is the length of the bar. Measure 17 mm. from center join to upper point and 20.5 mm. from center join to lower point. This will give you 19.5 mm. at bridge, which will set your left bridge foot just barely protruding over the bar. Draw a line through these points and this will be the location of the outside of the bar.

Now select a piece of spruce well aged, high pitched and narrow and straight of grain. If this wood is firm and high pitched, it may be cut light, giving the violin a sensitiveness impossible with a heavy bar yet with enough brilliance on the d and g strings to be well balanced.

Now cut this wood the proper length as has been established, and 5.5 mm. thick and about 20 mm. wide. With a divider get the general inside plate contour by running the pin foot on plate and pencil on bar wood held in proper location. This is easier done if the contour is roughly cut first. Now shape this bar in such a way that when it has 6 or 7 clamps tightened lightly it will fit like it grew to the top. And by cutting your shape properly the bar pressure should be greatest on a line with the sound post. When the ends are relieved and the bar held relaxed in place without clamps, the lower end will be relieved about 3.5 mm. and the upper end 2 mm. touching only in the postline region and leaving there gently in both directions with slightly less abruptness in the upper section. When clamping, start at the postline and move upward, then from postline downward, which puts the greatest pressure in the lower half of the plate.

Before you glue your finished bar, cut 4 small square cleats. Set your bar in place dry; place the cleats with a spot of glue on the inside of plate, against bar at equal distance up and down bar. This is to keep the bar from sliding downhill when pressure is put on hot, slick glue. The cleats, of course, are allowed to dry somewhat before attempting to glue the bar in. Now this bar should be cut about 3 mm. higher than the figures to follow, in order to give you a chance to clean and finish it to the last dimensions.

Start at the bridge line marked on the side of the bar, cut it 11.5 mm. at this point plus the 3 mm. for bruising. Measure half-way up and halfway down to the ends and cut it 8 mm. plus 3 mm. and measure at the ends 2.5 mm. plus 3 mm. and with hot, thin glue, put the bar in place against the cleats, checking ends on lines. Set your clamps one by one gently and wash away the squeezed glue with a stubby brush and hot water. Dry with a clean cloth and allow to set 8 or 10 hours. Now, "Good morning to you," and let's remove the clamps. If you have put too much pressure you may have a ridge on the outside of the plate. This should teach you not to strong arm your clamps but to cut a better fit.

We take the bar clamps off one by one and remove the ring from its plate. (Pat it gently as you hang it up, it's your best friend). Now we see why the 3 mm. extra wood was left in the top of the bar. Little bruised places which must now be removed will no longer show when we go down to the 11.5 mm. bar line, 8 mm. halfway points, and 2.5 mm. at the ends. Round over on the edges, sand satin smooth. The longitudinal curve on the upper edge of the bar should be governed by the dimensions given, moving from one into the other without forcing, or undue scalloping. Cut the ends at a nice short angle, and don't get that knife into the top. Remove the cleats and the bar is finished.

Now you fellows who have been at this business of violin making for some time may know these things, or may even disagree with them. But allow me to offer them to some of the amateur makers who may not have had the opportunity to learn them. For you amateurs, take heart.

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JAN HILBERT NORLANDER

GUNNILSE, SWEDEN

Fiddle Fix.

By H.S. Wake.

Fiddle pegs get a lot of abuse, and of course so do the peg holes; many old instruments having a set in which neither one peg matches the other or fits the hole in which it is placed.

The reason for this condition as a rule is because when a peg gets lost, worn out or broken, the average person reaches for a box of old parts and looks for a peg that is somewhere near a fit, and lets it go at that.

The correct thing to do, is to fit a new set and rebush the peg holes if they should be badly worn, however lack of the proper tools will deter most people from tackling the job but here is a way you can save money by making your own tools.

The reamer will have to be purchased because this is a precision cutting tool of standard dimensions, however you can save money on this item by ordering through your hardware dealer a standard #2 finish taper reamer and specify straight flute as they also come with spiral flute; you will have to make a handle for it but that should be no problem; make the handle so that it forms a "T" with the cutter.

This #2 reamer is the exact and proper taper for violin pegs, and we will use it to make a peg shaver for trimming down the pegs so that they will have exactly the same taper as the reamed holes done with the #2 reamer.

Devices for trimming pegs are available on the market in many different forms but they are expensive and inefficient, one reason being that the blade is sharpened to a knife edge and is supposed to take a shaving off the peg, but never does, it just digs in and ruins it.

Here is a way to make your own peg shaver, it is efficient and will cost you only a few pennies for steel for the blade.

Take a piece of maple or other hard wood 3/4" thick by 1 3/4" wide and 4" long, cut in half, make two pieces 2" long; take one of these pieces and drill 1/4" hole through lengthwise with the grain starting 5/16 below the top surface and point the drill at a slightly upward angle; ream this hole with the taper reamer and you will notice the reason for the upward angle of the drilled hole; the upper line of the reamed hole will be almost parallel with the upper surface of the block; ream only until about 1/4" of the reamer projects through the other end of the block.

Cut a slot 1/8" wide lengthwise, through from the top to the reamed hole and reduce the height of the wood on one side of the slot for the blade to rest on, this height will be governed by the thickness of the cutting blade and the distance of the tapered hole from the top surface, make it so that a flat piece placed on it will show its edge (where the cutting edge will be) just below the crest of the hole diameter.

To make the blade, you can buy at your hardware supply house a six inch length of tool steel 1/8 x 1" or close to that, and cut it into three 2" pieces, we only require one of these pieces now, but after making one peg shaver you may want to make another slightly larger for rough work.

Now for the cutting edge I have found that a knife edge is entirely wrong; you can try it if you wish but I have found by experiment that a very slight angle is fine, just about two degrees from ninety. this gives you a bull nosed cutter that is very rigid, you can work on this steel without difficulty as it is not hardened, file a slight radius on the lead corner where the peg enters the hole and drill two holes for mounting to the wood block; make these holes larger than the diameter of the mounting screws to give you room for adjustment of the blade, use slotted screws and fasten in place with the cutting edge along the center line of the slot.

It is not necessary to harden the steel blade but it can be hardened by heating to a bright red and plunging in oil, engine oil is O. K. ; if you want to go further and draw the temper, polish the metal and heat slowly until it shows blue color then plunge in oil.

All that remains is to adjust the blade so that a new

peg trimmed with the tool will fit exactly in a hole reamed with the reamer, do not ream this test hole too large.

I find it a good idea to use two of these peg shavers; the one we have made is for finishing, a second one should be made slightly larger for roughing down new pegs.

* * * * * * *

Occasionally an old violin comes along that has a short neck; it is obvious that something has to be done about it; however the fiddle may not be a top grade instrument, and for any of several reasons you may not think it worthwhile going to the trouble and expense of splicing the scroll onto a new neck: There is always of course the alternative of lengthening the neck at the block as is done in many cases, but then, this is quite a job too.

There is yet another alternative that I resort to occasionally; I don't claim originality for the method, but I have seen a lot of fiddles in my time and I have never known it to be used by others. Be that as it may as the saying goes, the splice is very strong, is quite acceptable, and if nicely done, hardly noticeable. Carefully measure the fiddle neck and decide exactly how much it will have to be lengthened; this is usually from 1/4" to 5/16" now remove the fingerboard.

Cut into the neck a recess or cavity (this will be under the fingerboard) about half way up the neck; make this cavity 2 1/2" long x 3/16" to 1/4" deep x 5/16" wide: Now at about the center of the length of this cavity, cut the neck off clean with a fine tooth saw, making the cut at a right angle to the face of the neck.

Carefully with a file and any other means at your disposal, dress the two faces of the cut down smooth, level and true; you may be fortunate enough to have an old piece of a neck laying around, (I usually do); if so, cut off a piece a little longer than you actually need and bigger than the neck thickness so that you can trim it down at the finish; you may also be able to match the grain marking of the original neck but this is not important. By careful filing and sanding, you will get a good fit between the original neck and the piece to be added; cut out a channel on the face of this piece to correspond with the recess that you cut under the fingerboard, cut a piece of maple to fit as a key in the recess, making allowance for the piece that will be added.

When doing the fitting you will find it very helpful if you clamp a flat steel bar to the flat face of the lower half of the neck, with the key piece glued in place in the lower half: Leave the steel bar as it is and when satisfied with the fitting of the upper part of the neck, glue in place and leave overnight.

Replace the fingerboard before refinishing the neck, and if your work is nicely done you will be well rewarded, it will be as strong as the original.

* * * * * * * * *

THE VANCOUVER MUSICAL FESTIVAL PRESENTS MR. ISAAC STERN

The Vancouver Musical Festival is now an established annual event. Patterned after the great European Festivals it has become a complete success and now draws on the finest talent in the world.

One of the leading events was the concert given on July 29, when Isaac Stern performed in the dual role of conductor and performing artist. For a soloist of the caliber of Mr. Stern this was rather an original idea and judged by the overall production was a complete success for who knows more than the artist just what support is required from the accompanying orchestra? A nod of the head or a mere frown were sufficient to strengthen the accompaniment or to reduce it to complete pianissimo.

The soloist showed his complete mastery of the instrument plus a beautiful flowing tone, displayed best perhaps in his interpretation of the Two Romances by Beethoven. There his Guarneri was carressed into producing a beautiful lyrical quality yet in no way over-sentimental, control being perhaps one of Isaac Stern's special qualities of interpretation.

The Editor of the Journal was very fortunate in securing a short interview with Mr. Stern.

Talking in a direct concise manner Mr. Stern withholds no punches. He was very critical of the suggestion that modern new violins were approaching in tonal qualities those of the Old Masters. He feels there is still as much difference between the new and the old as there is between the "family" car and a Rolls Royce!

When asked for his opinion on methods of judging violins in competition he admitted that while tone naturally was of vital importance a second feature was perhaps a first requirement--the suitability of the instrument to the player. This, of course, is a personal matter, a violin suiting one person perhaps not pleasing another. This makes it hard to judge violins in competition.

With the instrument the player must be able to project his style and, in fact, his whole personality into the performance. Asked as to the requirements of such an instrument he replied, "A feeling of depth without hardness, strength and mellowness in the lower notes and a liquid singing quality in the higher and up to the very highest notes. It must be "easy to play"--this "ease" and response being one of the essentials for projecting one's self and ideas of

interpretation to the audience."

Mr. Stern was much impressed with the work the Journal was attempting, but he would like to see more articles by the world's finest craftsmen displayed in its pages. He mentioned a few possible contributors, Saconi of Wurlitzer's, Vatelot of Paris and the two Carl Beckers. Especially did he admire the work of Carl Becker, Jr.

When asked for his preference between Strad and Guarneri violins he voted for the latter which, to his mind, generally produced a fuller, rounder tone.

* * * * * * * *

OUTLINE REGARDING THE WORKS OF DR. KRESNIK IN THE RECURRENCE OF THE 19th YEAR OF HIS DEATH

by L. R. Creston, New York

Dr. Francesco Kresnik

Dr. Francesco Kresnik was a man of high qualities, profound poetical thoughts, who aimed to reach life's highest ideals. He was, in one word, the personification of goodness.

As a physician, he was one of the most famous diagnosists of Europe, as an artist, he was a perfect violinist and violin maker famous all over the world. The last stated quality was for him a real passion and he devoted himself to it with all his energies. He was also a perfect chemist which helped him later on very much in preparing the varnish and in applying the same to the violins of his manufacture.

Before he started to make violins, he studied for 30 years the most detailed particulars and phenomenae of the acoustic and the technicalities used by the old Italian masters, especially the proceedings used during the sixteenth and seventeenth centuries by the violin makers of Cremona. In order to do this, he spent two or three months every year for the duration of twenty years, in the city of Cremona, studying the principles of acoustics, and the practical application of these principles, in the construction of violins used by the masters of Cremona. Thus he became one of the most important experts of our times.

In 1935, he was sent by the Association of Italian Artists (Federazione degli artisti Italiani) to the International Exhibition of Berlin, as representative of the city of Cremona. There he represented for two months the Italian art of making violins and everything connected with

it. When the exhibition was over, the Italian Ministry of Belles-Arts, expressed its appreciation and thanks in writing, for the services he rendered in behalf of the Italian Nation.

Dr. Kresnik made also many practical experiments during his long period of profound study, and as soon as he was perfect in theoretical and practical matter of acoustics, he started to make violins. The varnish was prepared with the most possible care in accordance with the methods used by the masters of Cremona, as this has been their secret of their success. In other words, he succeeded in making the same varnish, used by the old masters.

An outline of his studies regarding this matter has been published in the edition N. 42/ XLII/ of the "ARCHIVES INTERNATIONALES" of Paris, of which he was a collaborator. This work consists of 24 pages and its title is:

"Archives Internationales de Pharmacodenamie et de Therapie" volume XVII edition II." Extract:

"Der alt-italienische Geigenlack und seine Eigenschaften mit Ruecksicht aufdie Harze und der aetherischen Oele" von Dr. Kresnik, Mitarbeiter am Institute.

1932

G a n d, Belgique	P a r i s.
Redaction des Archives,	O. Doin, Editeur,
3. Quay Baertsoen.	8 Place de l'odeon

Eine kunsthistorische kritische Studie and Hand derArznei und Warenkunde des XVI. und XVII. Jahrhunderts, von Dr. med. Franz Kresnik, Mitarbeiter am Institut. Impremerie, Sainte Catherine, S.A. Bruge, Belgique, Page 234-253.

The violin as an instrument is in close connection with strenuous acoustical law and mechanical principles. Dr. Kresnik himself stated once that this acoustical instrument is to be considered one of the most genial things that human beings have ever invented.

Dr. Kresnik continued his theoretical and practical studies for the sincere love he felt for the art with the skilfulness of a man, experienced in the science of acoustics. He became to be expert in every detail of the acoustic, the construction and the varnishing of violins as the old masters, Stradivari, Guarneri and Guadagnini of Cremona have been. The violins of Dr. Kresnik are true copies of the Stradivari and Guarneri ones. Regarding the esthetics of the shape and the quality of their manufacture, they may be still superior to those, and regarding the clearness and fullness of tonality, equal.

Mr. Zlatko Balokovic, violinist of New York City, who is famous all over the world, is also the owner of a violin made by Guarneri in 1722. Being on an artistical tour, he also gave a concert in Fiume. Having been invited to a tea party at Dr. Kresnik's home, with whom he was continually in touch by correspondence, he happened to play on one of Dr. Kresnik's violins, in a room near the one where other guests have gathered. After having finished to play, he asked his wife, also an artist, if she had noticed any difference in sound of the instrument, and she answered: No, I did not, as you have been playing on your own violin. She could hardly believe it, when she was told her husband was playing on one of Dr. Kresnik's violins.

As a violin maker, Dr. Kresnik is said to be an expert worthy of his reputation. All the artists who had occasion to play on one of his instruments, were very fond of them.

The violins made by Dr. Kresnik, have the same characteristics as those made by the old Italian masters Stradivari and Guarneri. They have the same clearness and fullness of tone, which is improving as the instruments get older.

The sensibility of the instruments is perfect and the violin strings keep tone harmoniously. Also a new violin which has never been played gives the same results as those made by Stradivari and Guarneri, after playing on them for only half an hour. World famous artists expressed their opinion regarding these violins as follows:

The string quartet of Schorg writes to Dr. Kresnik from Bruxelles, under date of March 6th, 1911.

Besides the beauty with which these instruments have been made, I am surprised to find in this new instrument such fullness and clearness of tone and the harmonious accord of the violin strings. At any rate, it is one of the best instruments I came across.

Bohumil Lhotsky, first violinst of the Sevcik quartet, writes under date Nov. 13, 1912:

I played on violins made by Dr. Kresnik, and must say that these violins are to be considered perfect for their wonderful clearness and fullness of tone. I should like my string quartet to give a concert, playing on violins made by Dr. Kresnik.

The famous Hungarian violinist, Ferenc Vecsey, writes in June 1912:

I have played on a violin made by Dr. Kresnik, and have been much surprised at its meoldious tone. His violins have a wonderful tone, and the strings are in a harmonious accord. It was a real pleasure to play on them. Later on I bought one.

Prof. Barre, first violinst at the Budapest Opera writes in June 1912:

Dr. Kresnik has been so kind as to show me some of his violins, and I must say that I am surprised at their sweet and harmonious tone. According to my opinion, not only the above mentioned quality, but the art with which the instruments have been made, make them to be amongst the best ones I have heard so far.

In 1926, Zlatko Balokovic, of New York, a violinist famous all over the world, has been no enthusiastic about Dr. Kresnik's violines that he bought one immediately. The next year he bought instruments for the whole quartet. He sent the instruments to the following address: Mr. Frank Holden, 327 Lexington Ave., New York.

Mr. John Pennington of the string quartet of London writes in December 1934:

The violin of Dr. Kresnik which I have had the occasion to see today, is an excellent one, and is to be considered a work of art. It has a wonderful tone.

Prof. Alfred Busch, of the string quartet Busch, writes the 30th of January 1934:

I had the occasion to see some violins of Dr. Kresnik and am glad to state and to confirm that these violins have an excellent tone and that they are wonderful works of art.

Also the violinist Jan Kubelik, who is famous all over the world and who is the owner of a Guarneri/1735/ has been enchanted in seeing the violins made by Dr. Kresnik.

The same thing stated the famous violinist Prof. Boerwald of Berlin.

Vasa Prihoda, Jan Kocian, then the Prof. Schlick, of the London Conservatorium, and many others who are to be considered experts in this matter.

Dr. Kresnik has made altogether 30 violins, some violas and cellos. He has also written a book having the title: "Studies on the antique art regarding the making of violins". (Studio sull'antica liuteria Italiana.) This work consists of some 200 pages, 22 pictures, and 24 designs, which is unique in this kind, and will be very useful to teachers and pupils alike, who are engaged in studying the art of making violins.

Dr. Kresnik died June 6, 1942, in Fiume, and was buried in Tersatto-Susak, Jugoslavia.

GLORY BE TO DR. F. KRESNIK.

* * * * * * * *

NATIVE WOODS OF BRITISH COLUMBIA SUITABLE FOR VIOLIN CONSTRUCTION

by Don White

Introduction

In handling the vast amount of mail, I, as Editor, receive, one is struck by a similar pattern prevailing during certain periods. At one period it might be varnish everyone is discussing; another time graduation. During the last month or so the subject of the superiority of British Columbia woods has been foremost, so much so as to indicate a closer examination of our native woods. This I have, to some extent, investigated, but have much ground still to explore.

The more experiments I make, together with information always coming in, convinces me that we have here in British Columbia violin wood equal, if not superior, to any in the world.

The title of this article suggests that I speak only of violin wood. To avoid any misconception let it be understood that "violin wood" be the term applied to wood suitable for the construction of all instruments of the violin family, i.e., Violin, Viola, Cello, and Double Bass.

Evidence

Before moving on to a discussion of the various woods it might be well to present some conformation of the above statement of B.C. wood superiority and for this purpose let me give you a few quotes from letters received.

Josef D. Deulin
8032 Willard St.
Detroit 14, Michigan.

Dear Mr. White:

In December 1960 I finished a violin out of B.C. wood. I wish you could play it. It has a "soul" and will obey the player in every minute detail. I finished one yesterday, of the same wood; it has the same beautiful full, round, oily tone. I demand soulful, sympathetic tone from an instrument, combined with brilliance and strength enough to stand the abuse you have to give it in some passages. A violin I made in 1923 is now priced at $3,500.00 so you see I am not bragging when I say B.C. wood is good. (Signed) Josef D. Deulin.

The second testimonial is from Mr. Herman Sammer of Appleton, U.S.A. Herman, if you remember, wrote that splendid article in the March issue on "An Organ Builder's Approach to Violin Making". Mr. Sammer has promised me full particulars on his experiences with B.C. wood. This will appear, I hope, at an early date. Meanwhile I will just give you a few short quotes from letters I have received.

Herman J. Sammer
1026 E. Eldorado St., Appleton, Wis.

"What success are you having with Sitka spruce? You have plenty of the fine wood in your locality. I won't

use any other .... I look for a top with resonance, carrying quality and reedy tone. I have found these qualities in Sitka Spruce, more so than in the European."

Thirdly; in another part of this Journal you will find photographs and description of a violin made by Mr. J. Fred Fehr. This instrument was made completely from B.C. wood supplied to Mr. Fehr by myself.

Lastly; a statement: The best violins made by local (Vancouver) members have been made almost without exception, completely of B. C. Wood.

Geographical Outline

As this discussion of native woods is likely to occupy several instalments I will, in this chapter, confine myself to a short geographical outline of the territory where the different species of wood are found. I do this because I feel that my readers, especially those in distant lands, should know something about the home of our violin woods. For B.C. woods have a future before them that might eclipse the record of any violin woods yet discovered. A short description of the territory, climate, and altitude where our trees grow is therefore in order.

This tremendously wealthy province is almost one vast forest, in which some of the world's largest and finest timber is grown.

There are over 366,000 square miles in this province. You can realize this size when I tell you that we could put Italy, East and West Germany, Switzerland and the British Isles in B.C. and still have 30,000 square miles over. Now a short description of the contour.

There are three main mountain ranges running north to south. Running up parallel with the Pacific coast and about 30 miles inland is what we call the Coast Range. Eastward to this there is another range called the Selkirks, and on the border between Alberta and British Columbia are the famous Rocky Mountains. The "Rockies" rival in grandeur anything offered by the Alps.

The highest portion of these Rockies, or watershed, is used as a dividing line between the two provinces (for about half the length of the boundary). This high point being called "The Great Divide" for all water running west from this point works its way to the Pacific Ocean while all water running east enters the Atlantic. There is a stream running along part of the divide which separates--one part going east, the other west. You can take a drink from the Pacific in one stream and a drink from the Atlantic from the other. We have also another divide in the far north which runs east to west. On the north side of this divide the water runs to the Arctic Ocean. At this point it is quite correct to say 'I am going 'down' North, not the usual 'up' north."

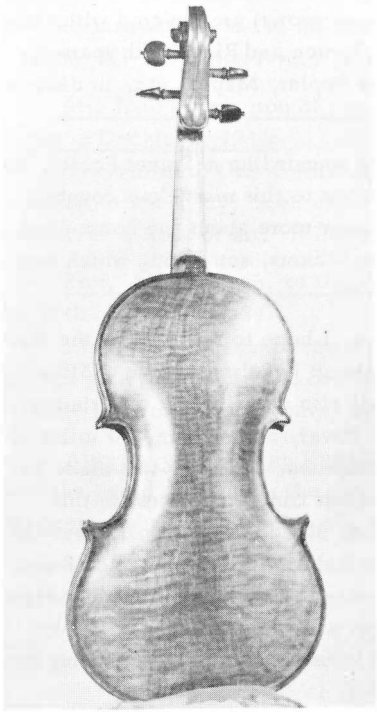
Between the mountain ranges are fertile valleys where some of the finest fruit in the world is grown. Much of these valleys and all the mountains, up to the "timber line" (where nothing grows) are covered with timber. Mostly Fir, Cedar, Spruce and Pine, with sparse growth of the deciduous trees like Poplar, Maple, etc. in different areas.

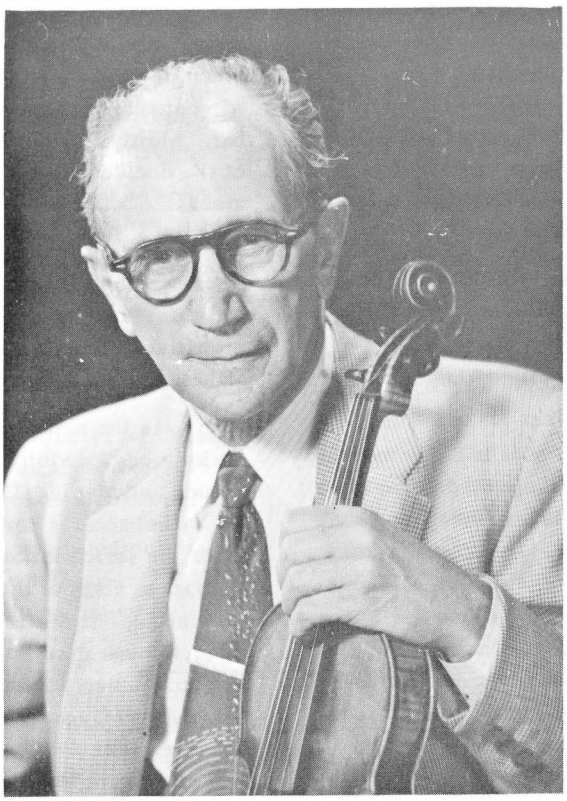
I realize the above sounds like a Travel Folder, but I have in no way done justice to this marvelous country. I also feel that you now know more about the home-land of British Columbia Violin Makers, something which may tighten the bond between us.

In the next chapter, I hope to talke about the three main woods for violin making: Engelman Spruce, Sitka Spruce and Maple. I shall also describe my experiences on a trip I took to Powell River, a town some 80 miles up coast, in search for Sitka Spruce. The trip was made by tugboat as guest of the largest timber operators in this province. The MacMillan, Bloedel and Powell River Co., who, through their Public Relations man, Mr. Roy Balm, are doing everything possible to assist me in my investigations. May I present them with my preliminary thanks especially for permission to use photographs appearing in this and future issues.

* * * * * * * *

750 Year Old Douglas Fir
The Douglas fir is not suitable for violin making, but this picture gives some idea of the size of B. C. trees.





Mr. J. Fred Fehr and Violin Made from B. C. Wood
Wood supplied by Don White

REPORT ON VIOLIN

by Mr. Fred Fehr

I am sure you are awaiting my report on the wood you sent, and the outcome of the violin I made from it. I think I can say the violin is going to be pretty good.

The top wood, Sitka Spruce, is as good as any European wood I have ever worked. Easy to cut--leaves a beautiful sheen after cutting. It has perfectly straight grain, not a puply, soft cottony mass between the grain lines. I enjoyed shaping it immensely.

My friends think the back is very beautiful, I think so too! The maple was rather hard to work with and being of a dark brown nature I used a red varnish and the photographs show a good likeness.

I took it to an old violin maker over in Indiana. He said if I played it for five years it would be worth $500.00. He really liked the instrument; he said it reminded him of one of the Amati violins that he owns. I am quite enthusiastic about its tone. It has a woody incisive quality that appeals to the player was well as the listener. I would like to have another piece of the top wood to put on a back of European wood to see if I can note any difference in the quality of the tone between the two.

I am sold on that top wood. It has a beautiful color, is easy to cut, a fine straight grain that should appeal to any maker.

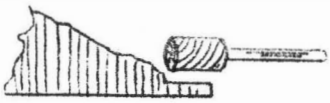
I made the center a little over four and a half mm, tapering to two and a half at the edges, with just a little more at the upper cheeks.

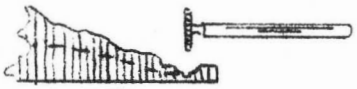
I am very happy with the violin and hope you enjoy looking at the photographs.

CHEERS

I was sitting one day without a friend when a little voice said to me, "Cheer up, things could be worse."

So I cheered up, and sure enough, things did get worse.





MISCELLANEOUS ADV. SECTION

Price 50¢ per line. Send copy to the Editor. Closing date for next issue September 20th.

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"INTRODUCTION TO THE DOUBLE BASS" new book by Raymond Elgar. Beautiful actual photographs. Most informative work yet written on this subject. Write: Raymond Elgar, 31 Charles Road West, St. Leonards-on-Sea, Sussex, England (or Reeves, Booksellers, see adv.)

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We are pleased to note that Arthur Richardson, the noted English Maker, well known for his Tertis Model Violas, was awarded the M.B.E. A Queen's Birthday Honour!

Chapter 2. The Making of the Violin Mould or Form by Harry Wake

In order to make a violin, certain special tools are required and it will be explained as we go along just what these tools are, how to make them or where to purchase them, and finally how to use them.

The first of these special tools that you will need is a FORM of the exact outline of the violin you have decided to make; it can be either an INSIDE form around which the ribs are moulded, or an OUTSIDE form in which the procedure is the reverse.

Assuming that you have decided on your model; be it 'Strad', Guarnerius, Amati, or Stainer, the procedure is the same, so we will get right to work and make the form for your first fiddle; we will make an inside form as it is a little easier to make and takes less material; work carefully and without haste, because the more precise we make our form, the more easily the following steps in actually making the fiddle become; in fact having a good form, the ribs almost fall in place; but to try to make a rib frame on a form that is poorly made, is almost impossible; so, easy does it; and you may as well learn early in the game as the saying goes, that it is better to throw away any mistakes and make a new part rather than try to just make it do, because you will only run into grief later.

We will copy the outline of an existing fiddle and make the form from that; it is most likely that you have a favorite fiddle that you would like to copy, (or you have an outline already that you have been saving for just this occasion) anyway, we will make a tracing of your special instrument: If you have the top off the violin, so much the better; however, it is possible to make an outline tracing without taking the top off, but it is a little awkward and not quite as accurate.

To make a tracing of an outline without the top off, lay a sheet of clean white paper over a cushion and press the fiddle back gently onto the paper while tracing a line around it with a fine pointed pencil: This pencilled outline must be transferred to a sheet of thin plywood and cut out as will be explained later.

Should you have the top OFF the fiddle; lay the top, varnish side up on a sheet of 1/8" plywood and trace a line around it; however, you may have interference from the bass bar in which case you must resort to the cushion as mentioned above; whichever means you use, the main thing is to get as accurate a copy of the outline as is possible: With this completed satisfactorily the next step is to make a clean line right down the center.

Now this is going to be the outline that our finished fiddle will have, so if you have any ideas about making a slight change or modification in the curves, now is the time to make them: Perhaps you would like it better if the lower bouts were just a little wider or narrower; perhaps the shoulders could be modified a little, or maybe you like it just as it is, after all that's why you selected it in the first place. Anyway, this is our model and we will proceed with the next step of cutting it out and this is where we start to use our tools.

Having the outline transferred to a piece of 1/8" plywood it looks like an easy matter to cut it out, but don't let it fool you; this stuff has a habit of chipping and bits breaking off just at the wrong places; if you have a power driven jig saw it is a fairly straightforward job with a very fine blade, however a jeweller's saw frame and blade are excellent for this kind of work; the blades are as fine as a hair and will cut steel if necessary, they can be bought at any good hardware store for a few cents a dozen and can be had in several pitches from the very finest to fairly coarse; this is a most useful tool to have handy in the shop, in fact you should have two frames, one about six inch depth of throat and the other about twelve inches: The deeper one is used for cutting out the plywood patterns.

When cutting out the outline pattern, make your cut as close to the line as possible and finish with file and sandpaper; this is only a reference pattern but it still must be as accurate as possible; drill a small hole (about 3/16") near the top to hang it up by when not in use, mark across the face of it any identification and paint all over with thin shellac.

Now on another piece of 1/8" plywood we will make another tracing but this time we will only make a half pattern for reasons that will become obvious later: take a piece of the plywood and trim one edge (at least 16") straight and true; lay this on the bench and set the fiddle top on it so that the straight edge of the plywood runs down the exact centerline of the fiddle top, so actually one half of the fiddle top will be on the plywood and the other half off; scribe a line around the edge on to the plywood so that you have a half outline of the fiddle on the plywood; do not cut this out yet.

From the half outline we are going to make the layout for our form, and as the form will be dimensioned for fit INSIDE the ribs, we must reduce the half pattern proportionately around the contoured edge (but not along the straight edge): Allowing for thickness of ribs and overhang edge we will allow 5/32" and carefully draw a line inside the half outline a distance of 5/32", but remember, not inside the straight edge.

Where these lines meet at the corners do not extend them to the edge or in other words, to touch the first

outline but bring them together and that is all, this point should be at least 5/32" from the outer line; the reason for this is the fact that the wood of the ribs when it is formed and attached to the mould, will meet at this point and you will not want the corners of the ribs to project beyond the corners of the true outline.

You will now cut out the half pattern to the inside line, using the jig saw or jewellers' saw as we did for the other pattern; stay just outside the line with your cutting and finish with file and sandpaper to get a nice clean edge; you now have a half pattern of the mould and it will be obvious to you that if a line be traced around this and the half pattern then flipped over and the opposite line traced, the two halves of the fiddle shape will be in exact contra-facsimile; so now having cut out the pattern, put on any identification you wish and paint with thin shellac as before. The mould itself will be in the form of a sandwich of two pieces of 5/8" plywood to give a total thickness of 1 1/4" which will be the depth of the ribs in the finished fiddle except at the upper end, this will be taken care of later.

Prepare two pieces of plywood 5/8" x 9 x 15"; these we can work simultaneously as they are almost identical; draw a clean centerline down the center of each piece.

Lay the half pattern on the 5/8" plywood with the straight edge directly on the centerline you have drawn on the wood; trace a line around the pattern and as before mentioned, flip it over and trace the line for the other half: Repeat this on the second piece of 5/8" plywood and we have two full outlines of the inside of the ribs laid out on the 5/8" plywood: We will now prepare to cut them out.

This wood is fairly heavy and should be cut out on a bandsaw, if you don't have one you might possibly take the work to a cabinet makers shop to be done or you could cut them out by hand with a bow saw; whichever means you have available, use a narrow blade; about 1/8" or 3/16", this will make it easier to cut the curves and turns in the 'Cs', cut close to the line without going over and save the finishing until later.

Take one of these pieces and trim it carefully all around but leave the line still visible, then place it on top of the other piece in exact position, making sure that the centerlines coincide and clamp them securely together with a 'C' clamp on each end: We will now drill holes for bolting the two pieces together.

Having the two pieces of 5/8" plywood clamped together we will drill six holes right through; the exact location of these holes is not too important but we shall have to keep them out of the way of clamping holes which we will be putting through later, and we also have to put them where they will do the most good; to layout for these holes, measure down from the top of the form 2 1/2" and make a mark or short line on the outer edge of the form on both sides; that is, right and left: measure in from these points 9/16" from the outer edge and make a cross mark; this is the location for your first two holes: now measure up from the bottom of the form 3 inches and make short lines right and left sides, measure in 9/16' as before and make cross line for the location of the second two holes: finally at a location 6 1/2" from the top and again 9/16" from the edge you can mark the position for two more holes.

With the 'C' clamps still holding the two pieces together you can now drill right through for the bolts and then the holes will be countersunk or recessed for the nuts and the bolt heads, but first a word or two about drilling: For all this work a drill press is ideal, however a brace and bit as is used by carpenters can be utilized but it is more work and slower; as there are quite a lot of holes yet to be drilled (sixteen more) and larger, I find that a 1/4" drill motor is fast and sure and most home craftsmen have one around; while most people don't have a drill press; if you are using a drill motor you can purchase at 'Sears' or any good hardware store an extension holder with interchangeable flat bits up to one inch size; these are used with the drill motor and they really make the chips fly.

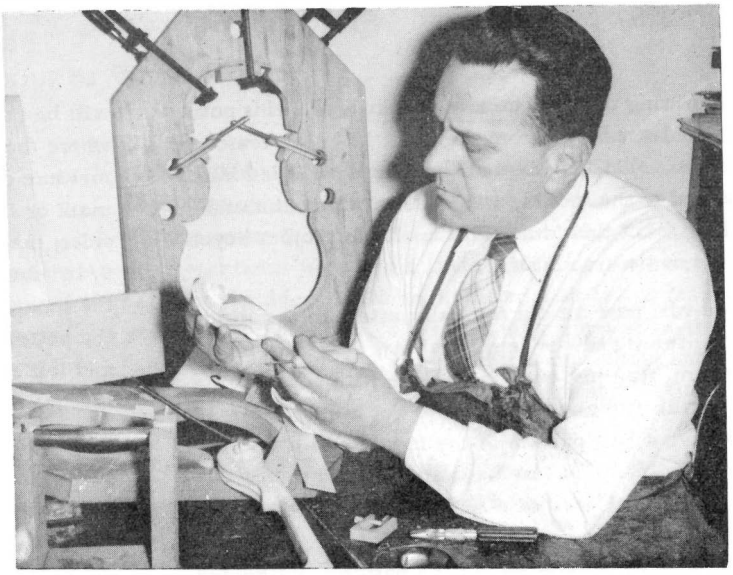
Drill through with size 7/32" drill and countersink both sides with 1/2" drill and before removing the 'C' clamps, secure the two pieces with six stove bolts size 10-24 x 1"; these are 3/16" diameter, round head with slot for screwdriver and the flat square nut just fits in the half inch countersunk hole without turning; put a washer under the head of the bolt and pull them up tight: you can now remove the 'C' clamps and both faces of the mould should be flush, with no heads of bolts or nuts showing above the surface.

Before drilling the rest of the holes we will clean up the edge true and square, and right to the line which should be still visible around the top; do this work very carefully because the ribs of the fiddle will be closely fitted to it and if the outside edge is not a true right angle with the face of the mould the ribs will come off the form with a twist in them; this can be very disconcerting and cause all kinds of difficulties: Use any tools available for this work; files, sanding machine, and most important, a small square to constantly check your work to be sure that you get it square, right to the line, and flat; when you are satisfied that all is as it should be we are ready for the next step of making the cutouts in the form for the insertion of end blocks and corner blocks.

(continued in our next issue)

Random Thoughts While Sanding Plates

By NORMAN MILLER



To What Extent Does the Arching Influence Tone and Its Distribution
Should the Inside Curve match the Outside Curve of the Archings

In thicknessing a plate after the outside curves and archings have presumably been exactly followed according to the templates provided, it is rather difficult to see how a maker can engineer oversize thicknesses near the ribs, and other variations of the inside curve without being conscious of having employed an inner curve that is at a variance with the outside arching.

We are told, and believe that the outside archings do much to influence tone. Would not such a varied curve on the inside of the plate be detrimental to tone and its distribution?

Apart from deliberately changing the curve (inside) it is to be wondered how many of us, when arriving at the outside curve of the plate, and checking this with our template as we go, hold the template always truly perpendicular, and do not tilt it towards, or away from the centre-line of the plate?

Most makers use a halved template. If they do, let them be sure that the end that approaches the centre-line is truly perpendicular as at Fig. 1.

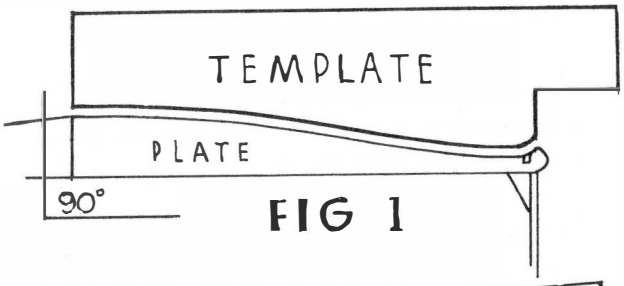


FIG 1

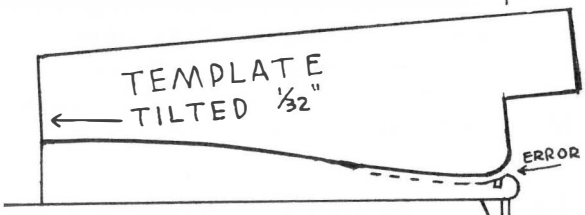


FIG.2

Figure 2 shows that even a tilt of 1/32nd can give a gross error at the edge, and the actual curve is out of truth all over. Correction may be unconsciously attempted with a resultant bulging of the curve as shown at Fig. 3.

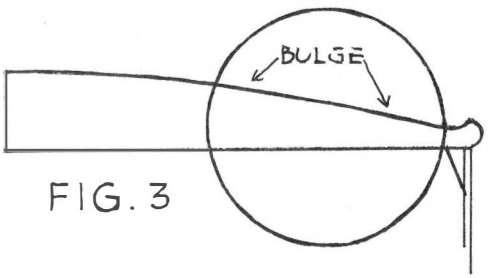


FIG. 3

Figure 4 shows the template drawn with the curve and sweep taken correctly to the edge. Many templates stop short of the edge. It will be of assistance to plot the templates on a sheet of graph-lined paper, making sure that the edge of the violin-plate is drawn with the bead-edge, ribs and linings shown in actual size and full measurement.

The maker will be able to check the thickness of the plate and the correct rise of the arching, by the use of calipers on the plate, and checking against the graph drawing. The thickness at this stage is taken from the bottom

FIG .4

flat of the plate before any gouging of the inner part of the plate has been undertaken. By this means the templates are followed exactly, and the sweep and curve of the arch is given the correct height from the base of the plate. The sweep and curve of the arch is correctly maintained according to the template, and any bulging in the area marked by the circle on Figure 3 is avoided.

The blending from groove into the arching should be smooth and gradual without any sign of abruptness. By checking your plate against your graph-drawn arch on the sheet, the truth of the arch can be accurately measured. It gives a better picture than using the template placed on the surface of the wood. In fact you could discard such use of your templates altogether, and work entirely from your drawing.

When measuring and working on the curve of your outside arching, measure at right-angles to the base of the plate. When hollowing the underside of the plate and arriving at the finished thickness when using your thickness-measuring device be sure that you measure at right-angles to the radius of the curve of the arch, and not at right-angles to the base of the plate, except where it is dictated by the sweep of the curve. Tangent strokes on Figure 4 show this.

Following the outside curve in thicknessing. Assuming that the thickness of the edge of the plate at the bead is 5/32nds and that the groove is not more than 3/64ths, and the outside curve is followed using a plate thickness of an even 1/8th of an inch all over, from the centre to the linings it will be seen on Figure 4 that such a curve is even and sweet, and cannot give a greated thickness at the edge than at the centre. Only by using less than 1/8th in the centre, or by not following the outside arch right to the linings can a thick-edge be given. The practicability of a thick edge is not to be discussed here with the exception of one question: "Why go to the trouble of using a flowing curve that we agree has been designed to be for practical use as well as beauty of line and then ignore its need on the inside of the plate, and develop a curve that has little in common for use or purpose with its upper surface?

If the edges were designed to be thick, the outside curve would have been left flatter towards the edges. Perhaps advocates of the thick have by accident or design so flattened the curves at the edges, or bulged them, and in so doing are not truthfully following the design chosen by them from one of the patterns of the old-masters, and are in effect falsifying the arch in construction, and sometimes then endeavour to correct it by extra scraping when the fiddle has been glued up, and the tone is lacking on some of the notes. If the archings have been finished so that they have eye appeal and are in balance before this scraping takes place what happens to this appearance after they have been scraped. We are told that the scraping is done on the outside of the plate while it is still glued up?

COMMENTS ON THE FEBRUARY NUMBER

by Dr. F. A. Saunders

Page 4. Mr. W. G. Hall very wisely speaks of the effect of climate on a coat of linseed oil. The imperfections of a damp climate may be mostly connected with a lack of sunshine. The light of the sun contains a small amount of invisible light beyond the violet end of the spectrum, which we call the ultraviolet. These rays are responsible for most of the sunburn that we get, and they are especially strong at high elevations. They also hasten the oxidization of the oil which we call drying. Dr. Koch in Germany made a large number of good violins in a rather cloudy city, and he used to bathe his violins in ultraviolet light for a while to make up for the absence of sunshine. Anyone can do that who can afford to buy a strong ultraviolet lamp. The exact wavelength makes practically no difference. Koch wrote me that ordinary linseed oil would not do. He used to 'purify' the oil, but he did not give the process, and one who looks up the composition of linseed oil will be staggered by the complexity of it. Which component should be removed is not known yet. He sent me one of his violins which I have used for over 20 years, and the varnish is beautiful, and perfectly satisfactory. He may have used a filler of some sort to block the oil from entering deeply into the wood. If this can be done the thickness of the oil would be so reduced that the effect on the tone might be negligible.

Page 17. Carmen White's sec. 5. One may get bored by wildly contradictory statements in this journal, but this is a healthy condition and in the long run the truth will win out. It is a pleasure to agree completely with C. W. when he says that the secret of good violin making is not in any mathematical system. I know of no mathematical systems covering violin making. There are a few geometrical drawings supposed to produce ideal graduations, but they seem to be completely ignored. There were no mathematicians working on this subject in the forty years that I have been teaching acoustics. Those who write of profound mathematics as associated with violin making are dreaming. Nowadays there are good radio men who can calculate the behavior of complicated sets before making them, and someday one of these may work out an analogy with a violin, whose

action may be somewhat similar, and no less difficult to handle.

Some of us are devoted to taptones because they indicate at the same time the combined effects of strength and of thickness in the wood. They guide the maker to the right thicknesses of the plates for the particular piece of wood which is being worked on.

Naturally I do not agree with C. W. (Sec. 11) when he wants us to stay away from "new ideas". They got us the atomic bomb it is true, but new ideas about violins will not set fire to the pages they are written on. I recommend all makes to allow one fact to soak in, namely that all Strads are not equally good. This will check any idea of worshipping them, in spite of the high prices they bring. Remember, too, that some people have paid as much as $20,000 for a postage stamp of a rare sort.

Page 9. Mr. van der Smagt thinks well of a mathematical system for making violins, but how much mathematics did Strad know? How much mathematics was there to know in his day? Did they have any school in Cremona where mathematics were taught? Did Strad go to school himself? Naturally he learned violin making and added to the craft, but that came out of experience. The "principles", the "fundamental laws" are just the results of experiments carried on through centuries and leading to Stainer, Stradivarius and other forms.

On page 18 the same writer mentions exposure of wood (presumably varnished) to light of a certain wavelength. This is probably ultraviolet light which has many wavelengths and is spoken of earlier here.

I view with extreme suspicion a statement that wood can be made homogeneous by strong light. The grain must remain and the difference in strength along and across the grain. This makes the wood inhomogeneous, and we need this quality, so that the wood can withstand the tension of the strings in one direction, but we do not need it across the grain. All changes in wood that I have been able to measure (age, pressure, heat, varnish, etc.) do very little to the wood, and that little has always been for the worse.

Page 20. Mr. F. Heinonen speaks very respectfully of an apparatus mentioned in Möckel's book on violin making (and in the new edition by Möckel and Winckel) whereby "diagrams of shading of black and white" are made to show how the plates of the violin are vibrating. This was carried out under Prof. Backhaus (an excellent experimenter) some 30 years ago. The interpretation of these diagrams would take us too long here, and the method of getting them has been much improved lately. It takes a knowledge of electronic devices, such as Mr. Collier (page 26) has, to put together the necessary equipment and keep it running happily. The pattern of vibration in the plates is very hard to interpret, and it changes from note to note all the way up the scale.

Professor Pasqualini not only arranged the recent exhibition of new instruments in Rome, but he is one of the best-known teachers of the violin there. He has engaged in a long piece of research recently with a physicist (Dr. Barducci) on the qualities of wood as they are affected by age. He is in a position to get pieces of wood which have been taken out of old buildings, whose dates are known. They have thousands of these varying in age from one to four hundred years, and their work will settle the question whether old wood is better or worse than new. The results may be of great importance, and will soon be published.

The March number of the Journal (with congratulations).

Page 4. The writer fears the effect of temperature on a violin in the making. This is new, and one wishes that some records had been taken of the temperatures, and the effects. No mention is made of the well-known effect of humidity, which is worse than the temperature. High temperatures go often with high humidity. How were the two effects separated from each other?

When harmonics are measured it is found that their strength is increased when we "draw a tone with force", not "muted off". How come?

In theory science is "correct but not practical" in respect to tuning. Incorrect "science" is frequent, but easily exposed for what it is. Whether practical people react correctly to science is not the fault of the science. A scientific man is often regarded as long-haired, absent-minded, and mildly contemptible; but this is not really their usual quality.

Page 6. It is good to see Norman Miller again (an old correspondence friend), and to back him up against the idea that only one spot on a violin responds to a particular note. Sound vibrations spread all over a vibrating body, just as waves do over a lake.

Page 8. The question what is a tone-pitch should be clearly answered before one can understand this article. A violin can produce over fifty pitches, not just one. It cannot be the average pitch. Apparently it is the quality of the tone, which reminds the writer of a soprano, or a tenor. Isn't this old word better than a new one?

Page 9. My good old friend E.H. Sangster is shy about naming a mysterious group "they", probably a subversive one, because they like taptones. If so, I am one of them, and I agree to disagree with him in a very friendly way. "All this taptone method is so futile" sounds like the comment of a man who has not read or understood how the taptone is useful. It can guide the maker toward making better violins if he learns to compare the tap tones of top and back before glueing them in place. This takes care of the wood quality and the

thickness, both together. Most of us know how to tap, and all should be able to identify a tone's place on the scale. The way of holding the plate and the place to tap are both given in our articles. If we could only pass around some of the recent Hutchins violas, made under the guidance of captones, there would be a sudden end to any argument!

I might add that Mr. Sangster makes very good varnish, but I wonder if he has ever tried boiling the linseed oil before mixing in the other ingredients, as Dr. Koch used to do. It might be good to try it.

Page 11. Mr. Sanborn says the thickness of the plates should be decided by the air tone; but it has been known for over a century that the pitch of the airtone depends only on the volume of the inside of the violin and the total area of the two f-holes; the thickness does not enter in. It is also known that the loudest vibrations of the wood are higher in pitch than the airtone. In the viola and the cello the loud tone near F is caused by body vibrations. The air tone is likely to be near A or B. I do not comment on microtones for the present. Mr. Skou and I are having a private debate on this subject. The survivor will no doubt report later.

Page 17. If I may speak as a possible member of the "Tap-Tone Department" I must say that tapping plates is several centuries old; I saw one of the current Hill brothers in London (date 1937) test a fiddle with a brisk knock on the back, and he said that it showed something about the quality of the instrument. So I came home and recorded on a fast moving film just what happened. It showed the airtone mainly; later we learned more about tapping single plates.

Page 3 of the Supplement. The computing table is a wonderful monument to the enthusiasm and patience of Mr. Rowland; but does he realize what a mess a change of one degree Fahrenheit in temperature would make of it all? This change would lengthen the distance between the stops on the monochord; also change the tension of the strings; and a small change in the humidity would do equal damage. To the degree of accuracy that all those decimals imply the first decimal might remain valid, but probably nothing more. The effective length of a steel wire stretched over the stops changes with its diameter also, and with the yielding of the monochord frame. Even the pressure of the bow alters the tension and therefore the frequency of the wire, an effect often noticed when one puts a too-thin string on a violin in place of a proper G string. I am sure we all agree that Physics pokes its ugly nose into a lot more subjects than we like, and spoils many pretty ideas.

Page 36 of the Feb. number (forgotten, and now out of place).

Mr. Meerbourg makes an important observation to the effect that violin makers in Central Europe have long known that "making the bouts thin just inside the linings makes the instrument responsive and easy to play".

This is exactly what Mrs. Hutchins and I said in 1953, about "thin edges". I am happy that it has been so long known in Central Europe--but why not elsewhere?

* * * * * * *

DO IT NOW

If you have hard work to do, do it now.
Today the skies are clear and blue,
Tomorrow clouds may come in view,
Yesterday is not for you; do it now

If you have a song to sing, sing it now.
Let the tones of gladness ring
Clear as song of bird in spring.
Let each day some busic bring; sing it now.

If you have kind words to say, say them now.
Tomorrow may not come your way.
Do a kindness while you may,
Loved ones will not always stay; say them now.

If you have a smile to show, show it now.
Make hearts happy, roses grow,
Let the friends around you know
The love you have before they go; show it now.

The String Section

Conducted by
CARMEN WHITE

We feel that the subject of metal vs gut strings has been sufficiently aired by both sides and in this issue, the subject will be changed. Before going into the new subject however, one or two comments should be made about the statement by Dr. F. A. Saunders to the effect that he was informed by "someone who ought to know that Kreisler used metal strings on his Strad, as he did not enjoy having a string break in the middle of a concert". This editor heard Kreisler five times between 1926 and 1939 and can say positively that at none of these concerts were any metal strings used except the E-string, and during one of these five concerts, the steel E-string DID break near the end of the Bach Prelude in E. Major and Kreisler finished the last few measures high on the A string (gut) without incident except a slight impediment in intonation! Zino Francescatti also broke his metal E string in the second measure of the cadenza of the Brahms Concerto in the same auditorium and instantly seized the concert-master's Vuillaume violin and continued the cadenza. The tonal contrast between the artist's Serafin violin and the tone of the Vuillaume was distressing indeed--I am afraid Vuillaume would have been as disappointed as the audience with the comparison of his violin with that of Sanctus Serafin! Same artist, same bow, same conditions--but what a distressingly different result! In my own orchestra experience, I can testify that metal strings in our orchestra have broken in the middle of performances in our viola section, as some of our players use them--in fact, they break just as often as gut and gut-wound strings. Before closing the subject, I must mention another great violinist who was supposed to have been among the "first" to use the new metal strings. He played here in 1949, but his Guarnarius violin had only the metal E string--no others. In closing, I will repeat my original statement: I have never heard an artist play a classic solo in a touching and artistic manner on metal strings, and during the past thirty odd years, I have personally heard all the great violinists except Efrem Zimbalist.

And now, to change the subject.

How to Select a Violin and Bow

To the young violinist or string player, this is the most important matter after the selection of a teacher. Many great talents have been lost forever because of improper selection of the teacher and of the instrument and bow to be used. Why not get a cheap violin and bow to begin with and then, if the young student shows unquestioned talent, a better instrument can be purchased. This is the usual approach to string playing, but it is completely fatal. No parents should ever permit themselves to be led into such a position, even though many public school "string teachers" advocate it. In our section of the country, many string teachers actually have the schools to buy cheap violin outfits and furnish them to the students in what they choose to call "string classes". After several years of personal observation of these procedures, my conclusion is that no decent string player has ever come from such a background, and that the entire procedure itself is the surest method of killing all interest in string playing. Let us see why these statements are true.

To take the questions in order, let us first consider the question of using a cheap violin. If a student is going to seriously study the violin, he will spend from one to three hours a day with it in his hands. It is right under his left ear and in a most intimate position. If the violin has a defect, or a fault, that defect or fault is magnified tenfold or a hundredfold after an hour of hard work with the instrument. If the bow is poor and weak, or if the violin is not responsive, the student's tone production is bound to suffer. As a result, he makes more and more effort to produce a better tone. His teacher has told him to do just the opposite--to relax, to sing on the violin! The student's increased efforts lead him into permanent stiffness, into distressing habits of bow pressure and tonal production, and worse, into completely wrong conceptions of what IS good tone and what is poor tone. I have personally observed students with such backgrounds complain loudly when they were asked to play a fine violin of proven value;

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the student simply did not like the fine violin because his cheap violin had given him false ideas of what a fine violin should sound like under his left ear. Only recently, I observed a talented student insist upon buying a cheap commercial violin with a sharp, nasal sound because her previous playing had been done on an even cheaper violin and her tonal ideas had consequently been utterly ruined. Her parents were financially able to have bought this girl a fine violin, and several were presented for her approval--but she refused them all and bought a cheap copy of Stainer, worth about $75.00!

Consider, now, her musical future. This girl is quite talented and has one of the finest teachers in the country. To the teacher's credit, he opposed the purchase of this cheap violin. Money will be spent for lessons, time will be spent practising, and, finally, the hour for recital or playing for the music faculty will arrive--and with what results? The student must be given expert advice on the basis of how she plays and what message she may have for the listener, and what she may do with music in the future. Need we guess what that answer will be? And why? All because of the use of a cheap, poor instrument AT THE START! String players and teachers have an obligation to educate parents and interested relatives of beginners in selecting the best instrument available and the best bow available, considering the financial position of the family. If a family is financially able to afford lessons and if the student is interested enough to give up time and effort in practising, certainly a fine instrument and bow must be considered absolutely necessary --at the very beginning! There must be none of this, "Now, if you learn to play, we will buy a good instrument and bow for you." These very words have consigned many musical talents to permanent musical oblivion, and the world today can ill afford to lose these talents, particularly among string players. The fact is that we desperately need string players. In my own city of sixty thousand, we have only four or five promising student string players, in spite of the fact that we have a "string program" in the public schools with countless numbers of poor little students desperately trying to manipulate their cheap "squawk boxes" --of course, they soon grow disgusted with the whole idea and quit--with a distressing hatred of all string playing and of music in general. I do not wish to discuss at this time the merits and demerits of teaching string students in classes, but let us insist that if these classes are to be held, the least that could be done would be to provide good instruments, strings, and bows for these students. In the next issue, we hope to take up the subject in more detail and discuss the qualities which make a good violin and bow.

* * * * * * *

LET US HAVE EFFICIENCY

"It has come to our staffs' attention that the Civic Symphony is undergoing some financial difficulty at the present time. In order to alleviate this situation we have made a study of your operations. Here are our staff's recommendations."

1. Our first observation during your last concert was that, for long periods, the four oboe players had nothing to do.

The number of oboe players should be reduced and the work spread more evenly over the whole concert thus eliminating peaks of activity.

2. All 12 violins were playing identical notes. This seems unnecessary duplication. The staff of this section should be drastically cut. If a larger volume of sound is required, it could be obtained with electronic apparatus.

3. Much effort was absorbed in the playing of demi-semi quavers. This seems to be an unnecessary refinement.

If these quavers were elmininated it would be possible to use trainees and lower-grade operatives more extensively and reduce costs.

4. There seems to be too much repetition of some musical passages. Scores should be drastically pruned.

For example, no useful purpose is served by repeating on the horns a passage which has already been played by the strings.

It is estimated that the concert time of two hours could be reduced to 20 minutes and there would be no need for an intermission.

5. The whole problem of efficiency in operating musical equipment should be put under study. Many methods of operation have not been changed for several centuries.

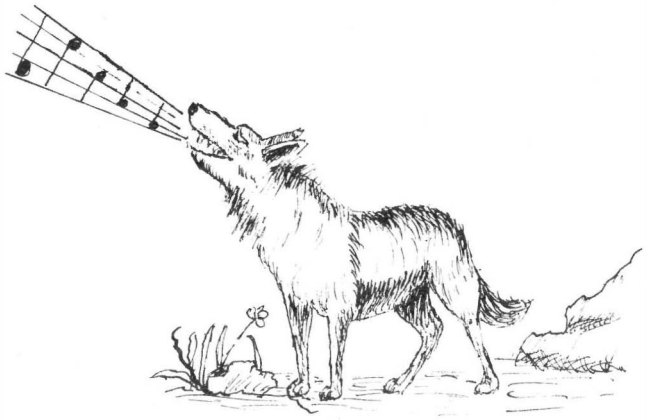
It is suggested that the piano be taken as an example of efficient operation, for the pianist was not only carrying out most of his work by a two handed operation but also using both feet for pedal operations. However, there were excessive reaches for high notes and it is probable that redesign of the keyboard to bring all notes within the normal working area would be of advantage to the operator. In the use of the trumpet, the operator was using one hand for holding the instrument whereas the use of a fixture for holding the trumpet would leave the idle hand available for some other work or another instrument thereby effecting further saving.

6. It was noted that excessive effort was being used occasionally by the players of wind instruments, a condition that made them red in the face and probably taxed their hearts. It would be a simple matter to install one portable air compressor which could supply adequate air for all instruments under more accurately controlled conditions.

7. Further investigation could be made into the matter of obsolescence of instruments. It has been reported that the leading violinist's instrument is already several hundred years old.

Wolf Notes

by The Editor



Did you get your last Journal?

Since no man is perfect--least of all your editor!--mistakes and "slip-ups" are bound to occur. It could be, change of address not noted, or even no Journal mailed to someone. If anything like this happens to you please notify us and we will correct the mistake immediately. Remember the Journal is published every six weeks, so give it time to arrive.

The Hobby Show

This show, held in connection with the large B. C. Provincial Exhibition, starts Aug. 19. The Journal has not gone "all out" to advertise it as we feel it is more of a local affair. The local association will have a booth as usual and will exhibit around 40 instruments. Speaking personally, I am looking for the day when our Association will organize a real International Violin Makers' Exhibition. Before this can be done there are many things to consider; we feel it best to delay until the things can be done properly.

My Articles on B. C. Woods

I am so enthused over our "native" woods that I decided to write this series. There is so much to say that one feels as though the Journal should come out every week so as to get everything to you immediately. This applies also to our series "The Technique of Violin Building". As both these are for a permanent record--for future reference--we ask your patience. Neither of them should, we believe, be hurried.

New Column

We hope you enjoy the new "Fiddle Fix" column, by Harry Wake who also takes over "The Technique of Violin Building" for this and the next issue. Harry is a remarkable man and I had hoped to give a few facts of his life but haven't quite got this organized yet. Here is a letter describing the "Fiddle Fix" Heading.

Dear Don:

There is a story behind this "busted" fiddle; it was brought to me in a paper sack; the owner had got frustrated and jumped on it; it was a good fiddle and he was a good musician; he only weighed 200 lbs. Anyway I took my time (I had plenty then) and made a good job of it. He said the tone was better than before. I photographed it at the time and just made this sketch from the photo. I'll bet some of the fellows will be trying to put it together mentally. If you study it you can see where the pieces belong."

New Miscellaneous Advertisements. Here is a chance to advertise, at a moderate price, and also help our finances! What have you to sell or trade? We are sure these small advs. will attract attention, and deserve your support.

The Rev. Geo. Wright. Whenever I meet this local maker he presents me with some thought-provoking question or comment. For instance: Some months ago I gave graduation of a 1693 Strad (I think it was 1693!) Since that time Mr. Wright has come across several tables of graduations for the 1693 Strad, in every case they differed from mine and from each other. Can anyone explain this?

Referring to an article by Harold Briggs on building a drying box and using infrared lamps, Mr. Wright gave me his experience. Having varnished a fiddle he found it very difficult to harden the varnish; tried methods of interior heating including infrared with little success. This was last spring. We we had a few sunny days George thought he would hang it outside in the sun. Lo! in two short days it dried perfectly. He says "nothing like the sun to oxidize varnish!"

I have received several informative letters from Stanley Newton of Ottumwa, Iowa, U. S. A. Here is a sample: Stanley says "I'd say that the best way to make a violin as good as Strad or Guarneri would be to "shoot" for one better than both of them." Sounds sensible, doesn't it? How can imitations be as good? Stanley thinks there are 13 different ways to make a good fiddle. This is something I have too believed. Different makers use different methods to arrive at the same end!

The Double Bass

A further interesting article on the Double Bass had to be omitted from this issue for lack of space. Look for it in the near issue.

Earl Sangster's Recipe

Here is part of a letter from Robert Minster, 1415 Mott Avenue, Far Rockaway, N. Y. Robert is crying for help. Perhaps Mr. Sangster or Mr. Michelman can assist him.

"Mr. Earl Sangster gave us a recipe for a colorless sub-varnish "as fine a varnish as was ever used by Italian."

Pure Raw Linseed Oil	1 oz.
Pure Venetian Turpentine	1/2 oz.
Pine Resin	2 oz.

I made it. I brushed it on my violin. It has a beautiful luster. I was all for it...two weeks ago. Two weeks later--under a hot sun--the darn varnish is still tacky.

Theoretically, the temperature of the sun should be hotter than that of man. Two weeks ago it was. Today I am not so certain. Today I know that Venetian turps is extremely slow drying and tacky. Today I also know that if I were to submit a recipe for varnish, I would offer it only after I had tested it completely, and not leave it to the next fellow to test it out empirically.

If I were to have others make use of this varnish. I would state how many c.c.'s of turpentine must be mixed with this varnish in order to have one coat dry in the fastest possible time. Mr. Joseph Michelman once wrote the following truism: "To measure is to know."

I would like to ask Mr. Michelman to pass comment on Fioravanti's recipe #11, as submitted by Mr. Sangster.

1. What is pine resin called commercially today?
2. The amount of raw linseed oil and Venice turps against the amount of pine resin?
3. Is a drier indicate? and if so, what kind?
4. How much turps is needed to dilute the above varnish recipe?

Again, Mr. Michelman in his book states that the Old Italian violin makers did not use turpentine as a thinner, but as a solvent.

The long line of eager-beaver violin makers and varnish experts with incredibly false and preconceived ideas, please form a line in the rear, .. way in the rear. I would like to hear from Mr. Michelman first."

"And while I'm still perplexed about pine resin - another random thought appears on the horizon. Propolis.

I was fortunate to secure a small quantity of propolis from Italy. Dissolved in denatured alcohol, it gives a beautiful yellow color. Or, if you are myopic, you can call it golden-yellow. Or even tawny. To my simple vision, it's yellow. However, I was told by a professional violin maker that the Old Italian violins did not have a yellow filler or stain directly on the bare wood, because yellow on the virgin wood turns green or yellowish--green under the varnish.

Whether propolis will turn green, I do not know. Unfortunately, propolis dissolved in alcohol, penetrates very slightly into bare wood, says I, and so does Mr. Nicholas, editor of Lutherie. Moreover, the alcohol dissolves the gum in propolis, but not the resins. Perhaps it's the resins that made the good old Italian tone. And perhaps anyone cares to choose sides?"

Best regards.

Robert Minster"

Testimonials

Readers seem to enjoy the testimonials we published last issue. We receive them every day. There is a letter from Wilf Tiller, Somerset, England. He starts with praise, but finished with something perhaps more practical.

"Dear Don:

Thank you very much for the "new journal" received this week. You certainly made a first class job of it, just what the doctor ordered. It was interesting before, but just pages of print; now it has come to life! And anyone who is not satisfied now, does not deserve to receive it. Once again many thanks; it was a real thrill for me to look at it.

There is a maker who treats his bellies in a bath of pure turps for 24 hours and then to dry them in the sun; he then uses the following solution, which he brushes on.

cellulose acetate	20 grams	acetone	500 cm^3
triphenyl phosphate	3 grams	benzol	200 "
(first solution)		alcohol(85%)	200 "
		(addition)	

Another method by the same maker. Immersion of the belly in a turpentine bath, belly soaked for 12 hrs. in spirit of turpentine plus 2% of oil varnish, with no other treatment, and none for the back and ribs.

He claims, on several occasions, that these baths in turps to be the cause of exceptional evenness of all notes, especially high positions on E string.

In another article, "two glues" method, Caurit, Pancol. Fiddles glued by Caurit were hard and unresponsive for a very long time; was all right for central joints, but too hard for sides. He built a new fiddle, used Caurit for centre joints, blocks and fillets only, the sides glued with Pancol, results were very encouraging.

I don't quite see the point of the glue, the old fiddles seem to have been all right without these patent glues.

Will be interested to know what others think of this.

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Science for the Maker
#3 Continued

Although empirical methods have been employed in violin-making since the time of Strad, it is probable that his (and a few others?) approach was more sophisticated than was heretofore suspected. Clues based on reliable experimental evidence have been freely presented in the preceding sections, with reasonable avoidance of rhetorical persuasion.

After a maker verifies such experimental evidence by his own work and at his own bench, he will soon discover beautiful applications for his own instrument-making.

Equipment

Two* new laboratory aids will now be added to those previously presented and summarized here:

1. Reference Monochord (S-1, 7) for
   A. Pitch-determination within a cycle or two. (S-3)
   B. Driver in determining Resonance-Maxima (Cr, Brs) of completed violins. (S-6, 7)
   C. RM/chord will be used with the Plate-Tuner to determine the resonance maxima of plates (Plate-Resonances--ie. Prs) during the graduation process.
2. Simple Electronic Test Equipment (OPTIONAL). (S-9)
3. Resonance-Graph (S-9)
4. Straw-Balance and Area-Weights, for determining plate and diaphragm areas. (S-12)
5. Spec-Sheet and balance-point diagramming. (S-13)
6. Work-Sheet. (to come)

If you read the Spec-Sheet carefully, you saw that there were blanks which you might be unable to fill due to lack of proper equipment. We will supply:

7.* A Simple Plate-Balance. (S-16)
8.* A Shop Humidity-Tare. (S-17)
9. Smiley Plate-Tuner (to come)
10. Baroque Calipers and Gauges (to come)

The cost of all the laboratory equipment you will need to make is trivial. It will total much less than the price of a good set of Metric Weights, in which you should invest. Fischer Scientific Co., 1458 N. Lamon Ave., Chicago 51, Illinois, lists a suitable set (#2-301-5) called Sto-A-Weigh BALANCE WEIGHTS, Brass grams Class C. Polished and lacquered brass in Bakelite case with hinged cover and stainless steel forceps. The 100 gram set is supplied with aluminum fractionals, 0.010 to 0.500 gram. (Listed at $5 in 1959 catalogue. You pay postage on a pound.)

The 100 gram set means the largest weight is 100 grams; all values are included to a total of 200 grams which is roughly 7 ounces. The set will weigh anything less to hundredths of grams. Note: always handle weights with forceps and never with fingers!

You can make your Tares, p. 17, from scrap lying around your shop. Simple as they appear, the time involved in preparing and calibrating will total more than you have put into your other apparatus.

The Modal-weight of the Belly-Tare should be slightly less than that of a finished plate in the white, and in addition be of a convenient numerical value for ease in calculations. The "Wet-Dry Limits" of the Tare should be greater and less than the Modal-Weight. Diagrams are explanatory. Note: Keep the tares hanging in shop in a place where they cannot get damaged--and dust them before using.

ERRATA (March, April-May, June VMJ supplements.)

p. 5 Par. 3, line 6. Place missing quote-mark after "foot".

p. 7 Chart 2B, p. 7: In right lower corner-box, Br "b" should be placed close to its left vertical line since it is lower in pitch than Cr "c"' in superior box.

RM/chord: "Pluck on right side of movable bridge B." should be inside the drawing, not outside.

Left column, last paragraph: Add underlined parts: Table II b, p. 8.

Right column, last paragraph, 4th line: Ellis wrote shew, not show.

Right column, last 2 lines on right: Insert 281 in "Compare 281 with Saunders 277 ± 2."

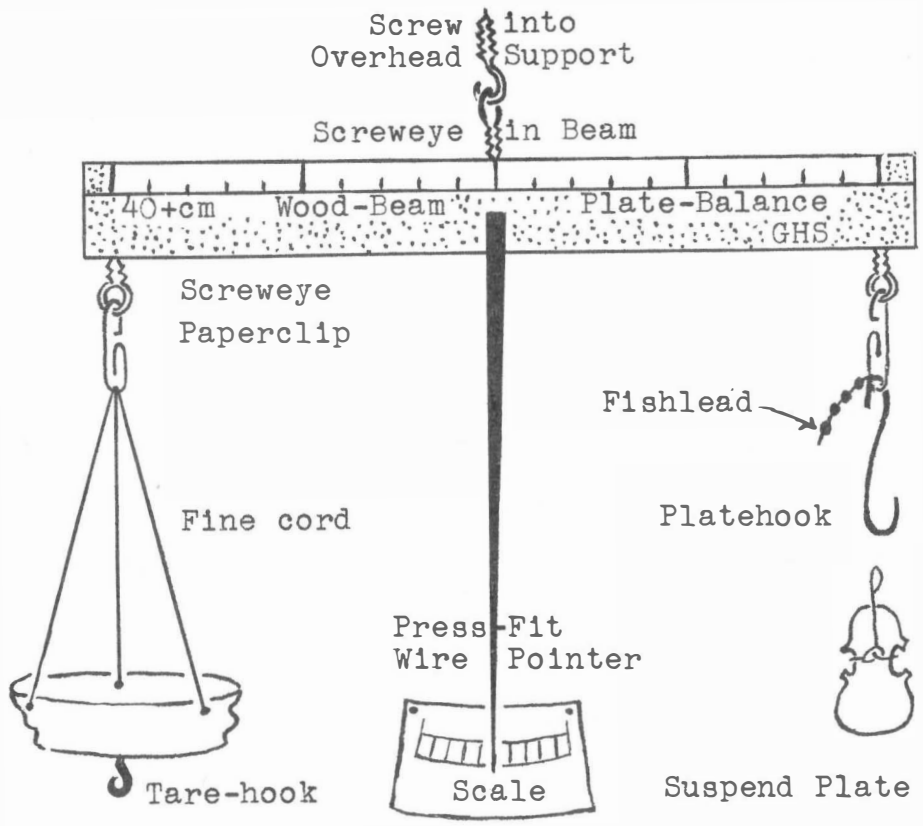
p. 8 In table: b' should be b' flat.
ORGANOLOGY: place comma after history.

p. 9 Resonance Graphs. We had reproduction problems!
Huggins Strad: Br_1 and Br_2. When there is more than one body-resonance, subscript numbers are used.
Darnley Strad: Second "o" should be placed under d'.
The a' should be placed under 8.
Third "o" should be placed under a'.
There should be no difference in shape or height of the Br peaks between scalesteps 7 and 8.

p. 10 First par., change chart 2a to: chart 2B, p7.
Par. headed Graph--add: Table 2a, p6.

p. 13 Spec Sheet 5.85 mis-copied. Change to 5.86 which means 5.58.
Change 2000.0 to 2000 ≈ meaning approximately.
Body-length (there are 2 of these) should read plate-length.

A SIMPLE PLATE-BALANCE



The cost of materials is less than a farthing if you have a fair junk-box. One hour.

Make certain pointer (coathanger wire) and screw-eyes are centered and equi-distant. File off beam ends to balance. Make up 2 identical pan-assemblies; trim clips and pan-edges to balance. Discarded plastic ice cream dishes make good pans--bore holes with a hot needle. Interchange left and right pan-assemblies to check their balance. Make up one PLATE-HOOK assembly to balance one pan-assembly. Knife-edges may be filed on the screweyes. Thread with a permanent loop at each end will suspend plates. All hooks are made from paper-clips. Zero-scale is held on a slat affixed to overhead support. It will be convenient to suspend the balance set-up so that pans and zero-scale are about eye-level when you are standing.

This 16-inch balance was designed to eliminate certain problems of the violinmaker--as you will see.

Shop Humidity-Tares

An untouched piece of wood varies considerable in weight from day to day or from hour to hour.

Such variance, due to changes in shop-humidity, introduces intolerable error into our desired measurements. (Fluctuation in the moisture-content of a plate produces undesirable alterations in the resonant-frequencies of the plate.)

Therefore, some control-procedures must be employed to make our weighings and frequency-measurements consistent and meaningful. (See page 18.)

Although the problems involved are complex, the solution is simple enough:
A sample BELLY-TARE under "my USUAL shop conditions" weighs 65.00 grams. The lightest tare-weight (dry-limit) I have obtained is 64.67 grams (a moisture-loss of 0.33 grams); the heaviest tare-weight (wet-limit I have obtained is 65.60 grams (a moisture-gain of 0.60 grams); the wet-dry range makes a total variation of nearly one gram (0.93).

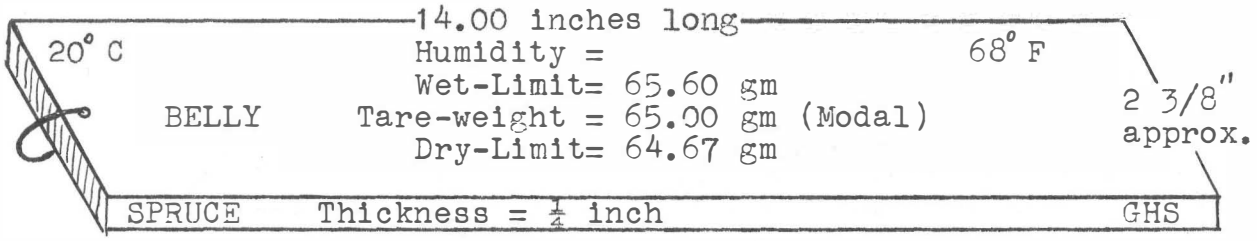
In other words, at my humidity-firm shop condition the belly-tare is a numerically convenient 65.00 grams. Your limits will be different because all shop conditions are different. Since makers notions regarding plate-weights vary considerably, one may decide upon a different modal-wt.

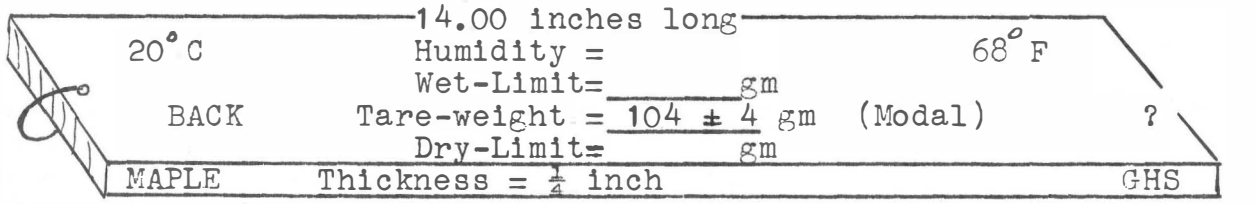
To weigh a belly suspended from the plate-hook: Balance it with the belly-tare on the tare-hook, adding the required number of gram-weights to the pan above. Then when you fill in your spec-sheets, use the EQUATION:

Modal tare-weight + added weights + Tared plate-weight.

The make-up of suitable back-tares is left for each individual maker to solve. Later it will be interesting to compare notes.

A steaming glue-pot can create surprising changes in the weight of your plates. Determination of "glue-pot error" in a tare is left to the maker as an experimental exercise. Record your results. How long did it take for the tare-wt. to change? How long to return to its Modal-weight?





Our science team is growing. Widely scattered geographically, the volunteers say they are undertaking experiments--some have gone electronic. Proof they are working comes when letters send or request additional information or report SNAFUS.

This helps debug problems (we have them!) in presentation in the Science Series--and turns up valuable leads. Amazing cooperation! Thank Everybody.

"Smiley"

HUMIDITY CONTROL PROCEDURES

Humidity-Firm Weighings

Any plate that has been in your shop for 48 hours is reasonably "stabilized" as to moisture-content. Then regardless of the actual humidity of your shop, both the tare and the stabilized-plate have practically identical moisture content. The equation for tared-plate weight tells you what your plate weighs under constant-humidity conditions, almost as if all your future wood purchases were weighed at this one instant.

Frequency-determinations (humidity-firm)

Hang the tare on the plate-hook and balance with the modal-value of brass-weights in the left pan. Wait until the day and hour the pointer comes to rest at zero-mark. Then, using RM/chord, make all the frequency-determinations you desire. If this procedure is followed each time, you will have eliminated your variations due to humidity. You have turned the intolerable humidity-variable into a desirable constant, almost as if all your future frequency-determinations were made at one instant.

My shop modal-temperature is identical with the standard working-temperature of 20°C. A dehumidifier reduces wet-dry range, which would otherwise be greater. Ottumwa altitude 650 feet. Modal barometric pressure 29.92" (sealevel). Latitude 41°.

Those who are tidy about nicety will determine the modal-humidity of their shops (tares balancing at modal-weight). All of which introduces a number of projects for volunteers*--to produce simple methods, complete with necessary graphs, so that the shop-results from any one maker will be intelligible to all other makers regardless of geography and climate. When this work is done we will be able to compare our results "under Standard shop-conditions."

May the varied skills of the Journal-subscribers bring us closer to procedural standardization. Until then we can make reasonably close comparisons "under Modal shop conditions". Also, until then, we can express plate-weights and frequencies at standard-temperature (20° C = 68° F), giving modal-weight and wet-dry limits of our tares. This will enable us to duplicate our conditions--and results--with reasonable certainty.

TERMINOLOGY: Modal = most fashionable = most frequent = most usual = most common.

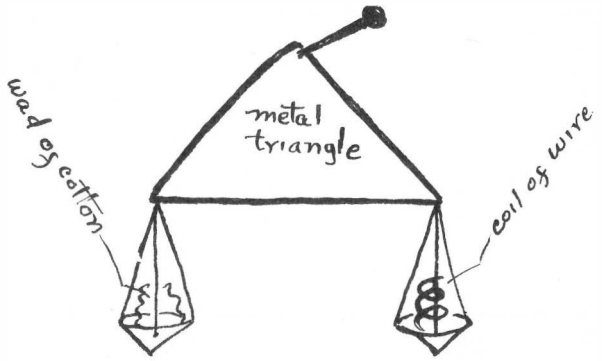
ARCHIVE SECTION

After completing the material for this issue we revisited the Art Museum in Kansas City, Missouri, and found an interesting and beautiful prochure at the front desk. Leonardo da Vinci, Copyr. by IBM. Ten cents plus postage. It contains drawings of Leonardo's inventions and photographs of the working models.

Leonardo, b. 1452, lived at Florence, Italy, and d. 1519. After 1515 he left Italy and resided at the summer residence of the king, in Chateau Cloux, near Amboise-sur-Loir. "Leonardo dedicated his remaining years to scientific work."

Often the question is asked, "But could the Amatis and Strad have known this science?" The answer is, "It was available to them in their day." Then the incredulous response, "But you have no proof!"

But there is proof if one takes the trouble to look for it! Usually it is costly to find and collect. But this time, for one thin dime, you will find, among other things, Leonardo's plan of an optical lens grinder plus model, and his plan of an optical projector plus model. And also, nicely related to this article--the principle is no different--is Leonardo's HYGROMETER for measuring humidity. Undoubtedly there were earlier hygrometers, but this one is Leonardo's. That is .....



this is a sketch of the principle. The model shown in the brochure has simple but elegant refinements. Why not try to guess them and make your own model? Compare your result with the model in the brochure (use a hand lens!) and see if you missed any of the "fine points". Of course there are parts missing from this sketch--why spoil the fun? When you have it done, can you guess how it could save you time in doing the control procedures?

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