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EDITORIAL PAGE OF *The Violin Makers Journal*

OFFICERS OF THE ASSOCIATION:

DON WHITE: EDITOR

PRESIDENT: MR. GILSON HEYWORTH, 1683 RENFREW ST.
VICE PRESIDENT: MR. ARTHUR JONES, 3910 MAIN ST.
TREASURER: MR. FLOYD HOLLY, 2636 W. 6TH AVE.
SECRETARY: MR. DON WHITE, 4631 W. 14th AVE.

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SCIENCE AND THE LAYMAN

In our editorial last month we stressed the importance of Science to the Violin Maker, and used as our theme the fact that every good violin is built scientifically even though the maker may not have realized it while building it.

So that the scientist and maker (or layman) may better understand each other, it might be well to state the makers view point in this argument. In other words the previous editorial was written to encourage the maker to realize the truth that in science he has the finest teacher he can find. This month we endeavour to show the scientist just what kind of a person he has to deal with, for the maker is often an unusual individual.

Editorially, we can sit on the fence and watch this struggle in progress - for there are many makers ready to fight this "intrusion" of science into their domain: From our vantage point we can sympathize with the impatience of the scientist as he seeks recognition.

Violin making to most is only a hobby and not a "life work". To them it provides a means of expressing their artistic temperment. Many find it an outlet for restless hands - they enjoy working with tools. In violin making they find peace and contentment for the soul. They are not too concerned over their results, although we have never yet met one who did not expect before he died, to make at lease one violin equal to Strad.

Take away this class of makers and it reduces the number of individuals that our scientist can impress.

Again we have a large number of the remaining, more serious group, who are openly against science and they have at least reason on their side, for they find that many of these scientists have never, with their own hands, built a violin. This group argue that a true scientist should prove with actual experience that he can build an excellent violin 9 times out of 10 before expressing his views. Still others have attmepted to execute some of the scientists findings and they have not proved successful. We will not debate to whom the fault may lie, but we would remind the maker that the scientist is not a craftsman and has a full-time job without making fiddles. To the scientist we would advise patience for there is an ever growing number of makers who take their work seriously enough to devour all the scientist has to offer, in fact they themselves like to be called scientific violin builders. This is an age of science and there are more scientifically minded persons (including violin makers) in this world today than ever before.

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LOCAL NEWS

By Floyd Holly

This column wishes a rather belated but nevertheless very sincere happy and prosperous New Year to all friends both near and far.

Under peaceful, happy and prosperous conditions, culture and the arts will emerge in their rightful atmosphere.

Peace begets leisure and relaxation, and what do violin makers need more than anything else? But minds which are relaxed and void of all tension to produce their best in tonal qualities.

The December meeting of the B.C. Violin Maker's Association, proved a most enjoyable and unique evening. The members of the U.B.C. Extension Course for Chamber Music, visited us to play upon our instruments. This group must not be presumed to constitue a regular orchestra. They rehearse as a group in persuance of their studies in Chamber Music. This evening they rehearsed at our meeting hall, with the added difference that they used our instruments.

The informality of the evening was both refreshing and full of interest. Musicians switched instruments in between pieces. Coffee was served to our hard-working guests at the interval, whilst we were all entertained by Helen Hagnes who played several violin solos, accompanied by her sister. As readers will recall Helen was the winner of the violin which was presented by the late Ernest Lindbergh, for the most promising pupil at the 1960 Vancouver Festival.

The group of musicians continued to the delight of the members and their families and friends. Refreshments were finally served to all, by members wives. This being also our Christmas get-together.

To experience a group playing entirely upon our own member instruments, is something we have planned and hoped for, for a very long time. The realization of this event was greatly appreciated by everyone concerned.

Our very special thanks are due to Dr. Hans Karl Piltz, who so ably conducted the group.

Our sympathies were also with the musicians, struggling manfully upon strange instruments.

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Be under no illusion, you shall gather to yourself the images you love.

.....Oswald .. McCall

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THE "SUNNING OF VIOLINS"

by Kristian Skou

In the Sept. issue Mr. Miller has asked "Why Sun?", and even if I cannot answer all the questions asked, I can say something about the matter.

Tropical conditions I will leave out of account. I should think it nearly vandalism to expose a fine violin to such conditions, and if plastic violins should have any raison d'etre at all, it should be in such a case. For the rest arctic conditions are not better. In the winter with -40 or -30 degrees celcius and dry air outdoors, and plus 20 degrees celcius indoors the plates are splitting by drying out.

No - let us speak about more human - or shall we say "violin" conditions. But why sun? First I may say that direct sun can do but little to the violin that cannot be done without direct sun - but in a much longer time. The sun serves as an accelerator on processes that without sun will take a long, long time. Usually I hang the plates in the sun before glueing together - and why? The sun gives the wood a yellow - brown colour that cannot be obtained in any artificial manner, and this colour forms a beautiful back ground for the varnish. That is one thing, but not the most important.

Another thing is that when the plates are worked out, the surface of the wood will harden, the first time by a mere drying out process - an evaporation of water. No matter how old the wood is - 10 years, 100 years, 1000 years or more - the drying out from the surface will take place. Water is absorbed in the wood, and usually the water contents in the inner of the wood are greater than the water content in the air surrounding the wood. The surface of the wood forms a sort of buffer zone, from which water can be evaporated - or absorbed. When equilibrium with the existing surrounding air is established (that is, the quantity of evaporated water is just the same as the quantity of absorbed water), the wood is "dry" - not to be mistaken for the complete drying out of the wood, which cannot be established without heating the wood to carbonization - now completely unskilled for a violin. For seasoned wood the ordinary drying out process takes not a fairly long time, and although also this process can be accelerated somewhat by the sun, this phase should not be a problem. But we will notice that long time after the evaporating-absorbing equilibrium has been established, the surface of the wood (especially that of the maple) will continue to harden. The elasticity co-efficient (modulus of elasticity) of the wood will increase, which causes a rise as well in the ordinary tap tones as in the micro-tones (described in the July & August number). What happens in the surface of the maple (apart from the ordinary drying out) I do not exactly know. Some organic compounds will harden, of course, but the surface gives the impression that calcium in some or other combination has been collected there (as calcium carbonate presumably - but also other combinations are imaginable. In fossil wood e.g. we can often find very small crystals of calcium oxalate). Calcium ions seem to have a certain ability to move in a material. Recent researches on cement in its origin phase shows that calcium ions have moved a relative long distance within the cement - here with high temperature (1400 - 1500 degrees celcius), but also with normal temperature calcium ions seem able to move through a material. From old time it has been known that if an oil varnish - also a violin oil varnish - makes trouble in the hardening process, the hardening can be effected by use of calcium (in the form of lime or chalk). We can brush the varnish over with limewash (or chalk in water), let it dry out, and remain for about a week - and then remove it. The varnish has now hardened, and when polished the varnish has become a much greater lustre than without this treatment. The calcium in some form has been absorbed in the varnish, and not only in the surface but right through.

It should not seem impossible that calcium (and perhaps other metals such as potassium) from the inner of the wood in some degree has been concentrated in the surface of the wood. I have no chemical analysis of the surface of the wood in relation to the inner of the wood. Such an analysis should not be difficult for a chemist to perform. We can only take a planed board of well seasoned maple, where the surface has been hardened, plane the surface in say 0.1 thick shavings, then weigh the shavings, and from
same weight. Then we can burn the two samples separately, and perform a quantitative analysis of the ashes. This would in some degree solve the problem, but whatever has been collected in the surface of the maple the hardening process takes place, and it takes a long time
can accelerate the process considerably.

By use of the micro-tone system, from which I now build my violins, it is extremely important that the elasticity co-efficiency of the wood does not alter after the final attunement of the plates, and the glueing together. (The preliminary treatment of the outer
before the final attunement). It is no fun to have to take the violin apart for retuning after say 10 years, if just as good we can perform the tuning at once.

And to the questions How long in the sun? The answers must be: Until the pitch of the micro tones (or the tap tones for that matter) raise no more - and until the wood has gained colour enough as a background for the varnish.

The outer varnish will alter the relative attunement of the plates but very little. My varnish is able to dry without direct sun, but if I can get a coating dry in one or two days directly in the sun, why then should I have to wait a month or more for the same result in the shadow?

One thing more: if we should like to use raw linseed oil for the preliminary treatment of the wood - as recommended by Mr. Michelman and Mr. Sangster - direct sun (or another accelerating process) during a long time is necessary if the oil shall dry, and if the oil is not dry when the outer varnish is applied, the treatment will harm more than benefit the result. Even in rather old furniture, treated with linseed oil, but without having been exposed to the sun we can still find traces of the oil in liquid form on the surface when exposed to heat.

I have tried to use linseed oil for the preliminary treatment of the wood - and with good result for that matter - but I have given it up, because I have no guarantee for its behavior after say 20 or 30 years. Often it may occur that linseed oil - oxidized and hardened, and apparently stable in it properties - after many years will be exposed to a deoxidation (or whatever it might
liquid again. The manufacturers of linoleum (a product of oxidized linseed oil) can speak about that. It may happen that linoleum after about 25 years in stable condition for no apparent reason becomes soft. Furniture and
it, and the linoleum has to be removed. Assurances that such a process will not take place with the linseed oil in a violin, if pure raw linseed oil is used, and the oil is properly dried out in the sun, are worth but little, as none seems to know anything exactly about it. I must admit that an addition of calcium in some or other combination (as calcium carbonate, calcium oxide, or calcium hydroxide) to the linseed oil seems to make the hardened product stable. Common window putty is a compound of linseed oil and calcium carbonate (chalk), and I have never seen putty when hardened - if ever so old - become soft again. Perhaps the calcium content of the wood may have a certain stabilizing effect, but as said, I have no guarantee. What I need for the preliminary treatment of the wood (if I should use such a treatment - for I can make the violin sound just as good without, but perhaps the violin will get a longer "life time" with a treatment) should be a product that

after hardening does not alter its elastic properties - if not, the violin will lose its attunement to full resonance,

In the June issue of The Journal Mr. Carmen White writes (about the use of raw linseed oil as a filler): "Mr. Michelman, a great chemist, advocates it on the strength of his chemical analyses of wood from old Italian instruments with modern chemical methods." Should that be understood thus that Mr. Michelman by chemical analyses has proved that there is hardened linseed oil (or whatever a product it might be after 200 or 300 years) in the middle of the wood from old Italian violins? If that is the case, it should be very interesting indeed, and it should be just as interesting to know the exact details from this proof.

By physical methods I have not been able to prove any thorough treatment of the wood at all (nor the opposite). I have performed X-ray investigations (by means of an X-ray refractometer) on several wood samples of different age from recent wood to wood nearly 6000 years old (the Peary-land wood) - treated and untreated. The X-ray refractograms all showed great maxima for intervals of 5.5 A, and 3.9A (1A (Angström) is 10^{-8}cm (0,00000001 cm)). The height of these maxima is a measure for the crystalline structure of the wood (mainly the cellulose). This crystalline structure will be decomposed with age, and the refractograms showed a reduction of the maxima according to the age of the wood - that of the Pearyland wood showed extremely reduced maxima. (Treatment of recent wood with oxidized oil of turpentine gave no reduction - sooner an increase, whereas treatment with a faint alkali (potash in water) gave a reduction of similar amount as with untreated wood several hundred years old, but with another mutual proportion between the reduction of the two maxima). Holding this together with an X-ray investigation on a Guarneri violin (performed by K.Lark-Horovitz and W. Caldwell, of Purdue University, U.S.A. - and described by N. Nicholas in "The Strad", May 1948 - here in the shape of diffraction rings diagrams) nothing other than age seems to account for the decomposition of the crystalline structure of the wood in the violin.

Nor ultraviolet light examination of the wood seems to be able to tell us a thing about tre In an article in "The Strad", August 1960 Mr. Michelman says: "Recently, the writer found from an ultraviolet light examination of the wood of old Italian instruments (cross-section) that the wood fluoresced tan colour whereas old virgin wood fluoresced a bluish color.

These facts indicate that the wood of old Italian instruments has received some preliminary treatment through and through - separate and distinct from the varnish on the surfaces of the instruments." End quote.

Well - if the premises are correct, the conclusion should be it too. But are the premisses correct? I have no doubt Mr. Michelman has observed the colours described, but is the "old virgin wood" as old as Mr. Michelman considered it to be? (Mr. Michelman says nothing about the test used to determine its age). I have never seen 200 - 300 year old wood fluores a bluish colour. The rule is that untreated recent wood fluoresces a bluish colour, and untreated very old wood fluoresces a tan colour. (The Pearyland wood fluoresced nearly yellow). Ultraviolet light examination can be used as a test (although somewhat rough) for the age of the wood. (A better method is the C 14 test, but unfortunately it cannot be used to violins, as the wood to be
examination in relation to old violins is used to determine if the varnish is original or not. The varnish of old Italian violins fluoresces a pink colour whereas modern varnishes fluores different other colours.

I am glad that Mr. White has been successful with the micro-tone syststem. I find it easier to hear these tones than ordinary tap tones, even if the ear can get

tired, and we have to stop for some time. Now it may occur that your attunement of the plates "in the white" will be a little disturbed by the varnish, but that you will be able to hear - and correct.

On the whole the relative thicknesses of the plates have to be determined by the ear, and not be means of gauching callipers, and when copyists of old violins so often have been so little successful regarding the tone, the cause is that they have forgotten to copy the most important things: the micro-tones. If they had copied also the exact micro-tones, their violins would have sounded very, very closely to the originals.

" Sporting" or not "sporting" to give away our discoveries I should think it a little unwise of violin makers to keep their discoveries and methods for themselves as secrets. If the old masters would have given away their methods for the posterity perhaps not so many of their masterpieces would have suffered from unskilled repair. (Unskilled we must call a repair if the tone has suffered from it, even if the repair is beautifully performed).

My work at the Museum I think I am carrying out satisfactorily - I have been told so. But my building of violins - well, I think I have to stop my writing for this time. I have a lot of work to do.

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THE LOWLY SCRAPER

by R. H. Williams
Okanagan Falls, B.C.

To most people a cabinet scraper is just a thick piece of tin . With no actual value, perhaps to scrape some paint or some chore, and it is dismissed with no further thought. But to the fiddle maker it is an efficient and specialized tool.

The scraper has been used for many hundreds of years by some branches of the wood working trade, and was the main finishing tool. However, it has been surpassed by the power sander, and the method of using a scraper is almost a lost art.

There are two kinds of scrapers one with a knife edge and one with a square edge which is turned with a burnisher. The knife scraper should be made of hard steel and the square edged scraper should be made of spring steel.

You can make a scraper any curve you think is best for your purpose. A scraper can also be made with a cove on one end; which will raise the edges on that Joseph you are planning to build. A scraper must not be just sharp: But honed and polished like a fine razor; and with a more rugged taper. When you have done this you will find your scracer will cut very easily and effortless. Good steel is a must, and hard to come by. "Do not scrape on a sanded surface."

When sharpening a scraper use a quarried stone with fine oil, plate glass and a leather hone. When shaping a square edged scraper, edges should very very true and square before turning with a burnisher.

A fiddle maker sits at his bench, he scrapes and concentrates on his work, all that is heard is the tone of his scraper as he makes each deft stroke, and so his ear becomes trained and guides him in his search for the right combination, a tonal graduation, and a tonal balance.

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THE VIOLA

by Howard L. Apps

This once neglected instrument has, as Mr. Carmen White remarked in the October Journal, come to take its place as a solo instrument and for that reason we are in danger of forgetting the role it was originally intended to play; to bridge the gap between violin and violoncello in orchestral work. An examination of orchestral scores of the classical period will show that violas, 'cellos and basses often played almost identical parts in different octaves, the burden of the melody being carried by the upper strings and woodwind. Few composers took the trouble to write concerti for the 'cello or viola with the result that the repertoires for these instruments are somewhat small when compared with the number of compositions available to the violinist and pianist. What Lindley and Piatti (and in our day Pablo Casals and Maurice Eisenberg) have done for the violoncello has been done by great violists like Lionel Tertis and William Primrose for their own instrument and it is gratifying to note that composers are at last beginning to add important works to the viola's limited repertoire.

While the dimensions of the violin have, with only slight variations, long been established, the same cannot be said of the viola which can be found in a great variety of sizes varying from a little over 15 inches to as much as 17 inches or more. One reason for this apparent confusion is that, in addition to the viola (or alto) there existed such instruments as the tenor (a name often erroneously given to the viola) and the viola pomposa which have become obsolete. The viola, as Grove points out, is a true descendant of the viola da braccia and still carries that name in the German form Bratsche.

Of the violas described in recent issues of The Strad the following may be taken as fairly representative of what might be the small and the outsize instrument.

The "Gibson" Stradivari: Body Length 16 1/8 inches, Upper bouts 7 3/16 inches, Middle bouts 5 1/16", lower bouts 9 7/16 inches.

Giacomo Rivolta, Milan, 1817: Body length 16 5/16 inches, Upper bouts 7 7/8 inches, Middle bouts 5 5/16 inches, Lower bouts 9 7/16 inches.

We must remember that the viola is most emphatically not an outsize violin tuned a fifth lower. Any attempts to "improve" the instrument must preserve its dark, melancholy tone and the sonorous quality which is its chief object however much they may add to its carrying power. The viola can never have the sparkle and brilliance of the violin E string, and to some its characteristic deep tone may seem dull. In an interview with Samuel and Sada Applebaum published in Violins and Violinists, March-April, 1959, Emanuel Vardi made the significant remark that the viola could be boring after half an hour in the hall, and that to hold an audience's attention a performance must incorporate virtuoso brilliance.

The true role of the viola is as a member of the string quartet where its dark tone blends so beautifully with the deeper tone of the 'cello while softening the incisive tone of the violins. I recently had the privilege of hearing the Aeolian Quartet who all play on Italian instruments, the viola being a Stradivari with a deep mellow tone of unforgettable beauty. On November [illegible] Sinfonia Concertante in E flat for violin and viola was given at the Royal Festival Hall, the soloists being Norbert Brainin (violin) and Peter Schidlof (viola), respectively principal violin and viola of the Amadeus Quartet. In this work the viola, to gain brilliance, is tuned a semi-tone higher and actually plays in D major.

The Tertis Model Viola was designed by the distinguished violist whose name it bears and made with his collaboration by the well known maker Arthur Richardson of Crediton, Devon. For those who are interested in this model, scale drawings and very detailed dimensions are given in Lionel Tertis's book "Cinderella No More" in which he gives an account of his lifelong work to gain recognition for the viola as a solo instrument. This model is now being made by distinguished makers in many countries. A feature of its design is that the arching rises directly from the edges without the traditional hollow or dip just inside the purfling which adds so much to the appearance of the classical models, and further, the plates project only 1/16th from the ribs, so that the instrument has a slightly bulbous appearance. This may be one of the reasons why Mr. White objects to it on the score of taste, but we must always remember that appearance is of secondary importance to tone in a musical instrument. The concert-goer is not interested in varnish or highly flamed wood - in fact he rarely sees the back of a fiddle where often its chief beauty lies.

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There is a wonderful mythical law of nature that the three things we crave the most in life - happiness, freedom and peace of mind - are always

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AWKWARD VIOLAS

by Rev. George Wright

For many years I had a bee in my bonnet, about making a viola with a string length the same as the violin, and the article in Crescent Journal by Carmen White has caused me to write my results.

It seemed to me, there was a place for such an instrument, especially in small orchestras. I had played in 3 or 4 amateur orchestras and there never was anyone to take the viola part.

However, when I read an article in the Strad Magazine, some 4 years ago on a small sized viola, and its powerful tone etc. I decided I would have a go at it sometime.

Recently I finished such an instrument, and w
I took it to the last association meeting and several of the fellows played on it in comparison with a standard model, which was a prize winner and all the boys spoke very highly of it.

Here are the specifications. The body is 14½ inches long, Lower bouts 9 7/8 inches wide, Top bouts 8 3/8 inches wide, Middle bouts 5½ inches wide. Ribs are 1 1/8 inches tapering to 1 1/16 inches. The back is B.C. Maple, 9 13/64 inches at bridge tapering to 7/64 at edges. Tap tone of back and ribs is B flat. The belly is of B.C. larch or balsam and is 11/64 inches at bridge tapering to 7/64 around the edges. Bass bar is 10¼ inches x ⅝ inch x 3/16 inches. The tap-tone of the belly is C sharp.

If I make another one, I shall leave the back and belly thicker, and use a heavier bass bar. Also make the ribs about 1 3/8 inches deep. Why should a viola be so clumsy anyway? A violin player can double on a viola of this sort without the least effort.

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A SHORT BIBLIOGRAPHY ON BOW-MAKING

Compiled by Alfred M. Slotnick

Alton, Robert "Violin and Cello Building and Repairing" - A complete chapter devoted to bow-making in this well known book on violin and cello building.

Apian - Bennewitz, P. "Die Geige" - In German. This book is or was the text book of the Mittenwald violin-makers school A lengthy section of the book is devoted to bows.

Bachman, Albert "Encyclopedia of the Violin" - In English, but out of print with a detailed description of bow making and a list of prominent bowmakers.

Fetis, F.J. "Notice of Anthony Stradivar
portion is devoted to Francois Tourte, his biography and his methods of bow construction including the monumental achievment of J.B. Vuillaume in reducing Tourte's method to a formula. Luckily this portion of the book is reprinted almost in total in Roda, St. George and others.

Millant, R. & M. "Manuel Pratique de Luthier" - Unfortunately this book is in French, but even if you can't read the language, the low cost of the book makes it a must for all if only for the illustrations. Bow making and repairing is nicely covered. The main body of the book is devoted to violin making but there is also much good information about the Double bass, Viols and even Hurdy Gurdys. The best bow-making instruction in print.

Roda, Joseph & Bell, Gladys "Bows for Musical Instruments" - This book is new (1959) but otherwise the remarks about the St. George book is equally true here.

St. George, Henry "The Bow" - This book although a product of the nineteenth century, has much to teach anyone who would be a connoiseur of bows without actually giving detailed bow-making instruction. A must.

Tolbeque, A. "L'Art du Luthier" - An old (1903) and great work covering the whole field of violin making art. Also in French and out of print and expensive.

Wurlitzer Catalog 1931 "Bow Supplement" - Another indispensible work for the connoisseur.

Last and probably least is a series of articleswritten by myself in the Arizona Violin Makers Journal in 1960.

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A quartet is composed of four people, each of whom thinks the other three can't play.

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TAKE COURAGE

THERE IS ONE FACT WHICH IS SO VERY OFTEN OVERLOOKED BY THOSE WHO STAND IN AWE OF THE GREAT ITALIANS, AND THAT IS: WERE IT NOT FOR THE INGENUITY OF THE MODERN [illegible], THERE WOULD NOT BE ANY GREAT MASTERPIECES LEFT FOR THE WORLD TO ENJOY.

CHARLES D. SMITH.
VIOLIN MAKER

AN INVESTIGATION INTO THE GRADUATIONS OF STRADIVARIUS AND GUARNERIUS VIOLINS

by Don White

PART 11:

I feel that the above title - or at least the authors name should be changed! Possibly Don White should now be classified as "Moderator" instead of Author, for greater men than he have long since absorbed him in their wisdom. Still that matters little as long as we in some manner arrive at "The Truth".

OLD MASTER GRADU TIONS:

For the record I would, at this point, like to insert table of Graduations recently sent me by E.H. Sangster a pursual of which might reveal facts.

First, back gradu tions of Strads: - In 1672 - back at center 14/64"; 1680 ¼" at center of backNow turn to the last 3 on this list: 1727, 1733 and 1736, here we find backs at center only 9/64" (not much over 1/8") Follow the whole list down and you find a gradual thinning of Backs. Strads tops were more consistent.

GUARNERIUS GRADUATIONS:

Guarneri kept his backs pretty well the same throughout the years, but see what he does in 1742 e
one top, 2nd from last) thinner in the center than at the edges. It might be well to think over these graduations before we accept any "official" figures given to us by orthodox text? books. The following are the tables prepared by Mr. Sangster.

STRAD GRUADUATIONS:

1. Date 1672 back at center 14/64" to 5.6/64" at flanics. Belly between 5 & 6/64" all over.
2. Date period of 1680-84 Back ¼" to 6/64". Belly 1/8" to 7/64".
3. 1686 - Back at "C" 12/64" Grad - to 6/64" - Belly 7/64" to 6/64"
4. 1689 - Back "C" 11/64" to 6/64" at extreme edge 4/64". Belly between 5 & 6/64".
5. 1690 - Back "C" 11/64" Grad. to 7/64". Belly 7 & 6/64".
6. 1690 - Back 12/64" to 7/64". Belly all over 7/64".
7. 1698 - Back "C" 11/64" to 7/64" - Belly 7 to 6/64".
8. 1700 - Back 12/64" to 8/64" at extreme edges. Belly 6/64 all over.
9. 1704 - Back 10/64" Grad to 6/64". Belly 7 to 5/64"
10. 1709 - Back "C" 9/64" to 6/64". Belly 7 to 6/64".
11. 1709 - Back 9/64" to 6/64". Belly 7 to 6/64".

12. 1711 - Back "C" 10/64 Grad to 6/64. Be ly 6/64 all over.

13. 1714 - Back "C" 11/64 to 6/64. Belly 7 to 6/64.

14. 1715 - Back at "C" 10/64 to 6/64 & 5/64. Belly between 6 & 7/64.

15. 1716 - Back at "C" 11/64 to 6/64. Belly 6/64 all over

16. 1722 - Back at "C" 10/64 t 6/64 at Flanks. 4/64 at extreme edges. Belly 6/64.

17. 1727 - Back at "C" 9/64 to 5 & 6/64. Belly between 6 & 7/64.

18. 1733 - Back at "C" 9/64 to 6/64. Belly between 6 & 7/64.

19. 17[illegible] - Back 9/64 to 6/64. Belly between

TABLE OF THICKNESSES
GENSEPPE DEL GESU

VIOLINS:

1730:

Back Center	12/64
Back Post	11/64
Back Flanks	7/64 to 5/64
Table all over	8/64 full

1735:

Back Center	12/64
Back Post	11/64
Back Flanks	7/64
Table	8/64

1741:

Back Center	12/64
Back Post	12/64
Back Flanks	8/64 to 6/64
Top Center	8/64
Flanks	8/64 to 6/64

1742:

Back Center	12/64
Back Post	12/64
Flanks	7/64 to 8/64
Top	6/64 to 7/64

1736:

Back Center	12/64
Back Post	12/64
Back Flanks	10/64 to 6/64
Table all over	8/64

1742:

Back Center	10/64
Back Post	12/64
Back Flanks	7/64 to 8/64
Table all over	8/64 to 7/64

1742:

Back Center	10/64
Back Post	12/64
Flanks	7/64 to 8/64
Top	7/64 to 8/64

1733:

Back Center	11/64
Back Post	11/64
Flanks	10/64 to 6/64
Top	7/64 to 6/64
Top Flanks	5/64 to 6/64

MEASUREMENTS OF VIOLINS BY DEL GESU

1726:

Length	14
Width	8-1/16
Width	6-9/16
Sides	1-1/4
Sides	1-3/16

1731:

Length	13-7/8
Width	8
Width	6-1/2
Sides	1-1/4
Sides	1-3/16

1740

Length	13-15/16
Width	8-1/8
Width	6-1/2
Sides	1-3/16 full
Sides	1-3/16 bare

1737:

Length	14
Width	8-3/16
Width	6-5/8
Sides	1-5/16
Sides	1-1/4

1732:

Length	13-7/8
Width	8
Width	6-1/2
Sides	1-3/16
Sides	1-1/8

1736:

Length	13-12/16
Width	8
Width	6-7/16
Sides	1-3/16
Sides	1-1/8

1735

Length	13-13/16
Width	8-1/8
Width	6-9/16
Sides	1-3/16
Sides	1-1/16

1743:

Length	14
Width	8-1/8
Width	6-11/16
Sides	1-5/16
Sides	1-3/16

1742:

Length	13-15/16
Width	8-3/16
Width	6-5/8
Sides	1-5/16
Sides	1-3/16

1744:

Length	13-7/8
Width	8-3/16
Width	6-9/16
Sides	1-1/8
Sides	1-1/8

1733:

Length	13-15/16
Width	8-1/8
Width	6-5/8
Sides	1-3/16 full
Sides	1-3/16 Bare

1742

Length	13-11/16
Width	8-3/16
Width	6-5/8
Sides	1-1/8
Sides	1-1/8

1730

Length	13-7/8
Width	8-1/16
Width	6-9/16
Sides	1-1/4
Sides	1-3/16

I will now let Mr. Kristian Skou "take the field" with a furth r elaboration on the Micro-tone system. Some of this is a slight repeat of a previous article but might indic te to our new readers the nature of that which has gone before!

MORE ABOUT THE MICRO-TONE SYSTEM

By Kristian Skou

In this article I would like to bring a report of my experiences with the Micro-tone System up-to-date, but first th re is a little matter of X-Ray tests that I would like to comment on.

I ha e made extensive X-Ray tests of both old and new-wood and feel I can speak with some knowledge on the subject.

For the present I cannot - by x-ray tests - prove that the wood in old violins has received any preliminary treatment before varnishing - nor that it has not. Nor can we prove anything about that by ultraviolet light examin tion of the wood. In "The Strad" (August 1960) Joseph Michelman has an article: "which Is It - Violin Varnish or Finish?" In this article he says: "Recently, the writ r found from an ultraviolet light examination of the wood of old Italian instruments (cross-section) that the wood fluoresced tan colour whereas old virgin wood fluoresced a bluish colour. These facts indic te that the wood of old Italian instruments has received some preliminary treatment through and through- separate and distinct from the varnish on the surface of the instruments." Well- it sounds convincing, said by an authority as Michelman, but it isn't. The fact is that in ultraviolet light recent wood fluoresces a bluish colour - as well in itself as in violins, and very old wood fluoresces a tan colour - as well in itself as in violins. The sample
Pearyland wood fluoresces nearly yellow ith a pink tinge. I have no doubt that Mr. Michelman has seen a bluish colour in the "old virgin wood", but he says nothing about the test used to determine the age o the wood. I should think that it is not so old as he considers it to be, and the only thing his observation ca prove is that the "old virgin wood" is younger than the wood of the old Italian instruments. Well, I have the greatest respect for Mr. Michelman's researches, but just because he is a first-rate man is no reason why we should accept his statements without criticism.

But I think I have a matter of greater importance to the tone production of the violin than treatment or not treatment of the wood. In the August 1960 issue of "The Violin Makers' Journal" of British Columbia I wrote about wh t I call "The micro-tone system". The description of this system was included in a description of a Thomas Balestrieri violin. I shall give the essential from the description of that system, and further on I shall supplement it with my experiences with the system since I wrote the article.

For centuries violin makers have sought for what is called "Italian tone". But what is "Italian tone"? Is it the tone character of all old Italian Violins? No - old Italian violins sound very variously. Some of them sound not bett r than a modern factory violin, and some others - but unfortunately not so very many - sound like heaven. The term "Italian tone" should be attached to the last category. But also a few other violins than old Italian violins - among those also very very few modern violins - are sounding in that way. It is not difficult to give the main characteristics of a good violin tone: carrying power, sweetness, brilliance, sonority, purity, ease in playing, and evenness all over. But "Italian tone" has some characteristics more - I should think at least two: first a fully clarified tone free from distortion, and second those clear, warm flashes when the tone is augmented under the bow. Many violins possess the first mentioned characteristic, but why have a few - mainly the best of the old Italian violins - also the two last characteristics? Is

it because of the varnish and the preliminary treatment of the wood.? No, for some new violins with the characteristics have not this varnish and this treatment, and some of the old violins with this varnish (and this treatment?) do not have the characteristics. Is it because of the right character of the taptones of the plates.? No, for the taptones of the plates in fine old Italian violins are very different as well regarding their absolute pitch as regarding their relative pitch. In some of (and that is the ordinary case) the back has a higher pitch than the belly, in others the reverse is the case, and some are in unison. And furthermore, when the plates are glued to the ribs, and the violin is fitted with sound post, bridge, and strings, the plates vibrate under quite other conditions than are the case with the plates in free state. But why then?

If we shall tune the plates in some way to obtain the best tonal result, we have to base the attunement on such elements that do not alter their tuning with the edge of the plates fastened to the ribs - in other words: we have to tune very small areas of the plates.

"The micro-tone system" - so I think I will call it - has nothing to do with ordinary tap-tones, where the whole plate vibrates. The micro-tone is the audible result from vibrations of a very small area, say a square centimeter or less. From time to time the micro-tone test - or rather: tests approaching to that idea - have been used by violin makers, and is mentioned in the literature, e.g. Karl Fuhr: "Die Akustischen Ratsel der Geige". Fuhr produces the tone by means of a little glass-tube, placing this on the plate, and rubbing it between two wet fingers. The tone produced in that way originates from a somewhat greater area than the real micro-tone, and the weight of the vibrating glass-tube causes a factor of uncertainty.

A better- and simpler - method has been worked out by Mr. G. Sanborn of Sweden, who has described his method in a series of articles in "Slojd och Ton". A very light tap - only as a touch - with the back of a nail on the plate, or a light stroke with a finger-tip produces the micro-tone. Of course, a good ear and some training is necessary to determine this tone, but it can be done. Mr. Sanborn assumes that the old masters worked out their violins in the way that the micro-tone was the same all over the violin, on the plates as well as on the ribs (the bass bar an octave above), and further that the micro-tone was the same as the air-tone of the violin. Well - the idea seemed to be somewhat mysterious, but I got interested, and decided to take up the idea for closer examination. Should the micro-tone be expressive of any physical reality according to the accoustic of the violin. It seems to be so. The same micro-tone at two different small areas seems to be expressive to the same resistance (and reaction) to the same physical (here oscillatory) action. I have taken a bar of spruce: 300 x 6 x 12 mm, and I have tested the micro-tones along the bar. The pitch was rising towards the ends of the bar. Then I formed the bar in the way that the 12 millimetres were kept in the middle of the bar, but towards the ends the height was diminished just as much that the micro-tone was the same all along the bar. Now the ends of the bar were 3 mm high, and the curve from end to end was a true parabola, just the form that for a central pressure gives equal pressure all over.

The pitch of the micro-tone depends on several factors: the greater modulus of elasticity of the wood, the higher pitch - the greater specific weight, the lower pitch - the greater thickness of the plate, the higher pitch - the more wood surrounding the area for the micro-tone, the lower pitch - that is: for a plate of equal thickness all over the lowest pitch is in the middle of the plate, and the highest pitch at the edge. Moreover the arching of a plate is determining: the more acute arch the higher pitch (just the principle that allows us to play on a sawblade).

Encouraged by these physical facts I decided to examine Mr. Sanborn's assumption that all fine old Italian violins have the same micro-tone all over. I have

tested many such violins in that respect, but I have not been able to confirm his assumption. None of the tested violins had the same micro-tone all over, and yet some of them had real "Italian tone". Of course, we can construct a violin in that way, and it has been done. The tone character is lovely (almost Amati-like), but it involves some constructive disadvantages, e.g. the area surrounding the f-holes will be very thin, and also the areas in back and belly just behind the front block will be too thin, resulting in lacking intensity on the E-string. Should then his idea after all be worthless? No, it isn't, for by examination of the old violins I have noticed another thing; in the best of the old violins (those with "Italian tone" and only those) there seems to be a certain accordance for corresponding areas on the belly and the back. e.g. if the belly has the micro-tone "g" in the middle, the back has also "g" in the corresponding area (vertically below), and if the belly has "b" in an area of the bouts, there is also a "b" in the corresponding area of the back. Small divergences are to be found, but the accordance seems to be more than a coincidence. And what is more, this accordance is physically correct. The vibrations in the belly are mainly transferred to the back (and vice versa) through the air-volume, and full resonance can only be obtained if the corresponding areas of belly and back have the same resistance, and the same reaction to the vibration energy.

Should that be the way in which the best of the old masters determined relative thicknesses of belly and back? I am sure it is.

It is the attunement of corresponding areas to full resonance - instantaneous resonance - that accounts for the "flashes". Of course, approximate resonance can be obtained without such attunement, but the sound-waves have to pass up and down several times before the resonance is established. When the corresponding areas are tuned to the same resistance and the same reaction to the soundwaves (in the air volume) the resonance is instantaneous as a flash, and the tone of the violin seems to glow.

And now - what about the micro-tone system in practice? Should it be possible by means of that to get nearly every violin - old or new - to play with "Italian tone"? I think it should be possible. I have tried the system in practice - with new instruments, and with old ones, and the characteristics of "Italian tone" appear independent of the age of the instrument, and no long time of playing is necessary to develop the tone.

The most convincing example I think I have is an old "Klingenthaler" violin, a copy of a little Antonius & Hieronymus Amati violin. A violinist was its owner (and it was not his best instrument). Years ago the violin needed some repair, and as there was no violin maker in the town, where he lived then, a cabinet maker performed the repair, and thinking the varnish needed some finish he varnished the violin over with a thick layer of a very hard and durable kitchen-table lacquer. The tone of the violin (if we can speak about any sort of violin tone) was as if the violin was made of cardboard. As an experiment I took this violin apart. The varnish I let remain as it was, but I tuned the plates to the same micro-tones for corresponding areas, and also the ribs I tuned to correspond with the nearest plate areas. I tuned the sound post to correspond with the areas, where it should be placed, and also the bridge was tuned in that way. And the tonal result? The violin had all characteristics of "Italian tone". The violinist was happily surprised. This inferior instrument sounded much better than his favourite old French violin.

I think the micro-tone system is so fundamental in violin making that only when the violin is tested to that system, it makes sense to discuss the effect of other factors such as the varnish, the preliminary treatment of the wood etc. To make a comparison between two violins, one with preliminary treatment and one without, but none of the violins tuned to full resonance, would be the same

as to compare the quality of two wireless receivers, none of which is tuned sharply in on the station.

As the belly is the more complicated of the two plates it is practical first to work out the belly in the way desired, and then to tune the back to the belly, but here it is useful to remember that the surface [illegible] maple of the back) will harden after the original surface has been removed, and the micro-tone will rise. For that reason it may be necessary to repeat the attunement of the back several times.

When building a new violin I only perform a preliminary attunement of the plates, and the belly I glue very slightly to the ribs. Then the outer surface of the violin receives its preliminary treatment with a varnish (or what one will use for that purpose), and with this treatment thoroughly hardened I remove the belly, and perform the final attunement, The outer varnish will alter the relative attunement but very little.

Also the oscillatory action and reaction of the ribs are transferred mainly as sound waves in the air volume (only in lesser degree directly through the vibrating plates), and a tuning also of the ribs will give a plus to the tone production. With ribs of equal thickness especially the acute archings of the bouts will give much too high micro-tones, and have to be thinned. Regarding the ribs of the violin we can say that they only amount to a moderate percentage of the whole vibrating surface. Otherwise with the cello. Very few - if any - cellos have a fully clarified tone, and I should not think this possible without attunement also of the ribs.

And now - good luck, if you should like to try the system, but do not take a valuable violin for your first experiment. It may happen that the practical performance will fall out a little more difficult than it seems to be from my description, and everyone has to gain his own experiences.

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Mr Kristian Skou has promised to describe in detail the Micro-tone system right from the commencement of building a violin until after the varnish is applied. This will br presented in a future

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IT IS NEVER [illegible] NOTICE

Owing to delay caused by the Christmas Festivities and also by the serious illness of the editors wife, the January issue has been somewhat delayed. We to press in good time. We hope this issue was worth waiting for.

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IT IS NEVER THE WRONG TIME TO DO THE RIGHT THING.

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CONVERSION OF MILLIMETRES TO OR FROM INCHES

by Robert Atkinson
Hornsea, Yorkshire, Eng.

The following guide has been designed for the use of violin makers. We begin with:

1.A. Ready Reckoner for Graduating of Violin Plates

Millimetres	64ths of one inch	Millimetres	64ths of one inch	Millimetres	64ths of one inch
0.1		2.0	5	4.0	10
0.2		2.2	5½	4.2	10½
0.3		2.4	6	4.4	11
0.4	1	2.5	6¼	4.5	11¼
0.5	1¼	2.6	6½	4.6	11½
0.6	1½	2.8	7	4.8	12
0.8	2				
		3.0	7½	5.0	12½
1.0	2½	3.2	8	5.2	13
1.2	3	3.4	8½	5.4	13½
1.4	3½	3.5	8¾	5.5	13¾
1.5	3¾	3.6	9	5.6	14
1.6	4	3.8	9½	5.8	14½
1.8	4½			6.0	15

Degree of accuracy: Answers in 64ths are slightly too small, and answers in millimetres slightly too great – an error of .0003 inch on each millimetre. The maximum error (on 6 millimetres) is only 1/8th of 1/64th of an inch.

This ready reckoner has no simple relationship with any other table in this guide. The entries given here cannot be multiplied or added to other figures without error.

For the mathematically minded, here is a new method.

1.B. MENTAL ARITHMETIC:

All results shown in the ready reckoner (1.A) can, if desired be obtained by mental arithmetic, as follows.

To convert millimetres to 64ths of an inch – Ignore the decimal point, and divide by four.

To convert 64ths of an inch to millimetres – Multiply 64ths by four, and enter the decimal point.

The above method is recommended for measurements up to 6mm. The degree of accuracy is the same as in 1.A.

The next two tables, used in combination, can be used for converting all violin measurements in millimetres to or from full inches, decimals of an inch or 64ths of an inch.

2.A. TABLE FOR CONVERTING FULL INCHES TO OR FROM MILLIMETRES:

Millimetres	Inches	Millimetres	Inches
25.4	1	203.2	8
50.8	2	228.6	9
76.2	3	254.0	10
101.6	4		
127.0	5	279.4	11
		304.8	12
152.4	6	330.2	13
177.8	7	355.6	14

RULE: After the full inches have been found or converted by table 2.A, the balance (always less than one inch) can be converted with the help of equivalents in 2.B.

EXAMPLE: (To convert 300mm to inches & 64ths)

279.4mm equal 11 inches
20.6mm x 2.52 equal 5.9 64ths
300mm equal 11 inches & 52/64ths

ACCURACY: This method gives good accuracy, even with the three-figure equivalents.

OTHER METHODS: The rule gives only one of many ways in which tables 2.A and 2.B could be used.

2.B. EQUIVALENTS:

To Convert	To	Multiply figure to be converted by:
Inches	Millimetres	25.4
64ths of inch	Millimetres	0.39688 (or 0.397)
Millimetres	Inches	0.03937 (or 0.0394)
Millimetres	64ths of inch	2.5197 (or 2.52)

And, finally, an obvious method:

3. DIRECT MEASUREMENT:

Although measurements may be converted with a fair degree of accuracy by using a square on a steel rule graduated in millimetres and inches, the ideal would be a white rule with millimetres, inches and 64ths in black, and with a cursor for accurate reading. Manufacturers please note.

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No one should try to do two things at once, and this includes women who put on weight and slacks at the same time.

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X

REFINING OF LINSEED OIL

by Henry Winfield

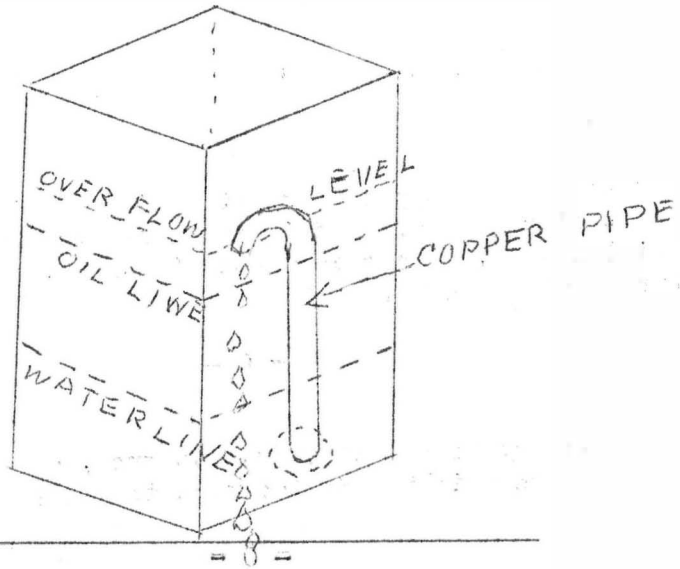
Since Linseed oil has played a leading role in varnish making in the past, and is now being used as a filler on violins by many, I would like to give details on the refining of raw oil, as I have known it for many years.

Get the best grade of raw oil possible, without any other foreign oils added. The utensils are few, its the time, sunshine, rain or snow that is needed to do the refining. A container must be large enough to carry the oil, and water with some top space for safety, so oil will not flow over the top, but be carred just high enough, then a pipe fitted to container to carry of the surplus water from bottom of container. If you are a do-it yourself mechanic the utensil can be fitted up for a few pennies, and an hour of work. I think a square tin of 3 gallon capacity is alright for taking care of 1 gallon of oil, a copper tube of about ½inch diameter. This tube is soldered near the bottom on one side of tin , you have to drill a hole in the side of tin., an inch from bottom, to insert the tube, then it is soldered in tight, the tube must be of a length to nearly reach top of the tin , so the top of tube is bent over and down a little, to let the overflow of water escape. Sketch will show the setup.

I usually start off by putting in about 1 gallon of water then the gallon of oil. The set up is all ready. First time it rains the rain drops, go through the oil, and if the water has risen level with the top of pipe, the water will begin to escape, it works automatic every time it rains. After several months and you are satisfied with the result, you bottle the oil by filtering the oil through a fine mesh cloth, and still place where the sun can shine on it. Your will never want to use a new oil again, once you have had this oil on your shelf. It looks very fine, dries quicker, more satisfaction all around. Refined linseed oil at the stores cost to $2.50 per qt. As made above it is more brilliant and full of fiery luster, and does not have that greenish cast in it.

The sludge at the bottom along with the water, you will no doubt dump out, but you will be surprised at all the horrid stuff, that the rain washes out, and you will be happy you went to the trouble of fixing up the outfit. The wider the tin, the more sunshine the oil receives, also rain. I prefer a wide tin. Take no notice of dust, insects and other stuff getting in, or you could cover over with a netting, if you like.

CAN FOR REFINING OIL.



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SCIENCE FOR THE MAKER #1

by Smiley

EDITORS NOTE:

This is the first of a series entitled "Science for the Maker" and the author is certainly a well qualified instructor. At present holding the position of Electrial Technician at a large Sanatorium in Iowa, U.S.A., as well as being Science Consultant to a company putt

I hope I may be forgiven for presenting a short quote from a letter I received rom the author. I feel this will give the reader an insight into character and approach which will
"The violin Makers Journal is a great undertaking, I hope some day to see "Art and Science" as your cover motto. Science is in good fiddles whether their makers realize it or not. The best fiddles are superb examples of Science, poor fiddles are due to breaking the laws of Science." End Quote. Who will attempt to argue against such a statement? D.M.

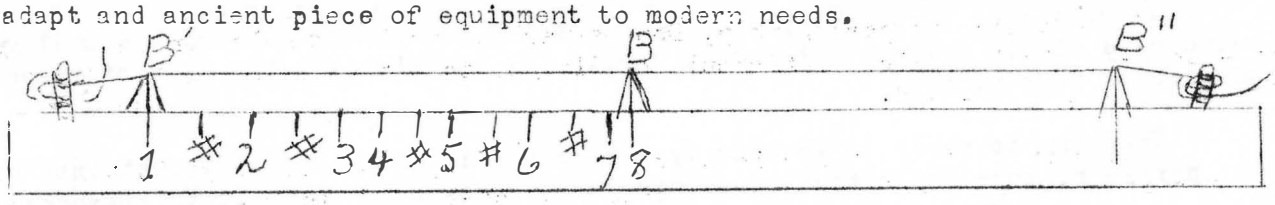
FIRST LESSON

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

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

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

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



The Reference Monochord

Construction:

Maple stick 1 x 1½ x 58 inches.

Maple bridges (3) about 3/8 in. high. (Inter-bridge distance B' to B" is 50¼ inches.) Glue fixed bridges B' and B" near pegs. Observe that B is movable bridge. Tops of bridges 1/16" or less.

Piano pegs (2). Use ¼ inch bit to drill pegholes. Start peg by hammering then twist in with wrench or tuning hammer.

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

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

S.C. #1

Distance Measured from B'	Scale-step	Note	Frequency (cps) Tempered scale
0	1	a	220.00
2 26/32	#	#	233.08
5 15/32	2	b	246.94
8	#	c'	261.63
10 12/32	3	#	277.18
12 19/32	4	d'	293.66
14 23/32	#	#	311.13
16 23/32	5	e'	329.23
18 19/32	#	f'	349.23
20 12/32	6	#	369.99
22 2/32	#	g'	392.00
23 20/32	7	#	415.30
25 4/32	8	a'	440.00

Tuning:

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

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

It would be useful to us to divide the semitone intervals into tenths so we can establish any frequency within a few cycles. (one does not divide by 10! Any volunteers?)

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

The copy is ready to go into my typewriter i[illegible]h pa is sufficient interest on your part--and some indication of eagerness to co-operate in a little research.

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

Your Homework in Standard Terminology:

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

The C below middle-C is called small c and is written c. All the notes between this one and middle-C are written without the hash mark and with small letters. For example, a is an octave below a'. The pitch of the former is 220 cps. Problem: What is the pitch of g'''? What is the pitch of g? Send answers along with your snapshots. Since we will not be concerned with all the octaves in our work it is not

necessary to go into it--is it? Now anyone who looks up those pitches in a Handbook of Chemistry and Physics is cheating.

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

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

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

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

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

- 0 -

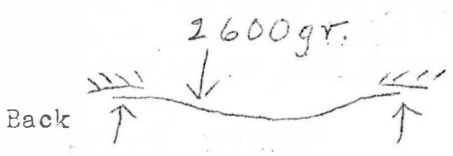
ROELOFF BEURTMAN REPORTS ON NEW CELLO

Dear Don:

I managed to finish the new cello in time for Robert Sayre to play on it. He is from Cincinnati and is in town for 3 days as a teachers', teacher!

Robert Sayre now owns the new cello. Our agreement was, that he had no obligation to buy the cello, unless it was everything he wanted in the instrument, in spite of the fact that he commissioned me to build him a cello. He gave me permission to inform you, that he is exceedingly well pleased. The tone is very big and deep and transparent. His principal violist came to me and said while shaking hands "I would like to shake the hand of a great artist". I was more than flattered.

More dope on the instrument itself. With my flexometer over the soundpost spot the corners restrained against coming up, but not against expanding side ways. The top as shown deflected approximately $\frac{1}{8}$mm. The back I did similar and it also sagged about $\frac{1}{2}$ mm.



I would suggest to cut samples 250 mm long 20 mm wide, resting on supports 240 mm apart and applying 2600 grams in the center to sag about 2mm (plane down thickness to achieve this). This thickness then is the central or least thickness of top and bottom. Then, the thickness near the edges must be so, that when applying 2600 grams over soundpost position the finished top or back (restrained as per above description) sags between $\frac{1}{4}$ and $\frac{1}{2}$ mm. Of course all the other elements as per my book must absolutely strictly be adhered to. The results will be rewarding. All the above measurements pertain to a cello. Fiddles etc. are proportional (thicknesses are about half of those for cellos).

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INTRODUCTION TO "THE STRING SECTION"

We realize that there is now an ever growing number of our readers who are not violin makers. They are players - instrumentalists. People, however, who are interested enough in their choosen instrument to seek knowledge as to its construction. They own an instrument to which they have become very closely attached, they would like to know something of the anatomy of that which many of them declare "has a soul ". A kindr d soul which responds to their every emotion.

It would seem only natural that a small section of our Journal be alloted to these instrumentalists - "The String Section".

The string section is the most important in any orchesta and to the maker the players as individuals, are also most important, for it is to them he must sell his wares. They are his customers.

But let us not place a selfish motive to the introduction of "The String Section". We feel that there are far too many makers who know very little of the music produced by the instruments they make. They attend all too few of the Symphony Concerts The Chamber Music events, or concerts by visiting Violin Virtuos
the demands made by modern instrumentalists upon the instruments which they, the makers build. Violin tone, to them is formulated
fashion, in a small room or basement. Let the maker hear his violin in the enviroment it was created for, played by an artist.
musical atmosphere. Let them join our "String Section".

We hope then, that "The String Section" of the Journal will have the effect of drawing the player and maker into closer contact. The selection of articles for this section will be chosen with that purpose in mind. These articles will be of interest both to the maker and instrumentalist.

Experts, for instance will advise the player in regard to the purchse of an instrument. They will suggest the qualities to look for in solo or orchestra instruments. The maker will in turn, realize the requirements of the player.

We hope to have this new department of the Journal fully orgainized for the February issue, under the directorship of a fully qualified Editor. For this number we have selected some articles which may indicate the shape of things to come. May we remind the instrumentalists that this is their "corner". We will expcet them to write in giving suggestions, asking questions and aiding in contributions. If you like

"The String Section" then keep it alive.

"The String Section" will from now on occupy the pages, commencing from its heading until the start of the Editors' "Wolf Notes."

MOSTLY ABOUT THE PAST

by John Pheasant

I have always been interested in Violins since a boy, but am no great player, don't get a chance to practice much, as I am a widower, with one daughter, who lives at Calve in Welts. I only have a room, but I go down to Calve (near Bath) two weeks every Summer, and every Christmas I spend a week, with my late brothers daughter, at Combe Mursin, North Devon. I have read the Journals and have enjoyed them. Now I don't think I could help any makers, but I will give you my opinions and anything I have experienced in the years gone by.

As regards your Tempera, Eggs were spoken about in the Strad years ago. A Scots maker at Plymouth, where I was then, 1922, only smiled. Now painters did use it, also they ground up small pieces of parchment and boiled it, and made a pigment of it, and covered the canvas with it. But the violin makers could not have done this. At that time the old Italian Painers also made their own paints, and they put their varnish out in the sun in glass jars uncovered, poured a little water on it, in 4 days water be being all clouded, it was remembered and more water put in. This all done to Purify it. (This was in Strad years ago.).

They made their own Vinegar, with sour wine, put in sun and uncovered, quickly went sour.

Years ago in England in the days of Voils (no railways) church county plyed boughs, strings, from Pack Horse Traveller's, and also sometimes made their own from sheeps inerds.

I have read that none of the amber varnishes on the market have any amber in them. If I made an Instrument I should just rub the top with a little turps, and Linseed oil, and then polish it before varnishing with Beeswax. I have taken off tops of several of my own instruments and done a little to them, cracks, etc.

Mr. Elsworth Hill as you know always said never put more pieces in than absolutely necessary.

Now I have read a book about sound lately at the Library and it points out this. String instruments, violins etc. The strain of the strings always pull inwards from each end where the string is stopped. So never play with Bridge leaning forward, it will in time cause Wolf Notes, and unever balance. The tail must be right back to the end of Fiddle, and the bridge exactly the height and thickness to suit it. Not too much cut off the feet. I think the top is best with nearly even thickness, certainly not thin at the edges. Most violins are tubby if thin in the middle but not all old ones) and woody if too much wood.

I listened to a Professional trying out a Vuillaume last week. It seems lovely to me, but I heard him say to his friend it was woody. Now there are lots of Violins in London, beautiful things and nice to play on, and there must be a lot in America. Old Italian more than in England. There are lots of good players too, but a great deal depends on the player as you only hear the supreme tone from a Virtuoso, and they get it on almost any violin. John Dunn for one.

The flute has the same sound as 200 years ago. But todays are much more in tune on all scales. Many more holes, and in different places, making it easier to play. I have a good flute (15 keys). I also played Clarinet for years but don't now.

If a Piano is played quite a lot, like in a Music Hall, it gets worn out, the sound board dies, no vibration left.

Of course I have been to some concerts and heard great Players in my time, but not lately. Also I remember years ago a clown who had a row of pigs made like bellows and in this circus he played the violin and ran up and down with his feet, standing on them, and each giving out a loud note. Also I remember a travelling concert Family. Walford Family from Chard in Somerset. They are all gone now, but they toured the South here for years. Hand Bell ringers, the father and son, 500 bells. The young lady played on tumblers and wine glasses, with roesin gloves. They had a pine Harp. The only one I ever heard. 8 feet high with long rods, which I think were glass, covered thickly with Resin, and resin gloves over the hands. Don't often hear a Harp now, but they have them in Wales, and London Bay Orchestra.

Well I had a nice letter from Mr. Sangster, as you know I told you I was in Halifax when he was there. I am old now, quick to daydream, but slow to learn. Glad you have some nice promising youg students out there and that Austrailian maker (N. Miller, seems to know a thing or two.

LETTER FROM MR. C.L. JONES
Fareham Harts, England

Editors Note: I take the liberty of printing this letter, not only because it takes my memory back to my native land but because it also contains "Violin Talk".

Dear Don:

Firstly this Welsh question - you obviously have a great love for South Wales and who would blame you for that, and with it I hope you have that fervour which only a love for anything can produce.

You have mentioned Newport but I am sorry to say that I do not know it, but there one cannot go everywhere even in such a small world as this. However I do know a little of South Wales for one of the loveliest memories I have is of Swansea and the surrounding coutryside - The Mumbles - Gower Peninsula - Rhossili Bay a miniature Bay of Naples if ever there was one. It would be possible to go on and on but I feel that I must mention Neath - Llanelly - Merthyr and Brecon all of which are set in the most beautiful country.

For myself I am not strictly speaking a Welshman, but can honestly describe myself as a 'border Man' by upbringing despite having Wolverhampton as my birthplace. For many years Shrewsbury was my home and as you will know this fine town is within a few miles of Wales, as Welsh as Hell man! and indeed it was quite common especially on Market days to hear the Welsh tongue spoken. From such a centre as Shrewsbury it was comparatively easy to explore North and Central Wales, and a very favorite run was to Llangollen via Chirk. This lovely old town in the Berwyn Mountains is now as you no doubt know famous for the International Music Festival which is held there each year. I have not been to a Festival but there are attractions enough and to spare with or without a Festival in Llangollen. The Bridge over the Dee and the Horseshoe Pass are but two of them.

Snowden and its surroundings are breathtaking but for peace, quiet, and that

feeling of other worldliness than mid-central Wales the focal point of which is Llandinam is to my mind something to be experienced. Before leaving North Wales I must mention Bala - Newtown and Welshpool inland and Barmouth with Cader Idris on the coast. But where is one to stop with such beauty all around.

Now it is time to return to Fareham - do you know it. It is a pleasant little town with a population of roughtly 28,000, situated almost midway between Portsmouth on the east and Southampton on the west, within easy reach of the sea and country which again in quite a different way to the Welsh scene, is beautiful.

One of the passions in my life is music. I myself play the Violin, 'cello and piano, but not as well as I would wish. My wife Jane also plays the piano, again not as well as she would wish. Needless to say we spend as much time as possible making music in our own home.

We also like Concert going and are fortunate inasmuch as since the Guildhall at Portsmouth has been rebuilt after almost complete destruction during the War it contains one of the finest Concert Halls in the country. The Opening Ceremony was performed by the Queen in June last year, since which some of the finest Orchestras in the world have given concerts together with many famous soloists.

Now to this weighty and all absorbing subject of Violin making.

I do hope that you do not consider me ungrateful in not writing to you before this to say how I appreciate your sending me your Journal, and your Association for promoting such a stimulating paper.

There is no end to learning as you well know and I have, to say the least of it, been surprised at the diversity of thought, and ideas as expressed by your various contributors, to say nothing of your own personal writings.

For my own part I am somewhat perturbed by the almost universal cry, upheld largely by your Journal contributors, and I feel you yourself as Editor, for more science to be applied to violin making.

I am not certain in my own mind that science and scientific aids can help in producing better violins. Quicker and measurably more accurate mechanically, yes, but musically and artistically - I wonder!

I have been interested in violins and violin making for a great number of years and in addition I have spent a considerable amount of time and thought on the question of varnish. It is always very difficult to say whether one is able or not to make an instrument which will be the 'Strad' of 200 years hence, or concoct a varnish which one knows will make the World stare. Again it is difficult to pass judgement on what the rest of the world is doing and one can only appraise and try to be just. There is however one thing which I think can be said and that is that no one has yet put out a formula for a varnish which can fairly be described a match for the varnishes of the past, particularly as to texture. Making violins and varnishes are subjects one can, given the right company, talk about for hours.

My first violin was made in 1930 followed by two more around 1932. The tone is considered very good and I keep them in playing order using them each in turn.

I made my first 'cello in 1930 and a few years ago I had very good fortune to have it played by Maurice Eisenberg who considered the tone excellent. I hope to make and even better one in the not far distant future. During all these years I have continually experimented with the making of varnishes and I believe that I may be on the threshold of success. If and when I fell that something has been accomplished I will certainly let you know. You will, I know, well realize that varnishes cannot be judged, only over a considerable period of time.

OUR NEW ADVERTISERS

THE HOUSE OF SCHERL AND ROTH:

The Journal feels a distinct honour to be associated with the firms that are now favouring us with their advertising.

Not the least of these is the firm of Scherl and Roth of Cleveland Ohio.

On the mention of the name Scherl and Roth our attention is immediately focussed upon Roth for among the leading makers in America Ernst Heinrich Roth must appear in the forefront, also his illustrious father.

Both these superb artists have created instruments that are sought after by the world's leading violinists.

One of their catalogues is devoted entirely to a description of these two makers creations beautifully illustrated in color.

The advertisement Scherl and Roth have placed in the Journal features the famours "Pirastro" Strings made by the Wondertone People. There are probably more good violins fitted with Wondertone Strings than any other brand. Why? Because they give the artist complete satisfaction and do justice to any instrument.

Scherl and Roth are the distributors for wondertone strings for North America, you can be sure of receiving Wondertone from the firms listed in their advertisement.

They also have the Agency for the famous Caspari Pegs. These pegs must not be associated with what we used to describe as "Patent-Pegs".

Roth installs them (by request) on his very best instruments. That would not be allowed were they not completely satisfactory both in appearance and usefulness. We advise sending for the Scherl and Roth beautiful new catalogue. I will have more to say about these pegs another time.

JOSEPH WALLO:

Many of you will wonder why we have allowed an advertisement on guitars in the Journal. We do so because we know many violin makers also make guitars and from Joseph Wallo they can now purchase the same wood used by him in the building of his world-famous Guitars, and at a moderate price.

Joseph Wallo started his career building violins with the firm of H.A. Weaver Washington, D.C.. Mr. Wallo is still associated with this firm but concentrates, almost completely on Guiltar making and repairing.

Joseph Wallo Guiltars are played by the top guitarists - Aaron Shearer, Manolo, Lamas, Charlie Byrd and George Yeatman to name only a few. Such players are only satisfied with "The Best"! Mr. Wallo: We are very happy to have you with our group.

OTHER NEW ADVERTISERS:

Next month we will tell you about other new names in our advertising pages. When purchasing from any of these firms please say "I saw it in the Journal."

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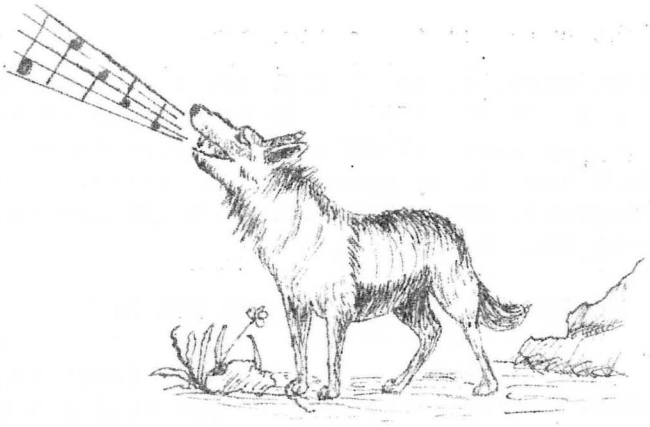
WOLF NOTES

by The Editor



CHRISTMAS MAIL:

May I take this opportunity of thanking the many, many friends who through their Christmas Greetings helped to make the Festive Season one that I can never forget.

The most valuable possession we can ever attain is the friendship of our fellow man, and the many scores of Greeting Cards I received show that in this regard I must be a very wealthy man.

May I, at this time, thank all of you, for it is impossible for me to write each individual. You make my work seem a great
"God Bless you evry one!"

THE AMERICAN STRING TEACHER:

A few weeks ago I received my first copy of "The American I am very highly impressed with this magazine.

There are among its pages much valuable material of vitel interest to the Violin Maker, as well as to the player. The organization is doing [illegible] organized mainly through the universities in a great many states.

These separate groups also send out a monthly bulletin which is no mean effort. I have received two, from different states. Each of these publications describe the work being done by the main organization in promoting school orchestras and encouraging music playing in general.

BOW, CELLOS, AND DOUBLE BASSES:

We still need more information on these subjects. If you have plans of a Bass send them in, I will be glad to pay a reasonable price for them.

I must thank Mr. Alfred Slotnick for the very complete list of books which may be obtained on violin and cello building and repairing and another list on Bow-making.

Alfred also sent me a hint on repairing cracks in violin plates. Here it is:

"Did you ever pick up a violin whose belly seemed or actually showed flat surfaces on the belly. If you hadn't observed this already, the fault is the patches that are glued to the underside of the belly to strengthen a repaired crack. What happens is that the patches which have been glued crosswise to the grain and made to conform to the

slight curve of the belly, after a number of years seek to straighten out, in the way that water seeks its level. In the course of straightening, and providing the glue holds fast, the belly curve flattens to conform to the patch. But if the patch is prepared in diamond shapes and glued, points on the crack, with the patch grain crossing the belly grain at 45 degrees, the patch will then conform to the belly curve, instead of the belly conforming to the flat patch.

NEW SERIES ON SCIENCE FOR THE MAKER:

On another page of this issue you will have noticed the above mentioned new series. I hope that many of you will get busy and build a Monochord. Those of us who tune our plates will if we make one - be able to state the precise note or frequency we are tuning our plates to. Lets show our appreciation by sending in Photographs! And don't forget your Homework!

THE JOURNAL OF THE FUTURE:

A month or so ago I suggested that sometime soon now, the Journal must advance in the matter of its make-up and asked readers how might be the best way to improve the printing and how best to meet the extra expense.

I have had several letters expressing their views. Most think some sort of printing which would allow for good illustrating would definitely be a step in the right direction and suggest the "off-set" process. Most think the price could not be raised and still retain or increase subscriptions. Here is a letter which sums up the situation very neatly:

In asking for opinions from readers as to continuing the Journal as is or think of having it printed I think I would vote for a printed publication because of the pictures. As they say one picture is worth a thousand words. I know it would be a long wait for an issue but every other month would probably be the practical way to cut costs. "The Violins and Violinist" is every other month and a wonderful magazine. Many readers write in the letters to editor column that they wish it was printed every month. The Editor replies that for those who actually construct the projects in the magazine it requires 2 months for most to make them. I would personally be glad to even reduce the issues and raise the price but feel that for others maybe the present price is tops. A printed Journal would be more durable to keep and also use and occupy less space. Consideration could also be made of reducing the issues to every other month during the summer as I know for myself other interests are more prominent at that time. There are other methods of printing besides mimeo-graph which could be looked into that are capable of reproducing pictures and I am sure in a city the size of Vancouver there are facilities for it. We use a method in the highway department called xerography by which we reproduce our plans and also prepare manuals etc. Pictures are taken at the same scale, reduced or enlarged and a plate made from which as many copies as desired can be run off. on a small press. I'm sure you'll get plenty of suggestions. Good Luck.

H.E. Wendell Pratt,
Concord, New Hampshire.

THE STRING SECTION:

Speaking of an improved Journal, I hope our Readers will give approval to the new department we have inaugurated this month. We will be glad to hear your reactions. To the Violin Makers let me give assurance that as long as I remain in the Editor's chair the Journal will continue to be expressly a Violin Makers Magazine. Anything printed in the new section will be equally digestable to the maker or player. Remember violin making is my hobby and I am not likely to depart from it.

GREAT MINDS:

They say great minds think alike! Would you believe that three separate readers sent in conversion tables for inches and millimeters. Within four weeks of one another we print this month the most complete table. In a month or so we might print the others, just to keep the subject in your minds.

It has been suggested that all the measurements in the Journal should conform to one system of measurement and millimetes seem to be the one most favoured. I did all the graduating of my last fiddle with millimetes and got used to it very quickly. At present I "think" in sixteenths of an inch and easily "visualize" one and a half sixteenths Sounds silly doesn't it?

CARL FARSETH:

My sincere friend Carl is always throwing short "facts" at me. Here is a sample.

"Cozio di Salabie claimed Cremona Makers sized their violins with Glue-water. I used it many years ago on my first sizing job. The violin was sweet-toned but weak!"

CLIFFORD HOING'S COLOURS FOR VARNISH:

Local Members were very impressed with a demonstration I gave, mixing these colors with a clear varnish, while one reader, Henry Winfield, wrote in saying it was just what he had been looking for, for years. You can get any desired shade from a few grains of "color" added to the varnish you may at the time be using.

IS A VIOLA A TENOR VOICE OR ALTO:

I made the statement in one of my articles that the Viola in a quartet should be classed as the Tenor voice. Placing the 4 quartet voices as follows: 1st Violin Soprano, 2nd Violin, Alto, Viola, Tenor, and Cello, Bass. Mr. Clifford Hoing has this to say. Quote:

"Many thanks for your two letters. First to explain that as there was actually an instrument called a Tenor which was tuned an octave below a violin and an octave above the cello, it seems obvious that the viola should bear a term to indicate a compas of tuning above the Tenor.

The second violin of a quartet is still the same kind of instrument as the first violin whatever notes it has to play. An instrument should be named according to its compass of tuning and not by whatever notes it is called upon to play.

A cello is still a cello even if it is played on the top-most positions of the A. String.

ABOUT THE LATE WILLIAM ROBINSON AND OTHER ITEMS:

Mr. Howard L. Apps of Luton Beds, England writes: Quote:

"As you remark, William Robinson's violins will provide a fitting memorial. On the subject of modern instruments I am reminded of the story told by Dr. Percy Scholes, author of the monumental "Oxford Companion to Music", about a performance by the late Albert Sammons. A member of the audience was heard to remark "What a lovely Strad!" Dr. Scholes pointed out that the instrument was not a Strad but made in London and completed only a fortnight before. This only illustrates what was proved more than a century ago

and was mentioned by the distinguished French scientist Felix Savart - namely, that when some Cremona instruments were played alongside modern fiddles by a professional violinist nearly all the eminent judges were deceived into thinking that the modern instruments were the old ones. Taking this argument a step further we can say that in the end a great deal depends on the man with the bow. Some time ago when a discussion on the merits of old and modern instruments came up Sir Malcolm Sargent wrote to say that at a rehearsal he had seen Kreisler take up instrument after instrument from members of the orchestra and draw from the violins a tone that simply amazed their owners."

NORBERT BRAININ - VIOLA: Radio Times, 10,Nov. 1960

When on behalf of the BBC I rang Norbert Brainin, the leader of the Amadeus Quartet, and suggested that he take the viola part in Mozart's Clarinet Trio (to be broadcast in Music at Night), there was deep silence at the other end of the line. Eventually, he said he hadn't played the viola for twelve years he didn't even possess an instrument--and why did we want him to play it anyway? I said I well remembered his viola tone which, I thought, was an important kind of tone nowadays: his was a real characteristic viola style, and as a characteristic instrument, the viola was going through a crisis, especially in chamber music. The influence of the concert-hall and the development of virtuoso technique, not to speak of the making of ever larger instruments, threatened to turn the viola into something bigger, but hardly better--into a magnified violin without the personality of the fiddle.

Brainin accepted the proposal, however reluctantly. He borrowed a small but well-responding Italian instrument and got to work. When it came to the performance, he greatly enjoyed himself: perhaps his own playing persuaded him to see the point of the venture.

Hans Keller

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STOP ME IF

Girl: "You play beautifully. Why did you take up the piano

Pianist: "My beer kept fallin' off my violin."

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APT MALAPROPISM

The mother whose chief worry was that her young but rather unattractive daughter might be an old maid was disturbed that this child had turned down a date with the only beau she had.

"Oh, Harold's such a drip, Mother," she explained. "I dream of a man who would take me to a far away island and sing me love songs."

"Well," advised Mama, "next time Harold calls, you go out with him. A drip you can get, but a Robinson Caruso you cannot."

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