

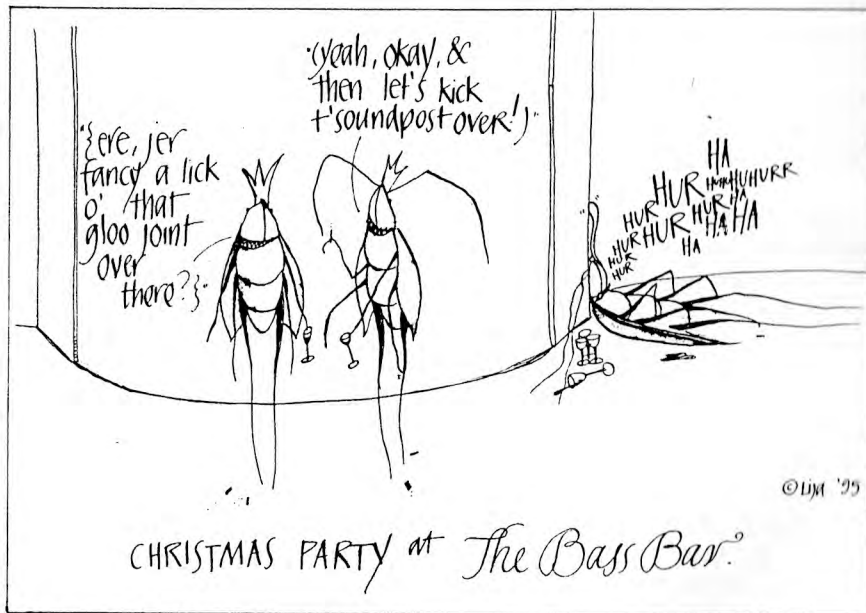
# The Back Page

## Author Requests Instruments

Jan Strick has written from Brussels with a request for help from the B.V.M.A. membership in researching a book on the old Flemish School of violin making. He states that the work is quite far advanced and that in particular he would like anyone owning Flemish instruments of the 17th. and 18th. centuries to please contact him, with a view to possibly including these instruments in his book.

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(Jan Strick has been confirmed as one of the speakers at next years Dartington Hall Violin Conference....Ed.)



CHRISTMAS PARTY at The Bass Bar.

This Newsletter is printed and published by the British Violin Making Association. Correspondence and articles to go to the Editor, Shem Mackey, Winchester Wharf, Clink Street, London SE1 9DG. Contributors to this Newsletter express their own opinion and are not necessarily those of the BVMA.

# Newsletter

of the British Violin Making Association

Editor: Shem Mackey

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## Editorial

### Dartington

The Violin conference at Dartington was probably the best attended in the series so far, and much credit is due to the Dartington Hall Programme for a very well organised two days. Next year's conference will again be held at Dartington which should be good news to everyone who enjoyed the self-contained isolation in that beautiful part of England. This time the conference will be run under the joint forces of the Dartington Hall Programme and the.....B.V.M.A.! In fact preparations have already begun; at least two speakers have been secured and the dates will shortly be finalised. It is hoped to maintain the same format but with possibly a little more free time to browse the makers instruments on show and have a natter with old friends.

### Transcripts

The talks given at Dartington were taped with a view to publication sometime in the new year, and thanks are due to those members who answered the call for "transcribes" to copy the material to floppy disk, namely John Arnott, Derek McCormick and Frank Roper.

### I.G.M.

The draft constitution of the B.V.M.A. was voted through unanimously at the meeting held at the Royal Academy of Music on 29th. November. There was but one minor amendment which you will no doubt be informed of when the final draft is prepared. The evening dragged on a little leaving but a short time for the celebratory Champagne provided by our most ebullient Chairman. Another matter arising from the I.G.M., of a social nature, was the suggestion by Christoph Gotting that we hold a barn dance. Christoph will organise the venue near to his home in Romsey, Hampshire, and the date was fixed for the last Saturday in May. More details will be available in the next issue of the newsletter.

### Next Issue

The final date for articles etc. for the next issue is February 16th. 1996. Articles already received for that issue include one on Cool lakes by David Rubio and a brief history of the trade in Pernambuco ..

Best Wishes for 1996.

## *Strad Guide to British Luthiers*

"The Strad" magazine will soon be publishing a Guide to British Luthiers, which will contain a comprehensive guide to Violin Makers in the U.K. providing listings and illustrations of their instruments. Each maker will be entitled to a free listing, and will be given the option to illustrate one of their instruments for a small additional cost. The guide will be published in the new year and

will be inserted in an issue of "The Strad" with a guaranteed circulation in excess of 15,000 worldwide. The aim of the guide will be to inform "The Strad's" readers of the range and quality of U.K. makers, and provide them with an up to date directory of current makers names and addresses.

A listings form will be posted shortly.

## What's the Buyer Looking For?

Peter Trevelyan discusses what he wants in a new instrument.

The purchaser of a new violin will want an instrument that looks the part, is easy to use, and sounds well! It is all very well just to say that, I know, and quite another to offer advice to an experienced violin maker on how to achieve it. What has surprised me, as a not infrequent purchaser of violins and violas, is just how often new instruments fail in one or more of these three respects. So I hope the following comments will be of some assistance.

### Looks

First impressions of an instrument are obviously important; that is why I suggest that the instrument should "look the part". Nothing is more crucial here than the varnish - why then use a varnish colour that may only mature in 200 years, if then? Just because it was thought that a distinctly red ground was used on some Cremonese instruments does not seem to me to be a good reason to use a bright red colour for a modern instrument.

Then, there is the question as to how polished the surface should appear. Should one be able to see, and feel, the texture of the wood underneath? That depends, of course, on the character of the wood itself. The best varnish will bring out the figuring, the appearance of an extra layer on the surface of the wood. (Highly polished old violins

often seem to me to be like a petit-four pastry heavily coated in gelatine - an unnatural product if there ever was one!)

Unusual decorative features, such as an inlay on the tailpiece, can catch the eye and give the instrument a distinctive personality that is likely to appeal to a new owner. Only a minority of purchasers will know about the intricacies of purfling and bee-stings, of arching and design but, as with a piece of fine furniture, most will appreciate if the overall finish is to a high standard.

### Ease of use

When, as a player, one comes to pick up a new instrument, it is fundamental that the pegs can be turned easily and the instrument readily tuned. There have been occasions when I have been obliged to hand an instrument back to the maker with the comment that it was unplayable because it simply could not be tuned!

Even once it is in tune, that may not be the end of the story. It is essential that good strings have been fitted and they have been checked. Strings can occasionally be faulty or not ring true - one simple check is to take a pencil and see if it needs to be angled in order to get a true fifth between the different

strings. If it does, then one of the strings could be at fault.

Many purchasers will have no idea whatsoever about the significance of bridge height, or the setting of the strings; nonetheless these can have a dramatic effect on the ease with which the instrument plays. This is particularly crucial for violas where stopping fifths across two strings can be made much more difficult if the spacings are even slightly wrong, but these parameters can affect violins too. For example, if the bridge is too shallow, it can be more difficult to play forcefully on the inner two strings.

There are more subjective aspects, such as how easily the instrument speaks, and whether the tone colour is even across the pitch range. I don't think anyone can say for certain why difference's exist, but instruments do seem to vary considerably in these respects. Some instruments play effortlessly, whereas with others the sound has to be drawn by hard work on the player's part (this applies both to new modern instruments and to old instruments). My experience is that with different set ups, totally different responses can be obtained from the same instrument. The bow, of course, can also make quite a difference; you may have to encourage a prospective purchaser to buy a new bow to get the best from your instrument (this is particularly important in the case of viola players moving to a larger size of instrument).

One of the first tests I make, when assessing a new instrument, is to play (moderately) fast semi-quavers to see how easily it responds. The other quick test is to play scales across the strings, concentrating on the colour of the sound. Does it change significantly from string to string, or is it even across all four strings? If there are any differences, it may be because of the strings (a particular problem with baroque instruments with a mixture of plain gut and metal covered gut) or the bridge, or the soundpost. Changing or moving these can make great improvements.

#### Sound

This is an aspect of an instrument that may be very much affected by the personal preferences of the player. Instruments do differ in the sound they make and are none the better or worse for this. Another aspect of the sound of an instrument is how it works in an ensemble - does it blend or does it stick out? This can be crucial in a chamber music context and it is simply impossible to tell, in isolation, how an instrument will blend.

I remember my surprise, having bought an instrument that under the ear sounded loud, penetrating and distinctive, to find that it blended extremely well in a small chamber ensemble. Since then, I have always felt it essential to have the opportunity to play in an ensemble before passing judgement on this aspect of the sound of the instrument. And, of course,

different instruments may work in some ensembles and not in others.

contribute to the satisfaction of both parties.

Therefore, do not be disappointed if the first prospective purchaser of an instrument returns with the comment that it simply doesn't make the sort of sound for which he or she is looking.

#### After-sales

Finally, most makers, I feel sure, welcome feed-back on the performance of their instruments. Players are generally only too happy to discuss and comment on their valuable purchase. So, after-sales service can

I know of cases where a player has grown progressively uncomfortable with an instrument, but was unaware that there was a simple remedy. In one case it involved replacing the soundpost, and in another gluing up a joint that was coming apart. Do ask your customers to let you see new instruments again after a few months, and encourage them to keep in touch thereafter - after all, one satisfied customer may lead on to yet more sales - good luck!

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## *“Neither a billiard ball nor an old brown violin”*

William Castle takes the middle ground.

It seems to me that the dilemma facing the violin maker of whether to make new looking instruments or to age them is a reflection of the state of our culture at large. Take our houses upon which we lavish so much care and attention as an example - carpets wall to wall, doors of equal size and kitchens smooth and shiny, covered in plastic just like every other house in the street. This “high” standard of living, this apparent quality is only skin deep, the Formica hiding poor construction, soul-less chipboard and more plastic. Even then the chipboard and plastic don’t reveal the oil rigs, chemical works, chipping mills and industrial estates where they were made.

We seem to have no perception of intrinsic quality, as long as all the handles are just the same, the units all fit together and it looks shiny and new, then that’ll do fine, until of course it falls apart or the “Oak look” isn’t “in” any more; so we throw it out and start again to buy yet more of the dull and lifeless, the bland and uniform.

It is small wonder then to see modern violins exhibiting these same characteristics. Notice the edgework

ever so precise, the purfling corners all absolutely identical, scrolls so evenly cut with ne’er a gouge stroke to be seen, and varnish insipid and shiny, polished up like a billiard ball. Such instruments leave me cold; all they tell me is that the maker is a good technician, that he can produce something which looks like it could have been made by a machine. When I look at a violin I want it to reflect the character of the maker, not to see my own reflection mirrored in the surface polish.

The reaction against this is to seek out the old and interesting, or, for a violin maker to make something apparently old and interesting, just as the householder, becoming aware of the blandness of his surroundings will buy an old chest or some other antique to introduce something of quality into their homes. Whether this works or not depends on how it is done; whether it is integrated into what is already there or a gimmicky addition.

In violin making the worst of this tendency can be seen in what I call the “brown violin”, where dirt and opaque pigments are incorporated in the varnish before it is applied, to an

instrument carelessly made, and then an odd scratch or two added and the varnish rubbed away a bit.

At the other end of the spectrum are the instruments that are well made to start with, varnished with a good varnish and then put through the processes to make them look old. The level to which this artificial ageing is taken can vary tremendously, as does the degree to which the maker may copy an old instrument made in the makers own style but most likely more or less modelled on an old instrument, with light to moderate wear patterns. The other side is represented by the copy where an individual instrument is copied in every aspect, wood, archings, varnish, scratches and all. This must be the most demanding test for the violin maker, requiring not only the skills to reproduce every nuance but also the understanding to see how it all comes together.

Such work when well done no doubt results in interesting instruments, which is presumably the intention, though I know some makers question it’s value. But like the old song “its not what you do, its the way that you do it”, it is the intention and state of mind of the maker that dictates whether the result is a muddy shadow of the original or, to use one of Roger Hargrave’s words, a “classy” instrument. To make a classy instrument you need to see and breath classy instruments, to observe and to understand. Copying an instrument

makes you question how you do things and forces you to look more closely, which in turn improves your own work.

Ultimately it is the classy instrument of today which will be the classy instrument of the future. The billiard ball and the brown violin will not be in the picture. However for the present the instrument made with flair, maybe somewhat asymmetrical, with tool-marks and possibly an odd chip in the wood where the varnish lies thicker will be more acceptable when aged than when in a new condition, but either way the instrument which speaks to you immediately in picking it up gets my vote every time.

I am sure that the speed of the late twentieth century, the ever present demands on our attention, the lack of quality and short termism make it an uphill struggle for us to do quality work. Compare this with eighteenth century Italy when everything was hand made, the fastest thing on wheels was a horse drawn carriage and the makers worked within the spiritual security of the Catholic church in an active and developing tradition of violin making already two hundred years old. The classy instrument was a result of working in that atmosphere. To create something comparable today we need to bring something of that atmosphere into our lives and workshops which in turn will be reflected in our instruments.

# Surface Preparation

More on the elusive undercoat - David Rubio.

Like so many of us who have wondered what it was that has protected and even enhanced the appearance of the wood on the great violins long after the original varnish has worn away and because I have the good fortune to be living in one of the worlds most important scientific research centres, instead of floundering away with my own personal theories, supported only by myth and legend. I asked the simple question.....What is it?

The research fell into the laps of Claire Barlowe and Jim Woodhouse and without going into the saga of how the fragments were obtained, they have been able so far to examine something like 50 fragments including several Strads. Some of their findings were published in the two part article "Firm Ground" in the Strad Magazine of March and April 1989.

No two fragments showed the same results, even different readings were observed in different parts of the same fragment. Nevertheless, all the same bunch of elements appeared in all the fragments just in different proportions. The layers were very thick, average 30-100 microns thick. Clearly deliberately applied, sometimes in layers, and adhered strongly to the wood.

The first and obvious question that was asked was could this be stuff left after smoothing the wood with

something abrasive like pumice. There is simply no way that a layer of pumice could have been left 100 microns thick, or even 3 microns besides which the analysis of pumice is quite different.

Without the benefit of crystallographic analysis, the Chemistry Professor at Cambridge University, considered that the end product was basically Calcium Silicate with a soupson of other salts. Jim and Claire tend to refer to it as either "stuff" or 17th. century polyfiller. Whatever label it is given, the evidence shows that it is there and in quite large quantities and that just about everybody in Italy during the 16th. 17th. and 18th. centuries was doing it. Even across disciplines...A materials scientist at Rome University was asked how the Roman statues had survived the rigours all these centuries. He discovered that many of them were also covered with a layer of similar constituents.

With the help of our mutual friend Roberto Regazzi, I was able to obtain lumps of Pozzuolanic rock which contains similar elements, and I spent a while experimenting with applying this. In the end the Professor of Chemistry worked out a mixture of salts which he thought would contain all the necessary elements and would be both benign to the wood as well as the person handling the stuff. We took

the proportions from one of Claire and Jim's results.....the one which contained the highest Calcium content.

The major problem with the resulting mix was how to get it to adhere permanently to the wood. Early attempts just brushed off once the mix had dried. It occurred to me that as the mix had a high Silica content as well as Potassium, Calcium, Aluminium, Sulphur, Iron and traces of Titanium and Magnesium. Why not apply the mixture in two parts.

So, the recipe (parts per 100) ...based approximately on Barlowe Spectra 18 of sample 21 Goffriller 'Cello';

Aluminium.....7.2	Silicon.....11.6
Phosphorus.....2.4	Sulphur.....6.9
Chlorine.....10.1	Potassium.....4.3
Calcium.....42.3	Manganese..0.03
Iron.....5.7	Sodium.....1.3.

In my attempt to produce a slurry containing these elements in roughly these proportions I mixed 45gms of Calcium Lactate with 10gms Alum, 3gms Manganese Sulphate, 3gms Titanium Dioxide, 5gms Ferric Oxide with chlorinated water to make a thin suspension. Separately I prepared a 50% solution of potassium Silicate. Using a cloth well whetted with Pot Silicate Sol I ragged a coat on to the bare wood. While the Pot Sil Sol was still wet (this requires fast working) I ragged on a liberal layer of the slurry of salts. The chemical reaction takes place within the fibre of the wood and once dried forms a hard concretious layer of (basically) Calcium Silicate which cannot be rubbed away and could even be burnished with an agate

to an eggshell texture. A test I made in a jar with the mixture together gives a Ph reading of just over 7.

The appearance of the layer on the wood is at once very alarming as the wood grain appears to be almost totally obscured by a pink plaster-like covering. Rosin oil renders the layer perfectly invisible up to about 12 microns in thickness as the refractive indices match very closely, never again to be seen without the scanning electron microscope, but does not completely disappear with thicker layers...(I am working on this, although I must say that I noticed a similar obscurity on some of the del Gesu's in New York.)

What are the effects of such a ground? Some things are measurable, SEM pictures show that it is extremely effective as a sealer, not a trace of varnish seems to enter the pores of the wood. I believe this to be a good thing. There is a likelihood that there is a measurable case hardening effect.

Subjective effects as reported by musicians who have made comparisons suggest that the instruments play more easily from new and that new instruments do not seem to be susceptible to the "going back to square one" syndrome.

Incidentally I do not consider that this ground is part of the varnishing process, more an integral part of the construction. So I treat the components while still on the mould. This procedure helps to prevent any distortion which could possibly occur by wetting down a closed instrument

or by the changes to hardness and tensions of individual parts.

(This article was first published on the internet.) David Rubio.  
E-mail...Rubio13@eworld.com



## Report of FFI Talk

Summary of Transcript of talk given by Anna Jenkins of Flora & Fauna International at the 20th June BVMA Meeting

Forests, both tropical and temperate, around the world are being felled at a frightening rate, one estimation suggests that an area of forest equivalent to almost 60 football pitches is lost every minute. In most

cases valuable timbers are extracted in a way that is not well managed and is therefore not sustainable, unless we change these practices we will only add to the list of species that have already been lost.

Our concern is that many of the species used in the manufacture of most high quality musical instruments are critically endangered. Some, such as Pernambuco used in bows, are on the verge of extinction. Others are already extinct, Madagascar rosewood, the preferred timber for wooden flutes ceased to be available from the early 1950s. Cocus wood from Jamaica, was once used to make clarinets, and has also been commercially extinct since that time. The pattern to date is once one species has become extinct the trade swiftly moves onto the nearest alternative, in the case of the Madagascar rosewood trade switched to other rosewoods; Brazilian rosewood was banned from international trade in 1992 by being placed on Appendix I of the Convention on Trade in Endangered Species of Wild Fauna and Flora (CITES). Other alternatives such as Honduras and Indian Rosewood also have dangerously rapidly declining populations.

In coming here to talk to you, it is not my aim to scare you as much as possible by firing frightening figures at you. The facts are indeed very sobering to those making their living from crafting instruments from these endangered timbers. We believe, however, that with positive action co-operation and partnerships between both the music industry and the conservation movement the future of these beautiful timber species can be secured. Ultimately we would like to see high quality instruments continuing

to be crafted from the same traditional woods they always have been. We realise that in order to achieve this goal however there is a great deal of work to be carried out, with an enormous amount of help needed.

FFI has been conserving wildlife since 1903 and is the world's oldest international conservation organisation. We started life as the Society for the Preservation of the Wild Fauna of the Empire and were essentially established to conserve African game for the next season! Both our name and times have changed, but we are proud of our long history and fortunate to have such a wealth of experience as well as a continued trusted reputation in the scientific community.

Our mission is to safeguard the future of endangered species of animals and plants. We concentrate our activities on target species and their habitats world-wide, with particular emphasis on species groups often overlooked by other larger organisations. Our approach is always to promote the concept of sustainable use of natural resources and to recognise that successful conservation management must be based upon a closely monitored system of management, which imposes limits upon resource usage, rather than complete prohibition.

The sound wood project was launched in December 1993 at FFI's 90th Anniversary Reception in the

presence of her majesty the Queen and His Royal Highness The Duke of Edinburgh. Its establishment came in response to the critical endangered status of many tree species essential for musical instrument manufacture. To accompany the launch we published the booklet 'Ebonies and Rosewoods Requiem or Revival?', detailing the current status of many Ebonies and Rosewoods, as well as their historical use within the different instrument families.

Those of you who have already heard about this initiative probably know it as the Ebonies and Rosewoods Project. At the time of the launch the main emphasis was indeed upon these two plant genera, however the project also hoped to secure the future of other endangered timbers, such as Pernambuco, which is, as you know, used to make high quality bows. As the Project has developed we felt that a broader Project title was needed to encompass all the endangered timber species concerned. We wanted to ensure that no misunderstandings occurred and that people did not get the impression that there are only problems with ebonies and rosewoods. Sound Wood was therefore adopted as the Project title earlier in the spring of this year.

In conclusion:

1. Ultimately FFI would like to see manufacturers crafting instruments from FSC accredited timber.
2. FFI does not advocate that instru-

ments should be made of synthetic material as an alternative to wood. FFI wishes to see instruments to continue to be crafted from timbers and aims to ensure the future survival of commercially and ecologically viable strands of timber suitable for use in instrument manufacture.

3. FFI wishes to work with the industry and not against it, we do not advocate a trade ban on these species at the moment. We would like to see concerted investigation and investment into the future of the species upon which the music industry so heavily depends.

4. Even the use of a tiny piece of timber may be unsustainable.

5. We greatly advocate the use of recycled timbers. Old piano keys for ebony for example; one guitar builder has even constructed an electric guitar from an old mahogany bar.

6. Investment is needed to look into alternative timbers, this however will only provide a short term solution and must be undertaken in conjunction with long term initiatives to rehabilitate the traditionally used timbers. It is all too easy to shift the problem from one species to another, as we have seen in the past.

7. By ignoring this problem the requiem for these species will happen all too quickly, however, through co-operation and partnerships between all concerned parties their revival is within reach.

For more information contact Anna Jenkins at FFI, Tel. 0171 823 8899.

## Dendrochronology applied to the dating of violins

A public lecture given by Dr Peter Klein of Hamburg University at the Department of Engineering Science of Cambridge University on 2nd October recorded by John Topham

Dr. Klein started the talk by describing briefly what dendrochronology was. In his rather beguiling German accent he said that it was a method for assigning a 'temporal attribution' (a date) to violins by looking at the growth rings of the front. He distinguished between the natures of deciduous and conifer trees in terms of their cell structure. Due to the pronounced variation between summer and winter growth of conifers, an annual count could be taken. This was not so easy, and in fact impossible in some cases, for deciduous trees such as poplar.

He then talked about his method of measuring the rings and how in some cases rings can be so tightly spaced that reading them was difficult. Also in some case conditions for the tree could be so bad that no summer growth is recorded at all, and in other cases, when conditions favoured it, two growth rings could occur in the same year. He mentioned how in some samples with a special treatment he could reveal the sap wood of spruce and other woods. He thought though that in nearly all cases the sap wood was left on in spruce fronts since the demarcation between the sap wood and the older wood was not so prominent.

He had taken samples from many living trees from 3 areas: An upper Alpine region, a region around Mittenwald in association with the school and the Erz Gebirge region south of Leipzig. When these samples were analysed he was able to set up a database of what he called a 'reference chronology' for each region from the present back to the 1300's. He talked of how there was a considerable difference between trees growing in mountainous regions compared to those growing in flatter plain regions. The rings of trees that had grown in plain regions varied much more and were more unreliable. Growth rings of trees in upper mountainous regions showed greater consistency from tree to tree.

He then showed slides of diagrams showing the dates of the youngest growth rings in a number of German violins and cellos. In one violin the attributed 'art-historical evaluation' (as he put it), or age, was around 15 years older than the youngest growth ring, causing him to remark that this needs some 're-adjustment'. One example was a violin by Ventura Linoral in Vienna in 1581. This was mentioned at the Dartington Conference. His research showed that the front was dated at around 1640. There were

others where the front was a decade or two older than the attributed age. In these examples he suggested the maker allowed the wood a long seasoning time.

He later showed examples of Jacob Stainer violins where the growth ring record matched quite well the attributed age. He then showed examples of 'followers' of Stainer, violins that were being superficially passed off as Stainers. In all cases he showed that the growth ring age placed them between the middle and the end of the 19th century. One was shown to have been made around 1904.

He displayed more diagrams of instruments made by Schelle and Widhalm. He established that Widhalm had made instruments with wood from the same tree some 45 years after Schelle.

At the end of the lecture he was questioned about a few things. He said he had published a few articles in journals and other publications, but that later this year or early next, he will be publishing a book collecting all his research together.

John Dilworth asked him if there was any significance in a fairly consistent bias with respect to the age of the treble side of the front compared with the bass side. In most of the examples chosen, the youngest growth ring on the bass side was older than the treble side. John suggested perhaps it may be the maker taking a slice out for the Bassbar. Dr Klein agreed but could not provide any

supporting evidence.

He mentioned that according to his database all the wood used by Strad was from the Alpine region, which is hardly surprising but is interesting as confirmation. Makers in Nuremberg trying to make copies of Stainer and such like, consistently used wood from the Erz Gebirge region rather than the Alpine region. He cited examples of how Alpine wood was used by makers further afield and particularly mentioned examples of Barak Norman's work that had Alpine spruce fronts.

For further study he cited a book by Dr Mike Baillie about Dendrochronology which was published in 1982. Apart from telling you about Dendrochronology, it shows how statistical analysis assists the ring evaluation minimising errors.

He covered a lot more than this summary suggests. I spoke to him after the lecture and he was interested in coming to the Dartington Conference to give a talk. He seemed particularly interested in the fact that the conference was exclusively for those people interested in the violin family. He was not quite sure who he was speaking to at this lecture since it was held in the Engineering Department at Cambridge University.

Details of his participation at the next Dartington Conference will be given out when the conference is generally publicised.

## Horse hair ---- Bow Hair

Michael Sowden fills in the gaps.

### Introduction

For the past 37 years, since I was 15 years old I have actively been working as a "horsehair dresser" and have handled every possible type, colour and grade of horsehair from all parts of the world but it's only from exhibiting bow hair and talking to bow makers from every corner of the world that I realised that very little information has been published on the subject, so although I have a limited wordage in this newsletter I will try to explain to you the very basics of "Horsehair Dressing" in this issue, but perhaps with the kind permission of the editor I can go into more detail of the various aspects and qualities used in bows in a later edition.

### Bow Hair

Wherever horses are reared in appreciable numbers the collection and marketing of raw horsehair constitutes an important trade. The main sources of supply are countries where horses are either prolific in a wild or semi wild state or are used in connection with agriculture, unfortunately the latter has now declined due to the motorisation of agricultural equipment. Many years ago Argentina and its neighbouring states of south America were our main source of supply, with Russia and north

America coming joint second, Australia, Siberia, China and Europe making even smaller contributions. Nowadays the production of Horsehair (I underline production for reasons that will become apparent later) has changed a great deal with China now becoming the largest producer of all and is estimated to provide approximately 70% of the worlds usage.

The horse provides four different types of hair; mane, body, hock and tail, each has its own particular applications throughout many trades but it is the latter "tail" that I will confine to this article. Tail hair is coarser, stiffer and longer than any of the other types mentioned and can (in rare cases) reach 50" in length, hair lengths in the production of bows range from 28" to 36".

The colours vary from pure white, various shades of grey, ginger, brown and black. Before the procedure of "Dressing" the raw hair has to be sorted and graded for colours and qualities into different lots, this is very important and can make all the difference to the looks and quality of the final bundle of "bow hair". The sorter will separate hair that will yield good black and white as two very



distinct grades, as many white tails contain small amounts of black these are categorised as "light grey" and the tails that cannot be sorted effectively, brown, dark grey will be "dressed" as a "mixed" batch.

The root end of the hair is referred to as the "butt" end or "head" end, the tip is known as the "point" or "tail" end. There is of course a slight natural taper from the butt to point as you will no doubt have noticed. The second stage of "Dressing" after sorting and disinfecting is washing and cleaning, the only way to do this is by "wet hackling", this loosens the dirt, blood and vegetation and also separates and straightens the individual hairs. After a thorough rinsing in clean water the hair is left to dry, with great care taken to ensure all the hairs lie in the same direction as they grew on the tail. When dry the hair is combed "hackled" to separate any short or curly hairs that still remain in the bundles. After this the bundle is "knocked up" by patting the "butt end" with the palm of the hand until it is reasonably solid.

The opposite end "tip" is now carrot shaped with the longest hairs reaching down to the tip of the bundle and the other hairs laying progressively further back according to their individual lengths. When around twelve of these bundles have been "knocked up" they are placed in what we call "first way cards" which are simply wooden

boards in which are fixed several alternately spaced rows of steel pins, which are 6" long and spaced 3/4" apart.

The bundles are then forced down onto the pins with the solid ends protruding slightly from the back of the card, then another identical card is placed over the top and hammered down so that the hair is held between the interlocking pins, making sure pressure is sufficient to allow the strands of hair to be withdrawn reasonably easy from the "tip" end of the card. The "dresser" is now able to "draw" or pull out the longest hairs with the fingers, working across it until he has extracted all the longest lengths of hair. The hairs are "drawn out" and placed in the other hand making sure the ends of the hairs are kept level all the time until enough has been "drawn out" to fill his hand. This is then tied up with a single string and put to one side, the "dresser" will then carry on "drawing" from the card all the hairs which diminish in length and which are then tied up individually until the card is empty. This process is known as "firsting".

After several "first way" cards have been drawn, all the bundles of approximately the same lengths are then packed into a "second way" card on which the pins are finer and more closely set. The solid tip ends of the bundles are set level with the back of the card "drawn" out as before. This

time it's the root end or butt end that is withdrawn and placed level in the other hand and when a handful is drawn off, all the hairs should be approximately the same lengths.

These handfuls are then combed through and strings tied round and down the bundles at intervals then trimmed solid at either end ready for sale to bow makers. There is however, one more very vital, painstaking and most important stage to go through, this stage of processing is unfortunately bypassed by other dressers and unnoticed by merchants who eagerly sell the hair. This is a process called "picking", vital, because it means that we "pick out" any remaining damaged hairs such as "crimped", "chalkie" and any short hairs remaining in the bundle. This process needs correct lighting, good eyesight and a lot of patience, as the bundles have to be inspected practically hair by hair and the offending hairs removed. After this the bundles are re-tied and rendered 99% perfect, thus saving the bow maker or re-hairer valuable time and, to use a well known English saying "tearing your hair out", a phrase which is most appropriate when buying and hairing a bow with hair not treated in this manner.

Earlier I underlined the word "production" as maybe it should now be interpreted as processing. That is because during the last 20 to 30 years "Horse hair Dressing" factories have

very substantially declined throughout the western world with factories in Canada, Austria, South America and England closing down due to several factors, either rising cost of labour, lack of skilled dressers, or the increasing competition from China; some or all of these factors have taken their toll.

This leaves China and Mongolia with the bulk of factories with cheap labour to carry on with the hair trade. Unfortunately the most important element of the skill comes way down the line. The other countries I have mentioned still harvest quantities of bow hair, but instead of being dressed in the respective countries, batches are exported to China to be processed (dressed) and unfortunately is inevitably mixed with Chinese or Mongolian hair (which is not in itself too detrimental) and bought back by merchants in the respective countries and paraded as of "original origin". This can be very confusing to say the least when buying your favourite brand of hair.

Now in my 51st. year I am endeavouring to pass my knowledge and skill down to my three sons who will hopefully carry the business on when I'm long gone and continue to enjoy the respect and confidence of our customers world-wide, while maintaining the emphasis on quality in what is now the world's rarest trade.

*Michael T. Sowden*

*(Master Dresser)*

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### RNCM 'Cello Festival 1996

The RNCM International Cello' Festival takes place from 1 to 5 May 1996, with a very full schedule of masterclasses, solo recitals, concert performances and workshops.

The Strad Cello and Bow making competition will take place during the festival. Instruments and bows completed after

January 1992 are eligible for entry with the closing date for entry being the end of March 1996. Charles Beare will officiate as chairman of the jury.

For more information on the festival or the competition contact the festival office, The Grange, Clay Lane, Handforth, Cheshire SK9 3NR, Tel/fax; 01625 530140.

### Musicora 1996

The International Classical Music and Jazz Exhibition is to be held in Paris from March 22nd-27th 1996. Exhibitors will include suppliers of wood, strings and accessories,

- \* makers, manufacturers, importers and distributors of instrument and bows.
- \* restorers, repairers and dealers.
- \* festivals, orchestras, vocal and instrumental ensembles.
- \* and much more!

The exhibition takes place at the Parc des Expositions-Porte de Versailles and the hours are as follows; Every day from 10 a.m. to 7 p.m. Opening night ; Thursday 21 March From 7p.m. - 10p.m. Late Evenings; Saturday 23 March and Tuesday 26 March from 10 a.m. -10 p.m.

Admission FF30  
Catalogue FF50

## *How do you pick your wood?*

An article on wood selection by Anthony Elmsley

It is a matter of some concern to me that I know very little about the specific properties of pieces of wood I select for the front and back plates of an instrument. When buying wood, assuming that what I'm looking at has a seasoning history I find acceptable and is in a suitable price range, on what criteria do I base my selection? Probably I would first select a number of pieces on the basis of general appearance, then check dimensions and look for distortions, then I might look at the quartering and look for defects such as resin pockets, bacterial staining, water stains, and other discoloration (such as some green/yellowing in spruce which I believe comes from seasoning in the absence of light). Then I would look at the grain pattern, in spruce the straightness, spacing and width of the reed lines. Then, quite subjectively, I would scratch the ends and edges with my fingernails, listening at the other ends and edges to the sound transmission, and scratch and tap the surface of the wood. Then being totally confused I would pick the piece(s) that felt right!

Being inexperienced, back home with my purchases, I would look at them again and start seeing all the defects and unsuitable characteristics I'd failed to notice. At best I might feel that I had some wood that would make a good sounding instrument that

would look nice, and not present too many problems in getting there, but no sense that one piece of wood as opposed to another would tend to behave in a certain way, and certainly no objective, repeatable way of determining likely behaviour.

Experience may eventually tell one what to expect from wood with different visible characteristics if the instrument model remains the same, and vice-versa. From what I've read or heard and remembered, all the thoughts seem to be expressed about front plate wood. Sacconi (1) tells how Stradivari varied his working of wood taking into account its type, "quality", growth ring pattern, and cut (nearness to the quarter). He tells us that Stradivari made bellies of wood with "narrow" growth ring spacing thinner (p.78). If the wood was not exactly on the quarter he made them thicker, and if using wood deemed "less strong" (Sacconi says silver fir *abies pectinata* as opposed to spruce *picca exelsa*) he made them thicker (p.55).

I have read that the strength of high arching allows, indeed demands, bellies to be thinner than lower arched instruments. A common basis for spruce selection today seems to be a growth pattern that is straight, narrow near what will be the centre of the instrument, regularly widening a little

towards the edges. But what happens relatively to the sound if all other factors are kept constant (as near as possible) and the growth pattern of the spruce used is pretty much narrow all the way across, or medium width all the way, or in alternating bands of narrow and wide growth. What is the resultant difference in sound between spruce that feels woolly and that feels crisp before its worked on, and between wood that sounds a bit muffled or clear ringing when tapped and scratched? How does my concept of what's muffled or clear ringing differ from someone else's? If one is looking for visible characteristics that are similar to an existing instrument, the selection process is in a way easier, although actually finding what one wants may be difficult.

There has been a device on the market since 1983 that is claimed to be able to provide useful objective information about the properties of the wood in complete violins (non-invasively, without any risk of damage), and the properties of unworked wood, from calculations based on ultrasound readings; the "G. Lucchi Elasticity Tester".

The idea of being able to obtain objective materials data from existing instruments by non-invasive means appeals to me, as does the idea that raw materials can be objectively tested and chosen because they are likely to have given sound characteristics in a finished instrument. However, to date I've not seen anything resembling a serious study of interesting instru-

ments, or come across evidence of the practical application of the device for violins.

Articles introducing the device have appeared in the Journal of the Violin Society of America (2), and the Bulletin of the Southern California Association of Violin Makers (3), based on presentations by its designer Giovanni Lucchi. In use the tester measures the time ultrasound takes to pass between two points. The time taken figure (microseconds), is combined with the distance between the two points (mm) which one measures. The two points can be chosen to get a reading across the grain, or a reading along the grain. The resulting figure tells one about the density of the material between the chosen points. This density is different for different pieces of the same type of wood even from different heights and parts of the radius within the same tree, across and along the grain. Obvious "normal" features affecting readings are the amount of the wood that is in dense, hard reed lines compared with the amount of summer growth, and the structure of these parts. Readings are also affected to some extent by resin pockets, cracks, worm tracks, and knots, but cannot identify these factors. According to information in the 1986 presentation by G. Lucchi to the VSA2, readings along the grain in spruce are indicators of physical strength to support the downforce of the strings, and across the grain of timbre and volume of sound. This ties in with the principle that material that is strong and stiff can be thinned more

than a weak material, giving the optimum return in sound, and that poor strength material must be left thick, giving a poor return in sound.

Much as I like the idea, it occurs to me that there would be problems with making use of data from testing existing instruments. The BSCAVM article says that in the case of measuring characteristics along the grain in bows, for comparison with unworked blanks (one of a number of other materials testing applications the device is marketed for), adjustments need to be made for the section of grain interrupted by the mortise cut-out. The mortise apparently reduces the reading for speed of sound by 2%. It would seem logical therefore, to assume that complex, variable adjustments would have to be made measuring speed of sound in violin plates, given the pretty much total severing of fibres in carved plates, purfling, and the effects of surface treatments and finishing. Allowing for such factors would be nigh on impossible unless the error margins were nominal and could be covered by standard % adjustments.

In the case of simply comparing raw materials however, it is clear that such a device could be very useful. That the relationship between speed of sound across the grain and along the grain would tend to indicate likely behavioural characteristics seems reasonable. If there are readings that are repeatable for a given piece of wood and different for other pieces of wood, there is at least some objective information about it. It should be

possible to determine what the behavioural characteristics for a given modelling will tend to be, if figures calculated from testing are around about certain values, and what the effect will be if either or both the across the grain and along the grain values are significantly higher or significantly lower. Ultimately, having established a base of data for a given modelling, changes in behaviour that could be expected if modelling factors were changed (such as arching, or rib height) could be looked at.

It would be very interesting to hear from anyone who has experience of the use of the Lucchi tester, or any other device used to objectively test material characteristics, in testing materials in complete violins and using the data for material selection for their own making, or more simply as a basis for selecting one piece of wood as opposed to another. It would also be very interesting to hear ideas on the behavioural implications of visible characteristics of wood, and wood selection, based on more traditional experience.

#### References:

1. Sacconi, Simone F. (1979) *The Secrets of Stradivari*. Cremona: Libreria del Convegno.
2. Lucchi, Giovanni (1986) "The Use of Empirical and Scientific Methods to Measure the Velocity of Propagation of Sound", *Journal of the Violin Society of America* 9-15 Nov 1986
3. Brullo, R. 1984 [translator] "Electronics for the Luthier: A Means

for Valuation, Research, and Verification" Bulletin of the Southern California Association of Violin Makers, Vol.20, No.11, November

1984. Translated from the article by Lucchi, Giovanni Lucchi & G. Piero Seghetti, that appeared in the Italian periodical *Liuteria*, No. 10.

### Materials for Violin Varnish

**Glues** - Pearl Glue, Rabbit Skin Glue, Skin Glue, Fish Glue, Isinglass, Franklin Hide Glue  
**Resins** - Dammar, Mastic, Sandarac, Colophony, Brown Black Colophony, Burgundy Resin, Amber, Congo Copal, Manila Copal, Shellacs, Shellac Polish, Sticklac, Seedlac  
**Balsams** - Larch (*Venice*) Turpentine, Venetian Turpentine, Strasbourg ("*Silver-Fir*") Turpentine  
**Vegetable Colours** - Madder Root, Madder Lakes, Genuine Orange Madder, Logwood, Alkanet, Lac Dye, Cochineal, Redwood, Brazilwood, Sandalwood, Fustic, Dragon's Blood, Gamboge  
**Wood Preparation** - Lycopodium, Glimmer (*natural quartz powder*), Tannin  
**Dry Pigments** - Over 200 colours : Transparent Iron Oxides, Burnt Siennas, Ochres, Earths, Synthetic Organic pigments, Coloured Glass, Powdered Dyes,  
**Oils** - Refined & Cold Pressed Linseed Oils, Stand Oil, Poppy Oil, Lavender Oil, Tung Oil  
**Varnishes / Mediums** - Copal Varnish, Mastic Varnish, Dammar Varnish, Amber Varnish, Violin Rosin-Oil, Beech Tar, Asphaltum, Eburit, Half-Oil "*Halbol*", Siccative,  
**Solvents** - Double Rectified Turpentine, Shellsol T (*low odour*), Ethylacetate, White Spirit

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### Tiverton Violin Conference Transcripts

The following copies of transcripts are available; No. 2 1987 The Acoustics of Bowed Instruments £15 inc. p&p.

Transcripts for all other years have sold out, but we are prepared to offer a reprinted edition of whole set for the price of £55.00 inclusive of p&p. This offer will only be made available if we have a number of orders.

Topics are as follows; Conference No.  
1. 1986. Surface preparation and varnishing.

2. 1987. The acoustics of bowed instruments.
3. 1988. General Topics.
4. 1990. " "
5. 1991. " "
6. 1992. " "

To place an order or obtain more details, please contact;  
Gabiella Falk  
Hare and Hounds, Exton, Dulverton  
Somerset TA 22 9JT  
Tel. Winsford (01643) 851266

### Violins on the Internet

The article in this edition of the B.V.M.A journal by David Rubio was first published on the Internet. Based at Cornell University in America, TOBI-L is a group of violin and bow makers who are in regular contact with each other to discuss subjects of mutual concern. David Rubio's article was just one of the many topics that have been covered in the past few months. The range of the discussions is vast covering violins and bows, making and restoring.

All you need to subscribe to TOBI-L is a

computer with an E-mail address and a willingness to contribute frankly and honestly to the discussions. If you would like to join us in these discussions or would like more information please contact Paul Collins at "collivn@dial.pipex.com" or David Rubio at "rubio13@eworld.com".

If you have access to the World Wide Web try http: // www.eskimo.com / ~dvz / violin-makers.html.

Perhaps the BVMA could produce its own home page one day.

### B.V.M.A. Badge

Designer/Silversmith Timothy Chilcot has designed a badge based around the B.V.M.A logo. Struck in Sterling silver and hallmarked, the lettering and outline are in relief and the background of this high quality badge is gilded with 3 microns of hard gold.

The badge is available in two configurations, stick pin or lapel badge and each comes in its own case. The badge will cost

around £35. Due to the expense of the die we will have to wait for a certain number of orders before we can commission them.

If you are interested please contact Paul Collins by end of January at the following address; The Cottage, Millhill Farm, East Hanningfield Rd., Sandon, Chelmsford, Essex CM2 7TF.

### Polish Violin Makers Competition 1996

The Ninth International Henryk Wieniawski Violin Makers Competition will be held in Poznan, Poland, from 11th to 18th May 1996.

The competition, one of the oldest in Europe, was first organised in 1957 and is held at five-yearly intervals. It is open to all professional Violinmakers of all nationalities, except for first prizewinners of previous Henryk Wieniawski competitions.

Previous winners include names of the most famous instrument makers from Italy, Portugal, the Czech Republic, Germany, France, Japan, Canada, Russia and Poland.

In order to participate competitors must return an application form by January 15th. 1996. Information and application forms are available from the following address;

Sekretariat IX Międzynarodowego Konkursu Lutniczego im. Henryka Wieniawskiego,  
ul. Swietoslawska 7,  
61-840 Poznan,  
Poland.  
Tel. (48/61) 52-26-42, (48/61) 52-89-92,  
Fax. (48/61) 52-89-91.

## Re-cycled Fingerboards by R.H. Ross

At a recent meeting of the B.V.M.A. at the Royal Academy of Music, an invited speaker from Fauna & Flora International gave an interesting account of steps being taken in various countries around the world to conserve the timbers traditionally used in musical instrument making; in spite of these measures, there is still some concern that in the short term, some of these timbers may become increasingly difficult to obtain. Unlike mammals and birds, which can effect a dramatic turn-around in numbers in a short space of time, when given the appropriate habitat trees, particularly hardwoods, require generations to regenerate.

Of principal concern to the violin maker of course, is ebony, particularly in its main use as a fingerboard. Pegs, tailpieces, nuts and saddles have in the past been made from a wide variety of materials. It would probably be no great feat selling the idea of different materials for these items in the future; but "sapele fingerboards", you've got to be joking!

For the top quality and new hand-made instrument, ebony it would appear is a must, at least for the foreseeable future. Very cheap factory instruments will hopefully continue to use stained hardwoods, but most fingerboards sold are probably used as replacements for worn out, overshot or warped originals on trade fiddles of relatively low value.

Would it not therefore make sense to re-use the old fingerboard by increasing its depth with a thin slice of new ebony? This could be achieved by gluing on a slice of slightly more than the required thickness, or by gluing the fingerboard on to a larger block and then sawing it down to the correct dimensions. The bottom of the old fingerboard would have to be flattened, with the new piece glued along the full length and the hollowing on the underside would have to be reclaimed. Enough material would also have to be allowed for, in order to re-shape the playing surface in the event of it being warped or grooved.

There is no reason why the finished article should not look neat. The only visible signs of this system might be the difference in the colour and grain of the added ebony. I see no reason why this should not be acceptable to the customer, particularly if your "Eco Friendly" reasons for doing it are pointed out before the work is undertaken.

Another (although more costly) alternative would be to make up a fingerboard using the baroque method, i.e. a fingerboard core of either willow or poplar with ebony edgings and an ebony veneer. The lighter, more resonant character of this type of fingerboard, may even add a bit of "fizz" to an otherwise mediocre instrument.

Ebony is certainly a valuable commodity and any attempt to make it go further must surely be laudable. The above methods do not come with any "Brownie points" or free membership

of the Green Party, but the knowledge that you are contributing, if only in a small way to the sustainable use of ebony, must make it worth a try.

## *Just two little pin pricks ??*

An open letter from Marc Soubeyran, our Chairman

I would like to bring to your attention a practice which has been bothering me for many years, the fact that many makers and repairers use two pin pricks to locate the bridge of an instrument, positioning those holes in the front of the instrument on the outside corners of the bridge.

This practice is intolerable, firstly because it damages the instrument permanently, but also because of the sheer arrogance for anybody to state, with those indelible marks, that "this is where the bridge has to be positioned".

Give the same instrument to 10 violin makers for a new bridge and you will end up with ten different positions for it, given the position of the bass bar, the result needed to be achieved, and the musician playing the instrument.

My point was once again made abundantly clear recently when a musician brought in his cello displaying three sets!!! (no less) of pin pricks in the front.

If anybody needs to record the position of the bridge, I would suggest the following; measure with a rule from the corner of the neck root (this giving a sharp edge to measure from) to the front of the bridge, both on the treble and bass sides, then measure from the front outside corner of the bridge to the edge of the "F" hole.

These measurements are then kept as a record and can be referred to without damage to the instrument. If one needs to remove the bridge for a short period of time, one can always use a water soluble crayon to mark the position.

## Appeal to Musicians and Musical Instrument Makers

Considering the distressing position of our musical colleagues in Bosnia-Herzegovine, we have decided to do something to help with the provision of financial aid.

Conservatoires, Music Schools, instruments and written music have been destroyed by the conflict to the point where the

musicians of Bosnia are almost completely devoid of any musical facilities.

It is of the utmost importance that aid is immediately forthcoming to enable them, through music, to overcome the fear that has been ever-present during the past four years and rekindle a belief in the possibility of a

democratic and multi-cultural society.

Starting today, we have set up an association to help Bosnian musicians and we ask for your assistance with immediate funds for the long term development of musical life (Instrument collections, printed music, training of violin makers etc.)

Any help with the organisation of concerts, contacts between schools here and in Bosnia, or musician exchanges would be

greatly appreciated.

Further details are available from;  
Paul Borie,  
Association de Soutien aux Musiciens  
Bosniaques,  
4 rue de Candolle,  
75005 Paris.  
Tel. 43.36.56.18.

## Bosnian Appeal.....Alternative to cash!!

*I was very interested in the proposal (at the I.G.M.) to help Bosnian violin makers and music in general. It occurred to me, that as an alternative to giving money, some members might have printed music, and even instruments which are surplus to their requirements. I am sure*

*that most of us would be very willing to participate in some such scheme provided that it can be shown with reasonable certainty that any such help will get to the point where it is needed, and does not just disappear on the way.*

*Dietrich Kessler.*

## Poetic Response

After reading John Topham's article in the first issue of the B.V.M.A. Newsletter, especially the last part which deals in a general sense with the dilemmas, contradictions (sometimes delusions) of the business of giving life to a three hundred year old form, I could not find a more fitting response than to quote from T.S. Eliots "Four Quartets";

*So here I am, in the middle way,  
having had twenty years -  
Twenty years largely wasted, the  
years of l'entre deux guerres-  
Trying to learn to use words, and  
every attempt  
Is a wholly new start, and a different  
kind of failure*

*Because one has only learnt to get  
the better of words*

*For the thing one no longer has to  
say, or the way in which*

*One is no longer disposed to say  
it. And so each venture*

*Is a new beginning, a raid on the  
inarticulate*

*With shabby equipment always  
deteriorating*

*In the general mess of imprecision of  
feeling,*

*Undisciplined squads of emotion.*

*And what there is to conquer  
By strength and submission, has  
already been discovered*

*Once or twice, or several times, by  
men whom one cannot hope  
To emulate - but there is no com-*

*petition-*

*There is only the fight to recover  
what has been lost*

*And found and lost again and again  
and now, under conditions*

*That seem unpropitious. But perhaps*

*neither gain nor loss.*

*For us, there is only the trying. The  
rest is not our business.*

Bruno Guastalla. Oxford Violins

## Questions & Answers

### That Glue Again!

*A constant query is this - "What are recommendations for an optimum approach to removal of fronts, necks, or other elements of an instrument which has been constructed using one of the modern non traditional polyvinyl acetate glues? All too often one is asked to make repairs to a youngster's cello, viola or violin of perhaps Chinese, Romanian or similar factory variety. One is faced with possible damage to wood fibres of joints at the dismantling stage. By comparison what a joy it is to work with traditionally made instruments where traditional hide glue melts, or can be separated with much less risk.*

*John Randerson gives a valuable comparative account of the traditional and non-traditional glues in C.A.S. journal of May 1995 and why factories adopt the PVA approach. He points to four possibilities in setting about the separation process, namely by heating, by soaking with hot water, by soaking with hot vinegar and by cutting the joint. Hazards accompanying each of these are fairly obvious. All have severe problems affecting the surface finish and/or the wood fibres. Taking contact surfaces back to virgin wood free from the glue is important. Furthermore these procedures can consume a prodigious amount of time*

*and can give rise to even more "touch up  
"time.*

*Where removal of the table is concerned, the writer follows a cutting method. After scribing the varnish boundary and making an initial insertion between rib and front, an oval, of thin (.03 mm) scraper steel approximately 7cm x 5cm, is used as cutter. Since the steel edges are ground to a bevel, it is important constantly to remove, reverse, and re-insert the scraper. Keeping it in one way round all the time naturally has the effect that the edge will be led off course by the grain. Even fine saw blades tend to be led away as they lack sufficient flat surface behind the cutting teeth. The join between front and upper block remains as the last impediment. There, after proceeding with the oval as far as possible, a long slim knife with a little hot water is brought to bear transversely between front and upper block, Oh brother! What a struggle!!*

*Please, can anyone out there improve on this approach? Reflect too that the neck joint is still in its place. Now it is over to you. No, you are not allowed to use a hatchet!!*

*Ian Allan.*