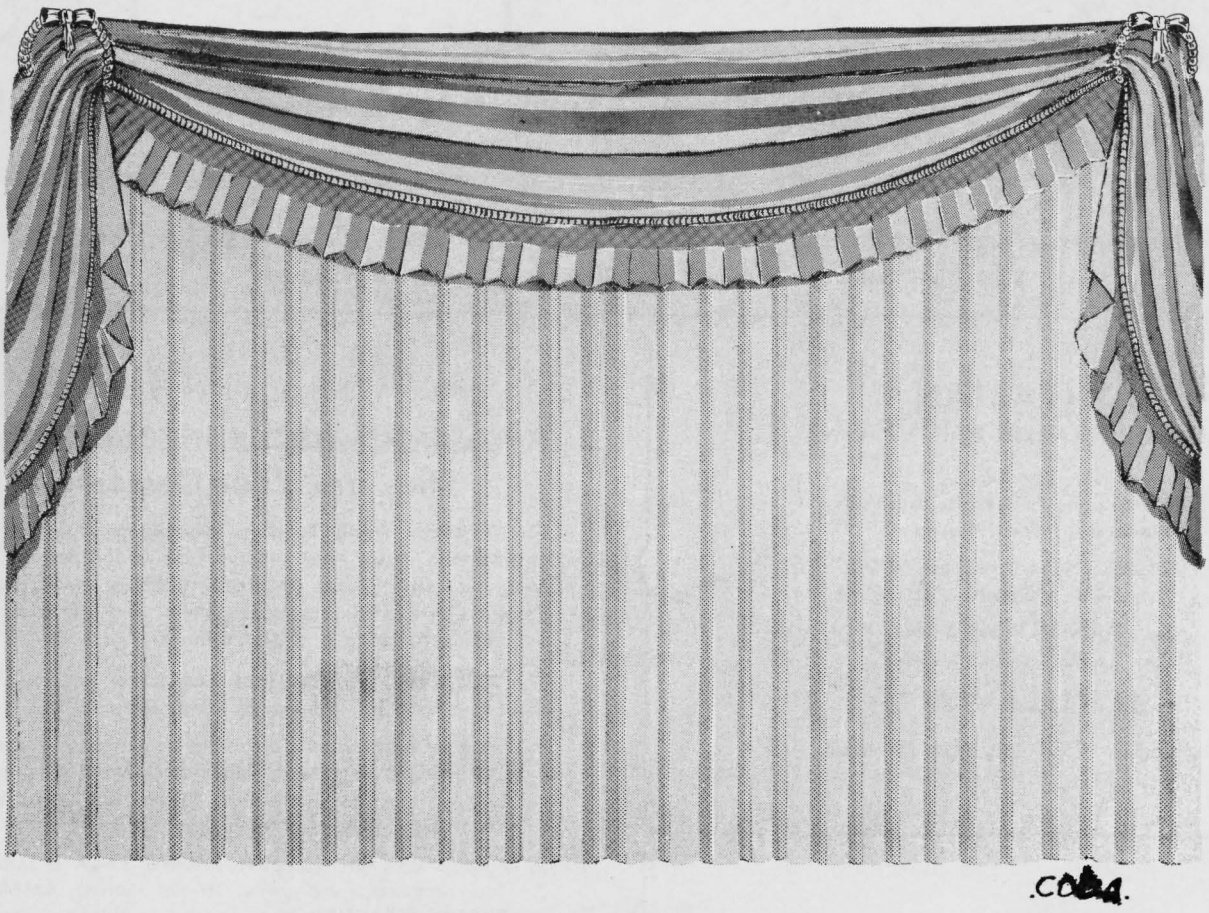
The Violin Makers Journal

JULY - AUGUST, 1964.

THE OFFICIAL PUBLICATION OF
THE VIOLIN MAKERS ASSOCIATION OF BRITISH COLUMBIA



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

The Violin Makers Journal

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

MEETINGS HELD THE
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If you do not receive your copy of the Violin Makers Journal within reasonable time, please advise us. Please notify the Secretary of the Association at 4163 Sophia Street, Vancouver, of your change of address.

EDITORIAL PAGE OF *The Violin Makers Journal*

CLARENCE COOPER, EDITOR

The Violin Makers Journal is distributed free to all "Active" Members and "Associate" Members. Active Membership is limited to British Columbia. Associate Membership is open to anyone interested in String Instruments. Associate Membership fee is $4.00 per year. Back copies may be obtained. When paying by cheque please add 25¢ to cover exchange. Advertising rates may be procured from the editor.
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EDITORIAL

The most horrible things that I have to announce in this issue are, first, that with this issue I am resigning as Editor; secondly, it is impossible to carry on as we have neither the money with which to pay for the publication of the Journal nor do we have sufficient material to put in the Journal. These matters are the subject of our News Items.

As you have been previously advised, Vol. 1 has been reprinted and is now available from the President, Mr. George Friess. Notices of this re-publication were sent out with previous issues of the Journal, together with the order forms. We have been contemplating republishing Vol. 2 but this will depend upon the response to the sale of Vol. 1.

In this issue our feature article is written by Mr. A. D. Jones of Arlington, Mass. Mr. Jones explains his interest in violin making and then proceeds to set forth many useful tips on violin making. Mr. Jones has a modern outlook on the subject and his article is worthy of praise.

One of our members, Rev. Geo. Wright, continues his articles on the building of the double bass and we understand that he proposes to combine his writing in some sort of book form. We hope he will make it available to the members so that those who have been following his articles in the Journal may then have complete instructions. It should be noted that there is very little written on the construction of the double bass and we sincerely hope the Rev. Wright will complete his writings on it. Rev. Wright has also written an article on linseed oil. This article should provoke a lot of interest as it points the way to further experiments because of the fundamental facts which it contains.

Mr. Burton Hardin sharpening scrapers which is an important item in the finishing of the plates. Mr. Ralph S. Thompson has suggested a useful clamp for holding the plates while you are doing this scraping.

Yours for better violins forever.

A PERSONAL MESSAGE TO THE MEMBERSHIP FROM YOUR PRESIDENT

On this sad occasion I feel that it is my duty to acquaint the members with the major factors which, we here believe, caused the demise of the "Journal".

The Journal was distributed free to anyone who became a member of the Association upon payment of the annual fee. It was never intended to be a money-making magazine. It's sole purpose was to dispense knowledge.

Since it came into being in November 1957 it has been riding a rough sea, financially. Time after time, the Vancouver section has emptied its treasury to help out the Journal, especially since the printed form was substituted for the original mimeographed one. Possibly we were too ambitious.

We sent out an appeal for contributions at the beginning of this year. The response wasn't great, but I want at this time to thank all those who so promptly and generously responded.

Material was another great problem and in spite of repeated requests for members to send it in, it was becoming

increasingly scarce, thus causing delays in bringing out the Journal on a regular schedule.

Delinquents were kept on the rolls too long and supplied with copies in hope that they would renew their membership. Then too, funds were never available for extensive advertising in order to get more members.

These then are the reasons why publication of the Journal is now suspended. I wish to thank all those regulars and others who sent in articles over the years, thus making it possible to have a Journal. My thanks to the Membership as a whole, and especially to the Vancouver section, for all the time, money and energy which they gave when called upon.

And lastly, Clarence Cooper, our Editor these last two years, who quietly stepped into the breach caused by the death of the late Don White, and gave of his best, and uncomplainingly worked getting out the Journal against great odds.

The last Act of the Journal has been played. The Curtain has come down.

You the Members, still have your gouges, plus the knowledge which you have derived from its pages and the dedication with which you will continue to strive to make better Violins.

LOCAL NEWS

By Al Gough

NEWS ITEMS

DISCONTINUANCE OF THE JOURNAL

We regret to announce that we cannot carry on the publication of the Journal and are therefore discontinuing it after this issue. The Executive discussed this matter at the last general meeting and sadly came to the conclusion that we would have to discontinue its publication.

In the past we have requested articles for publication and contributions to enable us to carry on. We have not received very many articles or sufficient to produce another issue of the Journal. We do not feel justified in reprinting material which has appeared in previous issues.

In our request for funds for the reasons we pointed out in the previous issue of the Journal, i.e., the cost of production of the Journal was equal to, and could exceed, the subscriptions, that we would have to have more money. While some members did contribute, on the whole the response to our request was ignored, which left us in the position that to publish this issue we will have to request contributions from the local members in substantial sums. We thank those members who did contribute and express our appreciation of their kindness.

In looking back over the life of the Journal, its beginning was a small mimeographed effort of the notes made at the monthly meetings in Vancouver. These meetings are still held and violin making is discussed and the discussions do produce new and useful ideas. The members will continue to make notes at these meetings of the discussions. From time to time it may be possible, if the financial situation straightens out, that these notes could be mimeographed and distributed to contributors and interested members. Maybe then the Journal will not die completely.

VOLUME 1 HAS BEEN REPRINTED

Volume 1 has been reprinted and may now be obtained from Mr. George Friess, the President, at 2724 Yale Street, Vancouver, B.C., for the price of $4.00.

The supply is limited so you would be well advised to order your copy early.

BACK ISSUES -- WHILE THEY LAST !!

Back numbers can be supplied for the years of 1964, 1963, and 1962 - either complete or single copies at 75 cents per copy. Add 25 cents exchange. 1961 not complete. Can supply January 1961; February 1961; March 1961; June 1961; July-August 1961; October-November 1961; December-January 1961-1962.

Also Volume 1, complete, at $4.00 plus 25 cents exchange.

For information, write: Mr. George Friess
2724 Yale Street
VANCOUVER 6, B. C.

How I Happened to Become Interested in Violin-making

FORWARD

The questions have been asked a number of times, "How did you become interested in the hobby of making violins?" and "How do you make them?", that I felt it needful to write this paper in hopes that other amateurs may profit by my experience. I have tried to answer these questions in detail, giving the methods I use which I gained by reading and seeking help from experts. I am indebted to my friend Mr. Sunday for assistance in my early days, and to Mr. Gould and Mr. Comstock in later years. If you are interested in this hobby and prepared to spend two to three hundred hours of love, you will be well rewarded when you hear the beautiful tones come forth from the violin you have made.

A. D. Jones
April, 1964

9 Putnam Rd.
ARLINGTON, Mass.
U.S.A.

INTRODUCTION

This is the story of how I happened to get interested in violin making, why I adoped it as a hobby, and my method of making violins.

When I was a young man of twenty-two, residing in Troy, New York, I desired to own a violin and was also curious as to how they were made. There was a violin maker in Troy by the name of Sunday. I called on Mr. Sunday, whom I found to be a very fine person and one who was willing to explain many of the details of violin making. I learned that Mr. Sunday had started the trade in Germany at the age of twelve years and was willing to share his knowledge with other young men now that he had become an artist. There were several violins hanging on a line - completed - and they were beautiful to see. I asked the price of these and was told they were $300 each, which, at that time, was a good sum and equal to half of my year's earnings. So, that was out. Then my interest turned from purchasing a violin to making one of my own. "How do you make them and where do you get the wood?" I asked, and was ushered to a corner of the room where there was a stack of old lumber, some with nails in it. "I get the wood from old buildings, barns, churches, old table tops, shelves, etc." Mr. Sunday informed me. Was I surprised!

One day I heard that a one hundred year old barn, belonging to the mayor of our city, had blown down. I telephoned the mayor and asked if I could look over some of

the lumber and if I found what I was looking for, could I have it. The answer was "Yes!" A friend of mine and I went over to the site and found a running beam of good old spruce, about six inches square and quite long. We carried it on our shoulders, he on one end and I on the other for about a mile. You may be sure we rested now and then. When we reached our house we found we had to remove a window in the cellar and shove the timber in that way.

I cut a length from the beam and took it to Mr. Sunday. He claimed it was excellent wood. When cutting with a knife, we found it had a sheen, a silvery flake-like effect, which evidently was due to the aged resins in the wood. Mr. Sunday offered to purchase the wood. I did not sell as I wanted to try to make my own violin.

First, I had to find instructions and was happy to learn of a paper-covered book on violin making I could get in England for 25 cents. VIOLIN MAKING AND ADJUSTING, "The Woodworkers Series", No. 13, Percival Marshall & Co., London. I sent for the book and have it to this day. The next step was to obtain some hard maple for the back of the violin, as the wood I had was spruce and is used for the top and trimmings. A friend pattern maker gave me a piece of maple. It was not quite thick enough to get all the curves necessary, but I used it and carved what curves the wood would allow, therefore, the back was a little flatter than the instructions called for. Another boy gave me an old neck from an old broken-down low priced fiddle. So I was all set. The only tools I had were a fret saw, a concave gouge, a file, a knife, sand paper and broken glass for scrapers. The templates I cut from cardboard and shellacked the edges. My bending iron was a piece of water pipe with a gas flame in it. My glue pot was a tin can circled by another tin can with a gas flame under it. I did not make a form for the ribs, but made a drawing and

bent the ribs so that when laid on the drawing the curves matched. The varnish I made from gums I had read about and which I obtained from Boston. Years afterward I saw the same gums in the form of tear drops on trees in the Arnold Arboretum in Jamaica Plain, Massachusetts, a suburb of Boston.

An incident regarding the making of the varnish comes to mind. It had to be boiled, and turpentine was the solvent. I boiled it on a gas stove, never giving a thought as to how dangerous that was. Fortunately there was no fire, but the varnish was in a tin can and I removed it from the burner and placed it in the center of a vacant room to cool. Anxious to see and test the varnish, I entered the room, and as it as not well lighted, my foot upset the can of varnish over the floor. Grabbing the can, I saved some of the varnish. Then I got hold of a large piece of cloth and wiped the varnish from the floor. The cloth being saturated with varnish, and noting that the woodwork in the room was natural finish, I varnished the door and frame and I had one of the most beautiful varnish jobs you could find! So, it did not all go to waste.

The varnish on this first violin is as good today as when I applied it 50 years ago.

Now that I had made my first violin, I learned to play a little for my own amusement, simple pieces like church hymns. My wife played the piano and we learned a few pieces together and had a good time. How it sounded outside was some thing else.

We then became so busy at our work in scientific optics that the violin had to take a rest. Many years later, when I had more time to spare, my wife suggested I take up the hobby again and make another violin. This time I was in a position to purchase better wood and materials, plus tools. Before starting I knew I should read up on the subject and found a number of books. The more I read, the more interesting the art became.

Everyone who builds a violin hopes in some way he may produce a good instrument and, through luck or accident, it may become equal to the Old Masters'. We believe however, the Old Masters knew their wood and just what proper gradations and thicknesses to carve it. We amateurs have only records to go by and some guess judgment and will never know how good the instrument is until it has been played on by accomplished artists. This experience is a thrill, and when you hear the tones from the violin you nave made, you will be well paid for all your efforts. I have been very fortunate in this manner as the tone quality has been declared excellent.

Once you have made one violin, you have a driving desire to build another and try to improve your workmanship for fine details. I have known of men who have made many instruments and don't seem able to stop. Also, it is surprising how many have made one or more instruments. After you have made a few violins, you get the urge to try a cello. This is larger work, but what is sweeter than a cello? So, I am about ready to make my first one. Well, what do you do with the violins now you have several? At first, you admire them, look at them and see a part of yourself in every one. You recall the hours spent and any little errors you made, as you know them better than anyone else. Next, you learn of someone who shows promise of playing the violin. You then make that person a gift. I tie a string to my gifts: the violin is not to be placed in an attic, not to be sold, but to be kept in the family at all times or, if not, to be passed on to a promising violinist.

I fully believe when the instrument is in use and aged it will improve from year to year, and some day, who knows, it may equal the Old Masters'. Reason one is that no one could have better material; two, no one could work closer to measurements; three, no one could give it any more care or love.

I have recorded how I became interested in the violin and how I made my first one. You may be interested in how I make them today. Here are my suggestions on how to start this hobby.

CHAPTER I

HOW I MAKE VIOLINS

First I would suggest that you read some books. You can purchase a book of drawings and instructions called HOW TO MAKE A STRAD from POPULAR MECHANICS MAGAZINE for a small sum. The book and drawings are real good. I would also recommend VIOLIN MAKING MADE CLEAR AND CONCISE by Leroy F. Geiger and L. M. Cole, published by LaFosse Music House, Chicago, and VIOLIN MAKING AS IT WAS AND IS by Ed. Heron Allen, publisher Carl Fisher, Inc., New York City. I recommend you borrow Allen's book from your local library at first. VIOLIN AND CELLO, Building and Repairing by Robert Alle, Publishers Cassell and Co. Ltd., London or Toronto, is also very helpful. Now that you have read up on the subject, you will be well acquainted with the terms used.

At the start you select the model you want to make. Next you look over the tools you may have and decide what others you will need and, of course, a place to work in. If you have a dry and warm basement, this is ideal. I do know, however, of making use of the kitchen table by two acquaintances, and as there is considerable dust and shavings, the wives complain.

Now, you choose your wood. When you are familiar with the type of wood you need, you may find some by exploring in old barns, etc. If not, then it must be purchased. Hunts, Craftsman Wood Service Co., Chicago, Illinois and William Lewis & Sons, 30 E. Adams Street, Chicago 3, Ill., are sources of supply.

Blue prints can be purchased from John A. Gould & Sons, 230 Boylston Street, Boston, Massachusetts. As they are not very expensive, two sets can be used to advantage. Cut up one to make templates from, use one to refer to. Glue the cut out pieces of various shapes and curves to pieces of thin zinc. Shellac the zinc, let it get tacky, then press the paper on it; no wrinkles please. As zinc cuts easily, you can use old scissors. Then scrape or use a fine file and bring the metal to the edges of the drawings. Drill or cut a hole in them and hang them up, as they bend very easily if laid down flat and come in contact with tools or anything else.

You will need a form or block to form the ribs. Hardwood should be used. You will have all this information from the books you have read. I would like to add that I prefer the inside mold and make my own, saving the cut pieces for making block, to use later in gluing the ribs to the corner and end blocks. If you own a band saw or can borrow the use of one, it will help you, as the mold is heavy wood, 1½" thick. Also, a drill press can be used to drill the large holes in the block for the clamps.

You now have your tools, gauges, wood, and mold. The next step is to plane the two thick edges of the spruce and maple, flat, straight, and square; when placed together no light should be seen when tested. You have prepared a flat surface by now to lay the pieces together for gluing. If you have a crossgrain in the maple, try to match the cross lines. Mark wood and place marks together when you glue the pieces together.

Use hot glue, clear violin glue. A small double boiler makes a good glue pot, the inside pan for glue, the outer one for water. Or you can use two tin cans, one small, one larger, which serves the purpose. A small electric heater as you will find in a coffee perculator, comes in handy for heating the glue.

You will see sketches in the instructions given by the authors of the books I have recommended of how to make a mold for pressing, and gluing the edges. Remember that the edges must be straight and square as mentioned before and also the two pieces must not buckle, or you will have a noticeable glue line on one side and a tight fine line on the reverse side.

The ribs you purchase in straight pieces have to be bent. Before bending, scrape and sandpaper to thickness about 0.50" and finish very fine as it is difficult to do so when they are curved or glued to the blocks, which you have glued to the end and corner blocks. In shaping the corner blocks, it is advisable to measure the distance from center of mold to the corners, in order that they be equal. For bending the ribs, I clamp a piece of thin tubing about 1½" in diameter in a vise. Then, I insert at one end an electric soldering iron. This gives the proper amount of heat. Dampen the rib in water and stroke back and forth over the pipe and with not too much pressure, you can shape the rib, checking the curve from time to time against the mold for correct curves. The ends are more difficult to bend and should be left long for fitting and cutting after gluing. One has to be careful when the ribs are of curly maple as the crossgrain will break if too much pressure is used. The inner ribs are fitted first and mitered to a sharp point. Then the top or bottom ribs may be glued.

The next operation is to cut the corners and file the width down to match the mold. Next, separate the blocks from the mold with a thin blade (old tableknife is good) inserted between the hardwood mold and block, giving it a light tap to accomplish this. When they are free from the mold, the frame or ribs can be moved up from the mold, do so about ½ in-

The linings which you also have prepared of spruce approximately 1/4" wide by 1/16" thick and bent to shape are now glued to the inside of the raised ribs. It is also better to miter in the block the ends of the lining. Snap clothes pins are excellent for holding this lining after gluing. You can now remove any excess glue with a cloth and hot water. Do not let glue run down the sides of the ribs.

The next step is to remove the ribs from the mold and glue the linings as you did on the first edge. Take a sharp knife and bevel the lower side of the lining. Sandpaper until you have a sharp and neat set of linings. Cut the corner blocks and end blocks to rounded curves inside, being careful to leave no sharp corners. You have finished the ribs and frame.

The next thing you will want to to is to shape the top and back of your violin. Tack in the center line two brads -- one at each end of the wood you have glued. Place pattern against the two brads, having prepared two notches to fit brads, and mark the outline with a pencil, making a good black mark. Reverse your pattern against the brads and repeat. In this way you will have marked the pattern true. Both pieces are treated this way; the top and the bottom.

The sawing out to this outline comes next. A good fret saw, a jig saw, or a band saw with a fine narrow blade can be used. Be sure to saw oversize or outside of pencil lines. With a good wood cutting file (not too course) file the edges very close to the lines and then clamp the two flat sides together and file both of them together and square. You now have the outlined shape of your violin. Carving the wood to the templates for the curves is the next step. The length is first. Be sure the template has been marked neck and tail. Now check the cross curves which are for the cross section of the violin and used at the position marked on the long template. As the top and back are of different curves be sure not to get them mixed. Mark them: 1-2-3-4-5 top and 1-2-3-4-5 back.

Start curving the ends of the fiddle to match the long template. First you will cut a section ½ inch wide all around the form of the violin. Although the wood, being on a slant towards center is thicker at the ends, you must finish the routing even from bottom or flat side to 3/16 in. thickness. You will read of planing this edge. I have yet to see a plane for this work. A drill press and vertical cutter and a pin for guide was used successfully. Avoid the corner, as it is dangerous, but finish the corners with a knife and sharp chisel. If you have an electric tool, a cutter is used, held by hand to accomplish the same. The next step is to taper off the high ridge at the neck and back edges. The new wood files as made by Stanley Tool Co. called planes will cut away this extra wood. I use an electric grinding tool with a 4" heavy sand paper disc. Not only am I able to remove the extra heavy portion of wood at the end, but shape the wood close to the required shape. For the rest of the shaping, I use scrapers which I make by simply grinding the teeth off of thin steel saws on an

emery wheel, in one direction, leaving the burr on the reverse side. This burr will scrape the wood very quickly. I also use old machine heavy hack saw blades and grind them to three different sizes and shapes. These also work very well. You can purchase scrapers made of thin steel from William Lewis, Chicago. Then, do not forget the use of glass for scrapers. They do not hold an edge very long but any old sheet of glass will make a good number of scrapers. The scrapers leave a very nice surface and garnet sandpaper medium and fine will give a good finished surface.

You are ready to start the inside carving. No templates are used. · You will need calipers at the start to measure the thickness. Setting the calipers at 3/16" is good practice in order to gauge the shell for even thickness. Later when you graduate the wood to the different thicknesses, you will need a caliper that registers the thickness. You may make one from the drawings you have in one of your books. To get this concave started is a little difficult. A A concave chisel can be used, starting in center and cutting from the edge to the center crossways. I use my electric sander on edge and am able to get a good start that way.

It is now necessary to use the scrapers and bring the wood all down to 1/8" thick, when sanded by hand. To graduate the different thicknesses, cover up the section in center that is to be 1/8", then scrape all the rest to the next thickness, repeat this as often as you work for the various differences in thickness, for there are as many as seven to nine different thicknesses in the back of the violin. The edges are left 1/8" all around about 5/16" wide and larger at top and bottom where they are to be glued to the end blocks.

You will proceed with the spruce the same as you did with the hard maple. You may think due to the wood being softer, it will be easier. This is not so as the annual growth rings of woody fibre are very difficult to carve.

Now that you have the top carved, you will have to make a bass bar. The sizes and measurements you have. The grain of the wood should be straight and run parallel to its edges, one of which will need to be shaped to fit the inside of the belly at the proper place and angle. Rough out the piece first, marking with a section of the template you used for the top. Then place it in contact and note where additional stock must be removed to make a tight fit. By running a pencil along at the point of contact where the glue is to be applied, you can easily see where any errors occur. Lay a piece of fine sandpaper between the belly and the edge to be fitted, with the smooth side of the paper down. Then by working the edge of the edge of the strip back and forth with short strokes, you will soon have a very close fit. Now measure inside the distance from center and from bottom 1/2 and 5/8" x 10" long and draw a line to help you replace the bass bar on the correct angle. Prepare your thin hot glue and lay out the clothespin-like clamps (which you will see in your blue prints). Test out about four of the clamps first for position and pressure. Remove in order 1, 2,3,4. Place a line of glue on the inside and on the bass bar. Line it up quickly and press the pins on in the order you removed them. This insures getting a good fit before the glue can thicken up. Now take a cloth dipped in hot water and wipe all glue from exposed surfaces. (I use a small piece of sponge.) Study the shape that the bass bar is to be and cut carefully, rounding the top edge. This is a very important part of the violin as it has an influence on the tone. The center or thicker section is directly where the bridge will be. I test this bar as I cut it away by holding the belly at each end, thumbs underneath and test the springing of the wood. It is very slight but can be detected. Mr. W. E. Comstock of Boston, famous violin maker, taught me this test.

Now comes a very interesting and delicate part of your assignment, the F holes. A pattern of celluloid can be purchased, or you can cut one out of your blueprint. The position must be measured out and marked as accurately as possible. Then the holes are drilled smaller than the finished diameter. A small round file or reamer is used to enlarge the holes. With a sharp knife remove a little wood from the widest part of the F holes. Then, carefully continue to cut away the wood close to your pencil marks. Great care must be exercised here as you have to cut against the grain which will be in one direction on one edge and reversed on the other, and a slip would split the wood. That part which comes to a fine point entering the holes you will cut last. The F holes must be held to close tolerance as these effect the tone of the violin, and to get them too narrow or too wide would spoil the tone quality.

The next step is to glue the back onto the ribs as all centers have been marked; the neck and tail are lined up and clamped on with special clamps you have made from bolts and dowell stick as described in one of your books. You will need about 24 clamps. Set ribs on back and keep all edges even to mark on back edges as a guide.

You are now ready to glue the back on. A thin bladed knife is used for gluing. Have the glue hot and of the consistancy of olive oil. Remove two or three clamps, dip blade into the glue and insert the knife between the ribs and back. The back is laying down flat - ribs up. Pass the knife in and lengthwise until you notice that the knife is sliding smoothly. Reclamp and remove a few more clamps and repeat until you have glued all the edges to the back. Use the sponge and hot water and wipe all glue at once as you proceed. Dry glue is very difficult to remove and in this way you will have clean edges and corners. When dry, repeat this operation, placing the top on and testing the position, moving here and there to get a true position. Some cut a V in the ribs and block on the angle to fit the neck of the violin, before gluing the ribs to the back. I do not. I prefer to line it up and cut later.

Now comes a tedious and quite difficult operation - the purfling. A scriber is run around the edges marking the first line. The scriber is moved and the second line marked. You can purchase this tool from Lewis.

The lines are spaced 1/16" apart. Great care must be used in rounding the corners with this tool. A slip may cause a bad scratch and also slip out of true position. It is better to mark this section with a pencil as you can erase and remark if necessary. Cut along both lines a short distance with a sharp pointed knife. Do not try to cut deep. It is better to retrace the cut. Pick the wood out of the groove with a sharp pointed blade. Continue until the groove has been cut all around, cutting the corners last and very carefully as it is easy to chip the edge, which would spoil the effect. The object is to have mitred sharp corners.

A small flat file (as used for spark plugs) is used to grind the end flat and to use as a scraper to clean the bottom of the groove you have prepared for the inlay. Use the same bending iron to shape the purfling. It is wise to purchase at least two sets in order to get one. Dampen the purfling with fingers dipped in water and stroke across the iron. Repeat the dampening and bending. As the purfling is made of three pieces of wood approximately 1/16" thick, it tends to break very easily. A light pressure is used when bending. Fit the two sharp center bouts first, and mitre the corners. Carefully lift the purfling out, fill groove with thin glue, then press purfling back into the groove. Tap lightly with a piece of wood. Clean off excess glue, retap, and clean. When the glue is set, fit the neck end, and then the tail end. Mitre the ends so that you will have sharp corners. This is a mark of fine workmanship. Trim the purfling down to the violin and sandpaper clean and even. This violin is well on the way.

It is recommended that you purchase the neck with the scroll. There is plenty of work left yet. Shape, file, scrape to size the taper end which is to be fitted to the neck end of the violin. A template to size and angle is necessary and can be made from thin zinc or thin wood, marked through the center. Mark the ribs on the neck end and cut out the overhang of the top, always undersize. Use a sharp knife and cut down the ribs and pick the thin rib section off, to the block. Carve the block out with a fine chisel to the correct depth and angle to fit the neck, about 1/4" deep. Using a narrow sharp chisel, cut away portion of the block to prepare it for the mitre fit. Test often by pressing the neck into the cut at the same time checking angle of neck which is dipped downward. By correcting the cut for inside angle you will raise or lower the neck. Sight across the violin back edge. It should sight across the eye of the scroll from

each side. This must be done carefully and slowly as the neck should fit tight enough to hold the violin in position, before gluing. When finished, glue together. Clamp with one or two of your bolt clamps.

You may drill the holes for the pins before or after fitting the neck. Some prefer to drill first. A template should be made and holes marked as this also is quite important, so that the strings do not rub on each other, as well as not to weaken the neck at this point. A small hole is drilled first and a sharp reamer used to enlarge the holes, using a standard reamer last. The reason for this is that the standard reamer is too large at the small end and one would have to drill too large a hole. The pegs you purchase. With a peg cutter turn down the peg to medium size. As you ream the holes in the neck, you fit each peg, and mark them: G.D.A.E. Cut the ends off and let them protrude about 1/8". File the ends round, sand with fine sandpaper, and rub on cloth to polish. Mark position of strings when pegs are set. Drill small hole to take the strings. Drill a hole in the center of ribs in the tail end of the violin and ream to fit the pin. The finger board, thinned by sanding to approximately 3/16" edge thickness is centered and glued on the neck, round corners, being the same size as neck, and polish with parafin was using a heavy cloth. The nut at the small end of the finger board is fitted and left approximately 1/32" thicker, and notched for the strings. For the ebony piece set in the top at tail end, see drawings on how to fit.

Fitting the bridge is also important and must be directly over the notch in the F holes. Cut legs of bridge as close as possible to contour. Place thin sandpaper under legs, rub with short strokes. This will give the proper fit.

The sound post, consisting of spruce, with the grain running lengthwise is sanded round just under 1/4" in diameter. The length depends upon the distance between the top and back at the point just under the bridge. A light piece of wood used as a depth gauge, passed down the F hole and allowing for the thickness at top, will give a good idea of the length. The sound posts must be set with the crossgrain. A post setter, which resenbles heavy tweezers, can be purchased at low cost. The post must be straight in the violin and in the right position, just a short distance back of the foot of the bridge.

NOTE: Before gluing on the top of the violin, do not forget to write your name and date in a position where it can be seen through the F holes. Now that you have strung the instrument, you play it in the white, or you can start to varnish; if so, it should be varnished before the finger board is on, or remove finger board when ready to varnish.

CHAPTER II

VARNISHING THE VIOLIN

Record of varnishing well finished wood.

STAIN liquid (William Lewis & Sons, Chicago) yellow

Back and ribs, maple	2 coats
Top, spruce	1 coat
Drying Time	1 day

FILLER

Two coats filler needed. Each coat slightly rubbed with fine wire wool. Check for drops or edges on ribs. Remove with point of knife. Let stand 2 - 3 days.

VARNISH

As the varnishing is time consuming, it is good to experiment while working on the violin to get the color desired. Samples of wood taken from sawings of original wood, scraped, sanded stained and filled should be used. Use different colored varnish on samples, as well as mixtures. Be sure to mark each sample. These will show the results and help to decide the shade or color you prefer for the violin.

Test for dryness of varnish. When dry, the varnish will not stick to your warm hand.

A VERY FINE VARNISH BRUSH IS A NECESSITY ! (Lewis & Sons) This should be 3/4 to 1" in width. If varnish is too heavy or thick, a few drops of turpentine can be added. As a rule however, the varnish supplied is of the right consistency.

PROCEDURE:

1. Start first coat on ribs - and inside edges of top and bottom plates, checking and brushing lightly to prevent runs or excessive varnish in the sharp corners. Lay varnish on as quickly as possible.

2. Now do the back of the violin, sweeping around the outside edges, and filling in even all over. (By reflection one can see any skips or uneven coating.)

3. Now do the top, and be very careful not to have varnish get into F holes. The edges of F holes - you touch up lightly with the brush.

4. Then the scroll of the neck and the base comes last.

BE PATIENT - let stand for several days. When dry, the varnish will not stick to your warm hand. (Test). Wire wool the first coat, and clean. Proceed as before. Repeat as often as you lay extra layers of varnish - usually 8, 10, 12 coats are needed. The last coat - or last two coats - are usually a clear varnish - providing you have obtained the color you desire.

FINISHING

When the varnishing is completed - and the violin is perfectly dry - proceed with finishing. Finish the last coat grinding with wet emery paper 600 grit (a small piece folded double is handy to use. Keep clean water near and dip paper in water. Have clean cloth handy and wipe excessive moisture or water away from time to time.)

Polishing the ground surface - Polish the dull and ground varnish by rubbing oil - rotten stone, using a piece of woolen cloth to do it.

Caution in varnishing - a colored varnish must be laid on evenly and quickly - no overlapping as varnish becomes sticky and will thicken and be uneven. If this happens remove at once with a cloth wet with alcohol.

A P P E N D I X

I believe I have recorded the statement that we amateurs have only records to go by in modeling a violin and that Stradivari would study the wood and test it, and would know the exact shape and graduation that the wood should be carved to. We have to depend on wood furnished by dealers, yet from reading and inspecting we do come to the decision as to whether the wood is suitable; but we do not know exactly the thickness required to produce the best tones.

As you read the history of Stradivari you learn that he produced the pure tones on completed violins, also that not all violins were of the same pattern or thickness of graduation. So this leaves a question as to the thought that the age of the instrument had a great bearing on the tone for richness. Also in the discussion of tone quality there is much said of the varnish he used. He made his own varnish and mixed the oils and rosins at night, and no one was allowed in this private room, not even his own sons. We amateurs have to purchase the varnish and depend on the manufacturer. Books have been written on varnishes and many formulas have been recorded. It is, however, quite a lot of work and as the results may be disappointing, it is better to purchase from a reliable dealer.

A. D. Jones

SOME DIFFICULTIES I HAVE ENCOUNTERED IN VARNISHING

On my latest violin I experienced some difficulty in varnishing. The violin was prepared as I have recorded, the water stain and filler had been applied and the violin was fine wire wooled, and the surfaces were smooth and well dried. The first coat with colored varnish went very well. The varnish sets tacky in a few minutes and you have to work fast, then let set for five days.

For drying: I hang the violin by a cord looped in the neck end of the scroll, in a window where it is free from dust, yet is exposed to light. Each day I reverse the neck in the loop in order to expose the back and then the front of the violin to the sun.

My difficulty in varnishing came when I applied the second coat. As the varnish sets so quickly, I would try to even the varnish, thus the overlapping would show a very decided botch job. So off would come the varnish by the use of a cloth wet with denatured alcohol. On this violin I experienced the above trouble five times, yet I had not with the other violins I had made.

MY METHOD OF COLOR VARNISHING

After the violin has been stained and had two coats of filler which had been wire wooled lightly with No. 0 wire wool, and well dusted and brushed with a clean varnish brush, paying strict attention to edges on rib sections and the F holes, I use Amber varnish for the first coat as this is a foundation varnish and is a reflector for the color you have chosen.

The varnish is placed in a small glass container and a small amount is used. Varnish not used is replaced in varnish bottles. If varnish is too heavy it should be thinned out with turpentine in small amounts and tested until the varnish drips from a piece of wood and has the consistency of thin oil. This is important as too thin a varnish will run and too thick a varnish becomes tacky and very difficult to get an even coat. If you run into this difficulty, which I have, then the best thing to do is to remove the varnish at once. A soft cloth dipped in alcohol will accomplish this. You simply start all over again.

If the first coat is even and you are satisfied then you may add as many coats as you desire to get the color in mind. Usually three or four coats are necessary. As you are using color varnish, the more coats, the deeper the color. After you have attained the color desired you may use two coats of clear varnish.

A FEW TRICKS FOR APPLYING VARNISH

I usually varnish the back of the violin first, starting at the larger surface, the tail end, then sweeping down the center and to the neck end. Have two blocks of wood ready where you can lay the neck and tail end, that has a tapered stick placed in the block where the tail pin is to be set later. This holds the surface just varnished up and flat and prevents any runs. The varnish will set in 20 to 30 minutes. Now varnish the top and lay this also on the blocks until varnish has set. Next varnish the ribs using care that there is no excess of varnish in edges where top and back are glued to ribs. Holding violin by the center of neck, varnish the mitered end and the scroll. One must use care here also in order not to get excess varnish in peg holes.

Hang violin by the neck using string loop. I have a heavy cellophane bag that drapes and covers the violin in this position. This prevents dust from settling on varnish surface. Each time you add a coat of varnish, wire wool the surface as before. This removes little pimples and prepares the surface for the next coat of varnish. Never revarnish if varnish is tacky to the feel of the hand. Let dry longer. Hang in good lighted room

with air circulation. Varnishing should be done in summer months. It is very disappointing any other time, unless you live in a warm climate.

NOTES ON FRENCH POLISHING EXPERIMENT IN PROCESS

As an experiment I am trying a method of old French polishing which was used on very fine furniture. -- The only difference is that I use oil varnish and they used shellac.

The method is to take a small pad of cotton, pour varnish on pad, then wrap this in a piece of fine cotton cloth, making a round pad. Then dip the pad in linseed oil lightly, and continue to rub the surface in circular motion. The oil prevents sticking and as it dries, the repeating of the method produces a hard and brilliant finish. At this moment I have used this method using the oil varnish. The second application looks promising, as the violin is being colored and is very even and smooth. The coloring effect is light as the layer of varnish is so thin. This is very time consuming. It is then necessary to proceed with the brush method, as recorded.

Build a Double-Bass

- PART 3

by Geo. R. Wright
4163 Sophia St., Vancouver, B.C.

MAKING AND GLUING THE RIBS INTO THEIR RESPECTIVE POSITIONS

Make sure your end and corner blocks are shaped and finished off perfectly (on the square) from the back side. I would suggest you glue some sandpaper on a piece of 2" round stock and use it on the curved corner blocks.

In gluing up the ribs, only do one bout at a time and as soon as it is glued together, trim it off on the edges, leaving it about 1/4" over-size, then fit it into its respective position and clamp it tightly into position, using the (magic clamps) - heavy rubber bands and sticks. I purchased two boxes of 1/2" and 5/8" elastic bands which only cost me $1.70 while regular clamps would have cost hundreds of dollars . . . more about the elastic bands later on.

Now, take notice of No. 14. I started with the bottom bout and, to simplify make a perfect joint in the ribs at the bottom, I left a space of about 1/2" and fitted in a piece of Red Gumwood afterwards, also making a decoration of it.

NOTICE

For those who are interested in the articles on the Double Bass, by G. R. Wright, Mr. Wright wishes to let those persons know that he is copywriting his Articles and intends to publish these in Book Form.

Anyone interested please write to him at 4163 Sophia St., Vancouver 10, B.C.

If the rib section on the lower bout is not fitting perfectly down all the way along and on the blocks put on more elastic bands until it is pressed into a fitting position. Then leave it there for a day to let the glue in the ribs harden, then take it off and put the glue on, work in a warm place and heat the glue up to about 100° F.- - - Watch it carefully because it will shift end-wise if not tightly pressed down. I tacked it on with two 1/2" brads.

I used 3/4" fir dowel stock through the holes in the form, extending about 3" on each side to loop the elastic bands over.

Repeat the same process with the middle, or C bout. Trim off each section as soon as it is glued on with a fine-toothed hand saw, then finish with a small plane.

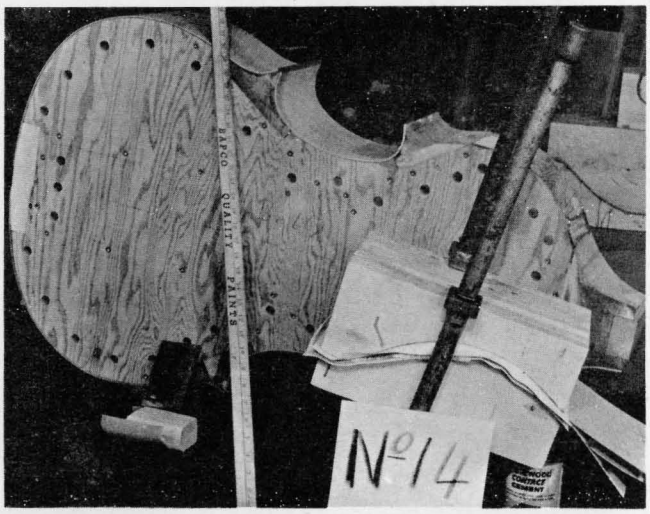
The top bout is a tricky one and that is why we have shown it in the picture No. 14 - still in the cramping block.

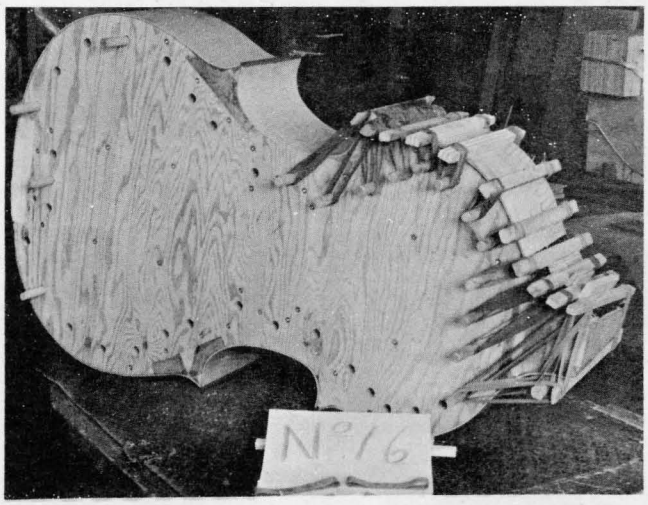
Notice - the block is cut off and does not run the full length of the bout. It is actually cut off at the point where it meets the neck block, and the ribs extend about 7" beyond the block (make sure you put no glue on this extension) while you are gluing up the rib.

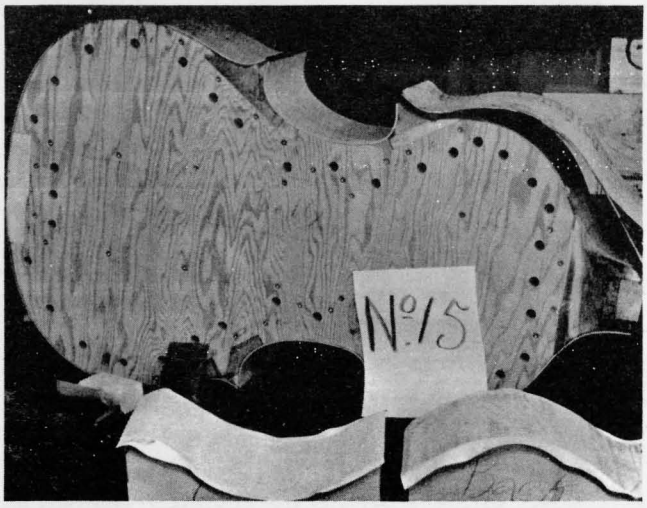
The reason for this is, because from this point to the end where the neck joins the body, is a COMPOUND curve, therefore, it is much easier to press this portion into position by leaving it separated until now. So, after you have fitted it into its place, and left it over night, take it out and spread the warm glue on each rib and clamp down firmly.

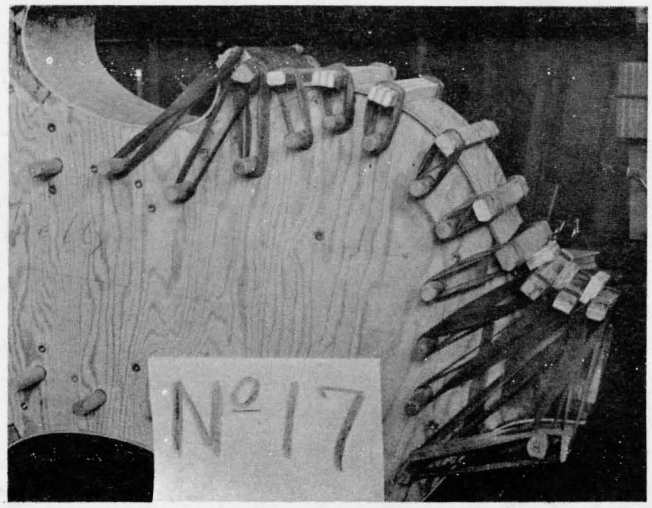
Study No. 15 carefully and you will see the 3 pieces of veneer on the end of the rib section. Also notice the plastic sheeting on the cramping block which makes a slight cushion and prevents the rib from getting glued to the block.

Now study Nos. 16 and 17. Notice the dowel pins extending through the form. Also the sticks which press the rib down. Make sure the flat side of these sticks are perfectly smooth, otherwise, the ribs will be marred, in fact, I used an extra piece of veneer under these sticks to protect the ribs.









I also shaped a larger stick to fit the sharp curve at the C's. This is the hardest spot to get down to a perfect fit, so be sure to start at this end and use plenty of the elastic bands, but don't forget to fit the whole rib down before you secure this end too strongly. Make sure you leave a little lap-over on both sides to trim off afterwards.

The reason I mentioned the compound curve is because the neck block is wider at the top side than at the back, i.e., The top is 4" and the back 2 1/2". So when shaping the neck block, you must bring it from a flat into a spiral - but this creates no problem at all in gluing on the rib when the end 7" is left separate as I have said. The sticks naturally take their angular position as they yield to the pressure of the elastic bands.

I think this will suffice for Lesson No. 3.

Yours for better fiddles.

G.R.W.

LINSEED OIL

by Geo. R. Wright
Vancouver, B.C.

I think I have found the BOOGEY-BEAR in Linseed Oil!!

We have heard and read a lot about the chemical reaction in Linseed Oil, even ten years after it has been used as a filler under varnish, making the violin all gooey, which is a very great disappointment and problem.

Still, we find a few who are convinced that the Old Masters used it successfully. I have been searching for many years to get to the bottom of this naughty problem and always finding out something in favor of Linseed Oil rather than against it.

For example, - A very old man who had spent his life in the paint and varnish business told me, "There is nothing in the world better for under a varnished floor than Pure Linseed Oil (Raw) put on hot." He said he had used almost everything but this lasted ten times longer than anything else.

Another testimony was from my Dad who was born in Ontario, Canada, and helped his Father chop hardwood (cord-wood) for 50¢ a cord and, to make the task a bit easier, they oiled their hickory axe-handles with PURE, RAW, Linseed Oil, put on HOT, so the handles polished from use 'till they were slick as a piece of glass.

But recently I was bequeathed a very old book of formulas on Paint and Varnishes. So I am going to pass on to you fellows something I believe is worthy of notice.

The book says, on Page 476, "that, linseed oil is not generally sold at retail paint stores".

Then on Page 478 it has a paragraph under "Bunghole Boiled Linseed Oil" - "When a dealer in paints and oils desires to earn an 'honest penny' without downright stealing, he takes 5 or 10 gallons of RAW Linseed Oil out of a fifty-gallon barrel and replaces it with NOSTRUM that costs him only one half the price of Linseed Oil. This is especially profitable when Linseed Oil is above average price, as the rosin and benzine drier does not cost him over 20¢ per gallon."

On Page 484, the book gives another formula of "Bunghole Boiled Oil" - a gallon or so of the oil is removed from the barrel and then a muslin bag, half filled with hot borate of manganese, is suspended in the oil from the bunghole for several weeks, the bung being left open. This borate of manganese will cause the oil to rapidly oxidise and thicken up to the consistency of boiled oil.

I believe this is the "BOOGEY-BEAR" which has been causing this chemical reaction in the oil.

On Page 479, the book compares Calcutta Linseed Oil with Baltic, European and American oils. Also, claiming the best is from Calcutta. The reason is because they grow the Flax, primarily, for the oil and secondarily for the fibers in the stock. In fact, the book says in the Baltic, Black Sea and Sicilian, the seed from these sources is superior because the plant is grown for the seed ALONE and the seed is allowed to mature and fully ripen in the field. Whereas, if it were to be used for the fibers, it would be cut before fully mature.

To me, this is another reason why oil from underripened seeds would be more subject to a chemical reaction than it would from fully ripened seeds.

The book, on Page 478, gives a formula for testing Raw Linseed Oil. This can be determined by the taste or smell. Pure Linseed Oil has a slightly bitter taste and creates a rasping sensation on the tongue but is not nauseating unless adulterated with fish oil, rosin oil or mineral oil. A few drops placed between the palms of both hands and rubbed briskly will cause the oil to heat and, if adulterated, the odor will reveal the presence of fish oil, etc.

Pure RAW Linseed Oil, brushed over a piece of glass in a thin film, will dry hard in less than seven days.

If our subscribers are interested in the boiling and preparing methods, I can give a further article on the subject.

Yours for better fiddles.

Geo. R. Wright

THE SCRAPER

Burton E. Hardin
1410 Cloverdale Dr.
WICHITA, Kansas

So simple an instrument is the scraper--yet it is painfully and laborously misused by most builders simply because many craftsmen have never been introduced to the proper method of sharpening. In fac , my father, Dr. Robert A. Hardin, who made an excellent violin about 30 years ago as one of his diversified projects, has expressed his fear that this knowledge may have fallen victim to the machine age.

If the scraper is sharpened correctly, it will bring the wood up in clean curls, similar to those of a plane, but is easier to control. Tools required are a fair sized mill file and a tool known variously as a sharpening tool or a burnishing tool. It is simply an oval rod of highly tempered steel ground to a moderately dull point.

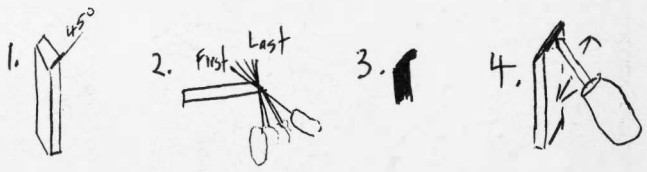
First, the scraper is ground and filed to a taper of about 45 degrees (fig. 1.). The file is laid on the bench, backed against the stop and the scraper is repeatedly drawn sideways one way down the file on the bevel then on the flat side. This raises a wire edge then removes it.

The scraper is then held in the left hand with a side against the bench, cutting edge overlapping the edge. The burnishing tool is drawn down the beveled edge under great pressure several times, the first of which is taken at about a 30 degree angle and the last of which is 90 degrees to the scraper (fig. 2.).

It will be noted now that there is an edge overlapping the flat side (fig. 3.). Now take the point of the burnishing tool and follow this edge first one way then the other (both on the under side, bringing the scraping edge to a fine tone (fig. 4.).

Now try the scraper on hardwood...if the wood comes off as I have described, you are successful. Otherwise, try again. It is not easy to get the knack of this and only persistance will gain it for you. This process may be done either to flat or curved scrapers.

If your burnishing tool has acquired marks in it from this operation it is too soft and should be brought to a higher temper.



Box 388
Sebastian, Florida

February 15, 1964

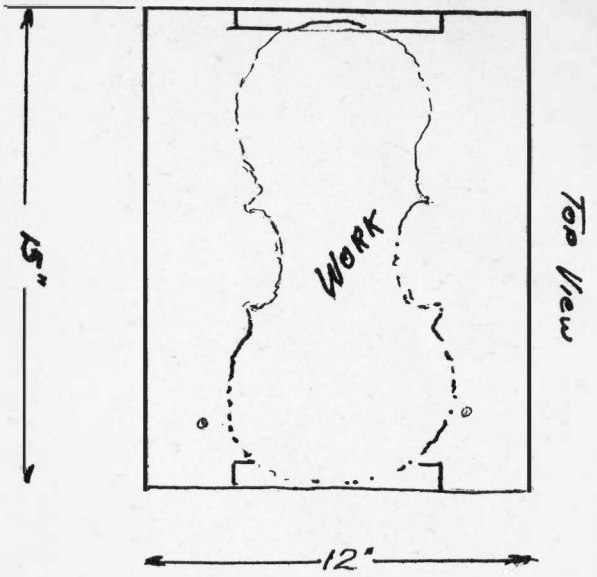
Violin Maker's Journal
Vancouver, B. C.

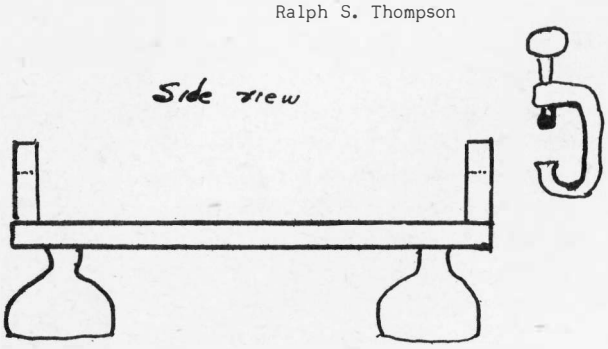
Dear Editor:

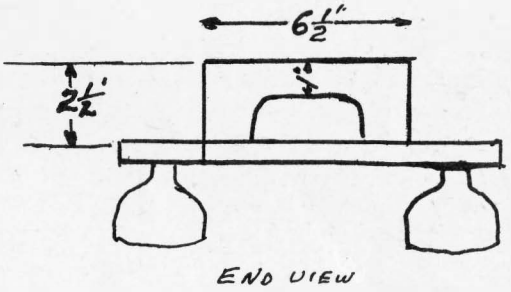
I had quite a time figuring out a way to hold the violin plates while working on them, finally devised the jig shown in the accompanying sketch.

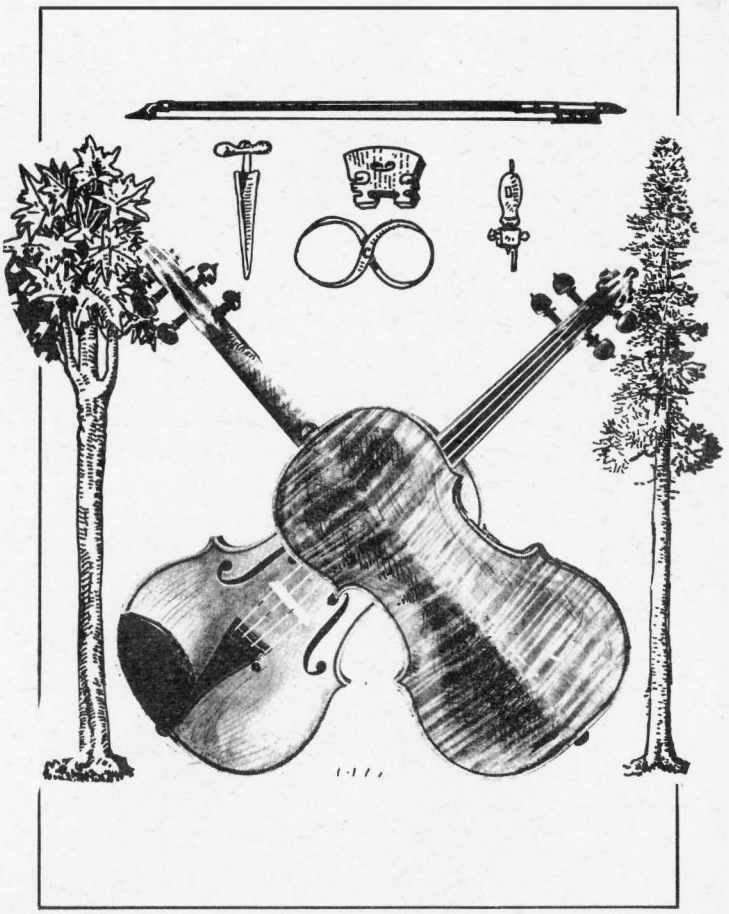
Little sand bags packed under the work give support to the tool. The rubber cups are from an auto car top carrier. "C" clamps hold down the work. They are a little bit in the way. Some other type of clamping could be worked out, something made out of hard wood with the whole clamp under the level of the work.

Yours truly,
Ralph S. Thompson









THE VIOLIN MAKERS JOURNAL

of

THE VIOLIN MAKERS ASSOCIATION OF B.C.

George Friess - President
Clarence Cooper - Editor

VOLUME ONE

Volume One of the Journal has been reprinted in its' original mimeograph form and is now available at $4.00 a copy. Send in your subscription and remittance, using the blank form provided hereunder. Please be sure your address is complete and correct.

Volume One contains a short history of the Association and many of the initial articles on varnish, tuning of plates, thickness of plates, the sound post, rib making, and violin forms, as well as many of the controversial subjects such as the old vs. the new, etc. The formula for the filler coat for pre-treating the violin, by Mr. Sangster, and the observations of Dr. Saunders on the physics of the violin, are two interesting subjects. The articles in Volume One are referred to in later issues of the Journal and it is a "must" for a complete reference.

. . . . . .

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