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## VSA-SPONSORED TRIP TO STUDY THE MESSIAH

Helen Hayes and Joseph Regh

*Saturday, November 10, 2001, 9:30 am*

*Norman Pickering:* We've all been waiting for this moment since the Fort Mitchell convention. We opened a can of worms, and we'll see if some of those worms are going to crawl around and give us some interesting information. But the way in which the worms were obtained is worth a story in itself, and that's what our president Helen Hayes is going to talk about.

*Helen Hayes:* Good morning, and thank you for being here. This is a historic moment. Never have so many people voluntarily assembled to see the pictures of someone else's trip. Seriously, we're here to tell you the background of this very interesting and important event in the life of the violin world, and certainly in the life of the Violin Society of America.

Please bear with me while I review the recent controversy. I think it's fair to say that the controversy quietly began probably 40 or so years ago. The recent controversy began, as many of you will remember, in November of 1998 at the Violin Society of America convention competition in Salt Lake City. At that time, Stewart Pollens, curator of instruments at the Metropolitan Museum of Art, gave a talk on the Messiah. He raised a number of issues, some concerning the geometry of the violin, the presence or absence of internal patches, the G form mark in the peg box. Of primary interest to us today are the issues he raised about the dendrochronology of the instrument.

In his comments about the dendrochronology of the instrument were reports of informal assessments by two dendrochronologists, one German and one American, that reportedly assessed the last date as 1738, the year after Antonio Stradivari died. Thus, that became a very controversial point. The contro-

versy hit the headlines in the following year. There was a front page article in the *Wall Street Journal* in March of 1999, as well as an article just prior to our convention concerning this whole issue in the *Times* of London.

In Salt Lake City, only one side of the issue was heard, and I was very anxious as the new president of the Violin Society to bring to the November 2000 convention a broad range of opinions on the subject. I wanted to give other views a hearing. To that end, we planned a series of talks and a memorable panel discussion on the subject of the Messiah.

Concerning the lectures, Dr. Henri Grissino-Mayer, who is here with us today and whom many of you know, was asked to give a general introduction to the science of dendrochronology and to prepare us for what followed during the day. We are, as always, indebted to Henri for that fine presentation which many of you must remember.

John Topham is a British violin maker and restorer who some years ago developed an interest in dendrochronology. He, with John McCormick from the medical community, had done a lot of work on the dating on both British and Cremonese instruments. Topham, who was basically a restorer and instrument maker, had come in with dates consistent with the date of attribution: 1716. Stewart Pollens also gave a talk at that convention.

We assembled a distinguished panel, including Charles Beare of London; Carl Becker, who is thought by many to be the greatest living instrument maker; Henri Grissino-Mayer; our own Philip Kass; Stewart Pollens; and John Topham. I was moderator.

The present initiative began right after the panel. Charles Beare and I were discussing the events of the day and of the week, and we were talking about the status of the question. Charles seemed to feel that the events of the convention had settled the issue. I respectfully disagreed with Charles that the issue was not settled and in particular with respect to the dendrochronology of the instrument. I suggested that the VSA might conduct a dendrochronological study of the Messiah. My reasons included that we are, if I may say so, an internationally respected group, we are unbiased, we have no agenda, and we are uniquely positioned to do an objective study. I suggested that an American dendrochronologist, Dr. Grissino-Mayer, be the one to do that study. As it turned out, we have three American dendrochronologists, all with doctorates in the field and extensive publication records. They are also American dendrochronologists with no previous ties to the world of violins, nor to the British violin-making community.

Charles agreed that that would be a very good idea, and he informally told the Hill family when he returned to England of the idea. I'm sure that Charles's support was very important to this

initiative. As you all know, very few people are ever given access to the Messiah for understandable reasons. When I requested permission of the Hill family and the Ashmolean Museum for us to come with American dendrochronologists to do a study of the Messiah, that permission was readily and graciously given.

In addition, we asked for and received permission from the Royal Academy of Music to examine instruments there. When I say examine, I mean a full dendrochronological workup. Our guest scholars will tell you the details of all of this, so I will not go into that.

Let me just remind you that you have a long history with Henri. After the events of November 1998, when I saw the importance of dendrochronology to the future of instrument identification, I went on the web and I found the most marvelous website. I contacted the academic responsible for it, who was Henri, and asked if he would write an article introducing the science of dendrochronology to our membership. Those of you who are members may remember about two years ago we had a beautiful, lengthy, clear article on dendrochronology. I was very impressed that Henri would take that on on the basis of a phone call from some woman from New York whose organization he had never heard of, and we appreciated that.

Then the following year, as you know, he gave the lecture on dendrochronology at our November 2000 meeting, and he was our resident expert on the panel in the area of dendrochronology.

Henri was asked to conduct the investigation. He thought, wisely as it turned out, that it would be best to have a team approach, so he engaged the services of Dr. Malcolm Cleaveland of the University of Arkansas, and Dr. Paul Sheppard of the University of Arizona. Henri is from the University of Tennessee. So we had three American dendrochronologists from three different universities on the team.

Being that four of us involved in the project were academics, we arranged for the trip to England and the examination of the instruments to be in July when school was not in session. Dr. John Whiteley of the Ashmolean Museum suggested that we come on a Monday, when the museum is closed. That would give us quiet access, the use of the room in which the Hill collection is housed.

By the time we made our reservations, it was too late to book a hotel in Oxford in July. Oxford is a big tourist attraction in July, and those were happier times when a lot of people were traveling. We found ourselves in a hotel called the Jersey Arms in a place called Middleton Stony. That worked out very well because the management of the Jersey Arms greeted us with open arms, in spite of the fact that at one point we plunged a section of the hotel into total darkness as we tried to get our elec-



tronics over the international hurdle. But they deserve a mention, because they went above and beyond the call of duty in trying to be helpful to us.

On Saturday, July 21, Joe and I went to the Ashmolean. We had never been there, so we went to survey the site and see the lay of the land. When the team of dendrochronologists arrived that evening, we had a business meeting. This is more than you want to know, but it will explain some of the photos that you're going to see. We had an organizational meeting, and began to set up and test the equipment that would be used. The equipment was all brought from America, and we had to make sure that it functioned in the U.K. We didn't want to lose any time on Monday assessing where we would work and how this would all go, so we all went to Oxford and the Ashmolean on Sunday.

On Monday, with all the proper security precautions, we were admitted to the Ashmolean and given badges. Dr. John Whiteley received us. He could not possibly have done more for us before and during the trip, tremendously gracious and open and helpful. He spent the day with us, and we were there the entire day in the Hill collection room. The pictures of the work on the Messiah were all taken in the same room where the Hill collection is housed. So none of the instruments was removed from the room in order to be examined by the dendrochronologists.

The following day, we had an appointment at the Royal Academy of Music. David Rattray was not to be in London that day, but he came in to be with us and to give us access to the instruments in their collection, any instruments that were thought suitable or helpful in the attempt to date the Messiah.

Before we show you the pictures and turn over the rest of the presentation to the results you're all waiting to hear, I must take a few minutes to thank a few people to whom we are indebted for this visit. First of all, I would like to thank the Violin Society of America Board of Trustees for their full support of this effort. And perhaps they should be first, but we have to thank our team of dendrochronologists who have given us an extraordinary amount of their time and expertise. This has all been on a volunteer basis, and we are truly indebted to Henri and Paul and Malcolm.

I would like to express my thanks to Charles Beare, without whose openness and support this may not have come to pass. Dr. John Whiteley of the Ashmolean was outstanding in his help, in his openness, in his cooperation. He was more than supportive, as was David Rattray of the Royal Academy of Music.

And last, but certainly not least, I want to thank my husband, Joseph Regh, for his usual behind-the-scenes, total dedication to the work of the Violin Society, and in particular to this project. Without his considerable expertise in electronics, this

might have been a non-event. So he has contributed to this trip and this endeavor in every conceivable way, and I offer him my special love and thanks.

And now we have the travel pictures.

*Joseph Regh:* Before I get to the pictures, there was one name missing of people who need to be thanked, and that, of course, is Helen. It was Helen's idea to convene the Messiah panel. She had a very intense interest after reading the article in the *Wall Street Journal*, and it was her idea to bring all of these parties together at last year's convention, convene the panel, and bring out all of the issues in the open and to get everybody's opinion.

The anticipation was that there was going to be a resolution of some kind which, of course, did not happen, but her initiative started this study, and her effort in continuing the work, bringing it into England, doing the measurements, paving the way with the people in authority, and again to bring everybody here and bring the issue to some level of conclusion. So thank you.

I have a whole bunch of pictures which now that you have them in context will make a little bit more sense. So I will just flash our pictures and explain them.

This is the Ashmolean Museum in Oxford (Figure 1). It's the main entrance. Among other things, it houses the Hill collection of musical instruments.

Figure 2 was taken on the first day when Helen and I went there by ourselves, and it is the inscription underneath the Messiah violin: "Maker Antonio Stradivari, 1644-1737; made in Cremona, 1716; purchased from Paolo Stradivari by Count Cozio de Salabue in 1775; thereafter into collections of Louis G. Terezio, 1854; Vuillaume, 1875; and Alfo Nolard, 1888. It was a Hill gift of 1939."

Figure 3 shows the Messiah in its case. In the background you see the other instruments that are part of the Hill collection. Next to the instrument is a placard (Figure 4) that explains the work done by John Topham, and at the bottom it has a tree section explaining the basics of the dendrochronological science. In Figure 5 you can read what the placard says; in a nutshell, it says the wood has been shown to be of a date compatible with the manufacture date of the violin.

This is at the hotel on the Sunday prior to going to the Ashmolean (Figure 6). We had a strategy meeting where we laid out how we were going to spend the day, what we needed to do to get the equipment ready, and how to protect the security of the entire mission, because that was very important to the integrity of the project.

This is again at the hotel (Figures 7-9). It is our attempt to lay out the equipment and hook everything up and see if it

works. We had a minor catastrophe in that in England they use 220 volts now, and we had equipment that was compatible with 110 only. We had a few of these converters that one uses for shavers and the like, and the electronic equipment does not like the output of those devices. So we ended up experimenting, and in the process we put the hotel into darkness. We blew their circuit breakers. But we were able to solve our problems.

The next day we went to the Ashmolean (Figures 10-11). Look at that duffel bag, it is a very formidable piece of equipment. It appeared to weigh several tons, but somehow we got it there. Malcolm is standing there, scratching his head, saying, "How do we get this mother into the museum?" But we did.

This is the entrance of the museum (Figures 12-13). It was a Monday, and we are standing there waiting for the arrival of John Whiteley. This is the entrance to the Hill Collection (Figures 14-15). We are just inside of the room and setting up the equipment for our measurements. This is John Whiteley (Figure 16). The strategy was to measure one of the other Strads in the collection, a decorated instrument, and use that to normalize the techniques.

Here the Strad is on the operating table and Henri starting to line it up and do the first measurements (Figure 17). This is Malcolm measuring the same instrument (Figure 18). The strategy was that all three people would take independent measurements, and then cross-correlate and make sure the data are of the highest integrity (Figure 19).

This is a strategy discussion between John and Helen (Figure 20). And this is the Messiah being removed from its case (Figure 21). You cannot imagine the emotions one goes through being that close to the instrument and having the privilege of doing this work. It is like religion. It might as well be the Messiah, that is how one feels.

Figure 22 shows the Messiah on the table. The strings are still on, and you cannot measure with strings in place. So we have the strings off now (Figure 23) and are ready to proceed with our measurements. Everything we did was done under the watchful eyes of John Whiteley (Figure 24). He never left the room; he never strayed from the instruments. The security was very well done. And this is the day the music stopped. This is the empty case (Figure 25).

*Ms. Hayes:* Or the empty tomb of the Messiah.

*Mr. Regh:* This is the Messiah on the table (Figure 26). This is a picture of the controversial G mark (Figure 27). If you look very closely, you can see the star indentations in the peg box.

*Ms. Hayes:* To the best of my knowledge, the presence of those two stars, embossed or carved, has not been reported before.

*Mr. Regh:* This is the bass bar of the Messiah which is displayed in the same case (Figures 28-29). We actually measured the rings on the bass bar, too. I don't know if that had any significance.

This is the bottom bout of the Messiah (Figure 30). It is a rather complicated intersection of rings. These outside rings are relatively widely spaced, but the inside section is extremely narrow. So to measure this repeatedly and precisely is not trivial.

This is the upper bout (Figure 31). If you look carefully, you can see up here the sliver of wood that was inserted into the top by the maker.

Again, this is the lower right bout (Figure 32), and the lower left bout (Figure 33). The upper right, and you can see the sliver a little bit better now (Figure 34). The upper left bout (Figure 35). This is the C-section (Figure 36), and the back (Figures 37-38). These are the ribs on the treble side (Figure 39), and the ribs on the bass side (Figure 40). This is the scroll (Figure 41). It's probably hard to see, but in the eye of the scroll there is another indentation, like a starburst pattern. This is the other view, looking into the peg box (Figure 42). Now, at this angle, if you look at this section where the G mark is located, unless you view it at the correct angle, you cannot see this mark (Figures 43-44). You've got to look down at a steep enough angle; otherwise, you will not see this. And I have a videotape that I took where I changed the angle of the videotape and the mark disappears.

This is the restrung violin (Figure 45). They used just gut strings to have a minimum amount of tension and pressure on the bridge. This is the measurement of a Ruggeri violin that is also a part of the collection (Figure 46).

This is the team (Figure 47). After work, we went to a wonderful restaurant in Oxford.

This is our setup at the Royal Academy of Music in London, ready to measure instruments (Figure 48). The instruments hanging from the ceiling are all expensive, rare instruments. They are there to be repaired.

This is again the team, and to the left is David Rattray, the curator of instruments at the Royal Academy (Figures 49-50).

This is David removing the strings of the Archinto Strad viola (Figure 51). This is the Archinto on the operating table (Figure 52). This is a close up of the Archinto (Figure 53). We put a little sliver of white paper on there to locate the center seam of the instrument. This is, again, very difficult to see.

This is an interesting case of violins (Figures 54-55). It blew my mind to see four Strads in one case. It is incredible. Another view of the same thing. This should be made into a poster.



This is an instrument that has nothing to do with our study, but out of curiosity we asked about it and David told us a story (Figure 56). There was a ship that had sunk, and this relic was found that used to be a musical instrument. David was asked to reproduce it, to make a copy of it or a facsimile, and he did and played it for us.

This is the end of the picture show. Thank you.



Figure 1. The Ashmolean Museum in Oxford, England

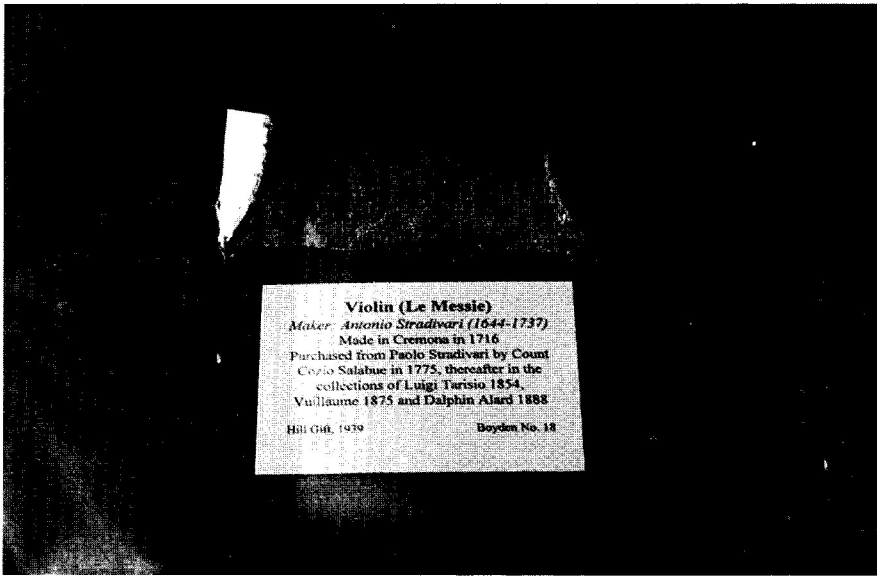


Figure 2. Label in the glass case with the Messiah

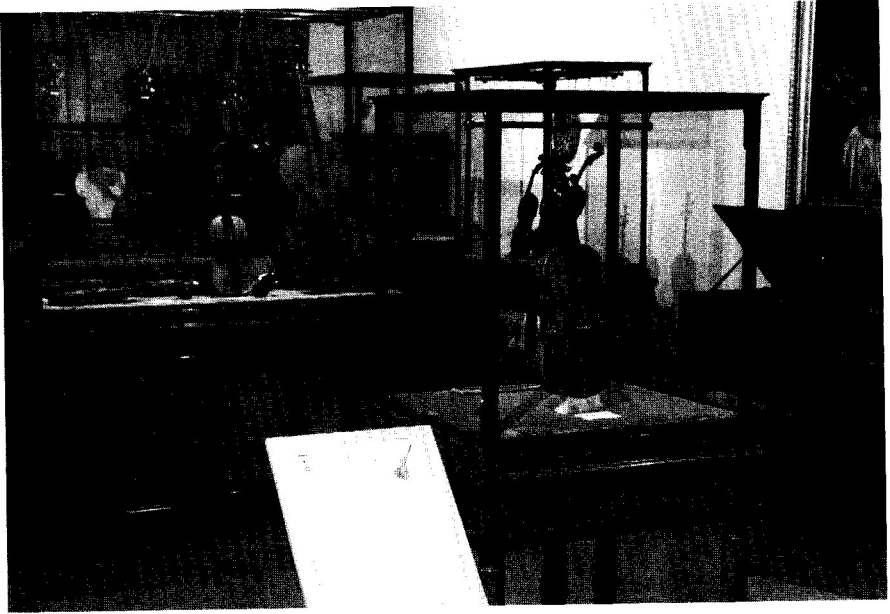


Figure 3. The Messiah displayed in its glass case among other instruments of the Hill Collection

### DATING THE MESSIAH VIOLIN

**THE AUTHENTICITY OF THE MESSIAH VIOLIN HAS BEEN ESTABLISHED BY A RECENT STUDY USING DENDROCHRONOLOGY - THE SCIENCE OF DATING BY COMPARING TREE RINGS**

**INTRODUCTION**

The authenticity of the Messiah violin has been established by a recent study using dendrochronology - the science of dating by comparing tree rings. The study was conducted by John Topham, a dendrochronologist at the University of Oxford, and his team. They compared the tree rings of the Messiah violin to those of a group of 1000 trees from the same region, and found a perfect match. This proves that the violin was made in the same region as the trees, and therefore authentic.

**DENDROCHRONOLOGY**

Dendrochronology is the science of dating by comparing tree rings. It is based on the fact that trees grow in a regular pattern, and that the width of their rings varies according to the conditions of the year. By comparing the tree rings of a sample to those of a group of trees from the same region, it is possible to determine the date of the sample.

**RESULTS**

The study found that the tree rings of the Messiah violin match those of a group of trees from the same region. This proves that the violin was made in the same region as the trees, and therefore authentic.

**CONCLUSIONS**

The study has established the authenticity of the Messiah violin. It is a genuine instrument, and not a copy.



**ADDITIONAL INFORMATION**

The study was conducted by John Topham, a dendrochronologist at the University of Oxford, and his team. They compared the tree rings of the Messiah violin to those of a group of 1000 trees from the same region, and found a perfect match. This proves that the violin was made in the same region as the trees, and therefore authentic.

**FOR MORE INFORMATION**

Visit our website at [www.messiahviolin.com](http://www.messiahviolin.com) for more information.

Section of tree cut down in 2000.

Try counting the rings to find when it was planted!

Figure 4. A statement of the dendrochronological findings of John Topham with a pictorial about tree rings

**DATING THE MESSIAH VIOLIN**

THE AUTHENTICITY OF THE MESSIAH VIOLIN HAS BEEN CONFIRMED BY A RECENT STUDY USING DENDROCHRONOLOGY—THE DATING OF WOOD BY COMPARING TREE RINGS

**HISTORY**  
The Messiah or 'Messie' violin is one of the most celebrated of all the violins of Antonio Stradivari. It has for many years been kept in a glass case and, apart from some alterations in the 20th century, is in pristine condition. For some it was too good to be true.

**DENDROCHRONOLOGY**  
When wood is cut you can often see a series of lines or growth rings. These reflect the growth of the tree in a single year. They are different widths according to factors such as the temperature and rainfall over that period. By comparing growth ring patterns of trees of different ages you can make a series, or chronology, which can reach from the present day back hundreds of years. Dating by this method is called dendrochronology. Although this cannot tell us who made the violins we know that a date after 1737 would mean that the instrument was made after Stradivari's death.

Violins are made of different types of wood. Usually maple or sycamore are used for the back sides and neck, and spruce for the front. It is only spruce that can be used for dendrochronology, because its growth is uniform. Scientists examined the fronts of 20 instruments by Stradivari and by contemporary Cremonese makers. These were then cross-matched to a 'master chronology' which gives a complete sequence of tree rings for Alpine spruce to the present day. This then gave absolute dates for the components of the violins.

**RESULTS**  
The youngest growth ring on the front of the Messiah is 1682. If we allow for the removal of sapwood and ten years or so to season this is perfectly consistent with the attributed date of manufacture by Stradivari in 1716. The Messiah also has strong cross-matches with two undisputed violins made by Stradivari one year later in 1717 and the close correlation suggests that the wood may even be from the same tree.

Dendrochronology has now provided objective evidence to support the argument that the violin known as the Messiah is the work of Antonio Stradivari.

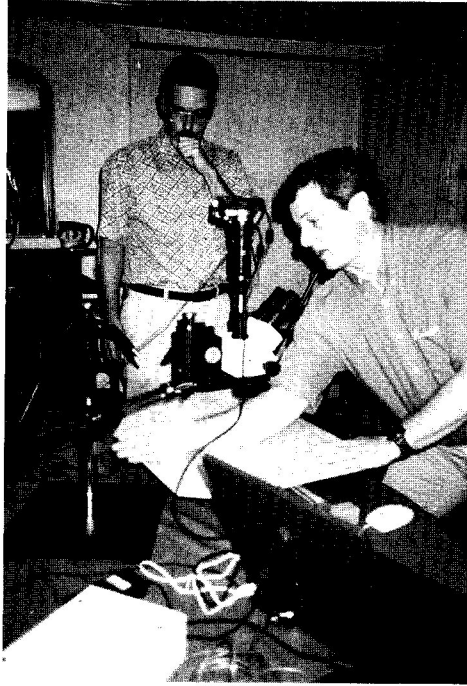
? How many different types of wood are used to make this violin?

Figure 5. Details of the statement



Figure 6. A strategy session at the hotel prior to the Ashmolean visit (l-r): Helen Hayes, Henri Grissino-Mayer, Mrs. Sheppard, Paul Sheppard, and Malcolm Cleaveland





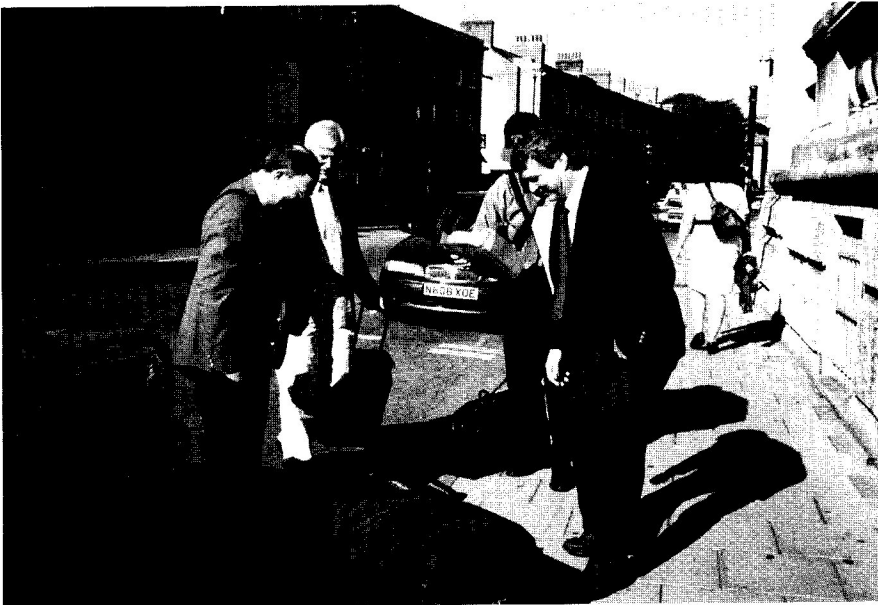
*Figure 7. Sheppard and Grissino-Mayer setting up the measurement equipment in the hotel*



*Figure 8. Minor bugs are ironed out*



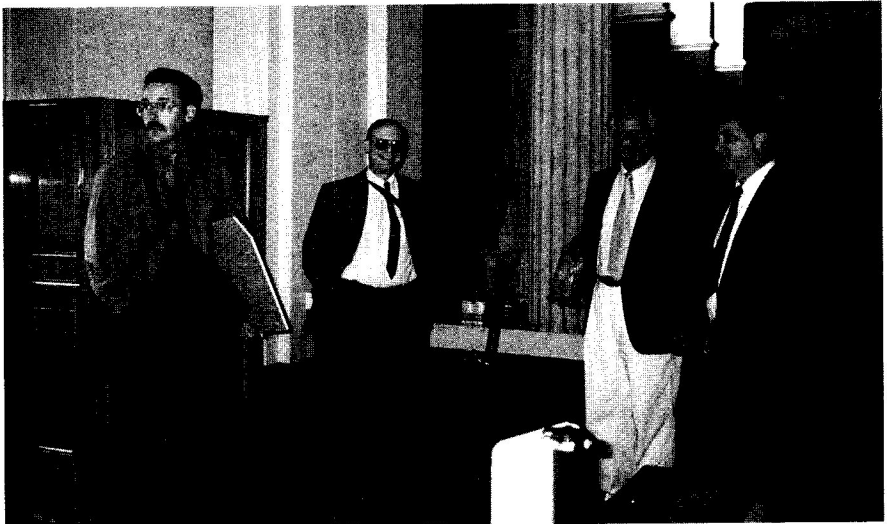
*Figure 9. Working on a few minor technical problems*



*Figure 10. The equipment in front of the Ashmolean*



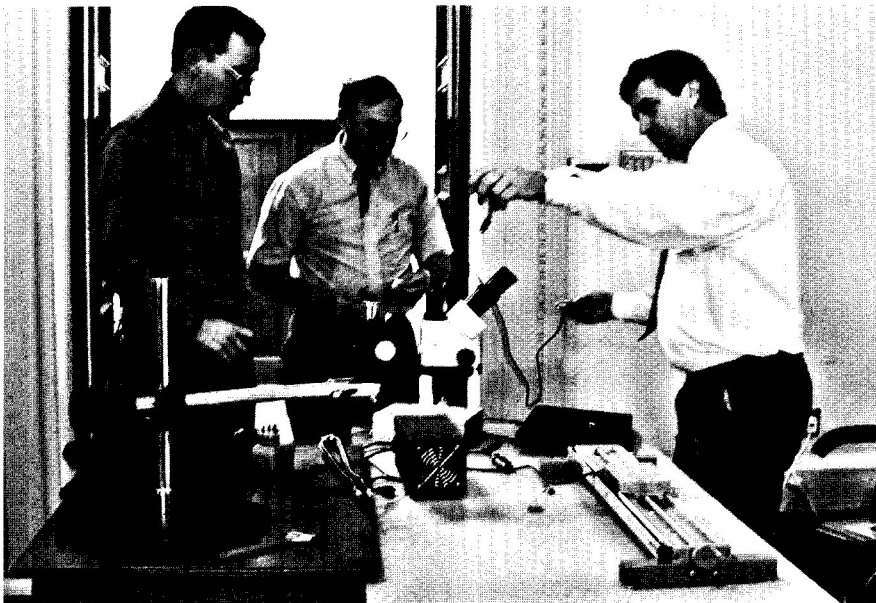
*Figure 11. How are we going to get this package inside?*



*Figure 12. Sheppard, Cleaveland, Regh, and Grissino-Mayer at the entrance hall of the museum*

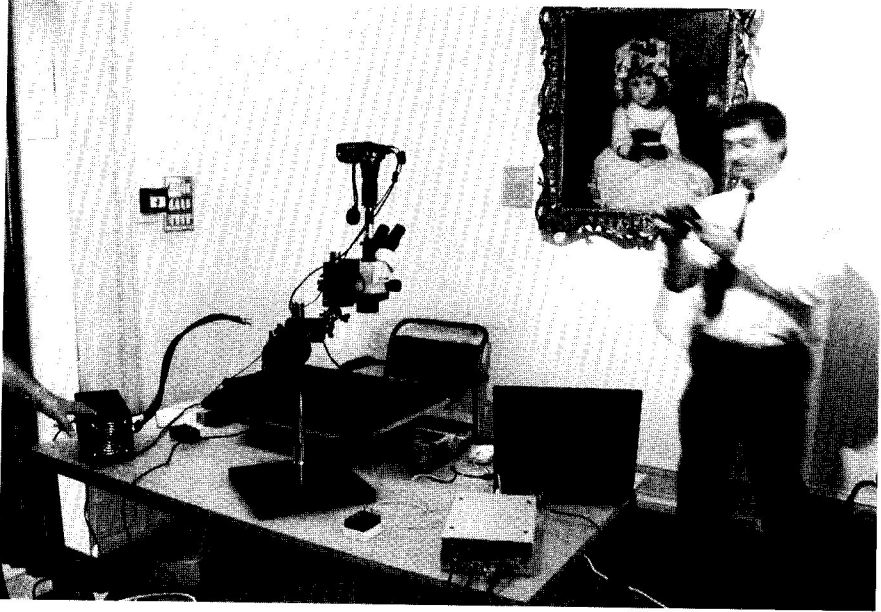


*Figure 13. The three dendros with VSA President Helen Hayes*



*Figure 14. Setting up in the Hill Collection room*





*Figure 15. Ready to measure the first instrument*



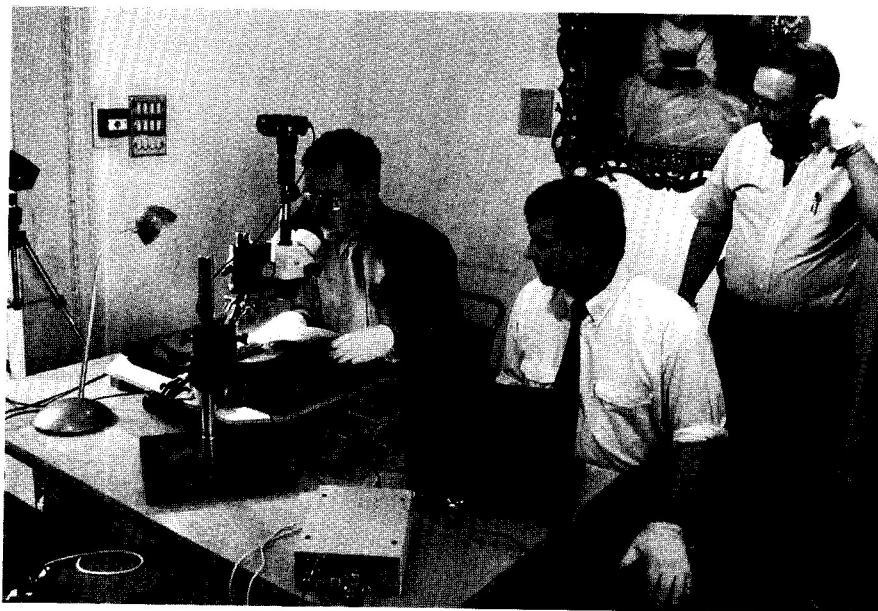
*Figure 16. Jon Whiteley of the Ashmolean brings in the decorated Strad for measurement*



*Figure 17. Grissino-Mayer positions the Strad under the microscope*



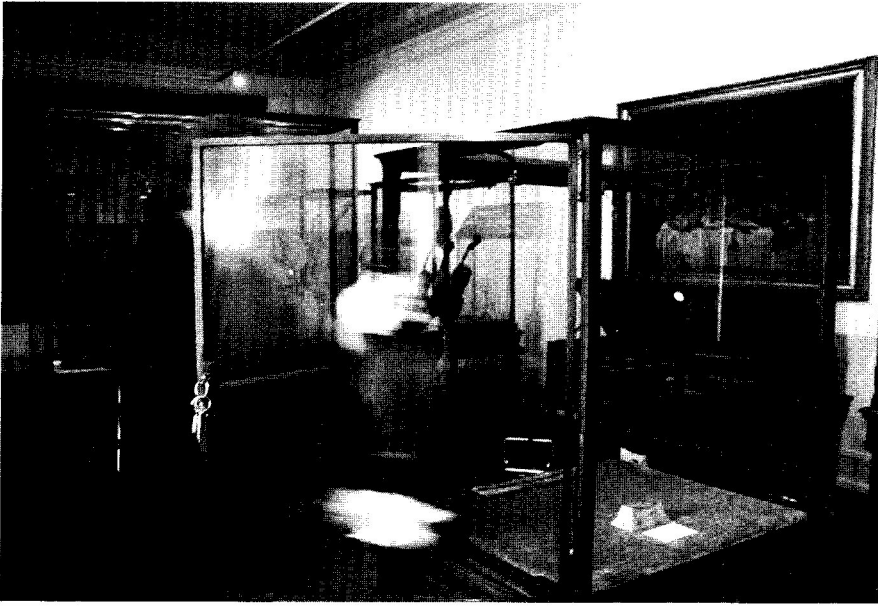
*Figure 18. Cleaveland takes his turn measuring the Strad*



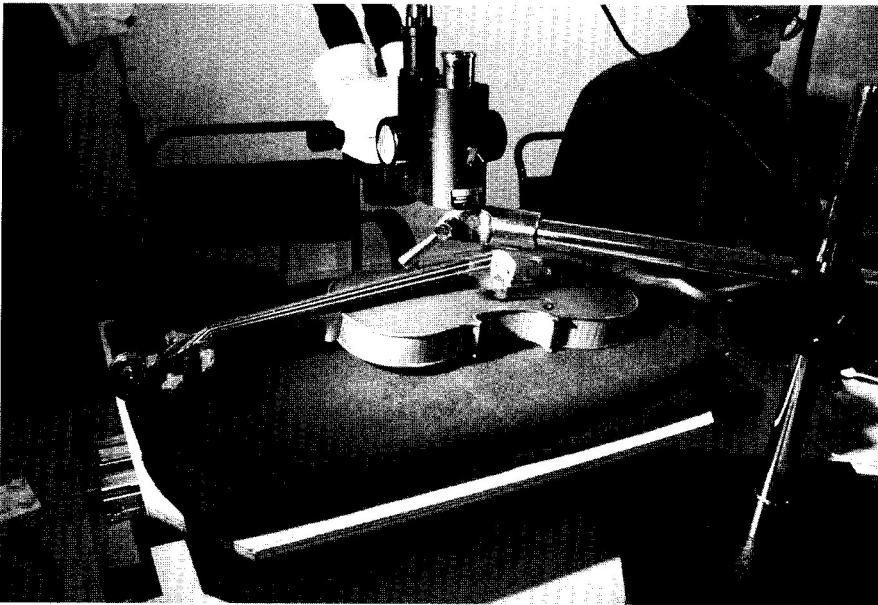
*Figure 19. All three scientists measured the instrument independently to establish the reliability of their data and the repeatability of the technique*



*Figure 20. Jon Whiteley in discussion with Helen Hayes*



*Figure 21. Removing the Messiah from its glass case*



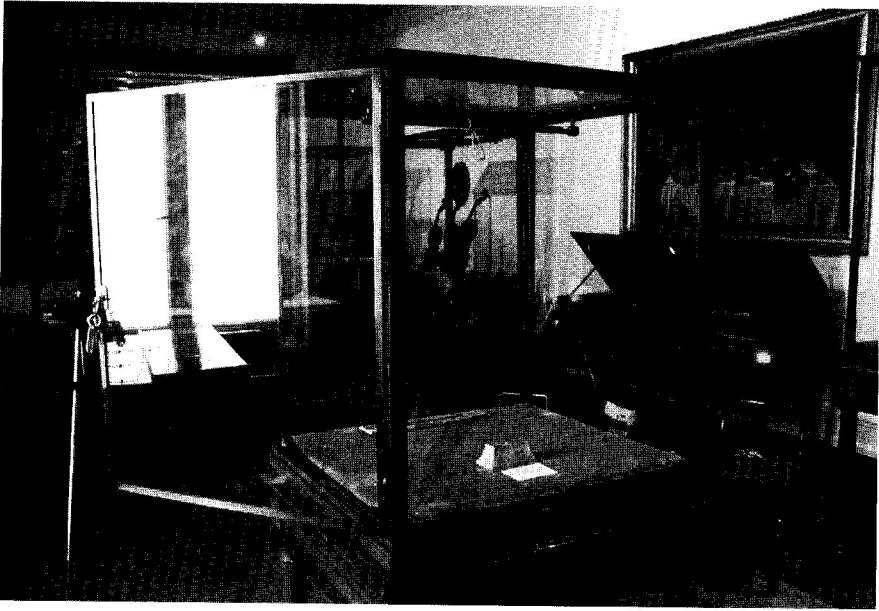
*Figure 22. The Messiah on the measurement stage*



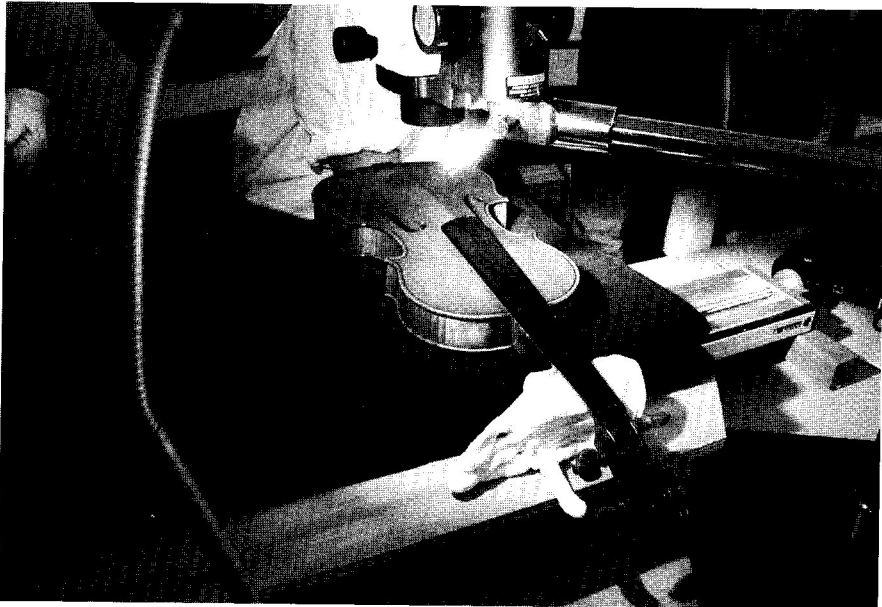
*Figure 23. Joe Regh helps Henri Grissino-Mayer position the instrument. Note that the strings have been removed.*



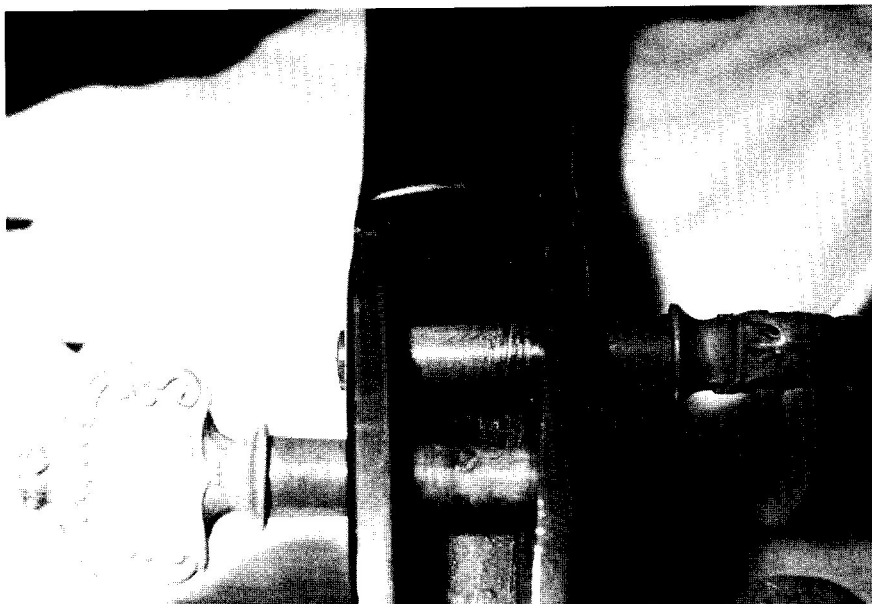
*Figure 24. Observing the measurement of the Messiah*



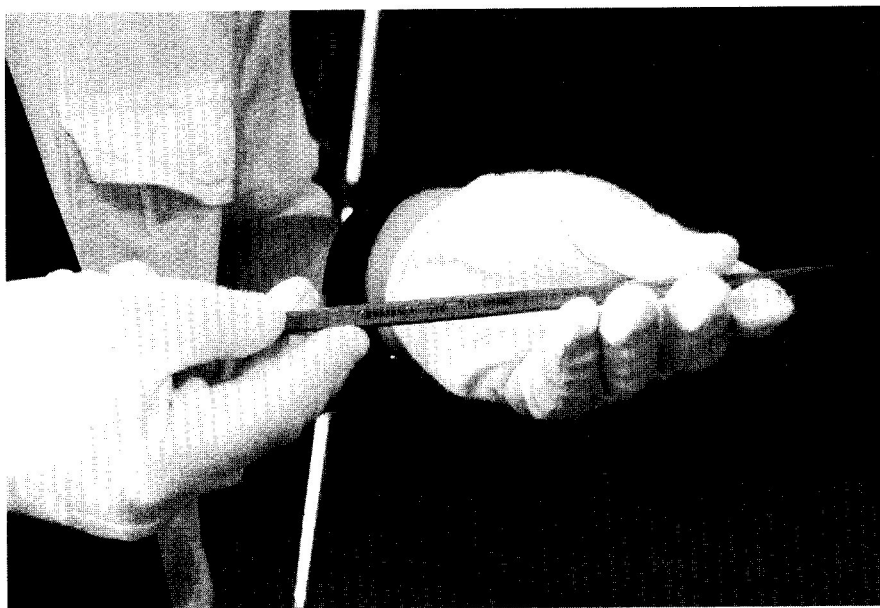
*Figure 25. The case is empty!*



*Figure 26. Microscopic examination shows minute carbon spots on the instrument*

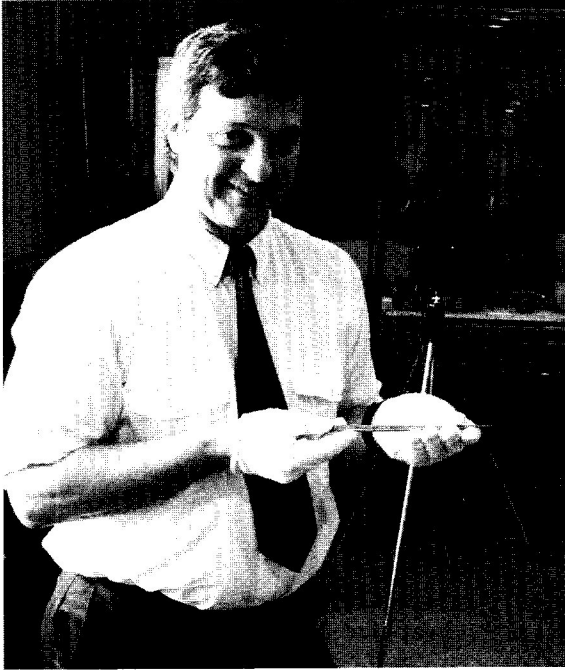


*Figure 27. The G spot and the star impressions in the peg box*

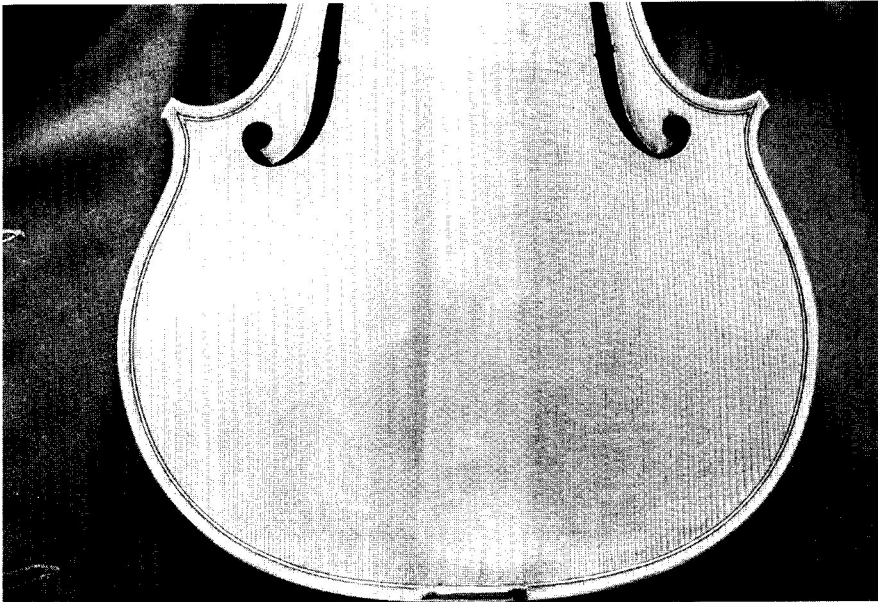


*Figure 28. The bass bar of the Messiah*

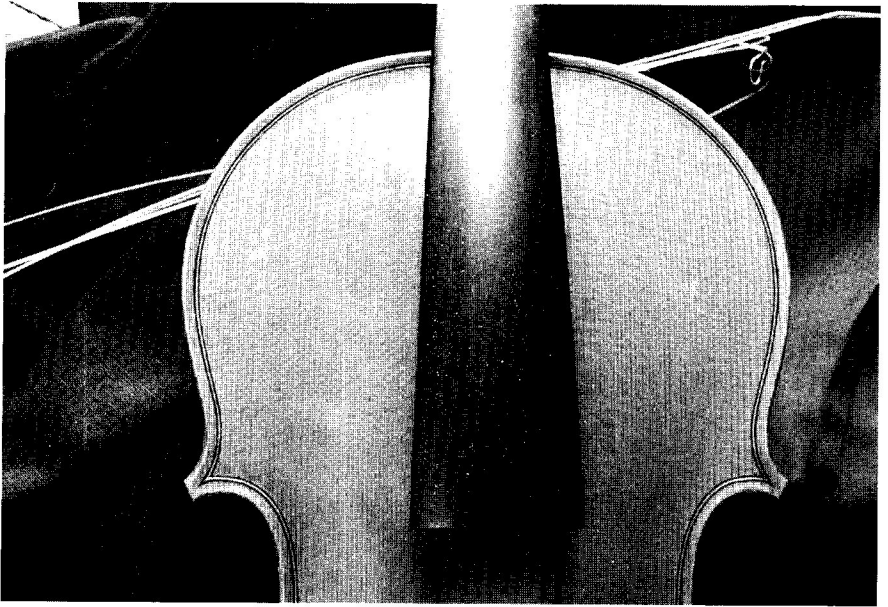




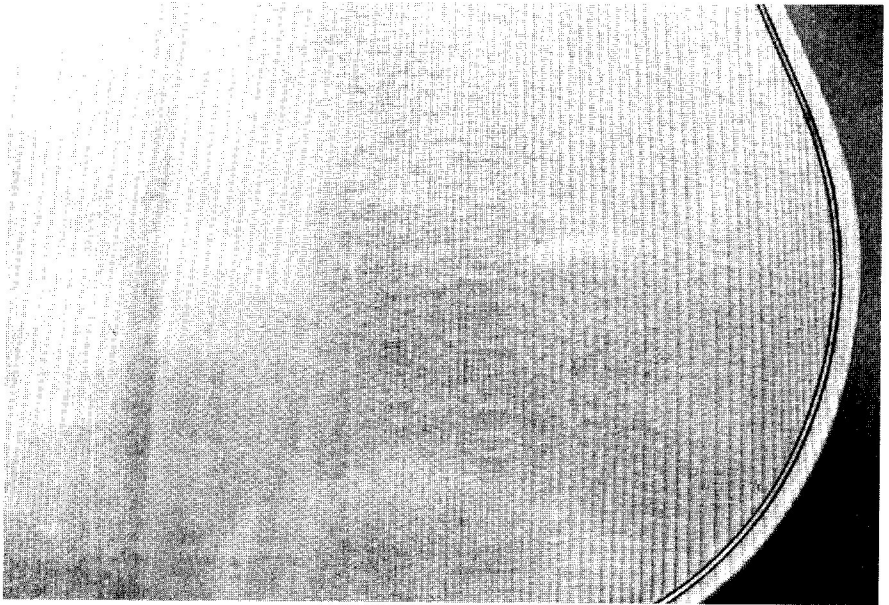
*Figure 29. Grissino-Mayer with the bass bar of the Messiah*



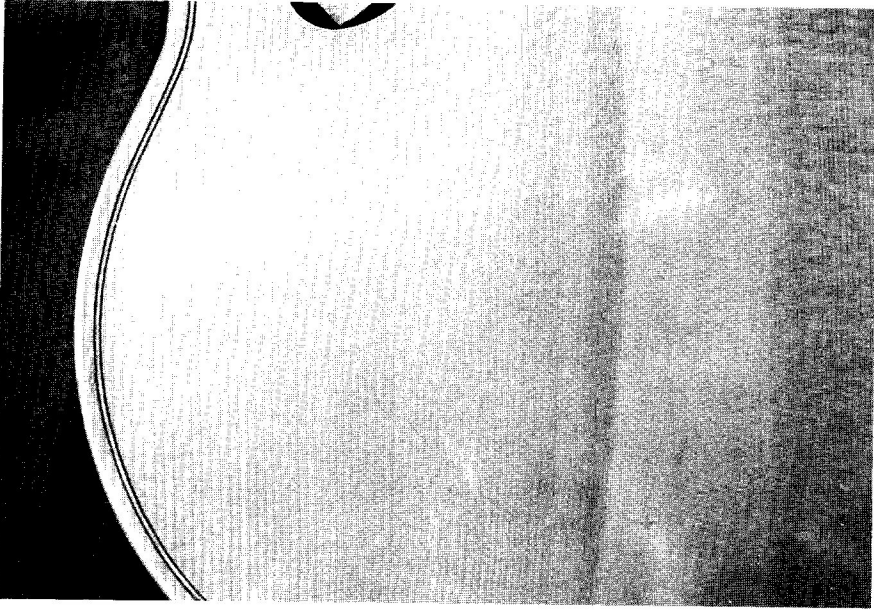
*Figure 30. The lower bout of the Messiah*



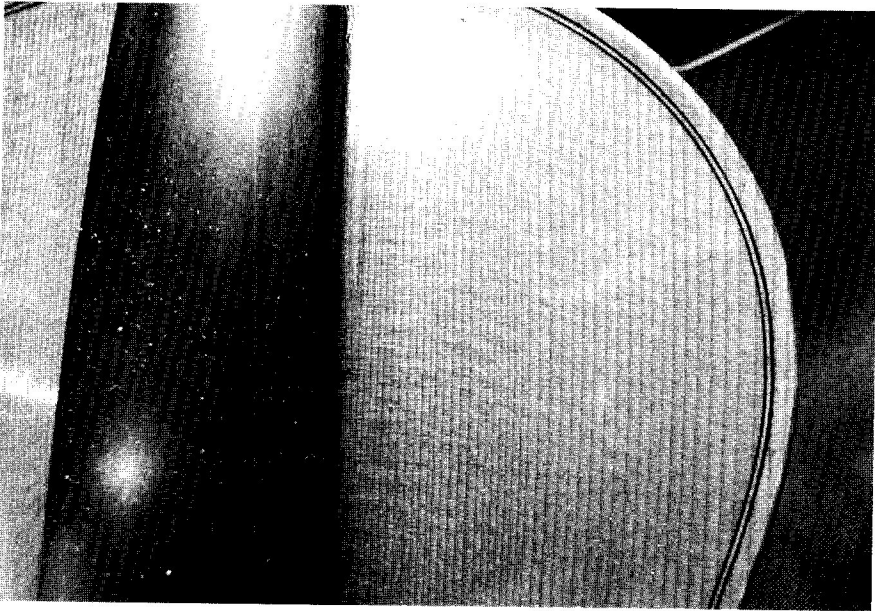
*Figure 31. The upper bout of the Messiah*



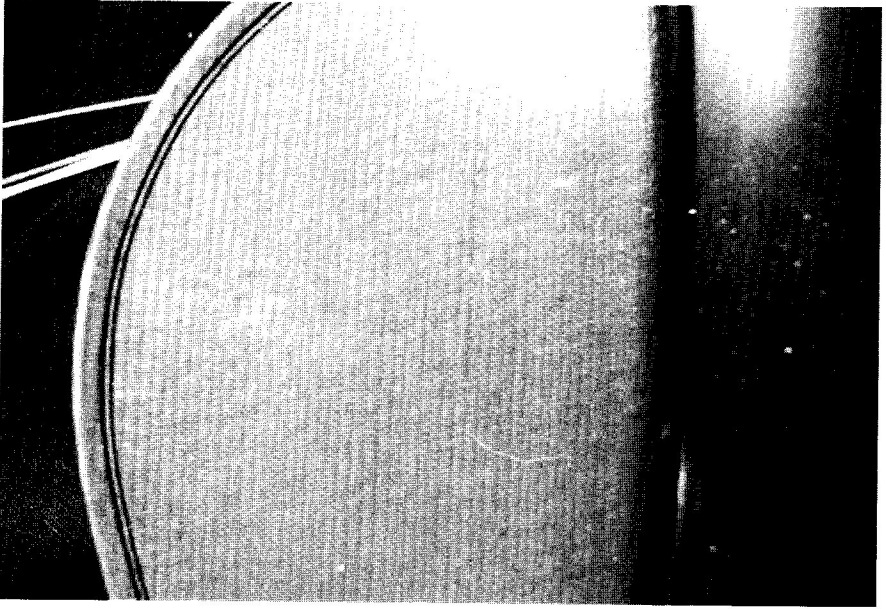
*Figure 32. Details of the treble side of the lower bout*



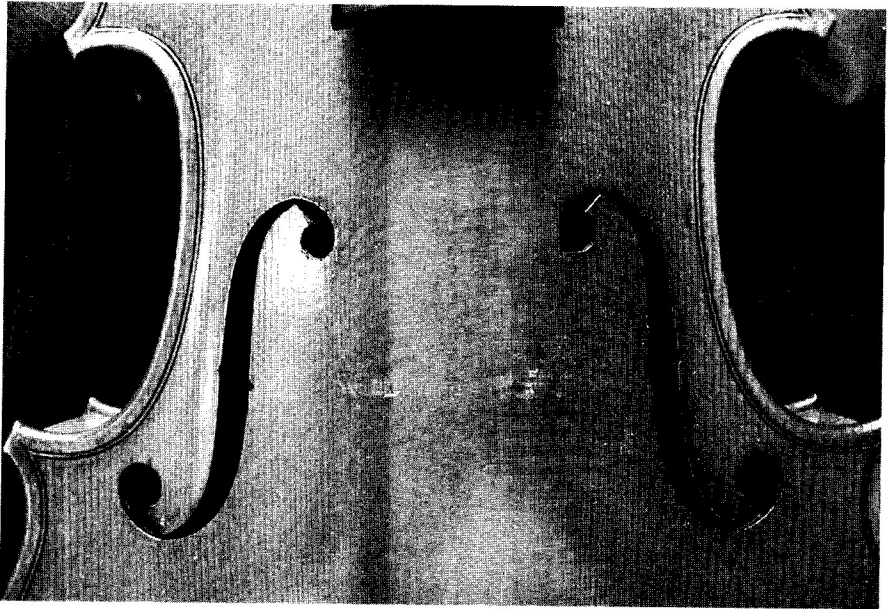
*Figure 33. Details of the bass side of the lower bout*



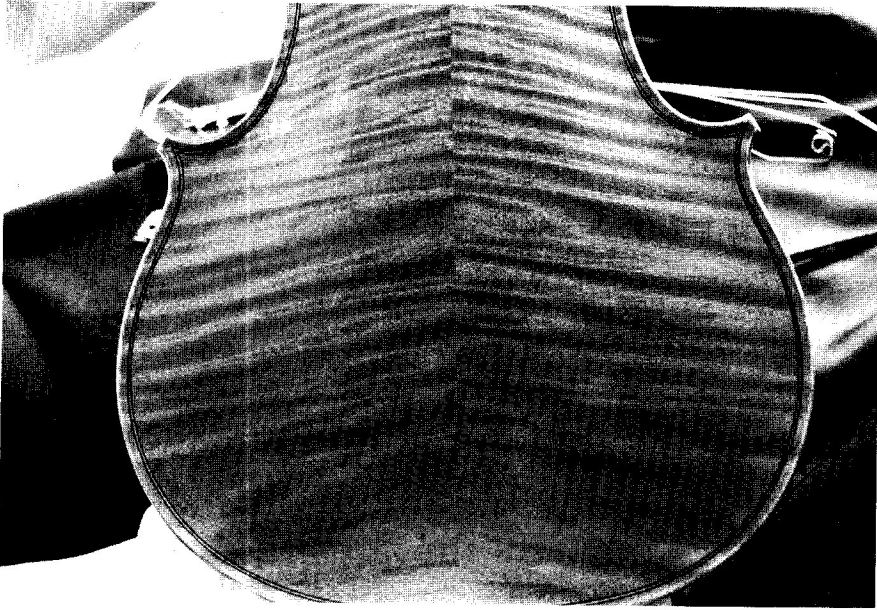
*Figure 34. Details of the treble side of the upper bout*



*Figure 35. Details of the bass side of the upper bout*



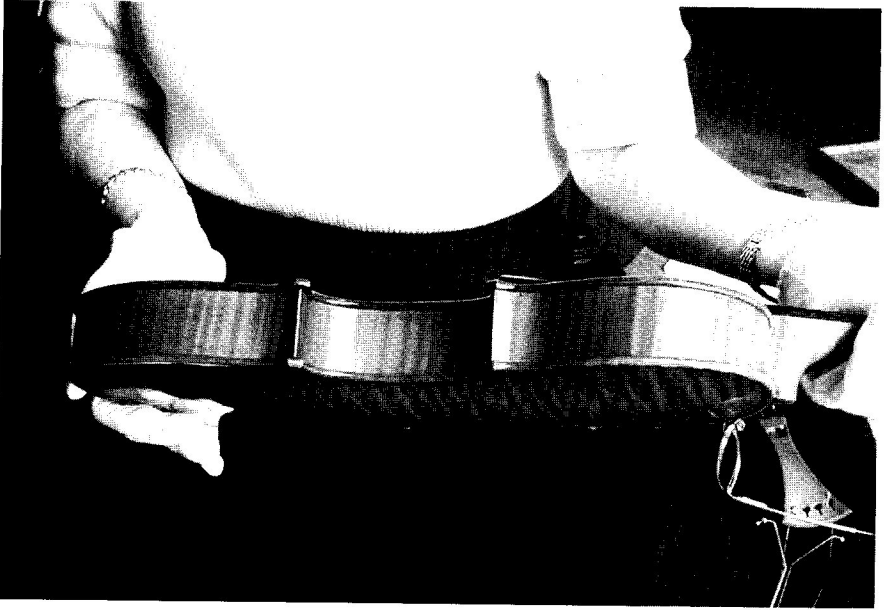
*Figure 36. The center section with f holes*



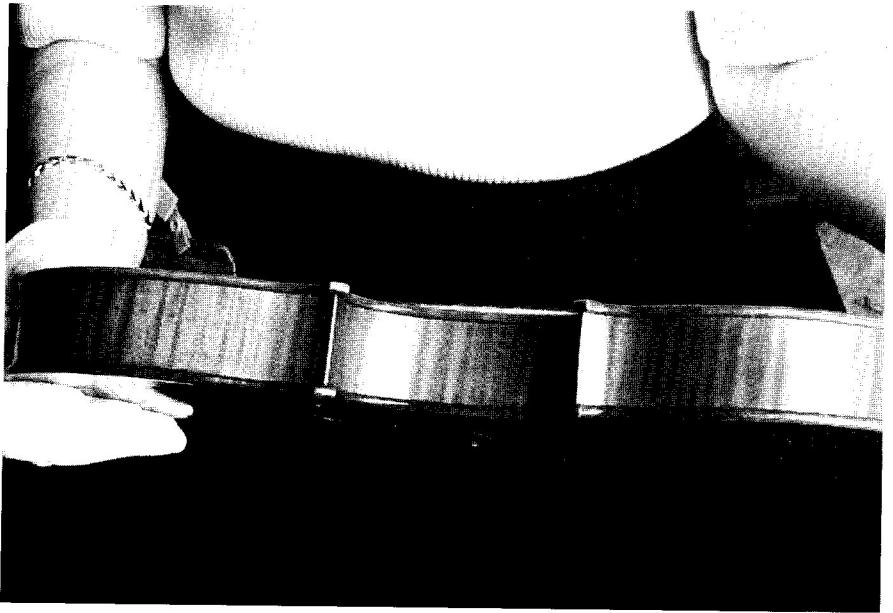
*Figure 37. The back of the lower bout*



*Figure 38. The back of the upper bout*

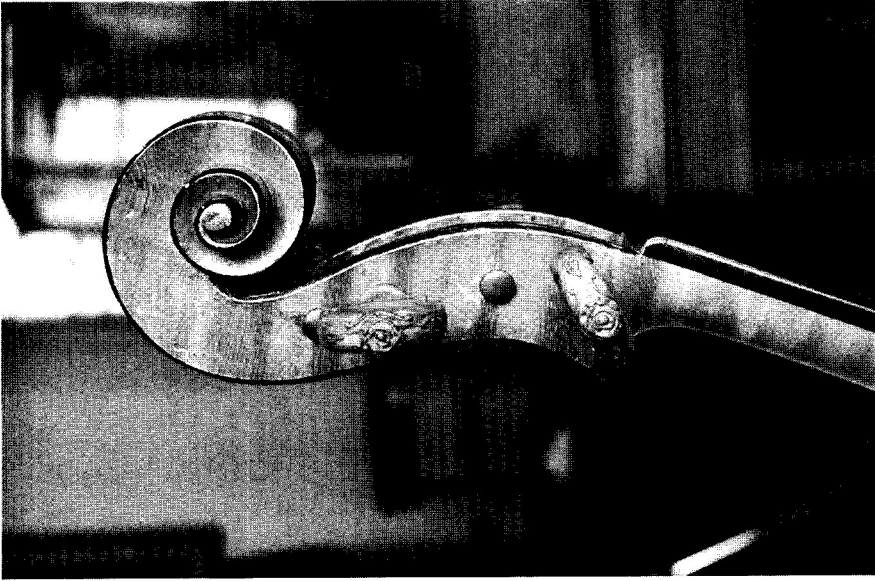


*Figure 39. Side view of the treble side*

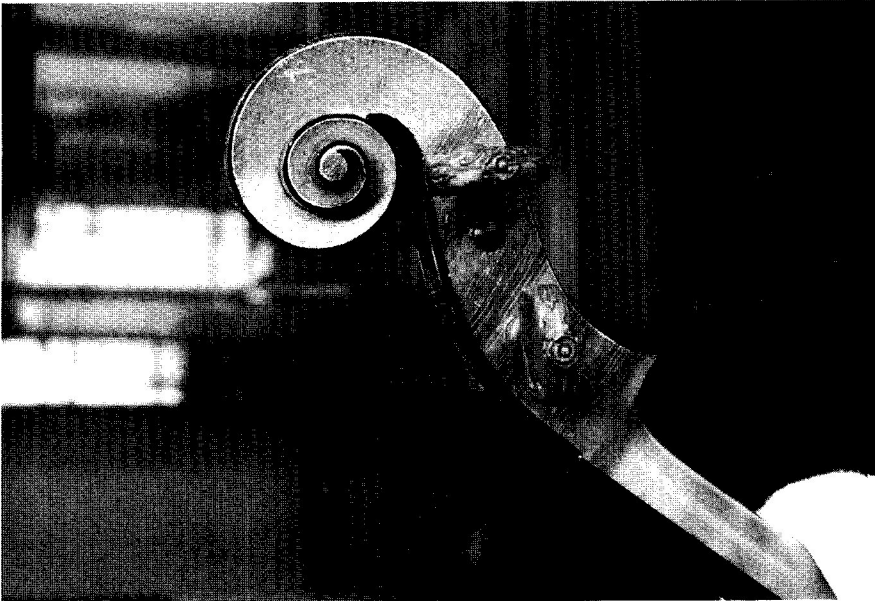


*Figure 40. Side view of the bass side*



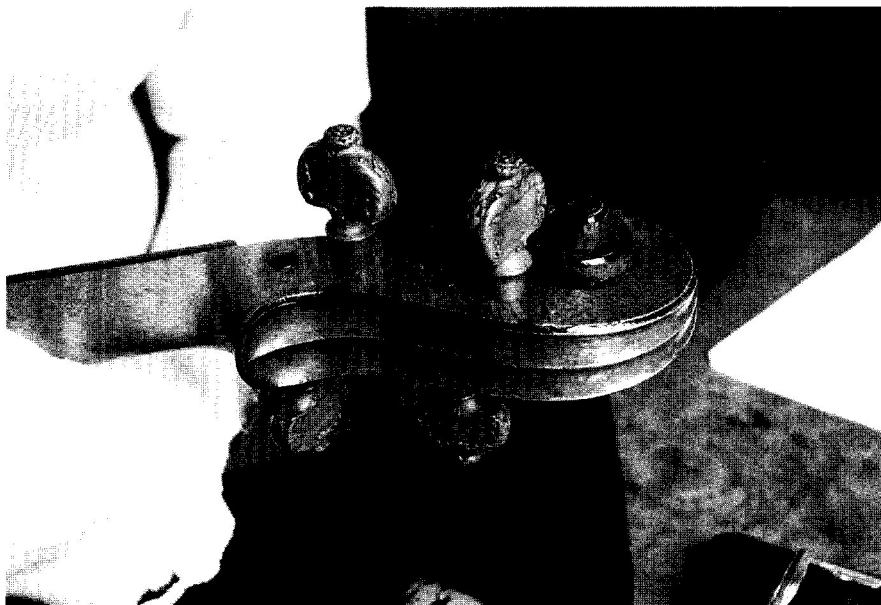


*Figure 41. Peg box and scroll; note the star-shaped impression in the center of the volute*

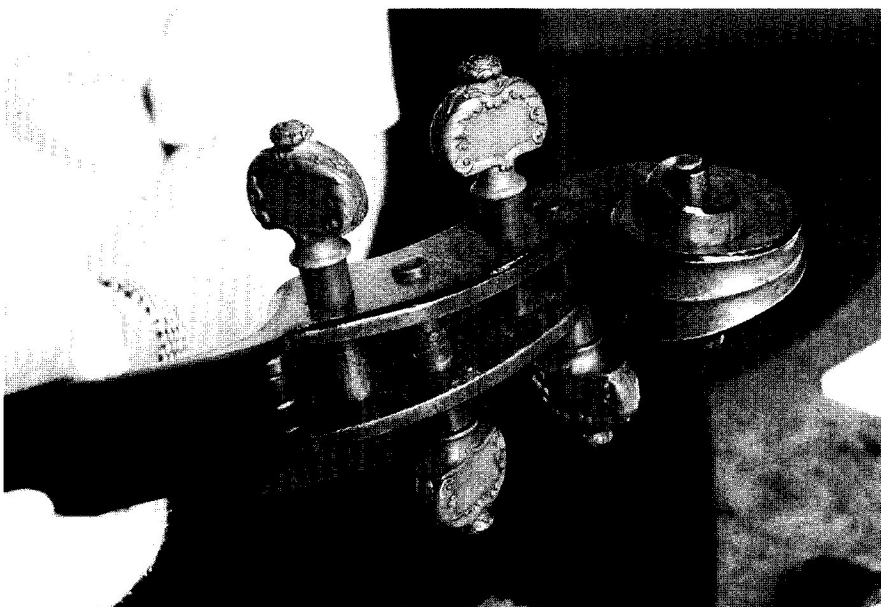


*Figure 42. Treble side of the peg box and scroll: no star!*





*Figure 43. Bottom view of the scroll and peg box*



*Figure 44. Top view of the scroll and peg box*



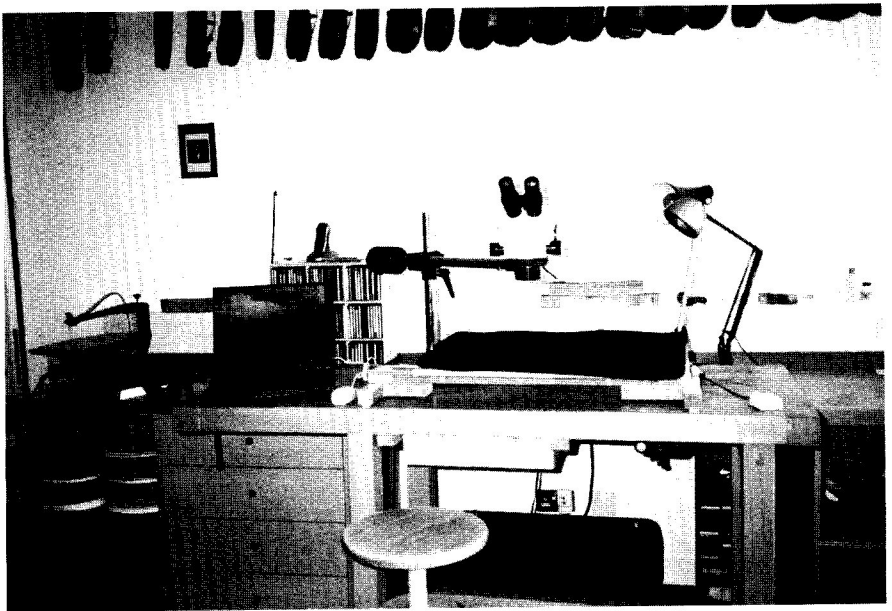
*Figure 45. Lower bout with tail piece and strings in place*



*Figure 46. Measuring a Ruggieri violin*



*Figure 47. Dinner after a hard day's work: (l-r) Grissino-Mayer, Regh, Cleaveland, Sheppard, and Hayes*



*Figure 48. The setup at the Royal Academy of Music in London*



*Figure 49. David Rattray (l) with the three dendros and Helen Hayes*



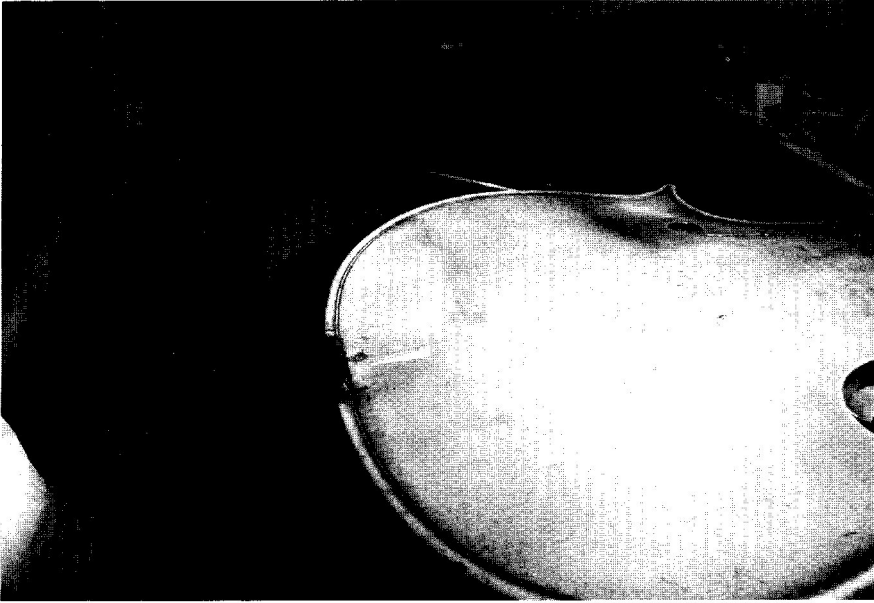
*Figure 50. David Rattray (l) with the three dendros and Joe Regh*



*Figure 51. Rattray unstringing the Archinto viola of Stradivari*



*Figure 52. Measuring the Archinto*



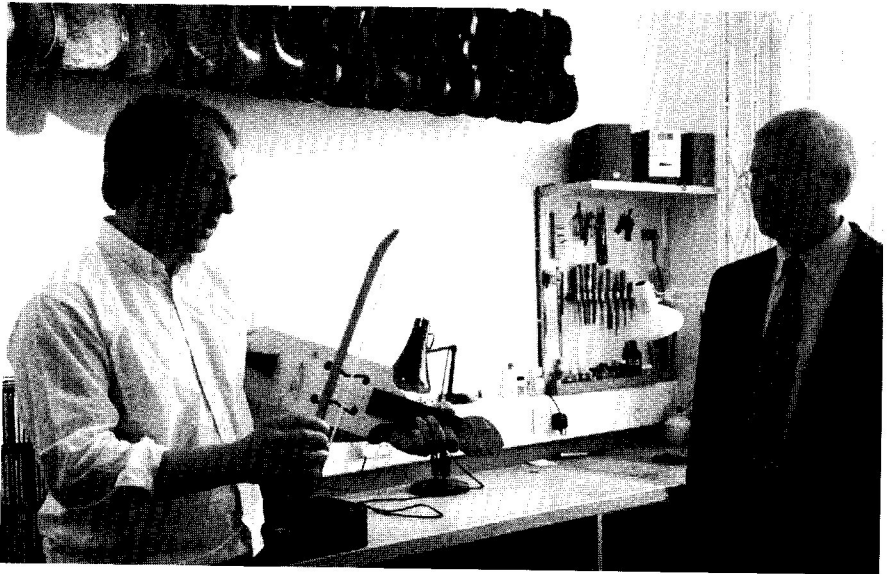
*Figure 53. The lower bout with the center line indicator; the grain lines in the center are extremely narrow*



*Figure 54. Four Stradivari violins in one case: sensory overload!*



*Figure 55. Ready to go back into the vault*



*Figure 56. David Rattray and his salvaged instrument*