Quarterly No. 91, April 1998

FoMRHI Quarterly

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FELLOWSHIP OF MAKERS AND RESEARCHERS OF HISTORICAL INSTRUMENTS
Honorary Secretary: Jeremy Montagu, 171 Iffley Road, Oxford OX4 1EL, U. K.

FELLOWSHIP of MAKERS and RESEARCHERS of HISTORICAL INSTRUMENTS

Bulletin 91 **April, 1998**

1998 List of Members: You will find this herewith. Use it please – it's one of the first places to look when you want the address of a colleague, or indeed when you want to discover whether you have any colleagues. If you make a slughorn (used by Childe Harold according to Byron) and want to know who else either makes one or produces a slug-deterrer, look in the Organological Index in the List! You'll find a lot more email addresses this year – if you have one and yours isn't on the list, do let me know; one of the most difficult thing nowadays is to discover email addresses, for there seems to be no equivalent of International Directory Enquiries. And of course, please let me know of any errors or omissions.

It made an exact 24 pages, so I have left off the Notes for Contributors, which is usually it's last page, and have sent them to Eph as a separate to fit either into this Q or the next, wherever there is room. If they're not here and anyone wants them urgently and hasn't got last year's Members List, either Eph or I can send a copy.

Lost Member: Howard Nelson kindly responded and gave me an address for Tom Murach; I hope it was correct – nothing has bounced yet but Tom hasn't replied either!

In Memoriam: John Barnes, the first curator of the Russell Collection in Edinburgh, has died. Many of us will remember him as ever-helpful with answers and advice to any keyboard enquiries, and as always a generous and welcoming host with his wife Sheila in Edinburgh. I am particularly glad that we had a Comm of his in our last Q.

What is also pleasing news in such circumstances is that **Bob Spencer's** archive and library has been preserved intact. I am told that he had a fabulous collection of original lute material, Elizabethan and Jacobean lute books as well other manuscripts, as well of course as instruments. Through the generosity of his wife in keeping the price low, and with the help of the National Heritage Memorial Fund, the collection has gone complete to the Royal Academy of Music where Bob taught for many years. The Academy is trying to build a new museum to house a major collection of brass instruments, as well as this, so that it will all become a major teaching resource for its students as well as being available to researchers and such people.

Further to: Eph's comment in his Bulletin supplement on my Comm.1535: I think that John Barnes's Comm.1563 answers much of this for me – the good players, by long practice and good finger technique didn't make 'bangs , clicks, thumps, twangs and crashes'. Some of these, of course, are almost inevitable with close miking, but a well-maintained instrument properly played should not produce extraneous noises, and in particular should not produce what John calls chucking and which I've referred to as clunking, the clunk that comes with careless fingering.

Our Web site: (also in Eph's Supplement). Charles Stroom writes: 'I have made a web site myself and uploaded my FoMRHI/Galpin/Early Music indexes, which can be accessed directly on http://members.tripod.com/~Charles_Stroom/music.html. I suggest that FoMRHI includes a link to this page, which I will keep updated in pseudo real time. As soon as a journal gets in, I include the index in my palmtop, which is regularly backuped to a workstation. On this station I run a simple macro, which creates a new index file, which I upload to tripod by ftp. The whole

procedure takes no more than 5 to 10 minutes.' JM adds that I use Charles's indexes all the time and find them absolutely invaluable.

Eph's note on **Indexes** in his Supplement: JM feels it would be a mistake to delete references to Comms that authors don't wish to be reprinted. Certainly we won't reprint them but they did and do exist and it would be wrong to delete references to them. FoMRHIQ (by law) is in the five deposit libraries (British Library, Bodleian, and so on); it is in a number of university libraries; it's in the New York Public Library (it's not in the Library of Congress because they don't subscribe to it and we aren't bound to deposit it as we're not under American law). So everything that was ever included is available to anyone who takes the trouble to track it down and always will be and we can't even prevent photocopies being made. All that we can do (and this we do) is say that copies from us are available only to members and extend only to what remains in print.

Comm.1553: JM again (sorry – more of me than usual in this Q): I've used nail varnish and other lacquers, too; also dabs of clear glue. I've also rubbed beeswax into narrow cracks which I have found fully effective, though a nuisance to a repairer if a soldered repair is going to be made later. I have had brass instruments which other people have repaired with sellotape (transparent adhesive tape) and often with ordinary medical sticking plaster – both those are to be avoided because of the sticky residue they leave. I have also seen sealing wax as well as beeswax on small woodwind cracks. One of my flutes was glued long before it came to me and then whipped with coarse thread to make a close binding and, I think, glued over the whipping – I have used that technique on a cracked side drum stick quite effectively. Also, while on such a subject, I have stitched a drum head and have seen some stitched historically; glued patches of drum skin over a split are quite common on old drums.

Comm.1449: (and again). Nobody has asked but in case anyone wants to know, my *Magpie in Ethnomusicology* costs £2.50 + 50 p postage ($5 surface, DM.10, etc – a note is easier than cheques) from me.

News from the Czech Republic: David Freeman says that the Lute Society there, run by two Czech enthusiasts, has the ambition to put all Czech lute music on CD-ROM, Internet pages and so on, as well as continuing to run courses and the magazine. The Gamba Society hasn't yet found such enthusiasts so David and his wife are continuing to run thing there. The makers Society is running more slowly 'due to the difficulty so many still have in sharing their knowledge' [this was why we cut some free members off the list – we do try to help people with FoMRHIQ but not if we hear that they refuse to share it with others – JM]. He sent me a list of some of the early music summer schools in the Czech Republic but says that one of the problems is that each only advertises its own schools – unless he can get a newsletter going, nobody lists them all. They battle on 'trying to get people to communicate and to share knowledge and ideas. It should be mentioned that the Makers have on the whole been the most helpful, and certainly the most grateful of the help that has been received from abroad.' I think that David would always welcome offers of more help, including plans and drawings as well as offers to go out there and teach. He's in the List of Members but as yet has no telephone, fax, nor email.

We'd always be glad to receive other such reports, as well as requests for help.

A Request: Me again. Has anyone any ideas why Schütz only used timpani in one work (and only one drum at that – *Herr Gott, dich loben wir*, SWV 472)? And why Praetorius only used them

in one work (*In Dulci Jubilo*)? It seems odd, if timpani were available at all, only to use them once (unless, of course, once was quite enough, thank you). Also why Purcell, who did use them occasionally, sometimes did not but imitated them in the bassi parts instead. Since at least two examples of this were Birthday Odes for the Queen, it can't have been that they were not available. I'm working on the early history of timpani and finding more puzzles than answers; any suggestions would be welcomed.

Things available: Donald S Gill wrote: 'Nothing to do with musical instruments but members with a moderate amount of snail mail may like to know of a **Post Office service** I have only recently discovered. It is possible to buy self adhesive stamps mounted on a roll of paper like self adhesive labels. Saves all that tearing round perforations and licking. For some reason the P.O. keep very quiet about the facility and you can't buy them at a Post Office. Only first and second class stamps are available, there are 100 stamps on a roll and the minimum order is one roll. They have to be ordered from:- British Philatelic Bureau, 20 Brandon Street, Edinburgh EH3 5TT; tel 0131-550 8989. The cost is that of the stamps (£20 for second class, £26 for first class) postage and packing free. Sample stamp on the envelope.' The stamp was a different shape from those we're used to, a little smaller, and rectangular but landscape instead of portrait (ie the horizontal longer than the vertical sides, rather than the other way round for the usual basic stamp), the usual blue colour for second class, but marked 2ND rather than 20p and rather than (if I remember rightly) the more usual 2nd.

Courses: There will be a joint **FoMRHI and Bate Collection pipe & tabor** course at the Bate Collection on 4th/5th July. The teacher will be Sabin Bikandi, a superb Basque player. Nobody knows, of course, how modern pipe and tabor playing differs from historic, and Sabin's tabor playing is rather more elaborate rhythmically than Arbeau's. It will be a good opportunity for beginners to try and to learn (there will be some tabors there, including some of mine and my Paul Williamson's and plenty of pipes as they're more portable), and for experienced players to try working in a different tradition. Sabin as well as a top player (he is the City Piper of Bilbao) is an authority and is working now on a PhD on it. Normal cost for Bate Weekends is now £40 (£30 concessions) but there's a special rate for FoMRHI members at this one of £25. Bookings or any enquiries to Joanna Archibald at the Bate (Faculty of Music, St Aldate's, Oxford OX1 1 DB; 01865-286261; bate.collection@music.oxford.ac.uk) who has a list of B&Bs etc. If you could let me know as well that you're coming, I'd be grateful.

West Dean has the annual Early Music Summer School, August 15-21, covering lute (David Miller), violin (Duncan Druce), viol (Susanna Pell), harp (Frances Kelly), and singing (Ruth Holton), all of which combine and overlap, so that they include ensemble, continuo, etc as well as solo. Fees £453 (single room), £489 (with bath or shower), £329 (non-residential). Enquiries to West Dean College, West Dean, Chichester, W Sussex PO18 0QZ, and there are only 35 places available.

I'm always being told how good their instrument making courses are, but they seldom appear on the lists they send me. However, there is a number of relative courses, weekends or longer, such as blacksmithing (reamers?), silversmithing (keys?), cabinet making (outsides of keyboards?), bookbinding (if your library is anything like mine?), painting on furniture (harpsichord lids?). And so on. Full lists are available from them.

Festivals: John Bence has a Comm herewith on the **Leicester Early Music Festival**.

There is the usual **Festival Musica Antica a Magnano** with concerts at weekends through August. Information from Via Roma 48, I-13887 Magnano and bbrauchli@worldcom.ch

Exhibitions: I would like to have told you about the Exhibition **The British Violin – 400 years of violin making in the British Isles** which was on 31 March to 11 April, but as the idiots only told me in the middle of February, it wasn't possible to tell you. If anyone went to it, you might let us know what it was like.

The **Early Instrument Exhibition** will be at the Royal College of Music again this year – despite almost unanimous opinion (at least of those to whom I have spoken) was a preference for every other year, it looks like happening every year. There won't be a FoMRHI presence this year because neither Eph nor Barbara want to exhibit every year (if they change their minds we'll let you know in the next Bull), and I have a conference abroad that clashes. The dates are September 4, 5, 6, and if anyone would like to display some FoMRHI bumf for people to pick up, please let me know. I don't think it's fair to ask anyone to take renewals etc, though I suppose that if anyone would like to run a FoMRHI stand, I could ask them if our usual corner is still free. If so, let me know fairly rapidly, please.

New Shop: The London Early Music Shop is now up and running 34 Chiltern Street (parallel with Baker Street, one block east). At present it's mostly recorders, but they also have most of the Early Music Shop kits and a stock of reeds, strings, etc. They also have most of the Early Music Shop's second-hand instruments and they hope, even though in a small space, to increase the coverage. Also perhaps to provide a teaching and practice studio, though that may have to be out of normal shop hours. It means that Chiltern Street is becoming a more important centre than ever, with All Flutes Plus and Howarth's both on the other side of the road – unfortunately Parker's Brass has moved out to Crawford Street, the other side of Baker Street. There's also a good traditional ironmonger, something that's becoming an endangered species!

Coda: That for the moment is the lot, but I have now got the List of Members to do, which will take a few days, so there's time for other things to come. And a few did and are inserted.

Deadline for next Q: 1st October looks OK.

Unofficial (and possibly tactless) Post-Script: Some of you sometimes complain that there's too much Eph and too much me in FoMRHIQ – just bear in mind that if there weren't there wouldn't be much FoMRHIQ. The remedy is in your hands – write more yourselves! Have a good spring and early summer.

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BULLETIN SUPPLEMENT

Ephraim Segerman

John Barnes

I did not know him, but greatly grieve his passing. His understanding and helpfulness were unsurpassed. I have always felt that his being with us has strongly contributed to FoMRHI being a worthwhile enterprise to keep going. In Comm. 1564, I was being deliberately provocative, hoping to have a friendly debate with him, from which I, and I hoped the rest of us, would learn. Sadly, we will all now be permanently deprived of his great wisdom.

Cremona Secret

Gheorghiu Aristotel-Viorel has sent me a 5-page explanation of his Comm. 1561. It is an elaboration of the principles of his rethicknessing system. I don't understand it either from an acoustic point of view or from the point of view of a craftsman who wants to try to apply his system. There is not enough information presented for the latter. I get the impression that what he writes is intended to whet one's appetite rather than to provide enough instruction to get people to try it. As a result, I have decided not to include it in this Q. If any reader is interested enough to try to make more sense out of it than I can, I will gladly send a copy. If he or she can make sense of it, I will gladly include it, with his or her comments, in the next Q.

Being fair to evidence in scholarship

I am currently engaged in a debate concerning my tempo history papers in Early Music. Some of the arguments are of general relevance. My opponent discusses scholarly method. While admitting that the evidence comes first in scholarship, he advocates flexibility in interpreting it. He states that it can be deficient or misleading, and accepting it literally would be to believe obvious misprints. The scholar should be able to use his common sense.

What is missing from his approach to scholarship is objectivity. That means having respect for, and being fair to, every piece of evidence. A good way to be fair to a piece of evidence is not to question it unless one can imagine a reasonably probable way that it could have gone 'wrong'. Just feeling that it is wrong by one's common sense is purely subjective, and should be strongly resisted. Common sense is a collection of approaches to problems that seem to have worked for a group of people in their common experience. The common experience in the field of early tempos is in trying to make emotional sense of the music using ears with a lifetime of modern influence, while ignoring the early evidence on tempos. In this case, common sense clearly has no objective relevance.

Obvious misprints can easily be explained as errors of carelessness. Respect for each piece of evidence requires that all of them need to be reasonably explained by the theory. The explanations are a necessary part of the theory. If some evidence can't yet be reasonably explained, the theory can still be pursued as a working hypothesis, but it has no right yet to claim that it is a serious candidate for objective truth.

One common way of being unfair to the evidence is to decide that it is 'deficient'. 'Not enough evidence to be convincing' is often used as an excuse for pursuing one's own agenda and ignoring the evidence that does exist. Another excuse for ignoring evidence is to say that it is 'misleading'. That happens when it is leading in a direction that one doesn't want to go. Another such excuse is in finding an apparent internal contradiction in a source and then saying that it is 'unreliable' because it is 'inconsistent'. (It is always possible to postulate a scenario that removes the contradiction, and this is the way to handle this situation which respects the evidence.) These are all excuses for rejecting evidence to try to make history into what one wants it to have been, rather than what the evidence is trying to tell us that it was.

Indexes

I remember, some years ago, at least one member wanting to delete some early Comm's, which by now would be out of print. I agree with Jeremy that they can't effectively be completely deleted, and that they should remain in the lists of contents. But we can reduce the frequency with which they will be stumbled upon to by eliminating them from the Permuted Index. In this way we can respect the author's wishes to avoid their being quoted, and readers will not waste time following up ideas that are no longer held. This may not be a problem because no-one has yet contacted Jeremy or me recently on this issue, but I would like to keep the possibility open in respect for author's wishes.

There was some misunderstanding of my suggestion of having the indexes produced like a series of normal Q's. The intention was never to replace any normal Q by a volume of the Indexes, but to send a volume of the Indexes together with each of three successive Qs.

Bulletin e-mailed

Jeremy has already sent copies of Bulletin 91 (of this Q) to all those for whom he has an e-mail address. This is likely to become a common practice as it has been well received, so anyone who has e-mail but who has not sent him the current address is encouraged to do so.

Jeremy's question of why 17th century composers didn't use timpani more

Answers that might be hoped for could be that 'it was very expensive to use them' or 'timpanists were not musicians like other musicians, and didn't easily get on in an orchestral team'. Jeremy has been collecting evidence on the subject, and if he had found evidence to support any such answer, he wouldn't have been asking us. Without any such evidence, I would suggest that it might be more fruitful instead to ask a different question: 'why were timpani used where they were?'

Jeremy obviously thinks that much of the music he discusses that didn't use timps would have been better if they had been used. The 17th century composers apparently didn't think if timps the way we do today. So we need to ask them about it. Mersenne (7th Bk. Prop.XXVIII Corr.1) wrote: 'the drum, the thunder, and the trumpet make more effect on the mind or the senses than the sound of other instruments'. Praetorius (Chapter 46, No. 9) wrote of timpani, that they were 'used in princely and noble courts, to signal the beginning and end of a repast, or a dance, as well in campaigns, in time of war'. Common to both of these quotes is the enormous power to command attention.

Timps have no melodic or harmonic contribution to make to a musical ensemble, and all they can offer is that sheer power to focus attention. Such naked power would seem to have no place in art music because there can be no balance of sounds with it, and indeed both authors stuck their discussions of drums at the very ends of their books, well away from musical instruments that played ensemble music. Timps were like 4-letter words are today - so full of power, and very little else, that their presence would normally distract from or distort anything else we might want to express in our art. So Jeremy needs to look at the evidence where timps were used, and try to see what the composers did to convince themselves that they got away with using timps.

Good players then and now

In the Bulletin of this Q, Jeremy reiterates his confidence that early 'good players, by long practice and good finger technique didn't make bangs, clicks, thumps, twangs and crashes'. He has no evidence for this assertion. I would expect that if early players were expected to play as cleanly as modern players do, amongst the surviving early complaints of poor musicianship, there should be some about extraneous noises, and I don't recall any. Does Jeremy seriously believe that standards of precision and playing cleanliness have not substantially risen in the modern era of recorded music? He is old enough to remember the difference. Like most others, he bought the (ultimately destructive) philosophy that, above all, keeping the highest possible technical standards is good for all of music making (not just for the music industry), and so seems to have lost his sense of history.

What convinced me of my position was hearing a thrilling performance of 19th century classical repertoire in a hospital ward on an upright piano that hadn't had attention for years. There were quite a few missing and dud notes. The pianist, Richard Greenwood, did a quick tune of the worst detuned strings before the performance. He had much experience in playing in such circumstances. The audience, of mostly patients, agreed that he was superb in communicating the emotion in the music. I feel that this is really what music and musicianship is all about.

Cancellation of pipe and tabor weekend

Just before sending this off, Jeremy phoned to say that this weekend event is called off. It seems that the teacher, Sabin Bikandi, will not be able to leave home this year, and it is hoped that this course will be able to be given next year.

Faculty of Music

Edinburgh University Collection of Historic Musical Instruments

Progress Report 1997

In the course of the year, the Collection was been given the Baton presented to Professor Sir Herbert Oakeley in 1872 by the University Musical Society, (given by his great-grandson Rowland Oakeley). The Collection was also given other items by Mr L. Cooley, Mr & Mrs K. Mobbs and Mr J. Nussbaum.

The cataloguing programme continued to advance: two further fascicles of descriptive text were published. These cover (1) Harps, Dulcimers and Zithers and (2) Horns and Bugles (second edition). In addition to the printed editions, they have also been published electronically. Further pictures of collection instruments have been added to the Collection's website

http://www.music.ed.ac.uk/euchmi/

bringing the total number of images freely available to 72.

One further technical drawing has been published, of the tenor trombone by François Riedlocker of Paris (circa 1810), prepared for the Collection by Raymond Parks. This is the first of the Collection's workshop drawings to have been produced using computer-aided drafting (CAD) techniques. It brings the total number of workshop drawings on sale to 36.

The Collection has benefitted from a programme of work undertaken by Darryl Martin with grant-aid funding from the Scottish Museums Council. This has resulted in improved display for most of the stringed instruments and improved storage facilities for many of the instruments not on display.

The Director/Curator represented the University at the meeting of CIMCIM (the International Committee of Musical Instrument Museums and Collections) in Washington D.C.

The International Symposium on Musical Acoustics, held for the first time in Edinburgh, was organised with a significant contribution from the Collection and the technical sessions took place in the Reid Concert Hall. The Symposium was followed by a Colloquium on Historic Musical Instrument Acoustics and Technology, organised by the Collection in conjunction with the Galpin Society, and by a Conference on the *Instrumentalischer Bettlermantl* manuscript in the Edinburgh University Library which was organised by the Department of Fine Art.

To coincide with these events, the Collection mounted a temporary exhibition *Donaldson's Apparatus*, showing some of the acoustical equipment and historic

instruments purchased by Professor John Donaldson for the Music Classroom in the 1840s and 1850s. The instruments formed the nucleus of the present Collection, still housed in the room built by Donaldson as his 'Museum of Instruments'. A catalogue of this exhibition by Dr Christopher Field, Honorary Fellow of the Faculty of Music, has been published on the Collection's website.

As a public event held during the International Symposium on Musical Acoustics, a concert was organised by the Faculty of Music using the instruments of the new violin octet. This was preceded by a talk by Carleen Hutchins, who was responsible for much of the development of the new violin family in general and the Collection's set in particular.

A one-day oboe reed-making course was held at the Reid Concert Hall, organised by St Andrews University in conjunction with the Collection; this included a lecture on oboe history by Simon Milton with examples drawn from the Collection.

The Collection has been used for teaching purposes by University Staff, in particular for courses in the Faculty of Music on the History of Instruments, Ethnomusicology and Musical Acoustics. Several parties including school and college groups have made organised visits, and various scholars and instrument makers have visited to study particular instruments.

Arnold Myers, Director and Curator, 31st December 1997

John Bence

Morley Clavichord No. 213

Does anyone have a copy of the stringing gauge for an early 4 octave, non fretted clavichord made by Morley? The original, which had stringing scales for several other early Morley instruments on it, together with spare strings and much else was lost in an accident last October. Although the maker can offer a list of similar scalings, they cannot supply the originals. If anyone has a copy, John Bence at 126 Shanklin Drive, Leicester. LE2 3QB (0116-2707820), would be very grateful.

John Bence

Leicester Early Music Festival 1998

We are just about to see the start of the 9th Leicester Early Music Festival, this year spanning 3 weeks and over 40 events at the end of May. Once again the event includes, in addition the obvious concerts, workshops, competitions, Festival Dinner, musical ghost walk and much more. The basic philosophy is to generate new audiences as well as support established ones and to offer performing opportunities to new as well as proven groups. This years performers will include The York Waites and Fiori Musicali as well as a few less well-known groups such as Leicester's Cecilian Singers and an unusual male natural soprano. There are two performance competition for youngsters, including a Harp class, with substantial prizes. It is clear that the emphasis on making Early Music accessible to everyone increases potential audiences and fulfils a considerable need. It is, of course, very much in the interests of players and makers alike to promote professional concerts of Early Music and we hope FoMRHI members will be able to join us for some of the events.

For the 1997 Festival, 10,000 leaflets were distributed throughout the East Midlands, and nationally through National Early Music Association contacts. In addition, a series of advertisements were run both nationally, and locally. We had about 4,000 visitors to the Festival over the two weeks. There was press comment and local radio provided a 15 minute slot. Further, it attracted an audience far in excess of what might be expected from what is often considered to be of minority appeal only. Leicester Early Music Festival 1998 will be a high-profile event with wide exposure particularly to young professional families.

The Festival is now able to use several venues in Castle Heritage Park, a prime tourist attraction at the centre of historic Leicester Centre. The main site is the beautiful Church of St. Mary de Castro, which is available for displays of music, instruments and anything else associated with Early Music. We already know of two music shops, two harpsichord makers and Clive Morley (Harps) who will visit during the event.

Once again we are offering FoMRHI members a chance to display material (free) or visit us. This is very much in all of our interests. I know that we are all busy (too busy), but without new audiences we have no sales and we ignore this simple equation at our peril. The cost is ZERO, except the time. If you can't spare the time, send us some literature which we will display. We would particularly want to put on a good display on Bank Holiday Monday (May 25th) when, in a jopint event with the Leicester Museum Service we expect around 2,000 visitors.

Any members of FoMRHI who would like to take advantage of this offer should contact John Bence as soon as possible. Write to him at 126 Shanklin Drive, Leicester. LE2 3QB (0116-2707820)

FoMRHI Comm. 1565 **Jeremy Montagu**

Review of: **Christopher Page, *Music and Instruments of the Middle Ages: Studies on Texts and Performance*, Variorum, 1997; Ashgate Publishing Ltd, Gower House, Croft Road, Aldershot, Hants GU11 3HR and Old Post Road, Brookfield, VT 05036-9704. xii+328 pp, illus. £49.95.**

This is a book which many of us will welcome with open arms. Chris Page, who has often been one of our members, has written a considerable number of articles which form the foundation for studies in mediæval music and instruments. I assume that I am not the only one who quite often finds that he needs to re-read them for various details. I thought that this would be OK for those who have a library like mine, plus Charles Stroom's invaluable indexes for finding things quickly (see the Bulletin in this Q), for nine of the articles here are from *Early Music* and five from the *Galpin Society Journal*, but not so easy otherwise, but I found that I hadn't by any means all the articles here, and that a fair amount was missing from my library. Now thanks to Ashgate and their policy of compiling anthologies of important studies in the Variorum series, we have all the studies in mediæval music which Chris wishes to preserve – most of those preliminary studies, for example, which appeared in our pages in our earliest days are now subsumed in their finished forms as major articles. Two exceptions are the anthology of references to string materials (Comm.14) and Musical Instruments in Medieval Latin Biblical Glosses (Comm.13), both in Q 3, April 1976, long out of print, and both still useful.

All the other articles are reprinted here. They are literally reprinted, by photo-whatever from the original publication. This means that those from *Early Music* are a bit eye-cracking because although the page-size is much the same, this new edition has much wider margins and therefore the print is smaller, especially noticeable in the footnotes. They appear in their chronological order, with their original pagination (useful because later ones often refer back to earlier and then the page numbers are important) and are distinguished by a Roman number appearing with the page number, so that the second page of the fourth article, for example is IV at the top lefthand margin and 340 at the bottom one.

Citing just the first five articles will give you a fair idea of the range covered and the importance of this republication (*EM*: is *Early Music*; *GSJ* is *Galpin Society Journal* – there is a bibliographic problem with the citation on the Contents page here, for the Galpin Society had no association with Leicester at any period at which Page was appearing in its Journal):

Biblical Instruments in Medieval Manuscript Illumination (*EM* 5, 1977)

Machaut's 'Pupil' Deschamps on the Performance of Music (*same*)

String-instrument Making in Medieval England and some Oxford Harp-makers (*GSJ* 31, 1978)

Early Fifteenth-century Instruments in Jean de Gerson's *Tractatus de Canticis* (*EM* 6, 1978)

The Earliest English Keyboard (*EM* 7, 1979).

For anybody who has any association with mediæval music, as a player, singer, director, instrument maker, researcher, historian, or any other capacity, this volume is essential unless you already have on your shelves a complete run of *Early Music*, the *Galpin Journal*, *Proceedings of the Royal Musical Association*, *Leeds Studies in Music*, *The Historical Harpsichord*, *Plainsong and Medieval Music* and *Jérome de Moravie*. In the unlikely event that you have all these, you would still benefit by having all these together in one volume! And do not think that these articles are outdated – they are all still just as important as they were when written and I should be surprised if any of them have been superseded by any later publication, whether by Christopher Page or anyone else.

FoMRHI Comm. 1566

Jeremy Montagu

Review of: **Robert Barclay, ed, *The Care of Historic Musical Instruments*, Museum & Galleries Commission, Canadian Conservation Institute, and CIMCIM, Edinburgh, 1997. 145 pp. Available from CCI, 1030 Innes Road, Ottawa, Canada K1A 0M5 for $36.00 CDN + $16.00 CDN p&p (cheques etc made out to Receiver General for Canada or by VISA & Mastercard).**

Back in 1994 the Museums & Galleries Commission arranged an intensive workshop on musical instrument conservation at the Horniman Museum. They got the top experts from Europe and America (so far as I know there aren't any anywhere else, and there are few enough even there in this very specialised field) to talk to us and we learned an enormous amount in a very short time. Now, with this book, most of what we learned, except for some demonstration, is available to everyone. While it is mainly addressed to the museum community, many of whom have instruments in their care without any specialist knowledge about instruments, everything in it applies to everyone who possesses or houses any musical instruments. I have deliberately avoided saying an 'old' or 'historic' instrument because surely it is obvious that the instruments we make and use today are the museum objects of the future. Some things here won't apply to our modern instruments, of course, such as the arguments about whether to use them or keep them in playing order, but every instrument in a museum today was a modern instrument in common use once, so that it is sensible to follow all reasonable advice on how to treat the instruments we play as well as those we preserve.

The book starts with the basic should you or shouldn't you, and why, with a chapter on **Ethics and the Use of Instruments** by Scott Odell (from the Smithsonian) and Cary Karp (from Stockholm – I have for each chapter given the affiliation of the authors to emphasise their hands-on knowledge and experience). This isn't, as one might expect, a polemic 'no never play them'; it is a fair and reasoned argument of the pros and cons of doing so, stressing that there is no reason why musical instruments should be treated any differently from any other cultural property which is held in trust for the future by museums. The emphasis here, and throughout the book, is on the welfare of the instruments themselves – their preservation has priority over all other considerations. One argument against blowing wind instruments that I'm not happy with is that 'any windplayer knows that tapping a fingerhole will produce a percussive sound of the same pitch as that produced by blowing into the instrument.' True to a limited extent, but it does not allow for the subtleties obtained by cross-fingering, variations of air-pressure, half-holing and so on – it can give only the most basic information. Equally, using methods of artificial blowing, as acousticians do, gives only a very crude approximation to the sound of the instrument which is, when in proper use, a coupled system of instrument and human body resonance, not of instrument and hosepipe and vacuum cleaner motor. No, if you want to know what the thing sounds like and can do, there's only one way to find out, but that is not to say that doing so is justified.

The second chapter, on **Instruments and their Environment** is by Mary Cassar (MGC) and Bob Barclay (CCI). It covers, briefly and succinctly, the problems of buildings themselves, storage, humidity, lighting, etc. The sections on the buildings apply more to the museum (often to the museum with good funding!) than to the private collector, though walls or roofs that let the damp in are the same for anyone. Light control is probably the biggest problem for the private owner – many of us keep our instruments in our living rooms and are unwilling to live in semi-darkness but cannot (I can't, for one) afford full anti-ultraviolet screening.

The third, by Bob Barclay again, is on **General Care**. It is full of sensible advice on how to store instruments, how to display them, in such ways that they are not under strain, won't get scratched or otherwise damaged and so on. All obvious stuff, you'd think, but you'd be surprised! When we had the CIMCIM Scandinavian tour we looked at all the museums we visited for precisely these sorts of problems (other aspects of museums were also being studied – we all learned an enormous amount) and we, and the curators concerned (and all of us when we got home) were astonished at just how much of such obvious matters had been missed in displays and in storage. One of the things that one does not register without such reminders as this is the effect of instruments being in one position over a long period and the extent to which wood, in particular, is liable to creep (an effect also of unrelieved tension – no harpsichord maker expected his instrument to sit, fully tuned, for a century or two). Any lack of support can produce bending – stand a broomstick leaning against a wall, and before long you have a banana stick. The same applies to a clarinet or an oboe lying down on your shelf or the piano, resting on its bell at one end and its mouthpiece or top at the other, just as it does to a museum display with instruments supported horizontally at each end. Any of these will bend in time. At the same time he discusses handling, storage, travelling, and biological attack (not just woodworms and mould; 'larger musical instruments are an ideal habitat for vertebrate pests...').

The fourth, on **Materials**, is by Bob Barclay and Friedemann Hellwig (the Conservation School in Cologne). It covers what instruments are made of and how each different material may be attacked and how such attacks can be prevented or countered. There is little, if anything, on how each material can best be conserved, repaired where necessary, and preserved, but this is covered to some extent in the next chapter and anyway is normally only within the province of a fully trained conservator. It is probably enough here to warn of the dangers and the risks to which each material is subject so that, so far as may be possible, these can be avoided. One statement will ruffle a few feelings (but is undoubtedly true): 'A high proportion of woods described in museum catalogues are falsely identified.' One of the things that Friedemann showed us during the course was how difficult it was to identify woods except by microscopic examination, and then only if one had a full stock of already-identified samples with which to compare the ones that one was looking at.

The next chapter, **Basic Conservation Treatments**, by Barclay and Karp, does provide as much information as it is safe to give to the non-specialist on treatment, with the main emphasis on cleaning, for dirt is often the fundamental enemy, allowing and even encouraging many more serious attacks to flourish. It begins with a series of serious questions designed to identify the problems and whether there is, or should be, a cure. There is little point in countering problems caused by an environment and then returning the instrument to that same environment to be attacked again. And, if both instrument and environment are stable, any work may lead to something worse than the present state. However dirty an instrument may be, there can also be arguments against cleaning it, for instance that removing dirt can also remove information, or even that the instrument or part of it may be too fragile to clean so that removing dirt also removes parts of the instrument, and the main arguments both pro and con are given here. After the general introduction, each material is discussed in turn. When discussing metals, a strong warning is given against polishing. For one thing all polishes are abrasive – they remove metal (ie they remove instrument) as well as tarnish or other corrosion, and for another, there is little point in polishing unless one can keep the surface polished, and this can only be done by adding surface protectors, which are often undesirable, or by polishing yet again, which is worse! Eraser powder is often recommended here for some surfaces, but I have found that it is a mild abrasive and can leave very fine

scratch marks on a polished surface. Each section here has as much warning as it has recommendation, a very useful feature, for it is often just as vital to be warned what not to do as to be told what one can do. After the section on materials, there follows advice first on treating 'composites' and then on each type of instrument. Most instruments are composites, wood with bits of metal, and so on, and what one can with advantage do to wood may wreck the metal and vice versa, to put it at its simplest. Each section is full of good advice, again with warnings against things that can do harm. For keyboards, for example, the reader is warned strongly against slackening strings suddenly, and the same warning is given with drum heads. One warning given as 'unproven' concerning brass instruments is that 'it has been reported that the playing quality... deteriorates markedly after interior cleaning'. I can confirm the truth of this – as students we were from time to time advised to clean out our horns (in those days in the bath with washing-up liquid) and yes, it always did disturb the way they played and took a week or two to accumulate enough internal muck to settle down. Dennis Brain recommended a dram of whisky poured down (and in those days whisky was hard to get) to return it to normal – I am **not** recommending this as a conservation treatment!

This chapter and the next, which is on **Basic Maintenance of Playing Instruments** (by Mimi Waitzman [keyboards – Fenton House], Bob Barclay [trumpet maker], Scott Odell [I'm not sure what he plays or makes], Cary Karp [clarinettist], & Friedemann Hellwig [gambas and other strings] – they will probably all object to this for they are all experienced museum conservators, but all the same, they are also musicians with specific skills and interests) are in many ways the most useful for the non-museum reader, and alone would fully justify every one of us buying this book – indeed make it almost essential to do so. At the beginning a number of the arguments for and against playing are revived, and are discussed without undue prejudice. 'The authors of this book have often gone on record as regarding many of the practices described here as being unacceptable under any circumstances...' Nevertheless, they go on to provide here the best advice on how to play the instruments with the least possible harm or damage. The advice here is very detailed and covers all possible points, proceeding instrument by instrument, starting with keyboards, then other strings, then woodwind, then brass, and finally percussion. Keyboard are treated in much the greatest detail, partly because they are the most commonly played museum instruments, and partly because they are so complex an assemblage of parts – partly, too, because in many ways (eg by trying to open a lid that has lost its hinge-pins) they are the most easily damaged by carelessness. The discussion on other strings, especially the bowed ones, is mainly on who should be allowed to do what – even tuning a fiddle can cause trouble, as can such routine jobs as removing rosin from the belly after playing. The advice on woodwind is mainly 'don't' because of the risk of cracking. On brass it is on lubrication, for serious damage can be caused by trying to move parts which are either jammed or dry. Percussion is the briefest because, quite rightly, they say that 'original or old drumheads...should never be sounded.' Finally there is some discussion on monitoring players, which may be just as necessary as monitoring the instruments!

The authors, as they said, are all against using the instruments, but they do realise that, whatever they feel, instruments are going to be used. The whole purpose of this chapter is to allow people to do so with the least possible risk to the instruments, and as a result this chapter is absolutely essential reading for all of us who handle any instrument older than perhaps twenty years – where does historical start? Certainly, even if you made it a year ago and haven't touched it since, **read this chapter before playing it**. You may then avoid damage!

The last chapter, by Arnold Myers (Edinburgh) and Cary Karp is on **Documentation**. Since this is much more the concern of museums or of collectors with major collections such as myself, than for most FoMRHI mem-

bers, I don't intend to go into detail here, though I cannot but be pleased that the use of the Ellis for measuring the pitch of non-European instruments is recommended, for I was the first to do so (in the Bate Collection Gamelan Handbook), though I am sorry that Bob Stuckey, who invented the Ellis, is not mentioned.

There is a full bibliography, where much detailed information on conservation and relative subjects can be found. There is also a section on resources which gives the full address, including phone, fax, and email, of each author, which very few authors have the courage to do. And finally an index.

I have gone into much more detail than I usually do in a review, simply because this book is of such importance. There are very few FoMRHI members who could not benefit from it – you don't have to be involved in a museum to handle historic instruments. As they say in the chapter on the maintenance of playing instruments, 'Period material now includes virtually all instruments not in current production.' This applies, too, just as much to outmoded 'early' instruments, even to your own models which have been superseded by improved ones, as it does to 1930s saxophones or 1960 synthesizers. All are part of the history of instruments. Nobody would play a Steinkopf cornett or crumhorn today, nor a Pleyel or a 'modern' harpsichord, but all are an essential part of our history.

At somewhere between £20 and £30, this book isn't expensive – in fact for the amount of information it includes it's a real bargain. As well as direct from CCI in Ottawa, it's probably also available from Tony Bingham, museum shops, etc. In case of any problems, you can email Christine Bradley at: cci-icc_publications@pch.gc.ca

FoMRHI Comm. 1567

John Downing

Pepys's Minikin

In Comm 1442, I made reference to an entry in the diary of Samuel Pepys concerning the use of a minikin string for angling - a quote that I now find was incomplete.

The diary of Pepys - covering the period from January 1659/1660 to May 1669 - was written in shorthand. One transcription of this work - deciphered by the Rev. John Smith in the early 19th C. - includes the following entry for March 18th 1667 :

'This day Mr Caesar told me a pretty experiment of his, of angling with a minikin, a gut string varnished over which keeps it from swelling and is beyond any hair for strength and smallness. The secret I like mightily!'

Did Pepys mean that Mr Caesar himself varnished over a minikin so that it might be used for fishing or was a minikin a gut string distinct from other gut strings by being varnished by the makers - perhaps because it was of such small diameter? And what is the diameter of a hair according to Pepys?

FoMRHI Comm. 1568

John Downing

Blowhorns of 19th C North America

By the middle of the 19th C., utilitarian articles made from tinplate (1) - tinware - had come largely to replace those made from traditional materials such as wood, copper, pewter, glass, ceramics etc. in the homes, farms and industries of North America. Tinware was readily available, relatively cheap, easy to clean, light in weight, durable and attractive in appearance. Tinsmiths - mostly operating from small workshops serving the needs of each local community - fabricated a wide range of tinware as well as metal roofing and stovepipe.

The closing inventory of a tinshop and hardware store (distribution warehouse?) - thought to have been that of Boyle and Wright (1872 - 1878), located North of Napanee, Ontario, Canada - contains about 5000 entries including one for twenty blowhorns valued at 12 cents each and another for six blowhorns at 16 cents apiece.

Blowhorns must have been a familiar article to the rural tinsmith. Even the most basic tinshop would have been furnished with a variety of stakes or small iron anvils on which the tinware was formed which would have included the so called blowhorn stake (see Fig 1). The blowhorn stake was used for forming conical shapes in sheet metal as well as, presumably, blow--horns!
A tinsmith's pattern book for common articles of tinware - "The Mechanics Calculator and Tinman's Guide" by Thomas Quantrill, Washington D.C., 1847 - contains over 300 patterns including N°210 which is described in the text as the pattern for a blowhorn or blowing horn (see Fig 2).

An example of a typical blowhorn may be found in the collection of tinware at Upper Canada Village, Morrisburg, Ontario (see Fig 3). Fabricated from tin--plate in five sections, seamed and soldered together, it is a straight natural horn measuring 55 inches (1400mm) in length overall.The "bell" is simply a straight sided funnel reinforced with a wired edge. The mouthpiece - crudely formed from a cone of tinplate (see Fig 5), is permanently soldered to the mouthpipe which is itself offset from the centerline of the horn. Another, possibly unique,variety of a blowhorn in the collection of the Pennsylvania Farm Museum, Pennsylvania, USA is represented by fig.4 and has a tube length of about 66inches (1676mm).A straight blowhorn in the same collection is almost identical in appearance - including the offset mouthpipe- to the U.C.V. artifact.

Given that blowhorns were a familiar enough article to the 19th C tinsmiths of North America, who among the customers of the Boyle and Wright store or other similar establishments -the housekeepers, farmers, tradesmen and workers of mainly agricultural communities - would have had need for a blowhorn and for what purpose?
No Day books or Ledgers of the Boyle and Wright business survive that might help to answer this question. Most probably, they would have been used on the stage and mail coaches that interconnected towns and villages not served directly by rail or river transport.
Similar straight sided conical horns in copper were being manufactured in

the 1870's by makers such as Köhler & Sons for use on stage and mail coaches in Britain.
Too unwieldy for service as hunting horns, blowhorns may also have been used by travelling salesmen or pedlars to announce their arrival in a community, as signalling devices for river boats, by the local militia or possibly in the towns and villages to add colour to social events in the absence of a brass band. None of these possibilities, however, has yet been confirmed by historical account.

Blowhorns are true natural horns and, despite their rather primitive appear--ance are quite easy to sound to produce at least six tones on the harmonic scale, are flexible in intonation, and have a pleasant'piping'timbre. They can ,therefore, be used to play cavalry and coaching calls and signals in place of a bugle or coach horn.
At around 12 cents each, they were considerably cheaper than conventional coiled brass or copper bugles costing between $10 to $15 or the more complex, newfangled valved cornets and saxhorns which cost $45 or more. With average daily wages in the vicinity of $1, it is, perhaps, not surprising that there may have been a ready market for these tin horns.

Tinplate blowing horns may have been adapted from similar European instruments such as Russian horns or German hunting horns. In this respect, it is perhaps interesting to note that the examples illustrated in Fig 3 and Fig 4 both came from areas of the North American continent originally populated by settlers of Germanic race.

Blowhorns seem to have disappeared from general use by the end of the 19th C. although small tinplate reed horns - first appearing in the trade catalogues of the 1860's as 'Foghorns' - continued to be made in various guises, well into the 20th C.,as simple, one tone, signalling devices such as dinner horns, bicycle and automobile horns. Even the Boyle and Wright inventory includes what are described as 'Froghorns', which are most likely reed horns of this kind - but that is another story!

Note:

(1) Tinplate is thin sheet iron or steel coated with a very thin protective layer of tin. During the 19th C. tinplate was manufactured in Britain for export throughout the world - about 60% being shipped to the markets of North America.
It was made by hand - each sheet,after cleaning, being dipped in a pot of molten tin to coat it.The most common sheet size measured 14"X10" with a thickness between 0.010" to 0.015". The thickness of the tin coat--ing might be down to 0.0001". The small size of tinplate sheets made it necessary for the tinsmith to make tinware up in several pieces - a type of construction, characteristic of early tinware,known as pieced tinware. Hence the pattern shown in Fig 2 requires that the blowhorn be made in four pieces cut from 14"X10" sheets. The horn in Fig 3 likewise is made from six pieces excluding the mouthpiece.

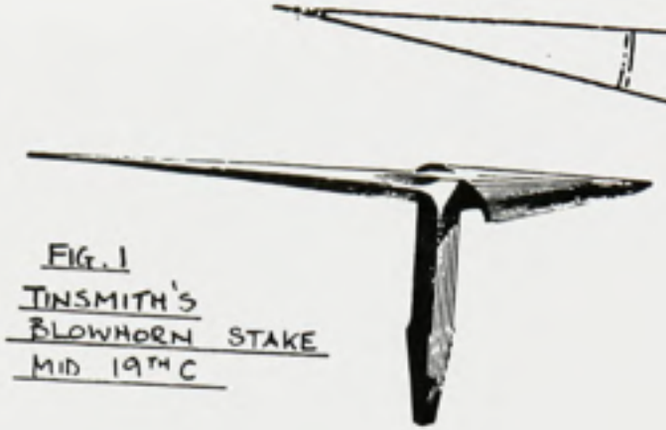


FIG. 1
TINSMITH'S
BLOWHORN STAKE
MID 19TH C

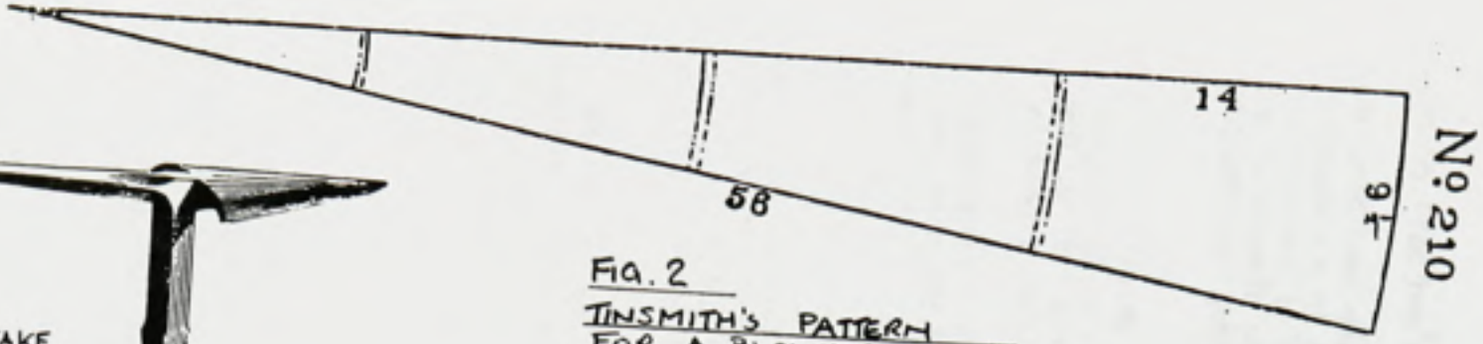


FIG. 2
TINSMITH'S PATTERN
FOR A BLOWHORN, 1847

No. 210

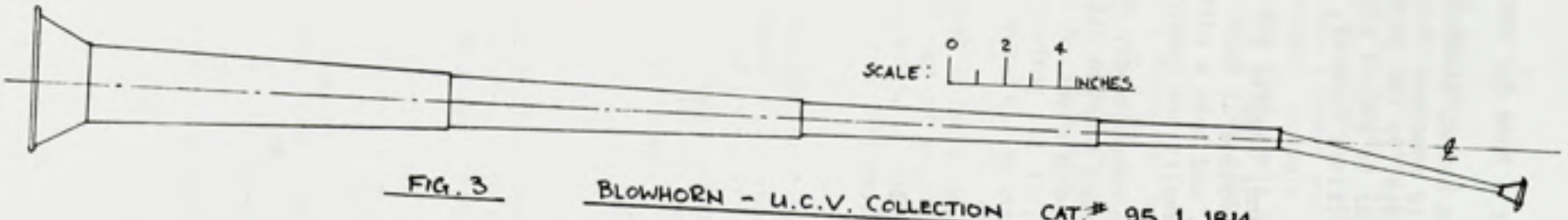


FIG. 3 BLOWHORN - U.C.V. COLLECTION CAT.# 95.1.1814

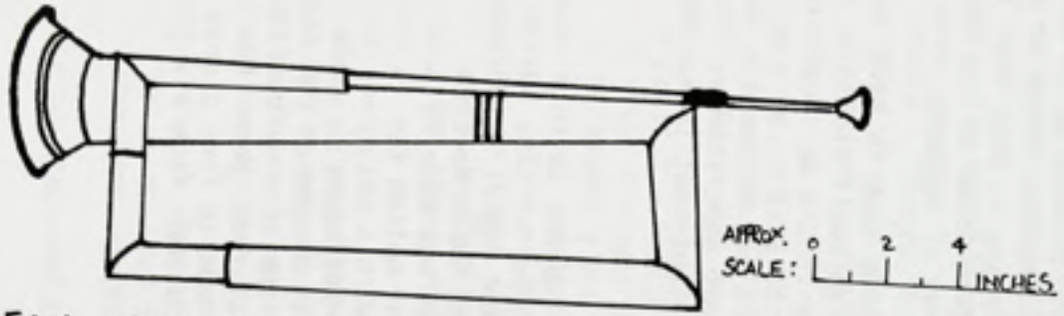


FIG. 4 BLOWHORN - PENNSYLVANIA FARM MUSEUM, LANDIS VALLEY, U.S.A.

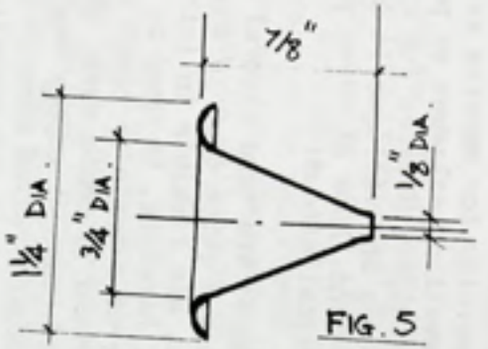


FIG. 5
MOUTHPIECE SECTION
BLOWHORN CAT# 95.1.1814
MAT'L - TINPLATE

FoMRHI Comm. 1569

Jan Bouterse

The alto recorders of Steenbergen

Introduction: this article gives you an impression of a part of one of my chapters of my dissertation about Dutch woodwinds and their makers. At the end I give some examples of the difficulties how to draw conclusions about the quality and other aspects of the instruments. I hope to finish the dissertation in 1999, but I do not yet know in which language it will be published: in english or dutch.

Biography

About Jan Steenbergen: he was born in 1676, in the village of Heerde, not far from Zwolle, where his family worked in a paper mill. In 1700 Steenbergen places an advertisement in the 'Amsterdamse Courant', in which he says that he started a workshop by himself, after working for a period of 8 years under the famous Richard Haka. In 1702 Steenbergen married with the 30-year old Margrita van der Heine. In 1728 his wife passed away; we do not know where and when Steenbergen himself died, Waterhouse (*The New Langwill Index*, London 1993) gives the year 1752, but there is no evidence for that information.

The stamp

The makers' mark of Steenbergen has the same size and shape on all his instruments: I:STEENBERGEN. in a scroll (with a point on the I, a point after the name and a colon between the I and the S) and a *fleur de lis* below the scroll. This lily has the common (long) shape, with a typical ornament (like a small clover leaf) on the top. This lily differs from the typical short (or broad) *fleur de lis* on the instruments of Haka and Willem Beukers (see for a picture of the various lilies *Comm.1181* in the FoMRHI-Q. No. 72, July 1993).
The Moeck factory in Celle (Germany) makes copies of Steenbergen-recorders, but uses a sligthly different shape of stamp (I.STEENBERGEN), so that everybody can see that these recorders are not originals but 'genuine copies'.

Surviving instruments

I know about 8 or 9 recorders and 9 oboes by Steenbergen. However, not all of these instruments are complete or have original joints. There are some reports of (lost) instruments. In the auction of the properties of Van Bolhuis in the city of Groningen (1764, see *Comm. 1538* in the FoMRHI-Q. No. 89, October 1997) were two *chalameau* (chalumeaux); in 1771 a small boxwood *flageolet* was listed at an auction in Middelburg (province Zeeland).
In the catalogue of Sachs (Berlin 1922) of the collection of musical instruments in Berlin two recorders are listed: a boxwood *Quartflöte in* b^1 (soprano fourth flute, but with a total length of 35 cm probably a soprano recorder in c^2) and a *Diskantflöte in* g^1, probably a third flute in a^1, because this instrument was with a total length of 42.5 cm just as long as the third flute by Robert Wijne in the Haags Gemeentemuseum. However, both recorders by Steenbergen in Berlin are lost in or short after WW-II. Finally, a tenor recorder by Steenbergen was reported on the *Royal Military Exhibition* in 1890 in London. Where is this instrument now?

Quality of boxwood

Steenbergen used the best quality of European boxwood I have ever seen. Especially some of his oboes (in the musea in The Hague, Brussel, Berlin and the Han de Vries-collection in Amsterdam) are made of very fine wood, with narrow yearrings. The joints of these instrument are very straight (not warped) and round (not oval in cross section), the keys fitting perfectly in the key grooves, indicating that there was hardly any shrinking of the wood.

The quality of turning of Steenbergen was also very good, with the smallest details well defined and crisp, excellently visible by the fact that Steenbergen didn't colour the wood, or only stained it with (diluted) nitrogen acid. As far as I can see he never put a (thicker) layer of varnish on his boxwood, which sometimes can hide or soften the finest details of the turnery. Steenbergen was also economical with the wood: on his alto recorder in Groningen/Uithuizen the foot joint is drilled through the heart of a piece of boxwood. On the bass recorder in Darmstadt the thick ring at the lower end of the foot is made of a separate piece of wood, so he could just take a thinner piece of wood for the rest of the joint.

Soprano recordes and the sixth flute

About the surviving recorders: in Stockholm (*Musik Museet*, Inv. No. M 160) we can see a sixth flute in d^2, in two joints of boxwood. This instrument does not play well, mainly because the surface of the block is rather rough. The socket bulge of the head joint is cracked and is repaired by a ring of horn. I saw identical repairs on other woodwind instruments in this collection, apparantly carried out a former conservator.
The soprano recorder of Frans Brüggen (Netherlands) is a real fifth flute in c^2, with a pitch at about a- 415 Hz, or sligthly lower. This boxwood recorder is made in two joints and is maybe not in perfect condition (it has some cracks) but the quality of sound is still surprisingly good.
In a museum in Ketelhaven (in one of the new Flevopolders) I have seen a soprano recorder, this time in three joints, found during an excavation of a shipswreck. The ship sunk in bad weather in the year 1888, nearby Ketelhaven, when this area was still covered by the sea. It does not surprise that the recorder is in bad condition, with many cracks. The foot is not original: I suppose that the original foot was lost and that the last owner had tried to made a copy in beech wood, not using a lathe but his knife. It is a funny thing, without a tone hole.
A bass recorder by Steenbergen survives in the *Hessisches Landemuseum* in Darmstadt (Germany), made of fruit wood (maybe cherry). The instrument is in nice condition after a restauration by Rainer Weber. The (original?) block is apparently made of *Cedrela* wood (a hard wood), with a strong smell. But even with this block, I could not manage to play the third register of this instrument.

The alto recorders

The most famous and well known instrument is the alto recorder in reddish brown stained boxwood with ivory rings in the collection of the recorder player and conductor Frans Brüggen (Amsterdam, Netherlands). This instrument is in perfect condition, it looks as it left hte workshop of Steenbergen just a few days ago. Nevertheless, the block (made by Ricardo Kanji) is new. I do not know if this was done to improve the sound quality and to save the original block (which was maybe in a just not perfect condition), or (what I hardly can expect) that it was done because the original block wasn't usable at all. The window of this recorder is with 4.7 to 4.8 mm for a Dutch alto very long, the bore is also rather wide, all features that give power to the instrument. It does not surprise that Frans Brüggen has used this recorder many times in concerts and for recordings.
But there are two other complete alto recorders by Steenbergen. One instrument can be seen in the *Menkemaborg*, an old castle near Uithuizen (province of Groningen, in the far north of the Netherlands). It is made of boxwood (without ivory mounts), probably stained light brown, with an original block and in rather good playable condition. Ph. Young (in his *4900 Historical Woodwind Instruments*, London 1993) mentions two alto-recorders by Steenbergen (his No. 3 and No. 4), in Groningen en Uithuizen, but I suppose that it is all the same instrument. The *Groninger Museum* in the city of Groningen moved the musical instruments to the castle in Uithuizen, that has given the confusion.
The third alto recorder discovered recently, in a private collection, also in the province of Groningen, and is made of ivory with an original softwood (cedar?) block. The instrument is in nearly perfect condition, with only a little chip of ivory missing near the windway opening. There is only one crack in the upper tenon of the middle joint, but there are no cracks in the bore (as so often happens, due to microbiological degradation of the ivory) and the windway is only a little dirty. Most

surprisingly are the fingerholes: this is the only Dutch recorder I have seen with double holes on 6 and 7, making f# and g# in the lowest register possible. The ivory recorder plays rather well (but is noisy through all registers), the pitch is 10 tot 30 Cents under a- 415 Hz. The window on this alto is very short: 3.7 to 3.9 mm.
A loose middle joint of an alto recorder is found in the Boers-collection (Rijksmuseum Amsterdam, now in the Haags Gemeentemuseum). This joint (in boxwood) is not in very good condition, maybe coming from an excavation.
Finally, I have done some research on an ivory alto recorder in the shop of André Bissonet, an antique dealer of musical instruments in Paris. This instrument could have been made by Steenbergen, it is turned in his style and the sixth tone hole (the lowest hole on the middle joint) is drilled a bit obliquely downwards. But there is no stamp on the instrument. The length of the joints, the dimensions of the bore (with an average of 20 mm in the lower section of the head joint very wide) and the very low pitch are not typical for Steenbergen, so I do not believe that he made this recorder.

Differences between the alto recorders: dimensions, tone hole positions and bore profiles

The differences between the recorders are interesting (see table 1). The Brüggen-alto (a-) has a large (wide and long) window, has a long head and middle joint and is rather thick, especially in the lower half of the middle joint where also the bore is relatively wide. Between the tone holes 3 and 4 the bore has a flat (almost cylindrical) section (see graphics).
The loose middle joint (c-) is even longer and thicker and has also the widest bore, which is narrowing gradually stronger from the top to the bottom.

Table 1 *Dimensions of alto recorders of Steenbergen (in mm.)*

Instrument	*Sounding length joints (total)*	*window (width x length)*	*Ø- exterior at window and at third tonehole; the distance between tone hole 1 and 6*		
			Ø- window	*Ø- hole 3*	*l. hole 1-6*
a- Brüggen	132.1 - 209.5 - 103 (444.6)	12.5 x 4.8	33.1	- 26.1 -	163.7
b- Groningen	127.5 - 203 - 103.2 (433.7)	11.6 x 4.1	33.6	- 25.3 -	157.5
c- middle joint	- 211.5 -			- 26.6 -	165.5
d- ivory	126.5 - 203.5- 101.8 (431.8)	11.3 x 3.7/3.9	32.6	- 23.1 -	156.9

The recorders b- and d- are not very different in length and position of the fingerholes. The middle joints of both instruments are shorter than those of the alto's a- and c- , the bores are narrower (especially in the lower half of the joints) and the instruments are thinner. Also the fingerholes are less widely spaced, the distance between hole 1 and 6 is about 8 mm shorter. The shorter middle joints of the recorders b- and d- could indicate that these instruments should sound at a higher pitch; but that is here not somuch the case: if the bore is narrower, especially in the lower part of a middle joint, the joint can be made some millimeters shorter without changing of pitch. The advantage is that the tone holes can be placed closer to each other (just what we see on b- and d-). But of course there is an effect on the sound of the instrument. Therefore my conclusion is that the alto recorder a- with the wide bore was designed by Steenbergen as a louder instrument (this recorder has also a big- long and wide- window), whereas the alto's b- and d- were made as more modest instruments with short windows. The middle joint c- has more similarity with the alto a- than with the other instruments, but the bore has a different shape, made with other reamers. The bores of the alto's b- and d- are not identical, but could have been made with the same reamers, especially the foot joints. On most of the Steenbergen- recorders (but not so much on b-) the narrowest point of the bore is not found at the exit, but some mm (10 to 20 mm) upwards, indicating that Steenbergen has reamed back this part of the bore, for tuning the fundamental or because of other acoustical reasons.

About the tone holes: on all four middle joints tone hole 1 is placed rather low, so the distance between hole 1 and 2 is shorter (29.4 to 30 mm) than between hole 2 and 3 (33.2 to 35 mm). I have seen this on recorders by Terton, and maybe this is also a (typical) feature of English alto recorders. Steenbergen drilled hole 6 on many of his instruments (on all his oboes, also on some of his shorter recorders) obliquely downwards. This can also be seen on instruments by Van Aardenberg, who was also a pupil of Richard Haka, but who made his instruments in a completely different design: acoustically and in the way of turning.
The double holes on the middle joint of the ivory alto (alto d-) are not, or not clearly, drilled downwards. Almost all Dutch oboes have double tone holes (on hole 3 and 4) and the left and right holes have about the same size, giving the opportunity to play the instrument with the other hand below without intonation problems. But on the ivory alto recorder the double holes have not the same size, the left holes being smaller (0.3 mm for hole 6, and 0.2 mm for hole 7) than the right holes. However, this difference in size is not so much as on modern alto recorders with double holes (where the differences are up to 1 mm). Nevertheless the f# and g# on the Steenbergen-alto are well in tune in relation with f and g in the first register. Other recorders with double holes were made by Bressan (his instrument in Vienna has also double hole on hole 3) and by J.C. Denner.
In Hotteterres *Principes de la Flûte* we can see a picture of a recorder (in the fingering table) with more or less visible double holes. This book was used in many European countries and was also printed in Amsterdam. That means that the idea of a recorder with double holes was probably more widespread than we should think according to the few surviving instruments of this type.

Windways

Alto recorder d- has the most beautiful windway of all Steenbergen-recorders. In E-W direction (on cross section) the roof of the windway and the surface of the block are slightly and equally curved over the whole length. In N-S direction (length section) the windway is clearly rising and concavely domed, thus in the upper section more rising than in the lower section, towards the window. The under labium and candle flame are rather clean and surely not too long, but are not so nicely made as on some recorders by Van Aardenberg or Van Heerde. The windways on the other instruments are more crudely made: on the alto recorder a- the (again rising and slightly domed) windway is in E-W direction almost flat (quite different from the more curved windways on the copies by Moeck!) and the candleflame is rather irregular. On the alto c- there are more irregularities: so is the step on the left higher than on the right side. The windway is on the whole again clearly rising, and on the left side more domed than on the right side. The side walls of the windway are not straight, but irregular and the underlabium is rather coarsely made, with visible knife marks and the candleflame ending about 10 mm before the corner of the labium.

Playing the instruments

All three complete alto's played at 10 tot 20 Cents below a- 415 Hz. Frans Brüggen said to me that he could play his alto at a- 415 Hz, but I can hardly believe him for this, or he must have played with a very strong wind on a warm instrument. Also Fred Morgan (see his remarks on the drawing of this instrument in: *The Recorder Collection of Frans Brüggen*,Tokyo 1981) played the alto of Brüggen at 10 to 20 Cents below a- 415 Hz, and he writes that he could use English (or Dolmetsch) fingerings. But hole 4 was filled with some wax and then we have to hope that hole 5 was not enlarged.
On the ivory alto (an instrument in very much original condition, and with rather small chamfers) Dolmetsch-fingerings were not possible: b^{b1} must be played with 0 1 2 3 4 . 6; surprisingly b^{b2} was possible with 0h 1 2 3 4 . 6, just overblowing with the same fingering. The boxwood alto recorder b- had to be played in the same way for b^{b1} and b^{b2}, but on this instrument the a^1 caused some problems. The sound of this tone was weak and the pitch too flat compared to the other tones of the first register, but also in relation with the octace, a^2. I cannot believe that this was (only) caused by a baroque mean tone intonation, it seems to be more a stability problem. Stable tones can be played with more wind, an so on a higher pitch.

On all alto recorders the third register could be played after Hotteterre. Thanks to the short foot joints the e^3 and f^3 were not flat in pitch (see about short foot and long foot recorders my article in *Comm. 1555* in the FoMRHI-Q No. 90 of January 1998).
I think that Steenbergen was more influenced by (the instruments of) Bressan and Stanesby than other Dutch woodwindmakers. Especially the alto of Frans Brüggen could have been inspired by an English instrument, and some details of his oboes point in the same direction.

Comparing the pitches and the quality of the sound

About the quality of sound of the recorders: this is one of the most difficult aspects to discuss. I have made enough recorders to know that small things can have great effects on the respons (attack) and sound of the tones. Even for modern factory recorders, made with the greatest accuracy, differences can be heard within instruments made in the same series. And for historical instruments, often dirty, sometimes with cracks, badly fitting tenons etcetera, it is even a greater problem to say a sensible thing about the sound. How clean and sharp are the chamfers, is the roof of the windway lowered (what probably happened on alto b-), is the labium corner parallel with block and windway, is the labiumcorner in good condition (maybe this corner has gone down for 0.1 or 0.2 mm on alto d-), and so on.
Of all recorders, the alto a- is best playable, however with a new block and surely after thoroughly cleaning. But this instrument is (or was) played every day by his owner, and if that is done not too intensively, it can keep the recorder in good condition. So, what we hear now, is perhaps more representative for the original quality of sound than what we hear if we play the recorders b- and d-. Alto d- is now rather noisy, but I withstood the temptation of cleaning block and windway. Playing this instrument, I got the feeling that only slight chances could give great improvement of sound and intonation. But: is this information that I can publish in a scientific dissertation?
For a better comparison it is in fact necessary to make copies of all recorders, starting with new head joints and play these joints with the original lower joints. But here rises an other problem: it is very difficult to make an exact copy of an original head joint, and in fact you have to make a series of several joints, balancing between the dimensions of the historical recorder, how they are today and what would have been the original dimensions in the days of Steenbergen.

Conclusions: information, relations, quality

The main thing what I want to do is to inform the reader about Steenbergen and the characteristiscs of his instruments. And that's what I tried in the alineas above: giving information about construction, design, bore profiles, even about the pitch, etcetera.
But this is not enough: in a dissertation questions on a certain scientific level must be answered. And what are the relevant questions about Steenbergen and his instruments? I suppose that there are two main things: questions about relations and about quality.
At first there are the relations within the recorder-collection of Steenbergen; next we can consider the relations between the recorders and his oboes; then the relations between his instruments and those of other Dutch makers; and finally the relations between his instruments and those of makers elsewhere in Europe. However, it is difficult to prove similarities and relations if there is no (or not enough) information about the instruments of other makers. And what's more: it was not possible for me to obtain information of the same level of quality for all Steenbergen-instruments. I could not measure and play the recorders under the same conditions; sometimes it was not possible or it was not allowed to remove the blocks, etcetera. So I have to be rather careful not to go too far in drawing conclusions and I will write a careful introduction about the comparability of dimensions, pitches etc.
But more important than these 'technical' qualities is the question about the musical quality of the Steenbergen-recorders. We must never forget that musical instruments are made to play music on it. And as far as I can see all recorder music of the early 18th century could be played on the Steenbergen-recorders. But is there any indication about the way Steenbergen tuned his instruments? On the recorders b- en d- the a^1 is rather flat in relation with the fundamental, indication of a flat third from

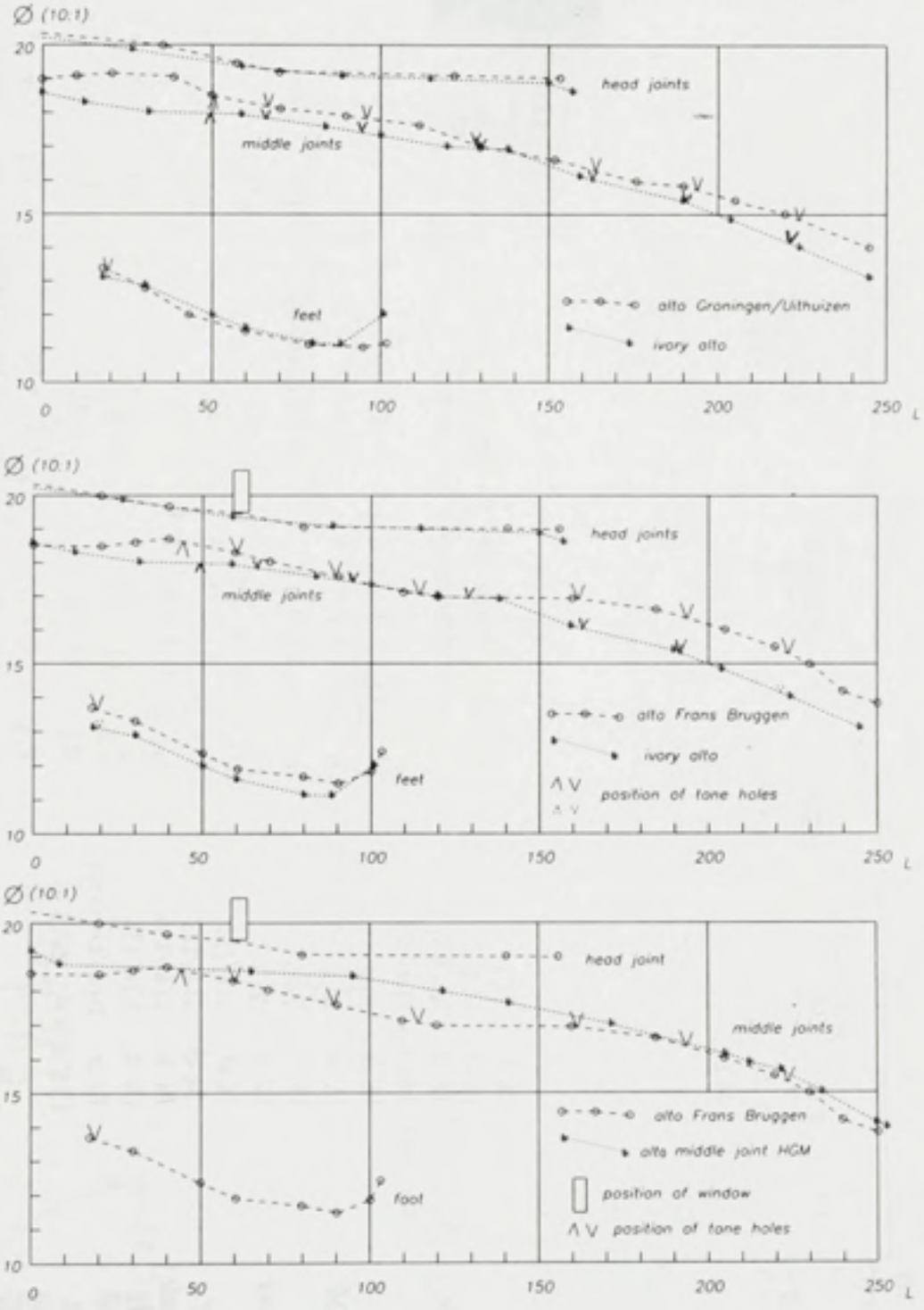
f-a; the alto a- has a more even temperament. But actually there are too much obscurities on the alto's b- and d- (such as some octaves that are out of tune) that I can't prove that Steenbergen used an equal or an other temperament. The same applies for almost all other Dutch recorders: they are often out of tune in such a way that any conclusion is impossible, or they are so good playable (only a very few instruments!) that that is suspicious: who has changed the acoustical properties of these instruments?

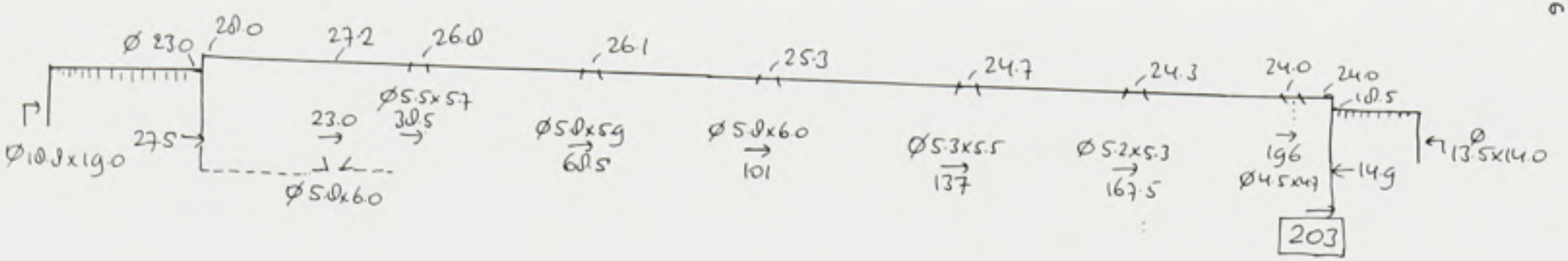
Table 2 Summary of conclusions

- Steenbergen was a versatile recorder maker, who made a wide range of instruments: flageolet, sixth flute, fifth flute, third flute, alto, tenor, bass.
- Steenbergen made more than only one type of alto recorder; no bore profile of the middle joints of these instruments is identical. Remarkable is the ivory alto with double holes for f#^{1} and g#^{1}, the only Dutch recorder with this feature.
- The design and finishing of the turnery of his instruments is very good, and so is the quality of boxwood used by Steenbergen. The finishing of windways and underlabiums (candleflames) is however not on all of his recorders perfect.
- There are obvious differences in design between the recorders of Steenbergen and those of other Dutch woodwind makers. Maybe Steenbergen was more inspired by the recorders of English makers (Bressan, Thomas Stanesby senior). Interesting is the fact that on many of his recorders the sixth hole is drilled obliquely downwards.
- The pitch of the alto recorders and other instruments of Steenbergen (including the oboes) seems to vary not very much (a between 410 and 415 Hz). The alto recorders have relative short feet, so the third register is playable with Hotteterre-fingerings.
- It is difficult to give conclusions about the characteristics of sound and tuning of the alto recorders; maybe the alto of Frans Brüggen is (now) more evenly tempered than the two other playable instruments. But that does not detract from the fact that the alto recorders of Steenbergen are versatile instruments, suitable for a wide range of baroque music.

Every woodwind maker (and player) knows that a dirty windway, a rough block surface and/or an enlarged window can cause a bad, noisy sound. But I had the opportunity to hear different people playing the same (and clean) recorder, with so much variation in pitch, noise and even stability of (for instance) the lowest notes that I am very reserved to give any information about sound quality: it is all very subjective. I have played most recorders in the Haags Gemeentemuseum (long ago, and with permission) and I have the annotations of some other people who did the same. The addition of a couple of subjective observations by several people makes not yet an objective conclusion; however, the combination of information is at least interesting to read. It reminds me to the descriptions of wine; I am not a wine drinker (alcohol can be useful for cleaning windways), but I can imagine that for some people it must be the greatest joy to find the words to describe the stuff. Back to the recorders of Steenbergen: perhaps it is allowed to say that the first impresssion of these instruments is a good and harmonious combination of strength, craftmanship, refinement and timeless quality. It is not difficult te become friends with the recorders of Steenbergen (especially for people who are accustomed to modern recorders); the aftertaste however is perhaps more puzzling: it is difficult to judge the age and the origin (if you are playing blindfolded) and that gives (some of the) instruments a touch of indistinctness, and that is perhaps not everbody's taste. But I do not think that this type of description will be accepted in my dissertation.....

Bore profiles of the alto recorders of Jan Steenbergen





bore middle j.

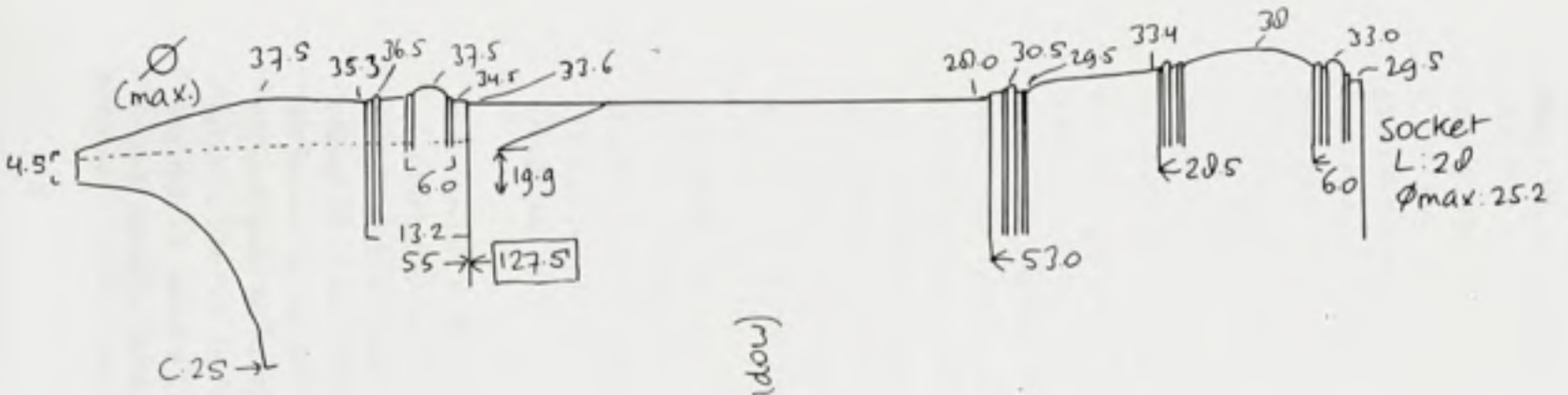
Ø	L
1/190	0
·0	0-38
·2	10
·7	44-45
6	48
·4	51/55
·2	60/hole1
·0 –	79/82
·8	84/88
6	100/112
·4	109/119
·2	121/124
0 –	120/hole3
·8	144/147

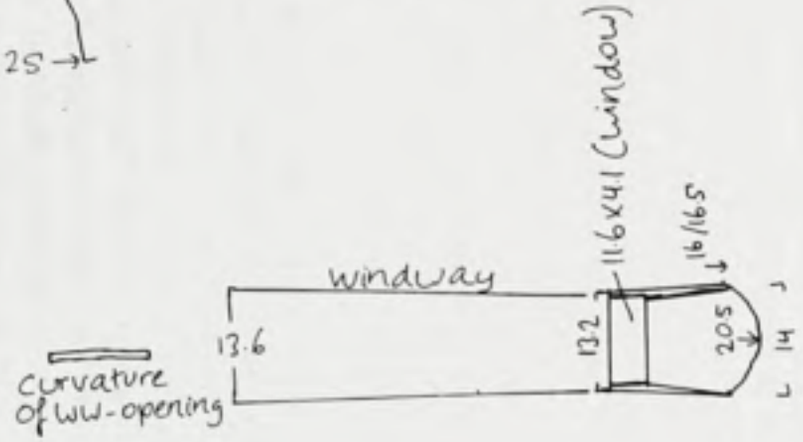
16.6	152
16.4	162
16.2	166/169
16.0-	174/176
15.8-	190
15.6 -	199
15.4 -	205
15.2 -	213
15.0	216/220
14.8	222/225
14.6	226/230
14.2	231/239
14.0	244/through
13.5x14.0	end

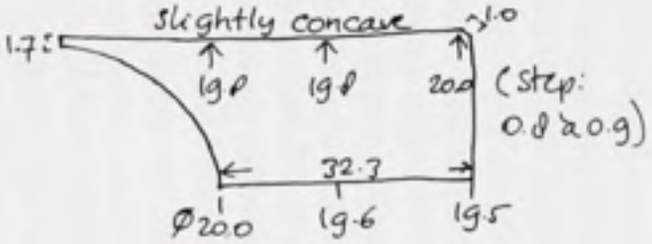
Pitch (tuner at a-415 Hz
deviations in Cents)

f_1	0 1 2 3 4 5 6 7	-5/-10
g_1	0 1 2 3 4 5 6	-10/-15
a_1	0 1 2 3 4 5	-35 (weak)
b^b_1	0 1 2 3 4 . 6 7 4 . 6	-35 -5
b_1	0 1 2 3 . 5 6	+5
c_2	0 1 2 3	-5/0
d_2	0 1 2	+5
e_2	0 1	+5/+10
f_2	0 . 2	+10/+20 (flexible)
g_2	. . 2	+5
$g^{\#}_2$	2 3 4 5 6	+10

a_2	oh 1 2 3 4 5	-5/0
b^b_2	oh 1 2 3 4 . 6	-10
b_2	oh 1 2 3 . 5	+5/+10
c_3	oh 1 2 3	+5/+10
d_3	oh 1 2	0
e_3	oh 1 2 . 4 5	-15
f_3	oh 1 . . 4 5	-25/-30

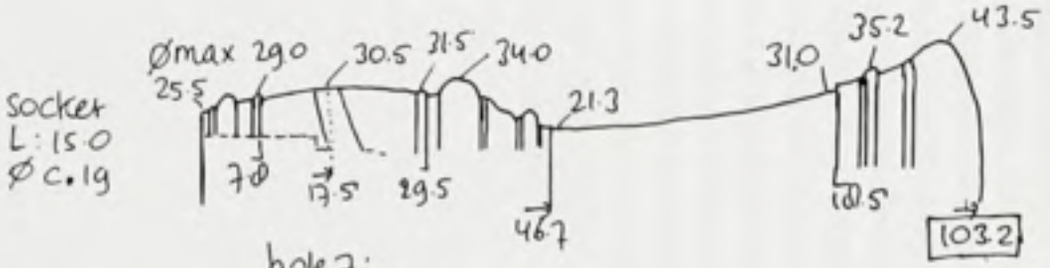






bore-head j.

Ø 20.1	L: 25	-hor
20.0	35	-hor
19.9	37	-hor
19.8	61	-ver. /44 -hor
19.7	61	v. /48 h.
19.6	63	/50
19.5	67	/ 57
19.4	67	/58
19.3	67	/70
19.2	103	/125
19.1	through	/144 h.
18.8	through	h.



bore floor joint:

Ø	L	
13.4	17	12.0-46
13.2	20	11.8-53
13.0	-24	11.6-57
12.8	-31	11.4-74
12.6	-35	11.2-78
12.4	-39	11.0-95
12.2	-42	10.8- through 11.0 - end.

I. Steenbergen - alto recorder (boxwood)
Groninger Museum - Groningen/Lithuizen (Netherlands)

FoMRHI Communication Number - 1570 **Alec V Loretto**

Catajo and Ganassi - an Italian Castle and a Flauto Dolce

It's probably impossible to go through life without making mistakes. I'm certain I've made at least my fair share and quite probably many, many more. Some I've been aware of, even at the very moment the mistake was being made - like drilling the wrong sized hole in the right place or even the right sized hole in the wrong place. But for some I've had to wait years and years to learn the error of my ways. It happened again quite recently. In 1997 in fact. I had work in Padua [Italy] and when that finished I decided to visit a friend in Tuscany. During a rather long journey by road the small villages, derelict buildings, stunted trees, stately houses and ancient castles were quickly overtaken. Then it appeared - another castle. The larger it became the more familiar it looked. Slowly it dawned upon me. I was nearing Catajo. I'd seen a few pictures of it many years before and I imagine they were still deep in my memory. Some research, months after visiting the castle, revealed yet another of my mistakes from many years earlier - because it was here in the Catajo Castle that the celebrated Ganassi Recorder lived until it became part of the musical instrument collection in Vienna[1]. How this change of location came about has been the subject of much confusion to which, over the years, I have largely contributed. To make things clear it's best if I start in Vienna in 1972, when I first played and measured the Ganassi Recorder. In 1973 I made my first Ganassi Recorder copy [2]. In 1974 my Ganassi publication appeared - A Ganassi Model Recorder in Vienna? [3] one of the first modern writings about this instrument. This publication, along with the controversy in The American Recorder [4] as well as articles by Marvin[5] , Morgan[6] and Zaniol[7], are all now part of the history of the modern Ganassi Recorder revival. Even today one can recognise in the 1974 publication some surprisingly accurate and prophetic statements concerning the revival of this recorder. But no-one, to my knowledge, ever recognised my glaring error - it took a visit to Catajo for me to learn where I had gone wrong. On page 8 of my 1974 publication, I wrote that the Ganassi recorder was *taken [to Vienna] by victorious Austrian troops some time in the nineteenth century*. Angelo Zaniol, some ten years later, wrote that the instrument was *transported to Vienna by the Austrian army as spoils of war*.[7] We were both wrong. The recorder in question made its way from Catajo to Vienna under very different circumstances and, like the castle itself, has an interesting story.

In 1007 two brothers from Burgundy travelled to Italy as knights in the army of Heinrich II of Saxony. One brother named Frisco settled in Genoa. The other named Obizzo settled in Lucca. From the Lucca brother descended the wealthy Obizzi family whose members and influence spread across Italy. Later, a member of the Obizzi family moved from Ferrara to the nearby Palace of Este to take up the position of *Landvogt* or Sheriff. This relationship between the Obizzi [Italian] and the Este [German] families was to prove important, all the more so as the Este family later became related by marriage to the Habsburgs [Austrian]. In 1518, a certain Gasparo degli Obizzi made an inventory of all he owned including a house, hayloft and distillery standing on the Hill of Catagio [sic]. In his will he left the profits of the distillery to

his wife, but to his son, the self styled Pio Enea Obizzi the First, he left all his property. Today Pio Enea Obizzi is most remembered for his invention of the howitzer, the large bore weapon that propels its missiles with a high parabolic trajectory. He married the rich Eleonore Martinengo, who brought into the Obizzi family 18000 ducats enabling Pio Enea the First to build Catajo Castle between 1570 and 1573, his military interests influencing where it should be sited. It occupied then, as it does today, a commanding position over the nearby roads. Once the castle was completed, and security guaranteed, Pio Enea the First started the Obizzi tradition of collecting valuable treasures. Pio Enea Obizzi the First died in 1589, the ownership of the castle making its way to Roberto, an illegitimate son. He in turn married Ippolita Torelli. Their son, Pineo Enea Obizzi the Second, born in the castle in 1592 was awarded the hereditary title of Marquis of Orciano. In 1629 he married Lucrezia Dondi Orologio and their joint love for the theatre and music, and his love of tournaments, led to additions to the castle. A Tournament Hall [converted from stables] and a Theatre were added in 1640, the latter having a full stage with a two tier auditorium which included sixteen boxes. The Theatre needed a small orchestra with a pool of instruments and it was Pio Enea Obizzi the Second who started the Catajo musical instrument collection, which at some unspecified time acquired the Ganassi Recorder. This, along with a collection of scores, was housed in a special room in the Theatre. In a room above the Theatre was a collection of weapons including, not surprisingly, a howitzer. Two further collections were started - works of art and a library - but many other valuables were also purchased. After the death of Pineo Enea Obizzi the Second came a period of neglect and decay which lasted into the latter half of the 18th Century until Tomaso Obizzi inherited both the title of Marquis and the castle. He expanded the collections and built a museum in which to store and display a number of the antiques. Marquis Tomaso was the last of the Obizzis, and his death in 1805 brought to an end the ownership of Catajo by the Obizzi family. The castle and its contents were bequeathed to the Habsburg/Este line from which came the Duke of Modena and Reggio. Franz IV, Duke of Modena and Reggio who used the castle as a summer residence, made the last of the Catajo additions - an eight room apartment above the corridor connecting the Theatre and the Museum. In 1846 Franz IV died to be succeeded by Franz V Duke of Modena and Reggio, who in 1841 had married the daughter of King Ludwig I of Bavaria. With Italian nationalism on the increase, and with foreign aristocracy abandoning their properties, Franz V was forced in 1859 to leave his Dukedom and move into Catajo. The Brigade of Este, an army of 4000 men led by General Agostino Saccozzi voluntarily followed Franz V and found shelter in the surrounding countryside. On September 24 1863, Franz V Duke of Modena and Reggio, seeing little future in Italy, provided pensions for his army and after a fitting ceremony, it was disbanded. This effectively ended the dynasty of the Duke of Modena and Reggio. Franz V moved to Austria dividing his time between Vienna and Bavaria, and his death in 1876 saw Catajo pass to Prince Franz Ferdinand[8], heir to the Austro-Hungarian Empire. Towards the end of the 19th Century [it is not clear exactly when, perhaps because it was done secretly] a collection of weapons was moved from Catajo to Konopischt Castle near Prague and valuable items from the art, archeological and musical instrument collections were transported to Vienna. The transfer to safety of these treasures, whether carried out secretly or not, might have been due to the possible fear of the increasingly determined Garibaldi inspired Italian nationalism which believed that all foreign owned

property should belong to Italy and to the Italians. Along with other treasures the Ganassi Recorder left Catajo Castle for Vienna .With Habsburgs owning Catajo and ruling Vienna, the transfer of valuable articles presented no difficulty apart from the risk of theft during transit. The Ganassi Recorder was not therefore spoils of war. Nor was it ever taken to Vienna by victorious Austrian troops. It was, quite simply, a *flauto dolce* owned by a wealthy family being moved from one property to another, maybe for safe keeping.
Following World War I with the Habsburgs now gone from Italy, deposed from Austria and forbidden to return to political life, and with their Empire in ruins, the Catajo Castle was removed from Habsburg ownership and awarded to the Italian Government as war reparations. In 1929 the Italian Government sold Catajo Castle to the Dalla Francesca family from Padua.
And while the above is all rather remote from contemporaneous musical life of the British Isles, it's interesting to note that in 1366 a certain Tommaso Obizzi captured King David of Scotland and was rewarded by Edward III with The Order of The Garter [9].

1. The instrument number 8522 is prefixed by the letter **C** to acknowledge the recorder's previous location - Catajo.
2. The Recorder: A Guide to Writings [Garland] page 155 credits me with building my first Ganassi Recorder in 1972. In fact I made my first Ganassi Recorder during 1973 in my Auckland workshop, using the measurements I had made at the Vienna Museum during the previous year.
3. Reprinted in The Recorder and Music Magazine of June 1990 pp 35-38. It was a widely circulated publication and some twenty-five years later is still interesting reading.
4. See the American Recorder from May 1986 through March 1990 when the controversy was finally settled.
5. FoMRHI Quarterly of April 1978.
6. Early Music OUP of January 1982.
7. Continuo of December 1984.
8. It was the assassination of Prince Franz Ferdinand which triggered World War 1.
9. Details of this can be found in the Records of The Knights of The Order of The Garter. Among the paintings in the Room of San Marco in Catajo Castle are two by Gian Battista Zelotti, a student of Paolo Veronese. Number XXVII depicts the capture of King David. Number XXVIII, in a dominant position above a large fireplace, shows Tommaso Obizzi being awarded The Order of The Garter. Looking on are enough British and European aristocracy to form a huge Recorder Ensemble . Alas, in all of its history, Catajo never boasted enough *flauti dolci*!

I would like to acknowledge the generous assistance received from Riccardo Pergolis, a linguist and harpsichord maker of distinction who drew my attention to easily missed details; and the invaluable assistance received from Dr Maggiori whose impressive linguistic talents helped enormously.

On the information content of musical iconography: reply to Comm 1551

We seem to be having a dispute between different philosophies about scholarship. Marco and a large number of others, are in awe of what we don't know, and worry about the truth of what we think we do know. They expect scholarship to find truth, and either are depressed by never being able to be sure that it has been found, or some foolishly believe that they have found it. I and others (more in the sciences than in other disciplines) gladly accept that scholarship can only approach truth, and the work that we do can never be definitive (the last word) because new evidence or new understandings about the evidence can easily advance knowledge (and be closer to truth) beyond what we have done. We concentrate on getting the most indication of truth out of the evidence available.

Let us consider Marco's Figure 1. He asks whether it is a pig-snout psaltery, a 12-course psaltery or a simplified representation of a psaltery with more than 12 courses. If these are previously defined categories he is trying to choose between, then I see his problem. As I see it, the answers, in order, are yes, yes according to the string groupings, and yes according to the number of groups of string pegs in triplets (but there is no apparent evidence of simplification). These categories are not particularly useful. With modern methods of computer handling of information one should be able to just put down what one sees, and then try to understand the picture as best one can. This would include whatever general categories one can clearly recognise, and guess about possibilities when these are unclear. Anyone can then later use the computer to group depictions into whatever more specific categories one wants.

What I find particularly interesting in this psaltery picture is the second course of strings from the top of the picture. It has 5 strings instead of the otherwise usual three, and they come from two different triplet groups of string pins. There is information about tunings of pig-snout psalteries in the Berkeley ms 744 (see Page in *G.S.J.* 1980 p. 32). The instrument there had 5 apparent courses of 4 strings each, but the text makes it clear that each of these apparent courses (apparent because they were grouped together) was made up of two course pairs at different diatonically-related pitches (the groupings then being in intervals of a third). The tuning was of a *C* major octave with an *a* and *b flat* beneath. There were indications of chromatic tuning alternatives for both *b*'s, the high *c*, *e and f*.

It thus seems likely that the group of 5 strings in one apparent course in Marco's picture was two courses with different pitches. The groupings are likely generally to be in a diatonic sequence, and so the double course could well be immediately-available chromatic alternatives. The most likely single chromatic alternative is *b*, in which case, the lowest note of the psaltery would be *a*, as it was on the Berkeley instrument, with the highest string an *e*, a twelfth higher.

This resolves the apparent conflict between the number of groupings in the strings and the number of groupings in the string pegs, and deduces what the likely nominal tunings of the strings were. I could estimate the size of the psaltery from the head of the player, and from this, plus the nominal pitches and the physical properties of the strings (assumed to be either brass or silver), calculate the possible range of the absolute pitch level (like a pitch standard if there was a standard) that the instrument was played at. This is a lot of technical information that Marco apparently says cannot be derived from such pictures.

Of course, I have not proven beyond any doubt that my interpretation of this picture is true. But neither can any interpretation of any evidence. What I've done is far from pure guesswork. Sure, it needed imagination, but every bit is a reasonably probable assumption based on historical information. Alternative interpretations we can expect are: 1) a different set of reasonably probable assumptions based on historical information, or 2) a statement something like 'there isn't enough reliable information in the picture to come to any conclusions'. The former is fine, and there are formal ways in scholarship to choose which set

of assumptions is most likely to be closer to truth. The latter suffers from the serious scholarly defects that there is no possible objective way of 1) defining how 'reliable' any information is, or 2) how much of it is 'enough'. One can only prove that an hypothesis is wrong by offering contrary evidence it cannot explain. Reasonable grounds for suspecting that the evidence it relies on is not what it seems to be is not contrary evidence. Saying 'the evidence is not good enough' is not good enough in the search for knowledge, because it does not use the evidence that exists. This is a very common excuse for rejecting or ignoring evidence that is inconvenient. Questionable evidence is much better than no evidence at all. One should imaginatively explore possibilities consistent with the evidence as best one can, make choices if they can be justified, and be gracious if someone else comes up with a better interpretation. The purpose of scholarship is to approach truth as objectively and comprehensively as one can, and every little step helps, even if some steps later turn out to be wrong. It is not good scholarship to say 'we don't know' unless and until we can amass a fireproof case that will convince all of the 'experts'.

Now let us look at Marco's Figure 2. Marco asks whether the fiddle on the left is a rare kind of fiddle or a simplified reproduction of one similar to the S. Caterina de' Vigri instrument. My answer to the first of these is 'no', and to the second is 'possibly, but I see no evidence of simplification'. The instrument type, from a player's point of view (which is the only one that matters with respect to instrument names) is a three string fiddle with a flat-topped bridge. These are quite common in the iconography. What is unusual about it is the body's shape (in a fiddle) and the arrangement around the bridge. The body shape, with points on both sides of the neck, was quite common for citoles. The symbolism of the points, as suggested by Winternitz, was that of vestigial arms of a kithara, the instrument fabled to be able to control the emotions of its listeners, the dream of all musicians. We know that many citole players also played fiddles. The body shapes of citoles and fiddles varied considerably, so the appearance of a fiddle shape that is much more characteristic of a citole offers no surprises.

The region around the bridge is indeed unusual. Marco's suggestion that this fiddle could be like the surviving S. Caterina de' Vigri instrument is based on the line between the lower corners that separates regions of light colour on the left and darker colour on the right. The surviving instrument is of a dual-purpose type that we find in some 15th and early 16th century pictures. In this type, a step (which could be this line) occurred between two soundboards. The upper one, apparently of hardwood, was flat and continuous with the fingerboard, and used a low flat bridge near the step for drone playing (apparently how Caterina used it). The lower soundboard apparently of softwood, was curved and used a high curved bridge for playing melodies, one note at a time. Only one bridge could be used at a time. In the few instruments of this type that I've seen pictures of, the step appeared straight.

For the instrument in the picture to possibly be of the type of the surviving instrument, the strings would have to not stop at the bridge, but go on to an attachment at the tail. Strong lines representing strings stop at the bridge, and it appears in the reproduction in the last Q that perhaps faint lines go on from there. If examination of the original unambiguously shows string lines there, then we must ask why the string lines are so different in different places. Was there later 'restoration' work on this picture? Could the unusual whiteness of this part of the instrument come from later overpainting?

An hypothesis which is consistent with the strings not going past the bridge (and with the line between the lower corners not being straight) is that this is an example of an instrument with semi-integral bridge and tailpiece, and in this case, the tailpiece could be of some light-coloured flexible material attached to the strings at the bridge and to the body all around its lower edge. Then the line between the two lower corners would just be the edge of the flexible tailpiece, and vestiges of string lines could be stress lines due to the string tension in the flexible material.

A choice between these two hypotheses would be helped by having evidence of the date of the picture. A 14th century or early 15th century date would favour the second, and a later 15th century date would favour the first. The 5 strings of the lute (representing 5 courses) would

favour a later 15th century date, but if the string lines were overpainted, we should look for evidence of the original string lines.

Marco and I agree that the pictures of instruments we see are not necessarily close representations of particular real instruments, and this was rarely the artist's objective. We apparently disagree on the value to scholarship these pictures have. Marco focuses on symbolic functions creating the pictures had for the artist. I focus on the fact that the artist created the picture for others to see, and he wanted them at least to recognise his representation as that of a particular type of musical instrument, and he wanted them to admire what he had done. To get that admiration, a high degree of realism was usually desirable. Piccaso got his admiration from his characteristic deviations from realism. Is there any evidence from medieval times that such intentional deviation from realism was admired?

Artistic realism is often different from photographic realism. A photograph of the fiddle in Marco's Figure 2 would either not show the bridge at all, or would not show the bridge's shape. To the artist, the bridge's shape was a piece of realism that he did not want to miss, so he represented it in the orientation that maximised the shape information shown. This demonstrates a commitment to realism on the artist's part, not to distortions with realism being of secondary importance. That commitment to realism is with respect to what the artist and the people he or she expected to look at the picture considered were important details in the picture. What they considered was important should be of primary concern to modern scholars trying to understand their musical culture, and so should be strongly reflected in any classification system of their instruments that we try to devise.

At this point, I must admit to confusion about what Marco is trying to say. On the one hand, he states that each picture is a source of knowledge. On the other hand he claims that it is impossible to gain feasible knowledge from pictures in the field of musical instrument technology by induction (the way musical instruments are recognised). There are two independent issues here. One is the definition of 'feasible knowledge', and the other is definitions of knowledge derived from pictures and more specifically, knowledge of instrument technology derived from pictures.

If 'feasible' is supposed to mean 'secure', I've argued against this above. If he is saying that both induction and deduction are necessary, then I am still confused but will not argue the point. I define technological knowledge as including the apparent design, which is the basis of identification, and so I have difficulties imagining what knowledge that can be derived from the pictures would not be technological.

Now over to Marco. If he believes that my interpretations here are somehow invalid, I would like to see his arguments.

FoMRHI Comm. 1572 Ephraim Segerman

A miscellany on pre-18th century hurdy gurdies

There was an anonymous 13th-century treatise entitled *Quomodo organistrum construatur* (Printed by Gerson, 1784, and discussed in New Grove DoMI). It specifies 8 tangents that played a diatonic octave in Pythagorean intonation, starting from *C* and including both *B flat* and *B natural*. This adds up to 8 tangents if the open string was *C*. On both sides of this melody string, both positional and in musical pitch, were drone or bourdon strings an octave apart. The centre melody string was tuned a 4th or 5th lower that the higher drone. Thus the drones were at either at *F* or *G*.

Plates 21b and 27a in Wintemitz's book *Musical Instruments and their Symbolism* (1967) show such 3-string instruments from as late as the early 16th century.

The famous painting titled 'Garden of Earthly Delights' by Bosch (d. 1516) shows a hurdy gurdy with 5 pegs and 10 keys. Only 2 bourdons can be seen, and one is bent by a piece of gut pulling sideways, possibly implying it was controlling a trompette. Then one peg could have controlled this piece of gut and the remaining 2 pegs would be for melody strings.

Praetorius (1619), in Chapter 23, declared that he had no intention of discussing the hurdy gurdy, presumably because of disdain. In Plate XXII he showed one with 5 pegs, 3 drones and one melody string. It looks like one of the melody strings is missing. Since there is no peg for controlling a trompette, it is unlikely that there was one. He also depicted cross-variants with normal bowed instruments, one with a bowing wheel but fingered ordinarily, and the other with keys in a tangent box but bowed ordinarily.

Mersenne (1636, Book 4 Prop X) extensively described a hurdy gurdy with 10 keys and 4 strings. The tangents worked on a central unison pair of melody strings. The two other strings were bourdons which were either in unison or at the octave with one another. One can use 3, 4 or more melody strings, but each of them needed a bridge notch and tangents on each key. This was a small instrument, and a larger one can have as many keys as one wishes (the number 49, which could be 4 chromatic octaves, is mentioned), but 12 or 19 are sufficient, covering a range of a 12th or 19th respectively. This implies diatonic tuning with no more than one chromatic note, the latter figure covering a range of 2 octaves and a fifth. Similarly, more bourdons can be added at the unison or at the octave, as in double or triple harpsichords.

A suggestion that 6 bourdons can be added, tuned to make the chord of the first 6 modes of the harmonic series, could well have just been a bright idea without realisation since a considerable redesign would be needed to accommodate some very short bourdon strings. Mersenne was much more interested in what musicians and instrument makers could possibly do that seemed worth doing than in reporting what they actually did. So what he wrote could often be fanciful, but what he didn't write would be very unlikely to have been common practice in his experience. A second hurdy gurdy illustration shows 6 strings of which 4 are melody strings and 2 are bourdons. Mersenne's discussion was comprehensive enough for us to expect mention of a trompette if there was one.

The painting of a hurdy gurdy player by Georges de La Tour (1593-1652) shows a hurdy gurdy with apparently 9 pegs, 3 melody strings and 4 visible bourdons. One of the bourdons appears to have a trompette bridge, in which case one peg may be for a gut controlling it.

In the Talbot ms.(c. 1694, transcribed in Donington, G.S.J. 1948, reprinted Chelys 1975-6) describes a hurdy gurdy with 4 gut strings. The two central ones were a unison pair of melody strings worked by 20 keys, while the two outer ones were 'drones tuned to fifths' (probably, as today, used as alternatives). The back ends of the keys, visible while playing, were visually coded with bits of wood to distinguish between diatonic and chromatic notes. This implies that the key shafts were in a line. There apparently was no trompette.

Neither Mersenne nor Talbot mentioned the tuning relationship between the melody strings and the bourdons. That is probably because it was somewhat arbitrary, depended on the key arrangement. The bourdon tunings tied in to whatever note on the melody string was the key note for the mode. Then the low bourdons were probably tuned an octave below that note.

I will now make the tentative conclusions that, before its flowering in 18th century France,
1) The key arrangements were diatonic with a few additional chromatic notes,
2) hurdy gurdies had one melody string in medieval times, and 2 or more melody strings in unison later,
3) trompette bourdon strings seem to have started with the Renaissance, but were a rare specialty,
4) controlling pegs for the trompette were never on the tailpieces,
5) bourdons pitches were generally an octave below a key note on the melody string, and often included that key note as well.

FoMRHI Comm. 1573

Julian Goodacre

SOME TANGENTIAL OBSERVATIONS ABOUT HURDY GURDIES.

I was interested in Paul Baker's untitled Comm 1559. I can shed no light on drone strings or tunings, but have grown inquisitive about the keywork on early gurdies.

Nearly all recently made gurdies that I have seen are fitted with chromatic keywork. Indeed Paul mentions that his EMS gurdy is chromatic, but most of his repetoire uses only diatonic notes. There currently seems to be an unquestioning assumption that a chromatic keyboard is more versatile.

I recently had a wild weekend fling with a borrowed square gurdy/ symphony made by George Kelischek and discovered the deep joy of the diatonic keyboard. (My wife plays chromatic gurdies, but I never touch either of them).

On a chromatic keyboard all the keys are, of necessity, packed very close to one another, especially at the higher end. On a diatonic keyboard there is far more space between each key which gives each tangent far more room for adjustment. On the Kelischek keyboard you could adjust each note by a whole semitone.

Much of my life I spend designing, making and modifying bagpipe chanters. Compared to a chanter a diatonic gurdy seems enviably versatile! All you need to do is decide what notes you require before starting to play, and tune the tangents accordingly. All notes are available- that is chromatic enough for me! No chance of fancy modulation during the music, but who needs to modulate fancily?

A feature of the Kelischek instrument that may not have been intentional, but produced a striking effect, was caused by the octave tangent being slightly shorter than those of the lower notes. You can play the octave key with your forefinger and, keeping it depressed, also depress a lower note with one of your other fingers. As these tangents are longer they lift the string off the octave tangent. Thus you can play a sequence of notes returning between each one to the top octave note, rather than the (open string) bottom note. A great effect and one that could be developed.

Paul writes that the EMS gurdy is a simplified version of surviving originals in the Hague, Paris and the V&A. I have a sepia post card of this type of gurdy that I bought in 1967 in the Gemeentemuseum, The Hague. It has five strings and a chromatic keyboard and appears much longer than the EMS kit. In the photograph the keyboard lid is raised, which allows me to confirm an interesting feature. The first key of the keyboard is fitted about 4" (I guess) from the nut/ tuning peg end of the gurdy. Thus the open string note must be several notes lower than the lowest key.

The gurdy that Praetorius shows in Syntagma Musicum II (1614)in plate 22 has a long body and a diatonic keyboard, but also features a similar gap between the lowest key and the open string note.

Mersenne's Harmonie Universelle (1636) shows two gurdies- both long and with this gap. (Unfortunately I do not have a good copy of these or his text).

Well over a century earlier Heironymous Bosch's wonderfully informative painting The Garden of Earthly Delights (1505) clearly shows this gap on a long gurdy with a diatonic keyboard.

In the 18th Century Diderot et D'Alambert (1767) clearly show a keyboard that goes right up to the nut, though the gurdy body appears long.

I suspect that many of the recently made 'early' gurdies are made to 18th century French gurdy dimensions, though they are made in earlier shapes. These gurdies have much shorter bodies with chromatic keyboards. Certainly my wifes 'Bosch' gurdy is made like this. The lowest tangent on this type is less than 1" away from the nut.

The short body means a very short bass drone- Pauls says his EMS has 38cm drones (thats 15" where I come from). Sharon's Bosch has 16" bass drones. This seem very short for a string to produce a constant unwavering note while the player is busy biffing the handle to work the trompette. I have heard many a modern gurdy player bemoaning the instablity of their bass drone.

So perhaps thick gut strings might work if the gurdy was 4" or 5" longer? Not very helpful to suggest this Paul now he has finished making the kit!

Paul wanted answers and all I have done is raise more questions! What happened to the 4"? What type of bass stings did they use in the 18th century and how did players achieve a steady bass with such a perilously short string? And why are we all ignoring the deep joy of the diatonic keyboard? Is anyone out there researching and experimenting? Some of the answers to these questions may well be grindingly obvious.

Comm. 1574 **Elia Foreshadows Comm. 1557** 12.3.98

John Catch

In a letter to the Shakespeare expert John Payne Collier in 1821 Charles Lamb wrote genially; 'Hang you, and all meddling researches hereafter, that by raking into learned dust may find me out wrong in my conjecture!'

Our genial editor Eph, writing in the GSJ (XLVIII, 1995, p. 39) is severe upon 'wild speculation'. I recognise regretfully that his stricture refers to a publication of mine (Chelys 17, 1988, 33-38). It is good to have one's errors corrected, and there is an erroneous opinion in my paper. Curiously, Eph has missed it.

His own conclusion (p. 40) was a revelation to me. That sorrowful outcast of the family the 'true tenor' Gdae' was (we learn) flourishing and in widespread use in Talbot's England, but not under that name or function. It was (to quote Eph.) the 'usual bass violin' - 'truly the most common [bass violin] used' at the time. Talbot does not to be sure mention that tuning (nor I believe does Playford), 'recording only' the familiar BB flat tuning, but that is easily accounted for - he 'seems not to have been told' about it. Nor does he head, or annotate, his table of measurements as 'Usual Bass Violin' - just 'Bass violin'. But again, no problem; 'usual' is picked up from a different context and assumed to refer to the tabulation. Peter Holman seems not to have been told about this most common bass violin either. He will no doubt correct his oversight in a later edition of 'Four-and-Twenty-Fiddlers'.

What has all this to do with catlins and Comm. 1557? Eph's surprising conclusion relies, shakily, on his faith that 'catlin' must necessarily mean 'a rope string'. For those like me who do not share that faith, knowing of no evidence worth the name to support it, his whole argument collapses, and we are back at my 1988 view; that the instrument Talbot measured was a bass violin, but certainly not the usual one.

FoMRHI Comm. 1575

Ephraim Segerman

Ruminations on original methods of constructing English viols

The only early documentary information on the process of viol making I know of is in L'Encyclopédie edited by Denis Diderot (Paris, 1763). Plate XII, "Outils propres a la facture des instrumens a archet" has "moules do violon" (violin moulds) in Fig. 11, 12, and 13, and "fausses tables" (false tables) of viol shape in Fig. 14 and 15. It appears that one temporarily attached the belly and back false tables to both ends of the neck block and tail block, and used this as a mould to build the ribs around. A reconstruction of the method by Miller is in Comm. 214, Q.16, July 1979, pp. 22-5.

I suspect that the belly false table was a late French refinement, and that the earlier English makers built their viols only on a back false table, which embodied the design outline. Evidence for this is that surviving bellies are usually less symmetrical and sometimes larger than their associated backs. I have heard, as a piece of the lore of violin specialists, that early English violins were 'built on the back', which could reflect similar practises. Since there was so much variation in the design outlines of viols, the back false table was probably easily variable, with different bits clamped or temporarily being stuck on symmetrically in various places.

I studied the designs of two Rose viols and two Jaye viols in Comm.1053, Q.64, July 1991, pp. 38-41, and found that the distances of the corners from the central line were quite accurately simple measurements on a ruler marked out in quarter-inches. Such measurements could have been used in assembling its bits to get the back false table symmetrical.

In the first paper on bent-stave belly construction on English viols (Comm.289, Q.20, July 1980, p.25), I mentioned that the Nuremberg Jaye has burn marks on the inside of the central and end staves only, not on the intermediate staves. I then considered that this was general evidence for bending staves, but had not interpreted this evidence specifically.

I now consider that this evidence suggests that, with this instrument at least, the central and end staves were cut to final thicknesses and bent both ways to their final shapes, with a large iron for the long curve, and then with a small iron for the curvature along the width. Such bending cannot be accurate to a small fraction of the belly thickness, so the intermediate staves were cut to something like double the final thickness and bent only lengthwise with the large iron. Then the stave edges were planed to meet and the belly assembled (with alternating thick and thin staves, making the fit of the edges not so critical). Finally, the intermediate staves were carved to final thickness, continuing the surface curves of the other staves.

Bending wood two ways was often used to get the ribbed effect on the backs of lutes and vault-backed guitars. With the concave surface on the outside, the large gluing area makes getting the edges to meet less critical, but one needs to avoid unsightly burn marks. Intense heat on the surface degrades the hemicellulose in the wood, contracting it well beyond just what drying does, and this makes that surface concave. An experienced small-iron handler could probably put the second curve into a stave much faster than carving that shape into it.

In the 1690's English viol makers like Barak Norman gave up the 4-joint all-bent-stave practise of belly construction. That construction saved an awful lot of valuable resonant soundboard wood (probably imported) on those 32 inch (string stop) Consort Bass viols that previous generations of viol makers made. Then it was worth maintaining one's bending-iron skills. But by 1690, violins were the rage. Treble viols were sought after only as bodies to convert to tenor violins (violas). Tenor viols with the newfangled metal-wound 6th string could just pass as bass viols for accompanying the voice, but new ones a bit bigger were preferred and were the only new viols made. Advanced bending skills became unnecessary, and the bellies of these viols had 2 joints, with a bent central stave, and the wood on both sides carved, like on a violin.

Violins, citterns and viols in the Edinburgh 'A.S.' manuscript.

The 'A. S. manuscript' is a mid-17th century South-German treatise on musical instruments entitled 'Instrumentalischer Bettlermantle' in the Special Collections of Edinburgh University Library. In this Comm. I will describe and interpret the information it gives on families of violins (Geigen, but this term also was used generically to include both violins and viols), citterns (Zittern) and viols (Violen). The information on these instruments in the ms. appears in this order. What I am working from is photocopies of the relevant original pages plus draft English translations by Malcolm Burnett (Edinburgh), Dietrich Hakelberg (Freiburg), and Patsy Campbell (Edinburgh), kindly provided by Patsy Campbell, coordinator of research on the manuscript.

Tuning and fingering information on these instruments is usually provided by vertical fingerboard charts with a symbolic pegbox on top. Each vertical line represent a string or a course of strings. If the fingerboard is fretted, there is a horizontal line representing each fret, but if the fingerboard is not fretted (as in the violins), there are no horizontal lines. For each semitone that is fingered, the name of the note (keyboard tablature) is given.

Before the first of these charts, it is stated that the instruments should be tuned from the keyboards of organs, regals or clavichords. This implies that the instruments discussed were tuned in the same pitch standard as each other, and that this was the same standard as followed by these keyboard instruments. When the tuning to keyboard instruments is mentioned with respect to viols, 'organs' was specified as 'positive organs or other organs having the same keyboard', implying that there were other organs with different keyboards that were inappropriate, probably because they were at a different pitch standard.

Praetorius wrote that church vocal pitch (Chorthon) in his region was the same pitch as the general secular pitch standard (Cammerthon). He preferred the distinction made in Prague and Catholic chapels elsewhere, where Cammerthon was the same as his, which is most suitable for the instrumentalists (whether they play wind or stringed instruments), and Chorthon was a tone lower, which eased strain on singers. He also applied this name to any instrument that was made to play at this tone-lower pitch standard.

Since A. S. implied that organs followed more than one pitch standard, it is likely that he wrote in a region dominated by the Catholic chapels Praetorius mentioned, and so the pitch standard used by his stringed instruments would have been Cammerthon, which was a' = 430 ± 5 Hz. (see Comm. 342 and Segerman, *G.S.J.* L (1997), pp. 81-106). A. S. did discuss Cammerthon and Chorthon in his manuscript (pp. 19f, 139 and 146), but I have not been able to see whether what he wrote confirms this deduction.

Violins

Tunings

The three members of the violin family were the Bass tuned *C, G, d, a*, the Alt-Tenor (or Bratsche) tuned *c, g, d', a'*, and the Discant tuned *g, d', a', e"* (all the same as modern tuning). On each of these instruments, strings other than the first (highest in pitch) has notes given up to the 6th semitone above the open string, which just provides all of the possible chromatic notes in first position playing. The first string on the Bass and Alt-Tenor has notes given up to the 11th semitone above the open string (just short of an octave), and the Discant first string has notes given up to 16 semitones above the open string, just short of an octave and a fourth. So the highest fingered notes on the three instruments were in three octaves: *g#'*, *g#"* and *g#"'*.

Context

The information here should be related to that given by D. Hitzler in *Newe Musica* (1628),

Tubingen, (see Comm. 410) and M. Praetorius in *Syntagma Musicum II* (1619), Wolfenbuttel. All three sources agree on the tuning of the Discant and Alt violin. Praetorius and A. S. considered the Tenor to be equivalent to the Alt. Hitzler applied the name 'Tenor' to the Italian bass violin, as mentioned first by Banchieri (1609), tuned a 5th lower than the Alt. Banchieri had the strings tuned an octave below the canto violin in corista pitch standard, which were the same absolute pitches as Hitzler's. Praetorius listed the same instrument with the same string pitches as one of the two types of bass violin. His other type of bass violin was tuned the same as A. S.'s Bass. Hitzler's 4-string Bass Geigy was tuned: *C, F, c, g*, which apparently was a compromise between the *C, G, d, a* tuning of the other German sources and the French bass violin tuning $BB^{\flat}$, *F, c, g*.

In Comm. 1545, I derived the maximum and minimum string stops of bowed instruments before metal-wound bass strings became available. These lengths were calculated based on the tuning, pitch standard, and acceptability of rate of string breakage for highest strings and focus of sound from lowest strings derived from Praetorius's information. In the Table that follows, these are presented for the violins mentioned above. All of the entries are in Cammerthon pitch except for the Banchieri and French basses, which were at a standard a tone lower.

Violin Table of Early Baroque German (and related) Violins
(P = Praetorius, H = Hitzler, S = A. S.)

Instrument	Tuning	String stop (cm) maximum	minimum	Suggested stop (cm)
Discant (P, H, S)	*g, d', a', e''*	32.5	20.5	29.8
Tenor (P), Alt (H) Alt or Tenor (S)	*c, g, d', a'*	48.7	30.7	35.5
Tenor (H), Bass (P) Bass (Banchieri)	*F, c, g, d'* *G, d, a, e'*	72.9	45.9	62.2 (Talbot ms.)
Bass (P, S)	*C, G, d, a*	97.3	61.3	80
Bass (H)	*C, F, c, g*	109	61.3	80
Bass (French)	$BB^{\flat}$, *F, c, g*	123	77.3	80

The suggested string stop is that measured from Praetorius's scaled drawings whenever relevant, and is the Talbot ms. figure for the standard Italian bass violin. These figures are given to one decimal place (mm), though it is expected here that such accuracy is unjustified. For the other violins in the Table, the suggested string stop is that of the French bass violin (to the nearest multiple of 5 cm, a more realistic expected accuracy), assuming that this was the standard size usually available. Smaller sizes for the German Basses were certainly possible.

Citterns

Tunings

The first page of fingerboard charts includes the three violin sizes and a chart for cittern. This could imply that citterns and violins had a close relationship in terms of playing together. The cittern's tuning given was *a, g, d', e'*, with the notes shown on the first and second course up to the 13th semitone above the open string, the third course up to the 6th semitone, and the fourth course up to the 9th semitone. This is the French cittern tuning, but since every semitone in the ranges is included, the fretting was fully chromatic.

The text describes the cittern as an instrument resembling the lute in form and other features. It had brass and hardened iron strings in 6 or 4 courses. The first course was commonly a single string, while the other courses were unison pairs. Strings of the second course were one size thicker than those of the first course, and those of the third course were one size thicker than those of the second course, as was the case with violins and viols. This statement about string thicknesses makes sense if the string thicknesses available were only those usually used on these instruments, and not the thicknesses in between in a uniform gradation of sizes. Strings of the fourth course were thinner than those of the third course, almost identical to those of the second course. There were 17 or so frets of iron or brass.

String stopping was similar to that of the lute. Tuning to the clavichord, one tuned the first course to *e'*, the second course to *d'*, the third course to *g*, and the fourth course to *a* (a tone above the third course), or to *b* (a major third above the third course) in the interest of enhanced and perfect consonance. It is then stated that what had been written above pertained to the cittern in the alto register. Then presented is a horizontal version of the fingerboard diagram that was drawn with the violins, but this time it shows all the notes on all the courses up to the 14th fret.

All that then follows concerns citterns with the fourth course tuned a major third above the third course, which were obviously the ones primarily used. This is the Italian 4-course cittern tuning that Praetorius wrote had vile associations, fit only for cobblers and tailors. This prejudice may well explain the mode of presentation here, with the more respectable French tuning presented first, followed by a general discussion that included both tunings, followed by an affirmation of the more respectable tuning, and then finally getting down to the use of citterns in the less respectable tuning that happens to provide enhanced and perfect consonance.

Next is a horizontal fingerboard diagram for a Discant cittern tuned: *e''*, *c''*, *g''*, *a''*, with every note entered for each course up to the 17th fret. Below this diagram are two related staves for playing the Discant cittern, the upper one indicating which chords to play (notated in Neapolitan tablature, which is like French tablature but with numbers instead of letters) for the notes shown on the lower stave (notated in mensural notation, here on a G2 clef, plus keyboard tablature). All of the cittern chords written in the ms. involve either the top three or all four courses, and are either root or first inversion major chords of the notes below. The notes are chromatic from the lowest line of the clef to the space above the highest line. The chords are incomplete for this cittern, with only the first 5 given.

Following is a similar fingerboard diagram for an Alt cittern tuned: *b*, *g*, *d'*, *e'*, with every note entered for each course up to the 17th fret. This cittern also has a chromatic set of notes from the bottom line of the stave to the space above it. In this case, it is the C3 stave. The chord set here is complete both in the Neapolitan tablature (often with left-hand fingering dots) and, on another stave, German tablature.

Then there is a fingerboard diagram for a Tenor cittern tuned: *f#*, *d*, *a*, *b*, with every note entered for each course up to the 16th fret. There is also a similar chromatic set of notes from the bottom line of the C4 clef to the space above it. Only the first half of these notes is provided with chords.

Finally, there is a stave for the fingerboard diagram of a Bass cittern with no notes entered. Then there is a stave for chords, with none entered. There is a set of chromatic notes for the Bass cittern entered, from *F* to *a* on the F4 clef.

Names

The names Discant, Alt, Tenor and Bass, when applied to citterns, are unique in this manuscript. The cittern did not participate in the early 16th century expansions of popular instruments into families of instruments of different sizes, distinguished from one-another by vocal-part names. The names for instruments of different sizes were the names of vocal parts

because such parts, often printed, were what the players usually read from. By the middle of the 17th century, citterns were mainly used for continuo, and the use of vocal-part names in the A. S. manuscript was apparently to indicate in which vocal register each size provided continuo chords.

Continuo parts were generally associated with the bass clef, so we might have expected the instructions to show reading directly from the bass clef for all sizes. The fact that this was not the case here indicates that cittern players in that time and place were thoroughly trained in clef transposition, probably as vocalists.

Praetorius on citterns

Praetorius mentioned 11 different cittern tunings. The four four-course tunings were the French: *a, g, d', e'*, the Italian: *b, g, d', e'*, and for the small English cittern: *f", a", d", g"* and *f", b♭', d", g"*. The three five-course tunings were *d, b, g, d', e'*. *G, f♯, d, a, b* and *F, e, c, g, a*. The four six-course tunings were the old Italian (hexachord): *a, c', b, g, d', e'* (with the *c'* sometimes being a *cc'* octave pair), *G, d, b, g, d', e'*, the Kargel: *b, G, d, g, d', e'* , and the large 6-course: *f♯, D, G, d, a, b*. The 12-course tuning was: *eb, Bb, f, c, g, d, a, e, b, g, d', e'* .

Praetorius depicted five citterns in his scaled drawings. Plate V shows the large 6-course cittern. The drawing was executed with uncharacteristic carelessness, probably associated with the mistake in the scaling. This mistake is signalled in the text, where the total length was given. That is just the string stop in the drawing. Scaling down by the ratio of these in the drawing, I calculate a string stop of about 79.3 cm. Plate VII shows the 12-course cittern and the usual 6-course instrument. The string stop of the first course on the 12-course cittern was 69.5 cm, about half-again as long as the 45.6 cm string stop of the 6-course instrument, in spite of being tuned to the same pitch, *e'*. Plate XVI shows the small English cittern and a 6-course 'Chor Zitter' of obvious Italian 'carved' design. The 'Chor' means that it played at the Chorthon standard (called 'corista' in Italy), a tone lower than Cammerthon, so its string stop, 48.6 cm, is irrelevant here. The small English cittern had a string stop of 34.7 cm.

Iron is stronger than brass, so it can be tuned to a higher pitch on the same string stop. But any iron 1st-course string would break at the above pitches and string stops of the small English cittern, the 12-course cittern and the large 6-course cittern. These strings must have been made of a stronger material. That material was most likely the special phosphorus steel that Jobst Meuler of Nuremberg made strings from. He was the only maker who could make such strong strings. They were available from before 1580 to about 1620, so these instruments (at least in these tunings) were developed during this period.

Except for Praetorius's small English cittern, the relative tunings of the first three courses was the same for all citterns. This has made modern scholars suspect error or bias in the English tuning. Error is unlikely because it is reported twice. There is very much repertoire for 4-course English citterns in Italian tuning with an *e* (octave undefined) first course, and all of it was written in that period of from 1580 to 1620. There is no evidence of the existence of citterns of more than one size or tuning that were popular in England at that time. It is thus highly probable that the English cittern he depicted and discussed was the usual English cittern in that period, and that Praetorius's disrespect for that tuning led him to replace its usual tuning by two more-respectable scordatura tunings that were sometimes used. That the tuning was at the octave above the usual Italian tuning is supported by the fact that the string stop at *e"* (34.7 cm) is half-again as long as it would be with an iron first course (the usual 6-course 45.6 cm divided by 2), just like with the 12-course cittern.

Praetorius and A. S.'s citterns

When Jobst Meuler's super-strong steel strings became unavailable, the small English cittern, which had proved itself as an attractive instrument, could still be used with an iron first course

tuned to *a'*. In England, the 4 courses were tuned relatively like a guitar (like one of Praetorius's scordatura tunings), and it was called 'gittern'. In Germany, it usually retained its cittern relative tuning and many Germans learned to play it. Between 1625 and 1631, Heinrich Schütz several times mentioned the Dresden musicians Johann Peltz and Gabriel Gunther, who played 'Englisch Cytherlein' This instrument became A. S.'s Discant cittern. The estimate of its string stop is then 34.7 cm. The 'ordinary' 4-course cittern (as Praetorius described it) became A. S.'s Alt cittern. All of the citterns Praetorius mentioned with an iron first course tuned to *e'* should have been about the same size, so the estimate of its string stop is 45.6 cm. The string stop of A.S.'s Tenor cittern, with an iron first course tuned to b (like some of Praetorius's citterns), would be 4/3 times that of the Alt, or about 60.8 cm. There are some surviving citterns of this size, but none any larger with a single nut (i.e. excluding ceteroni).

So what could A. S.'s Bass cittern have been like? He gave no information on it, but he was apparently in no doubt of its existence. Possibilities with historical precedent are: a ceterone or a cittern tuned a tone lower than the Tenor, like the one of Praetorius's 5-course tunings that has the lowest 1st course (*a*) of all of his citterns. The latter is not unlikely since the bass size was tuned a tone lower than the mean size amongst guitars.

Viols

Tunings

First mentioned is a Bass viol tuned: *GG, C, F, A, d, g*, where the first string, tuned to the clavichord *g*, is tuned as high as it will bear. This was the bass tuning in the author's favoured tuning system, but there was an alternative tuning system in which all of the strings of the bass were tuned one tone higher, i.e. *AA, D, G, B, e, a*. Vertical fingerboard diagrams illustrate these two bass viol tunings. On both of these diagrams, notes are shown up to the 3rd fret on the 4th string, up to the 7th fret on the first string, and up to the 4th fret on the other strings.

The next fingerboard chart is for the Tenor or Alt viol tuned: *D, G, c, e, a, d'*, after which is one for a solo Alt viol tuned: *G, c, f, a, d', g'*. Highest notes shown are up to the same frets as in the bass viol tunings except for the first string, which is up to the 9th semitone above the open string in the Tenor or Alt, and the 10th semitone in the solo Alt. The text indicates that one may have a 7th string with the latter tuning to play any tenor or alto parts occurring in the basso continuo, resulting in the tuning: *G, c, f, a, d', g', c"*. This could make sense if basso continuo included a polyphonic (or pseudo-polyphonic) accompaniment to a melody, and that the solo alto skipped around amongst the inner parts, probably in a divided style like the viola bastarda did up to the 1630's and the violoncino (division viol in England) did afterwards, the difference being that the solo alto did not attempt to include the bass. The low *G* and high *c"* would be needed for the arpeggiated chord component of the divided style.

Finally, there are two fingerboard charts for 5-string Discant viol, with tunings: *f, b♭, d', g', c"* and *d, g, b, e', a'*. The number of semitones above the open string that has notes shown for each string number is the same as for first five strings of the Tenor or Alt.

The text next discusses assembling a viol-based string band. When there are duplicates of the same type (or size) of viol, they should be tuned identically, and not to different alternatives, as is possible for the Bass, Alto and Discant. Instructions for tuning a Discant violin to play with the viols are given. There is then a kind of table showing the two Bass, one Tenor or Alto, one alternative Alto and two Discant tunings, each one repeated under it to reiterate that if there is one of that tuning, the other must have the same tuning. The table is in two rows, with his favoured tuning system above, having first strings at *g* for the Bass, *d'* for the Tenor-Alt and *c"* for the Discant. Below are the tunings of the alternative system, with the first strings at *a* for the Bass, *g'* for the Alt and *a'* for the Discant. That alternative system probably included the Tenor (with *d'* first string) when the solo Alt was not covering both parts. All of these are properly tuned to clavichords, regals, positive organs or other organs with the same keyboard.

Sizes

It is appropriate to use the method of Comm. 1545 to explore the possible string stops of these viols, and compare them with the viol tunings given by Hitzler and Praetorius.

Table of Early Baroque German Viols
(P = Praetorius, H = Hitzler, S = A. S.)

Instrument	Tuning	String stop (cm) maximum	minimum	Suggested stop (cm)
Discant (S)	*f, b♭, d', g', c"*	40.9	23.0	40
Discant (S altern.)	*d, g, b, e', a'*	48.7	27.3	40
Cant (P)	*A, d, g, b, e', a'*	48.7	36.5	40.2
Alt (S altern.)	*G, c, f, a, d', g', (c")*	54.6 (40.9)	40.9	40.9
Tenor-Alt (P,S) Tenor (S altern.) Bass (H)	*D, G, c, e, a, d'*	72.9	54.6	58.1
Bass (H)	*C, F, B♭, d, g, c'*	81.9	61.3	80
Bass (P, S altern.)	*AA, D, G, B, e, a*	97.3	72.9	75.0
Bass (H)	*C, E, A, d, g*	109.3	61.3	80
Bass (P, S)	*GG, C, F, A, d, g*	109.3	81.9	100

The viol tunings given by Hitzler and A.S. do not go below Praetorius's Klein Bass, so we can conclude that his Gross Bass (in any of Praetorius's tunings) and Gar gross Bass were not normally used in their areas, and so they are not included in the above Table for comparisons. Hitzler's viols and violins were fully integrated in his string band, and he used only violins to play discant, alt and tenor parts. A. S. only observed the Discant violin as an alternative to the Discant viol in his viol-based string band, and probably knew a separate all-violin string band.

The suggested string stop is that measured from Praetorius's scaled drawings whenever relevant, and whatever is implied when there is no choice (as with A. S.'s Alt). These figures are given to one decimal place (mm), though it is expected here that such accuracy is unjustified. For the other viols in the Table, the suggested string stop is to the nearest multiple of 5 cm (a more realistic expected accuracy) according to the assumption made in Comm. 1545 that in this period, instruments for viol ensembles were normally made only with string stops of about 40, 60, 80, 100 and 125 cm.

A. S.'s preferred Bass viol had its first string tuned to *g*, at which it was as high as it could go. So his alternative-tuning Bass viol with a first string tuned to *a* must have been a smaller instrument. We see from the Table that A.S.'s preferred set had a 100 cm (or a bit longer) Bass, 60 cm Tenor-Alt and 40 cm Discant, leaving out the 80 cm size. The Bass size was that

of Praetorius's Gross Bass, but was tuned as high as some of Praetorius's Klein Bass tunings. The preferred Discant viol also had the first string tuned as high as it could go.

A.S.'s alternative set had an 80 cm Bass, perhaps a 60 cm Tenor or Alt, perhaps a 40 cm Alt and a 40 cm Discant. Except for an additional Alt viol, this set had essentially the same tunings on the same viol sizes as Praetorius used.

We are now in the position to try to understand A. S.'s insistence that when two viols were used to play the same part, they should both be from the same type of set. Apparently, if they were from different types of sets, they would not balance properly. In Comm. 1545 it was noted that Praetorius's tunings were 3 or 4 semitones lower than they could be tuned to with the highest string as high as it could go, while Italian and English viols were usually tuned as high as they could go. Praetorius was particularly fond of the low resonances of his viols, and praised the practise of the English, when playing alone, of tuning down to his pitches, achieving the same kind of resonance. When tuning down, the English reduced string tensions by a factor of a third. This suggests that string tensions on Praetorius's viols could have been considerably lower than those normally used in England and Italy. If A. S.'s alternative set of viols, (tuned like those of Praetorius) similarly had much lower string tensions than A.S.'s preferred set (with the highest and lowest viols tuned like the English and Italian ones), then the lack of balance between equivalent members of the two sets would be explained. That is because if two strings are played at the same pitch, the higher-tension one would be louder and the thicker one would have fewer harmonics in its sound. I cannot think of a mechanism other than a tension difference that could lead to that imbalance.

A way that this tension situation could have occurred would be if only standard sets of the same string diameters were available for both the preferred and alternative tunings and sizes of each type of viol. The Tenor or Alt viol with a 60 cm string stop had only one size and tuning, and where its string tension fits with the other viols is not immediately clear. Its first string was not tuned as high as it can go, and in this way it fits into a Praetorius type of lower-tension set. But A.S. used it in his preferred set where the other two members had their first strings as high as they could go, like English and Italian viols, with higher string tension. Some sort of practical compromise would be expected, knowing that the difference would not be as apparent as it would be if it was the Discant or Bass.

Abstract

The tuning information on violins, citterns and viols in the Edinburgh mid-17th century South German 'A. S. manuscript' is summarised and compared with other early baroque German sources. The sizes of these instruments are estimated and reasonable explanations are given for unexpected aspects of what the manuscript says about these instruments.