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FELLOWSHIP of MAKERS and RESTORERS of HISTORICAL INSTRUMENTS

Bulletin no.5  October, 1976

FELHEL is now just over a year old. It was invented during and after the first day of last year’s Early Music Fair, and I arrived at the Fair on the second day armed with some membership forms, xeroxed that morning, and a receipt book. Richard Burnett was the first maker I approached, and he is member no.1 on our lists. The score this morning is 248, which suggests that people think that what we issue in our Communications is worth reading. We are now on the point of finding out whether this is true, because the time has come for you to renew your subscriptions. Please read the following paragraph carefully because it is a bit complicated, at least for members outside Europe, and if you don’t you may pay us too much money! Our estimates on postal costs were too pessimistic and we have made too much money; as a result we are reducing the overseas subscription.

SUBSCRIPTIONS: These are now due.

Rates: Britain and the rest of Europe: £2 as before (plus 75p. if remitting in foreign currency; the bank has increased the charge for conversion).

Outside Europe: The new rate will be £4 for new members, but for existing members it will be only £3, so that you will have paid £8 for the two years and thus will not have been over-charged for the past year. So for those renewing their subscriptions, send £3 (plus 75p. if remitting in foreign currency).

Method of payment: If the laws of your country permit, your own cheque is as good as anything else. Strictly speaking, currency notes are not allowed to be sent by post, and you have no redress if they go astray in the post. Bank cheques, which a lot of you use, are of course OK, and if they are expressed in sterling, they save you the 75p. conversion charge. If you have to use the Post Office money order, mandat, or whatever it’s called in your country, get started on it straight away; it can take two months or more for a mandat to arrive from France or Belgium (so far, the worst that I’ve met).

And remember, you won’t get the next issue until your subscription has been paid.

Exceptions: A few people in Europe joined before we reduced the rate from £4 to £2; they have been written to and warned not to pay again.

Foreign currencies: If you are using your own cheques in foreign currencies, do look at as recent a note of exchange rates as you can; we have no objection to you sending us more money than you need to (we do object to getting less). The pound is no longer worth two dollars, and it doesn’t look like getting back to that figure by January, so you can save a bit of money by looking at the current rates.

COMMUNICATIONS: One reaction to my urging members to write has been ‘How do I know what other people don’t know?’. There are two answers: a) there is always someone who doesn’t know something - we were all beginners once, and as we go on to a new instrument, we all become beginners again. Try to remember what you didn’t know when you started. b) and to my mind the more important and the more useful, nobody does any sort of craft job without improving his technique, devising the odd short cut, cooking up the odd labour-saving device. Pass them on to
your colleagues. Also pass on the ideas that may work and may not; 
Paul Hailpern's note on burnt bores herewith is a case in point. And 
if such a note gives you an idea, let's have it. Paul's has made me 
wonder whether part of the trouble with lathe-bored bores might be the 
speed of turning; has anyone tried a bow-lathe? Laurence Sicken has a 
good description of free-hand turning, with a bow-turned tool but not 
in a lathe, in his Folk Musical Instruments of Turkey (pp.413-417 and 
488-491), one reason that I wrote such a rave review of this book in 
Early Music. Is it possible that an advantage of free-hand boring is 
that one can feel if the tool is changing course and can move the work 
slightly to compensate, so maintaining a straight bore? I don't know 
whether a tool can be ground to cut in both directions of rotation, but 
if so, then the change of direction on each bow stroke would avoid, or 
at least compensate for any tendency for the drill to move sideways in 
its direction of rotation.

REPLIES TO QUERIES: If you can answer a question which you see in the 
Bulletin, it can sometimes be useful to send me a copy of your reply.
Ture Bergström asked last time about tools for turning the inside bores 
of great bass recorders and similar instruments. Paul Hailperin has 
suggested using bull-nosed single twist augers, which he has bought 
from Wm. Ridgway & Sons Ltd., Oscar Works, Sheffield 3, England. He 
also suggests for conical bores that one can make reamers by lathe-
turning a piece of hardwood to the desired profile, then cutting away 
nearly half of the diameter, screwing on a steel blade and filing the 
blade to follow the contour of the wood. Stephen Taggart has thought 
of using an old bayonet as a reamer, one of the old Lebel French ones 
which can be bought quite easily in those shops which sell antique 
weapons; these, he says, are cruciform in section (I seem to remember 
seeing triangular section ones also), 500 mm. long and tapering from 
14 mm down to 4.5 mm. Cost he thinks would be about £10-£12.

FOLLOW-UP TO PREVIOUS BULLETINS: Stephen Taggart sent me a sample of 
his synthetic ivory (a ferrule for the blow-pipe socket on a Northumb-
rian bagpipe bellows); at a distance of one foot it looks like ivory. 
It doesn't feel the same to the touch and I think that it is lighter in 
weight, which could affect its use as a ferrule on a sound-producing 
tube, but certainly for appearance it seems fine. I have had a long 
note from John Betts on the subject, which I have asked him to write 
up properly for us, but in case he hasn't done so in time, I pass on 
two warnings: a) as the resin polymerises it produces a lot of heat and 
can explode violently; b) be careful when machining it - always do it 
et because the dust can produce severe irritation to the nose which 
can persist for several years. Stephen Taggart says that he has had no 
problems with either of these, but bear the warnings in mind. There 
is another note on synthetic ivory herewith, and we would welcome more, 
since the ever-rising cost of genuine ivory is a problem for many of us.

I said in Bull.4 that Tom Beeston has some useful jigs. He asks me to 
say that he has not had time to sit down and draw these and describe 
them, and he's not sure when he will have the time. He asks me to apolo-
gate to those who wrote to him and to whom he has not yet replied, 
and to say that he is keeping a file of names and addresses and hopes 
to get down to it some time, but no promises.

John Betts says that he hasn't got very far with his 'anti-bug' agent 
experiments because nobody except me has sent him any odd bits of wood 
that he can try various agents on and then see if the bugs will eat 
them or not. Surely we all have this problem of bugs and rots and so 
on getting at our instruments; haven't most of you got a box or sack of 
scrap of instrument wood that he could try on? If you have, put a
handful in a box or padabag and post it to him. He will publish the results and you and your customers will benefit.

Regarding Maple, Trevor Robinson says that the confusion is worse in America: "For Americans, 'sycamore' is no relation to the maples but is a close relative of the European Plane tree. These two are, respectively, Platanus occidentalis and P. acerifolia. What in Britain is called 'sycamore', we call in America 'sycamore maple'. It is Acer pseudoplatanus. English harewood is obtained from A. pseudoplatanus by a staining treatment with iron salts that gives the wood a silver-gray color. It is my understanding that in Britain any species of Acer except pseudoplatanus may be called 'maple' but qualified by prefixing 'Norway', 'sugar', etc. In the United States there are two kinds of maple --- 'hard' and 'soft' --- the former including only Acer saccharum and A. nigrum, the latter all other species." He adds that the maples are easy compared to the boxwoods, the rosewoods, and worst of all 'grenadilla'! I learned years ago that the only way to sort out cornets was to learn the proper scientific names; I think perhaps we'll have to do the same with woods.

FUTURE PROJECTS: I have mentioned before the possibility of Special Communications, which would be monographs on any subject which are too long for a normal journal article or Communication, but too short for a book, or too specialised. One on polishes is in preparation, as I said in Bull.4. Another suggested one is on restoration, conservation and drawings of keyboard instruments from John Barnes and Grant O'Brien. In that connexion, would anyone with anything to say please comment on Grant's Communication on conservation (Comm.10, issued with Bull.3 last April) and on John's herewith, and also on John's comments on Grant's Comm. if he has written them in time to appear herewith. If you have any comments to make at all, do please send them to them; the more of you who help, the better the final publication will be.

NEWS & NEWS: There will be another Early Music Fair next autumn in London. It is hoped that there will be more space so as to accommodate both more stands and larger stands, and it is also hoped that it may be possible to sell from the stands at the fair. I had hoped to be able to say more, but Richard Wood hasn't been able to give me more information as yet. Any urgent queries to him; otherwise wait till the next Bull. appears early in the new year.

Richard Wood has opened a London branch of his Early Music Shop at 47 Chiltern Street, W.1. This is the old Harpsichord Centre and it's not very big, so stock is limited, but if you live in the South and want to try anything that's not in stock, they will get it down from Bradford for you.

Tony Hooley's Early Music Centre in Holland Park is moving into publishing their material, mainly through Brian Jordan whose shop is next door to them. I had hoped to list what they had available, and also to list their courses for this winter, but they've not sent me the information.

David & Charles have just published my "The World of Medieval & Renaissance Musical Instruments". Naturally I think it's an excellent book, and so far there haven't been any reviews to contradict me. There are over 100 illustrations, including all the Beauchamp Chapel windows and rather more Cantigas than I've seen elsewhere. The text is not as detailed as we would like, but it was written to a specified length and suffers from the usual problem of trying to choose between what to put in and what to leave out. Like all books nowadays, the price is horrifying: £7.50, but at least it's better than some other picture books,
Another new publication is Rudolf and Uta Henning's annual Kalender, Zeugnisse Alter Musik 1977, which has as usual twelve engravings, woodcuts, etc. of musicians, ranging from Dürer and Graf to Daumier, all excellently reproduced. Copies are available from Uta Henning at DM. 17.80. Also available are the pictures (Bildersappen) from earlier calendars in double volumes (i.e. 24 to a volume) at DM. 16.80 per volume; there are three volumes available.

Stanley Grigg asks me to say that he is not making lutes; please delete that word from the July list of new members.

Our first Exchange Member, Bouwerskontakt has a meeting on 23rd October (for which this will probably be too late), from 10 am to 5 pm in the Instituut voor Muziekwetenschap, Drift 21, Utrecht.

We have a second Exchange Member, CIRICIM (Comité International des Musées et Collections des Instruments de Musique if I remember rightly). It is the branch of ICOM, the international museum organisation relevant to us. I hope that the exchange will mean that we can publish excerpts from each other's bulletins.

There is a projected new Scottish Conservation Centre, which is designed really for architectural matters, but since they are likely to be involved with the contents as well as with the buildings, are interested in musical instrument conservation. I have told them to get in touch with St. Cecilia Hall, but anyone else in Scotland who is interested in knowing more of what they are doing should get in touch with Mandy Palmer, Scottish Conservation Centre Research Project, Department of Architecture, Edinburgh College of Art, Lauriston Place, Edinburgh EH3 9DP. They are interested in conserving craftsmen (!) and crafts as well as buildings, so I would think it worth any of our Scottish members at least being in touch with them.

REQUESTS: First one from FoMHI. After December 31st we will need an auditor to look through the books. It's not a big job, nor does it need much more skill than the ability to add without using fingers and toes, but members are entitled to know that somebody has checked whether all the money that comes in has either been properly spent or is sitting in the bank and that I've not been drinking it. We could pay to have this done professionally, but I think that is a waste of money if someone is willing to give up a couple of evenings to add it all up. If nobody volunteers, we will have to have it done professionally, and that will mean less money for printing Communications.

George Sandberg asks for suggestions for locating reinforcement bars in unopened instruments. He uses a hard, small brush which he rubs over the wood, listening for differences in resonance, then lightly scratching with his fingernail; he locates the bars more precisely. This method doesn't tell him the thickness of the bars, and he asks if anyone has any better ideas. I have told him that I'm dead against rubbing instruments with anything, especially hard brushes and fingernails, and suggested small dentist's mirrors, but they don't help much when there is a rose. Copies of suggestions to me, please, for wider circulation.

Paul Kemner would like some information on chitarrone construction, especially on the neck, pegboxes and bridge, and also on theorbo pegbox construction. In which connexion, see my comments at the bottom of the first page; there is always someone who doesn't know what you do know.

Joern Steinberg asks whether the small DG-lute belonging to Laurence Witten, described by Friedemann Hellwig in the 1974 Lute Society Journal, has been measured or X-rayed. He also asks if anyone can help with
a better photograph or drawing of the inner side of the soundboard of
the ex-Calfpenny Hans Frei lute, now in Warwick Museum, than that in
the Galpin Felican book and GSJ, especially regarding the traces of for­
ter barring. He stresses that he will pay for any expenses in these.
I have suggested some possible sources of help on these, but if anyone
can help him, please do so.

Carl Milletts asks for information on reeds and staples for late 18th
century oboes, i.e. two-key oboes, not three-key, working at about
A-440, not 415. He can find information on the earlier instruments
but not on the later ones.

Neil McGowan seeks detailed references, other than Tinctoris, on the
Douayne, the mysterious quiet shawm. I'd be interested in the answers
myself. I've never been happy with the idea that it was a single-reed
instrument, a clarinet precursor, since one sees, as late as the Maxi­
milian Procession, normal looking shawms with quiet instruments, and I
don't think that a normal shawm would work with a single reed such as
the suill used in the small Hungarian folk instruments. My own guess
is that a normal shawm with a normal reed, but the reed lipped like an oboe
reed, but it is very much a guess.

OFFERS: Trevor Robinson can offer American and Canadian members a simi­
lar deal on benzotriazole that John Betts offered in the last Bulletin:
50 grams for £2.00.

Stephen Targart has "recently made the acquaintance of a retired chap
who is an expert calligrapher, and has made me some beautiful instrument
labels in old English script, with gilding etc." and offers to put any
members in touch with him.

David J. Mills has got permission from the Brighton Museum and Art Gall­
ery to make outline tracings and take details of two of their viols:
no.5773/1, German, late 18th(?) century, LOA 1145mm, Bouts 323, 232,
395mm, string L, c.605mm.
no.5775/2, labelled: E. Schiefler, Hanover, 1650, LOA 1184mm, Bouts 323,
240, 397mm, string L, c.665mm.

Photos of both instruments are available from the museum; other details
from him.

George Sandberg studies Russian, Polish and French and offers translation
help, also in Dutch.

John Frear offers mediaeval Latin.

Martin Edmunds is having a special varnish brush made in ox hair, 1½
inches wide with 1¼ inch bristles and very thick. If it is successful,
he will be getting a batch made from one inch up to two inch, and if
anyone is interested in such brushes, he would increase the order accor­
dingly. We would welcome similar letters from other members; if you
are thinking of getting something specially made that might be useful
to others, obviously an order for half a dozen can be cheaper than a
one-off job.

Neil McGowan offers help in reed-making and also offers to turn small
parts - but no great-bass recorders, he says.

Donzill Wright is producing plans and a construction manual for an
Italian harpsichord, to fill the gap between buying instruments and
buying kits. He supplies no kit and no parts save, if necessary, brass
wire. I think that I will reproduce his "blurb sheet" (his expression)
here, partly because it may be useful to someone who sees this, partly
because others might like to do the same for other instruments, and part­
ly because some of you may be plagued with requests for help which
would be most easily resolved by referring the person to him.

- 6 -
Denzil Wraight
Historical Keyboard Instruments
1 Aston Street, Oxford

The instrument for which plans and a constructional manual are available is an Italian harpsichord of compass C/2-C and disposition 2 x 8'. This is based on a harpsichord by Giacomo Ridolfi made in 1665 now kept in the Smithsonian Institution at Washington but there are many Italian harpsichords of similar construction and dimensions. It is more suitable for Renaissance than later music because of its bold sound as well as the C short octave.

It is intended that these plans and manual should assist the competent woodworker to produce a good instrument without those difficulties that attend inexperience in harpsichord making; the difficulties of finding a suitable instrument to use as a guide and then knowing how to make the parts satisfactorily. The only assumptions made about the constructor are that he is familiar with woodworking practice and has an elementary knowledge of the harpsichord. The various stages of assembly are described as well as voicing and tuning, and the manufacture of the soundboard, keyboard and action is treated in detail in order to alert the constructor to difficulties and encourage him to finish what can be a much better instrument than a kit at lower cost and with considerably more satisfaction.

The instrument is made in the inner-outer way, that is with thin case sides and mouldings on top and bottom edges. This might have been placed in a box with a lid for storage or simply sat on a table or stand. As the case is only 4mm thick there is no problem of forming the bent side over a mould but it is not possible satisfactorily to fit a lid to this instrument. It is intended to come to modern pitch or a little below using brass wire, which I can supply in case of difficulty.

The manual is presented in a plastic folder. The plans are on either paper or plastic. The paper prints are slightly larger that the original but can still be used as a full size template (a scale is also drawn) the plastic prints are more durable and non-hygroscopic. I cannot supply any kits or manufactured parts.

Dimensions (excluding mouldings)
- Length: 1805mm (71.3/8"
- Width: 710mm (27.15/16"
- Height: 160mm (6.3/8"
- Weight: (depending on materials)
- Scale: C' = 252mm (9.95/16"

Price: £ plus postage
Toon Moonen is the founder of Bouwerskontakt and he says that his main activity is measuring and drawing instruments. He has sent me superb engineer's drawings of several instruments, which I will deposit with NRI. I'm not clear whether we are permitted to copy these on request, or whether orders for copies should go to him, but he will let Djilda Abbott know which, and at least you can see them there. He has sent me the Rafi flute (Brussels Conservatoire 1066), a Descant Crumhorn (triple plume mark, also Brussels, no.611) and a baroque (2-key) oboe dated plus or minus 1770. He also has drawings of a 1750 Rottenburg oboe from the Vleeshuis, Antwerp, a 1750 Tuerlinx transverse flute from Brussels, and two Nuremberg crumhorns. Measurements are to a tenth of a millimetre and seem to me to be very detailed. He has also sent me some photos from a series "instructions for fiddle-building", more details of which are available from him.

**MUSEUMS**: George Sandberg offers help in obtaining measurements or photographs from any of the museums in the Hamburg area.

James Kimbel has established an effective contact with the New York Metropolitan Museum of Art. Stewart Pollens, who is the Senior Restorer at the museum, has offered to be a source of information about keyboard instruments in the collection and has sent a list of technical drawings and X-rays available, which you will find herewith. Restorers no doubt know the small keyboard book by Winternitz which the museum has published. There is also a Checklist of Western European Flag-meets, recorders and Tabor Pipes, which costs $1.00. It has brief descriptions with overall lengths and negative numbers for all the relevant instruments in the museum. It gives maker, mark and date, adding "(if authentic)" on the instruments which Mrs. Crosby-Brown probably got Canon Galpin and others to make for her, and there are a few muddy photographic printed on ordinary (not plate) paper. For a dollar it's well worth having.

**FELLOWS**: Two new Fellows since last time, Paul Hailperin and Guy Oldham.

**CHANGES OF ADDRESS**: James Kimbel to 112 E.7th St. #16, New York, NY 10009. Arthur Midleton to Box 236, Swisher, Iowa 52338. A.M. Saunders to c/o Mrs. J. L. M. Saunders, 9 Greenfield Road, Oakdale, Poole, Dorset.

Lawrence Lundy to 5003 Terminal Road, McFarland, Wisconsin 53558, and add: Lute (M)

Shin Watanabe to 17 rue des Haies, 75020 Paris, France.

**CONCLUSION**: Remember we need a volunteer to audit the books. Remember to renew your subscription. Remember to send us notes on your tricks and gadgets that help the rest of us. And if you feel 'why hasn't he said anything about what I'm doing?', the answer is probably that you haven't told me.

Jeremy Montagu
7 Pickwick Road
Dulwich Village
London SE21 7JN.

**PS**: Press date for the next issue is January 2nd (there are no postal deliveries on Jan.1st, so aim for Dec.31st).
FELLOWSHIP OF MAKERS and RESTORERS OF HISTORICAL INSTRUMENTS

1976 List of Members – 3rd Supplement, as at 19th October 1976.

Dominique Adam, 53 Avenue de la République, Bondy, France 93140; tel: 848-68-15 (recorder, viol, P).

Richard John Bartram, 30 Cherry Grove, Hillingdon, Uxbridge, Middlesex; tel: 01-561 7066 (guitar, M).

Johnny Baza, Luikersteenweg 106, Hasselt, Belgium 3500 (lute, M).

Martin Bowes, 19 Roman Road, Ingatestone, Essex; tel: 0275-5778 (plucked strings, M,R).

John M.Brear, 16 Lewins Road, Epsom, Surrey; tel: Epsom 26547 (woodwind, medival Latin translation).

Lawrence D.Brown, 1110 Haines Ave., Columbus, Ohio 43212, USA; tel: 488-2733 (lute, theorbo, chitarrone, orpharion, H).

Brian A.Butler, Eyrie Farm, Healy's Road, Yinnar South, Victoria, Australia 3969 (all instrs., M,R; Australian woods).

A.R.Churchill, 7 M Wickenden Road, Sevenoaks, Kent, TN13 3FW (harpsichord, M).

CIMCIM (see Cary Karp), Musikhistoriska Museet, 111 30 Stockholm, Slettbacken 6, Sweden (musical museum curators, collectors).

Timothy Constable, 74 Wickenden Road, Sevenoaks, Kent, TN13 3FW (lute, R).
A. Neil Morrison, 60 West King St., Helensburgh, Dunbartonshire (lute, clavichord, vihuela, orpharion, M, P).

Mette Müller - see Musikhistorisk Museum, København
Musikhistorisk Museum, Aabenraa 34, 1124 København K, Denmark; tel: 01/11 27 26.

Roy Neale, 122 Leicester Lane, Leamington Spa, Warwickshire (lute, M).
Andrew H. Parrott, 17 New Road, Reading, RG1 5JD; tel: Reading 861769.
Igor Foryalko - see Early Music Friends Club, Zagreb
Daniel Powell, Holme House, Holme, Huddersfield; tel: Holmfirth 3098 (lute, M).


John Rawson, 3 Downshire Mill, London NW5 1NR; tel: 01-794 4002 (harpsichord, M, R).

F.oy Neale, 122 Leicester Lane, Leamington Spa, Warwickshire (lute, M).

Andrew H. Parrott, 17 New Road, Reading, RG1 5JD; tel: Reading 861769.
Igor Foryalko - see Early Music Friends Club, Zagreb
Daniel Powell, Holme House, Holme, Huddersfield; tel: Holmfirth 3098 (lute, M).


John Rawson, 3 Downshire Mill, London NW5 1NR; tel: 01-794 4002 (harpsichord, M, R).


David Rolfe, c/o Fond House, Weybridge Park, Weybridge, Surrey; tel: Weybridge 42676.

George A.J.J. Sandberg, Sierinenstrasse 98, D-2 Hamburg 60, West Germany; tel: (040) 47 34 82 (ren. lute, P; harpsichord, M; translation).

Linda Simonson, 8150 Lakecrest Drive, Apt. 518, Greenbelt, Maryland 20770, USA; tel: (301) 474-0285 (stringed instr., M).

Harold Steafel, 74 Lambato Street, Berea, Johannesburg, South Africa.
Edward R. Turner, North Pender Island, British Columbia, Canada, VON 2M0; tel: 629-5595 (keyboards, M, R).

Gerrit C. van der Veer, Zeilemakers Pad 1, Zaanse Schans, Zaandam, Netherlands; tel: 075-171901 (woodwind, strings, keyboard, M, C, P).

M. June Yakeley, Flat 7, 6 Leinster Gardens, London W2 6DP; tel: 01-402 6017 (vihuela, bar. guitar, P; musicology).

Additions to original list:

P.4: General Facilities:
Translation: George Sandberg (Russian, Polish, Dutch, French)
John Earar (med. Latin).
Curators: Cary Karp, Mette Müller
Kokin: Brian Butler

P.5: Curators, general: A. R. Churchill, Linda Simonson, Gerrit van der Veer
Keyboards, general: G. Cooper, Edward Turner, Gerrit van der Veer
Harpsichord: George Sandberg
Clavichord: Neil Morrison
Plucked strings general: Martin Towers, David Edwards


Guitar: Richard Gartram, June Yakeley
Vihuela: Neil Morrison, June Yakeley
Cittern etc: Lawrence Brown (orph), Neil Morrison (orph)
Bowed strings general: Jens Egeberg

Fiddle: Anthony Koonen
p.7: Viols: Dominique Adam, Jörn Jörkov, Paul Kemner, Theron McClure,
      Anthony Moonen, Neil Morrison, Malcolm Prior

      Harp: Jörn Jörkov

      Wind general: Paul Kemner (baroque)

      Woodwind general: John Brear, Jens Egeberg, Jörn Jörkov (reeds),
      Gerrit van der Veer

      New category: Cornamuse: Peter Forrester, A & Y Hamilton, John
      Hanchet, Uta Henning, Neil McGowan
      Bryan Tolley

      Transverse flute: Paul Kemner, Anthony Moonen

      Recorder: Dominique Adam

p.8: Flageolet etc: Neil McGowan

      Organ: Geoffrey Holroyde

      Oboe: Anthony Moonen, David Reichenberg

      Hocket: C.J. Everett

      Shawm: Neil McGowan

      Pibcorn: Neil McGowan

      Brass general: Jörn Jörkov

      Cornett: Jörn Jörkov

Any corrections, additions, deletions, emendations to the main list and
and to the three supplementary lists should be sent to me as soon as possible,
and anyway by January 2nd.

I would like to know: a) would you prefer a straight alphabetical list
next time, or a geographical breakdown by countries; I don't think we
need both (it's partly a matter of space), but let me know what you
think while you're renewing your subscription.

b) do you find the breakdown by instruments etc. useful? It's now large
enough, especially lutes, that it's going to be quite a job to do it
next time, but I will if you find it useful; personally, I think that
it is.

Any other comments on the List of Members would be welcome; it is sup-
tended to be useful to you, and any suggestions that will help to make
it more useful will be adopted if practicable. The only one that I
will not accept is that we should distinguish between the amateur and
the professional, and this is because it is impossible to draw border-
lines between the man who does it for himself, for nothing, for friends,
for expenses, for anyone, for a living, and so on. Wherever one puts
the border, some people are on both sides of it and others slide across
in the course of a year. I play some instruments for fun, some for
money, some for both, I make only for myself (and under protest for my
son), I collect for fun, I write for fun and for money, I lecture for
money, and so on, and I'll bet that others are just as complicated.
But all other suggestions will help improve the service.

Jeremy Montagu
A RECONSTRUCTION OF THE "BOSCH" HURDY-GURDY

Bryan Tolley

Anyone who has seen the triptych known as the "Garden of Earthly Delights" by Hieronymus Bosch will no doubt have noticed the Hell scene in the right hand panel. One of the main focal points of this painting is a group of gigantic musical instruments being used as implements of torture. A nude figure is attached by devils to the neck of a lute; another is helplessly entangled in the strings of a harp, while a third soul has been stuffed down the bell of an enormous shawm. In the centre of the group stands a hurdy-gurdy slowly being turned by a naked figure and consuming a lady who is playing a triangle.

It is perhaps interesting to note that the remaining instruments in the group consisting of trumpets, a tabor and what appears to be a flute were all broadly classified by the Church in Bosch’s time as being profane. This follows through for the shawm, lute and hurdy-gurdy but the harp seems to be an anomaly, more at home in the hands of an angel and not an instrument of Hell. Could this apparent irregularity be symbolic of the Fallen Angel?

With Bosch’s almost photographic style of painting it is possible to see even the smallest details on the instruments. The hurdy-gurdy he has shown is simple and plain but has a rather beautiful shape enhanced by two flying buttress type struts blending the curve of body into the cylindrical pegbox. The triptych was painted around the year 1500 A.D. and at this period in time the hurdy-gurdy had degenerated into an instrument associated with beggars, thus accounting for its plain appearance. Compare this with the elaborate and highly ornate hurdy-gurdies of eighteenth century France.

Due to the accuracy of Bosch’s painting and the fact that the hurdy-gurdy appears in an almost perfect plan view, it was possible to copy the outline of the instrument and to simply scale it up. In my initial drawings I found that by using a string length of 38 cm (a typical playing length for the viola string) the instrument came out to be a comfortable size and further more the ten sliding keys fell almost into the correct positions for a diatonic scale of an octave and a fourth. Other basic specifications taken from the painting were that the instrument had five strings, two obviously chanterelles and possibly one a trompette drone indicated by a length
of gut between a right hand drone string and the tailpiece. Also the colour of the instrument gives an idea of the wood that was used; in my reconstruction I have used mainly sycamore with the exception of spruce for the soundboard and the back.

THE SOUNDBOX

The first stage in the design was to decide on a side view. This I chose as that being shown in Fig. 1, similar in style to the French folk instrument depicted by Baines\textsuperscript{1} using a tapered soundbox with a gently curved soundboard and back slightly overlapping the sides.

\textbf{Fig. 1 General View}
(Not to scale)
The sides were the first components to be made and were developed from plan and side elevations of the instrument. Using 3mm sycamore the sides were steam bent to shape and profiled around the jig (Fig. 2); the sides were next slotted into the top and bottom blocks. Since the top block had to be drilled to carry the axle (6 mm dia.) I decided to drill a similar hole part way through the bottom block and to use a length of steel bar as an assembly jig, this proved to be a very useful step. At this stage beading was glued around the inner edges of the sides and the struts were fitted into place with the top struts lining up to carry the axle. There are four struts running across the top and bottom of the soundbox, one either side of the wheel slot, one at the rear taking the ends of the external bracing struts and one at an intermediate position. I chose to use a soundpost and also to provide tufnol bearings for the axle. Although an obvious anachronism the bearings have proved to be very smooth and silent.

The soundboard and back were made up of 3mm spruce butt jointed along the centre line of the instrument and cut with "C" holes and a slot for the wheel. The back was then glued in position followed by the neck and the two external struts which were doweled at both ends to give them strength. Finally to complete the soundbox the soundboard was glued on and the edges trimmed up when the glue had set.

THE PEG-CX

The pegbox in the painting is cylindrical and apparently of one piece construction unlike the slab sided pegboxes typical of other contemporary instruments. This leads to a simple turned barrel that is hollowed out from the back to give access to the pegs. Five pegs are required; these are of rather unorthodox design (Fig. 3) and are made of a light coloured wood. I have used beech for these and found that when inserted in the pegbox there was ample room for adjustment by hand thus eliminating the need for a tuning key. By using a Morse taper reamer for the peg holes it was possible to achieve a good fit without the pegs being too tight or slipping. Tuning on the hurdy-gurdy is of utmost importance since the drone is continually sounding
and any dissonance becomes very obvious. Once the pegbox was turned and cut out to meet the tangent box it was glued onto the end of the neck and the neck carved back to match the pegbox profile.

THE TANGENT BOX AND KEYS

The tangent box was built up of 6mm thick strips of sycamore; each side consisting of two strips the lower being cut out to receive the sliding keys. The placing of the keys is not particularly critical since the tangents can be adjusted to compensate, but it should be borne in mind that if it is required to play the instrument in another key (which can be achieved by adjustment of the tangents) then the key placing should be given some thought. For my reconstructed instrument playing in G I have allowed B₄ to be changed to B⁵, E⁴ to E⁵, and F⁴ to F⁶ thus making it possible to play in four basic keys. Unfortunately it is not possible for example, to play B⁴ and B⁵ in the same melody. Figure 4 shows the method of retuning the tangents.

Bosch shows ten keys seemingly of one piece construction. To duplicate this I have used 11 mm thick sycamore carefully cut to the desired profile. It is important to have a good sliding fit between the key and the tangent box; too tight and they won’t drop away from the strings, too loose and the keys will rattle. A strip of felt glued along the top inside edge of the tangent box helps to damp the noise of the returning keys. The tangents are made of sycamore with the grain running parallel to the axis of their retaining screws. They were cut and filed to give about 2 mm clearance from the strings and held in place by a slender brass screw. Since the tangents are not glued into position they can be readily adjusted for tuning. The nut fret is fitted on a wooden plate mounted at the end of the tangent box and is free to be moved to give a
low P* or G* as the open string note on the chanterelles. Personally I can't see much advantage to this and have subsequently glued the nut in place.

The lid of the tangent box is a piece of 8 mm sycamore hinged at two places by loops of gut. To prevent the lid from opening during playing a simple rotating catch was screwed on to the pegbox and the end of the tangent box lid chamfered to fit.

THE TAILPIECE AND THE BRIDGES

Although the main bridge and the end of the tailpiece are hidden by the cowling over the wheel it is still possible to estimate their shapes. The tailpiece is a flat piece of wood with gently curving sides and an inlaid design of brass rings. It is held on the instrument by a device not very clear in the painting; this I have interpreted as a brass hinge shown in Fig. 5. Usually on hurdy-gurdies the tailpiece is fixed rigidly to the soundboard and often incorporates a built-in bridge, but this is probably not the case in Bosch's design due to the narrow end of the tailpiece. Also the front view of the instrument seems to show the strings passing out from under the tailpiece and this would indicate a separate bridge. The method of attaching the strings to the tailpiece is rather complex. They appear to pass through the tailpiece from underneath and then go back through again and emerge at the end of the tailpiece. Due to the arrangement of the sliding keys and tangents the two chanterelles are not symmetrical about the instrument's centre line and therefore have to leave the tailpiece offset to the right. This can be achieved by diverting the strings by means of small pegs fitted into the underside of the tailpiece or by drilling two small holes to guide the strings (Fig. 6). The bass drone (grand bourdon) passes over a small bridge to the left of the tailpiece and ends through a hole in the side of the pegbox. This bridge is likely to be a smaller version of the main bridge and both bridges containing two notches for each string enabling the strings to be withdrawn from the wheel and thereby silenced. The right hand drones have their bridge system covered by the wheel cowl and only one string seems to be shown, however the fifth string must
Fig. 6 End of Tailpiece
go somewhere and since there is insufficient room in the tangent box it probably lies along the right hand side of the instrument parallel with the trompette drone. The bridge for this bass drone is hollow and cut away to contain a small ivory bridge for the trompette which is adjusted by a small peg in the tailpiece. When the trompette drone is correctly adjusted it should buzz rather like a tromba marina when the wheel is rotated faster than usual, otherwise it gives a clear tone. With this device it is possible to produce a rhythm by means of irregular wheel rotation and this stands out rather like a crumhorn above the general drone of the instrument.

THE WHEEL AND COWL
I have made the wheel of segments in order to eliminate end grain and the possibility of irregular expansion from varying weather conditions. Other methods of construction can be used including lamination and solid wheels, the latter no doubt being the type used in Bosch's time. In order to overcome end grain problems on a solid wheel it can be covered with a rim of parchment and if a stable wood such as pear is used then trouble with eccentricity can be reduced. In my reconstruction I have screwed the wheel to a brass boss which in turn is held onto the axle by a small grub screw. The axle is of 6 mm brass bar with an "S" shaped brass crank silver soldered on to its end boss. This is the only external deviation from the original since the handle in the original has obviously been elongated to allow room for a condemned soul who has the eternal job of turning the wheel. A turned wooden knob is mounted on a short axle at the end of the crank and completes the handle mechanism.

The cowling over the wheel is simply a bent sheet of wood. I have used a piece of sycamore 3 mm thick and steam bent around a piece of 15 cm diameter steel tubing giving the cowl an almost

Fig. 7 Trompette Bridge
semi-circular profile. To keep the cowl in position two slotted pieces of wood are mounted on the soundboard such that the cowl has to be sprung inwards to clip into place. A close look at the painting will reveal a piece of gut between the tailpiece and cowl, necessary to prevent loss or damage should the cowl fall off. Also it enables the player to adjust the strings whilst standing up without fear of loosing the cowl.

FITTINGS AND FINISHES

One detail that must be added is a provision for attaching the strap necessary to secure the instrument whilst being played. This consists of two turned wooden buttons securely mounted in the soundbox end blocks. The belt I have used is a plain leather guitar strap about 6 cm wide with an adjusting buckle and several button holes at each end (although the end connected near the handle should be kept short to avoid being caught up in the rotating crank).

From another look at the painting it appears that there is no finish on the instrument what so ever, however it is likely that it would have been a basic wax finish to give it some kind of weather protection. On the reconstruction I used a thin coat of eggshell varnish to seal the wood and to provide a hard surface. This was then rubbed down with fine wire wool and finished off with beeswax and a good polish with a soft cloth. The overall effect is that of natural wood but with a very subtle gloss and a pleasant feel.

Next the wheel is rubbed with rosin and the strings can be fitted. I have used gut viola strings throughout as suggested by Baines in his article in "Early Music". One point that did show up was that the "School" standard seem much better for the hurdy-gurdy than the "Professional" standard strings. The thicker "School" strings were found to give a fuller less scratchy tone and seem to last a lot longer (since the wheel does tend to act rather like a circular saw!). Also they cost substantially less. For the chanterelles I have used two "A" strings tuned down a tone to G; for the trompette a D string tuned to either C or D; for the bouche a G string tuned to its correct pitch an octave below the chanterelles and for the grand bourdon a "C" string tuned down to G two octaves below the chanterelles.

At this stage the strings were not touching the wheel and the notches on the bridges were filed such that the strings barely rubbed on the edge of the wheel. Cotton wool was then spun on to the strings.
where they pass over the wheel, the wheel was turned and more rosin added until the instrument began to sound. I found that the chanterelles required less cotton wool than the thicker strings but the whole process of voicing is a case of trial and error and plenty of rosin.

To position the tangents I calculated the theoretical positions using the "well tempered" scale interval of $\frac{\pi}{2}$. The results are shown in the table below:

<table>
<thead>
<tr>
<th>NOTE</th>
<th>NUT TO TANGENT LENGTH (CMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G#</td>
<td>2.131</td>
</tr>
<tr>
<td>A#</td>
<td>4.141</td>
</tr>
<tr>
<td>B#</td>
<td>6.338</td>
</tr>
<tr>
<td>B#</td>
<td>7.832</td>
</tr>
<tr>
<td>C#</td>
<td>9.523</td>
</tr>
<tr>
<td>C#</td>
<td>11.118</td>
</tr>
<tr>
<td>D#</td>
<td>12.626</td>
</tr>
<tr>
<td>E#</td>
<td>14.048</td>
</tr>
<tr>
<td>E#</td>
<td>15.391</td>
</tr>
<tr>
<td>F#</td>
<td>16.663</td>
</tr>
<tr>
<td>F#</td>
<td>17.855</td>
</tr>
<tr>
<td>G#</td>
<td>19.000</td>
</tr>
<tr>
<td>G#</td>
<td>20.065</td>
</tr>
<tr>
<td>A#</td>
<td>21.070</td>
</tr>
<tr>
<td>B#</td>
<td>22.160</td>
</tr>
<tr>
<td>B#</td>
<td>22.915</td>
</tr>
<tr>
<td>C#</td>
<td>23.761</td>
</tr>
</tbody>
</table>

Other scales such as the "Just" scale or the "Pythagorian" scale could be utilized by calculating the correct intervals and setting the tangents accordingly. A useful device is a strip of wood or cardboard with the tangent positions marked off from the nut fret. This can be used for changing the key of the instrument and ensuring that both tangents are set the same. The strip can then be taped on to the inside of the lid of the tangent box for easy reference.

**PLAYING**

Playing technique is fairly simple provided that the hurdy-gurdy is strapped on tight! The right hand is used to crank the handle whilst the left presses the keys. Fingering on the left hand seems
to be dictated by the tune being played but if there is a correct method I would be pleased to hear of it. By using different combinations of drones and alternative tunings for the trompette a great variety of sound can be obtained. This gives the hurdy-gurdy as great a versatility as many of the more complex bagpipes and it has the added advantage that it requires no air supply.

The reconstructed "Bosch" hurdy-gurdy has a fairly loud clear tone, not at all harsh but yet rather nasal and penetrating. In comparison with a "baroque" hurdy-gurdy using a guitar shaped body and a flat soundboard the "Bosch" instrument had a slightly fatter and louder voice, especially with the wheel cowl removed. No doubt that the elaborate ornamentation and flat soundboard on the "baroque" hurdy-gurdy accounts for some of this difference but the main reason is that the earlier instruments were built as outdoor instruments whereas the later models were designed for use mainly indoors.

As mentioned earlier the "Bosch" hurdy-gurdy was an instrument of the street musician and beggar. Bruegel depicts similar instruments in his painting "The Blind leading the Blind" and also in "The Triumph of Death" shown respectively in the hands of a blind beggar and a skeleton (again associating the hurdy-gurdy with the Devil).

Music ideally suited to the instrument is early renaissance dance music where a drone accompaniment can be utilised. Chansons can be played and sung by the player, with secular songs being the best choice. Grevaize and Attaingnant work out well with or without the other voices added.

These notes are intended purely as a guide to construction for those who would consider building such an instrument. I would welcome any useful criticisms or suggestions and if anyone has built a similar instrument I'd be interested to hear their results.

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In making woodwind instruments of European art music, it is general practise to first bore through the length of a piece with a tool the size of, or slightly smaller than the minimum diameter of the desired finished bore. For a conical bore instrument, this pilot hole is then gradually widened with other boring tools and/or reamers. Unfortunately, boring tools may wander, i.e. they do not necessarily follow the axis of rotation, and this problem becomes more serious, the larger the ratio of length to diameter becomes. The most difficult instrument in this respect that I know of is the alto shawm, which typically has a length of about 750 mm and a bore of 4 mm.

Nikolaus Hernoncourt has repeatedly suggested to me that renaisance makers might have produced the initial bore by burning, presumably with a metal rod heated at one end and thrust into the wood. I found the notion bizarre, until I tried it a short time ago. Accordingly I would like to report that it is feasible to burn a pilot bore, and I would give a few details of my experience.

The instruments I set out to make were to be modelled on No. 8562 of the Kunsthistorisches Museum in Vienna. This instrument formerly belonged to the collection of the Catajo castle, and is to my knowledge a unique specimen of its type. It is a descant shawm in d', but much shorter than a typical...
descant, being 476 mm long, compared to a normal length of roughly 650 mm. The "saving" of length is done below the finger holes; there are fewer vent holes and the bell expands to only 51 mm ID. Curiously, the bore is more like that of an alto shawm, with a minimum of 4.1 mm. The instrument is unusually slender in its external profile and has, below the seventh finger hole, a false fontanelle. A strikingly similar instrument can be seen in the painting "De Denaes" by Jan Havicksz. Steen (1626 - 1679). This painting belongs to the collection of the Rijksmuseum Amsterdam, and cheap reproductions by Verkerke are available through the museum.

First I made a trial bore in a scrap of maple wood, which I then cut open to determine how much wood was burned or charred around the heated rod. It seems that for the magnitude of bore found in shawms, the burning rod has to be at least 2 mm smaller than the desired finished bore. In order that the rod be guided as far as possible in a straight line, I made a 10 mm bore part way into the block of wood and then inserted an iron tube of 10 mm OD, 4 mm ID. First I worked with a 3 mm silver steel rod, then further in with a 2 mm rod. The part of the bore produced by the 2 mm rod was very slightly curved, and it seems that a closer fitting guide tube would be important ... I simply had no other material available. I used the 3 mm rod as far as possible not only because it fit the guide tube better and had the advantage of greater stiffness, but because of the greater heat transfer potential.

With the 3 mm rod I needed an average of 2 minutes to burn through 10 mm of wood; with the 2 mm rod the rate was about 3 minutes per 10 mm of burning. In general it seems impor-
tant to bring the rod as quickly as possible from the heat source, where the tip is made red hot, into the bore. To this end I lathed a funnel-shaped entrance to the guide tube, and shaped the end of the rod to a point, so that the hot rod could be quickly and dependably inserted.

I would be most interested to hear from others who may have experimented with a similar technique, and also from those who have successfully made alto shawms with more traditional boring methods.

August 1976.

FoMRHI Com 33
COLOURING OF INSTRUMENTS
R. Lawrence

It is often difficult to decide or judge what the final colour of an instrument is going to turn out like. The following method enables a final result to be judged at an early stage.

Take sheets of thin glass, about 12" x 6". Paint each of these sheets with your colour varnishes. Divide each sheet into about three bands, giving one or two coats to the first band, three or four to the second and five or six to the third.

Give the instrument its first coats of clear varnish until it is ready for colouring. Then place one or more of the coloured glass sheets on top of the back, one can immediately judge the effect of different colour, or number of coats needed.
Having noticed several open letters in *Early Music* and elsewhere, inquiring about bending of crumhorns, I thought this piece of information might be of interest to a few builders.


In essence the conclusion reached was that wood was most likely to fail in tension when being steam bent. The means best devised to combat this failure would look somewhat like the accompanying sketch when applied to the crumhorn.

The idea being that the block on the end of the strap is placed so as to accommodate the length of the work piece before bending. It is kept in place during the bending operation and afterward until the wood is set. It is plainly apparent that most of the wood must deform by...
compression, thereby avoiding tension and shear loads usually responsible for failure. The test lab reported reasonable success in bending 3/4" thick oak boards to a radius of about 2 3/4". This did involve some experimenting with steaming time though, so a little experimenting might be necessary. Also it is worthy of note that this method is well within the technology of the 15th century and long before.

FoMRHI Com. 35
AN IVORY SUBSTITUTE

R. Hachez

Having read quite a number of letters requesting information, etc. in several publications, I thought the following might be welcome.

There is available a very good bone-ivory substitute called "#454 Ivory Paper". It is a phenolic resin and paper high pressure laminate about equal in hardness to bone. It is marketed by Angus-Campbell Inc., 4417 South Soto St., Vernon, California, 90058. - Tel. 213-587-1236. Its original intention is as a knife handle material and it comes in sheets 3/16" thru 1 1/8" thick, 36" square. They will cut it for you for a fee. I have seen it "scrimshawed" on a knife handle and it is almost indistinguishable from bone in color and texture. Cost - about $4.00 per pound.

-25-
LESSONS ABOUT THE NAMING OF INSTRUMENTS OFFERED BY THE EARLY GUITAR AND VIOLIN

E. Segerman and D. Abbott

Some time before the middle of the 16th century cognates of the name 'guitar' (gittern quintern etc) started being applied to an instrument with a waisted, rather flat-backed body. Before then the name was applied to an instrument with an unwaisted, round-backed body, as described by Tinctoris (1) and pictured by Virdung (2) and Agricola (3). The earlier shape was associated with this name throughout the middle ages and probably only in the 16th century did it start being associated with the names 'mandora' (4) or bandurria or pandurina, and then with different tunings. The association of this shape with the guitar never fully disappeared, with the conversion of unfashionable lutes in later times playing a most natural role. Since round-backed instruments were probably played continuously as guitars from the 13th century to the present day, we need to look at the modern German instrument with the respect appropriate for a history as long as that of the lute.

It is reasonable to assume that names related more to tuning and playing techniques than to shape (5).

Small bowed instruments with the names of rebec, clein Geig and diminutions of viola (violino or violetta) had round backs or flat backs (or something between the two) from well before the beginning of the 16th century. The names and shapes were rather interchangeable, and of course subject to local preferences and distinctions. For example, Tinctoris associated flat backs with violas and round backs with rebecs, but Praetorius (6) included both in his violin family and the Portuguese even today refer to the flat backed instrument (called 'violin' elsewhere) as a rebec. It is most probable that the confusion in terminology was tolerable because there was little difference in tuning and playing style.

The growth in popularity of the flat-backed version, tuned in fifths and without bourdons, during the middle third of the 16th century parallels that of the flat-backed version of the guitar at that same time.

The above examples illustrate how the names we use today to describe instruments do not fully correspond with original usage. Another example we give in passing is the modern usage of the name 'theorbo' to denote a type of extended pegbox arrangement. It is becoming increasingly clear that many of the 17th and 18th century instruments that we call 'theorbos' were then called 'lutes' or 'archlutes'.

Modern organologists generally classify instruments firstly according to their physical features, secondly according to their tuning and only thirdly according to playing technique. This system has value by being in order of increasing susceptibility to variation by the creative impulses of the players, and in order of decreasing certainty in our knowledge about particular early instruments, be it in iconographic representation or a surviving artefact. Early organologists (such as Tinctoris) often used the same naming procedure, visual factors first, musical ones afterwards, function before structure. This is a most useful procedure but unfortunately, as shown above with the early history of the guitar and violin, contemporary usage often puts function before structure. The interpretation of literary information about the use of instruments can easily be confused when a name they used is the same as one we organologists use but is a different instrument according to our definitions.
The botanists and zoologists, when faced with the same problem, solved it by inventing an internationally agreed code specifying each species. Their Latin terminology is easy to remember by scholars having good classical education, but is most cumbersome to others. Can we do better?

Montagu and Burton (8) have appreciated the value of the Linnaean system of biological nomenclature and have aptly shown its advantages over the Dewey decimal system used in the classic work of Hornbostel and Sachs (9). Nevertheless both sets of authors used names of real instruments in their classification systems, leading to monstrosities such as violins being lutes. Instead of using the name 'lute' to denote any instrument where the plane of the strings runs parallel to the soundboard (which is part of a resonating box) and the neck (which is permanently attached), why not make up a memorable name which relates to its meaning such as 'parastringbox'.

Our main point here is that we need to separate the study of musical instruments defined according to structural characteristics and the study of the names by which people at different places and times called them. Instead of stating "this is a rauschpfeife" one needs to say "this is an instrument with X characteristics". One could also add there is evidence indicating that such instruments were played during U times in V places: the instrument name "rauschpfeife" was used during W times in Y places and it was associated with instruments with these characteristics in the Z sources".

The need for a new specialized vocabulary for instrument structure is underlined when current research shows that modern usage does not correspond with early usage (ie. medieval mandora and theorbo). Must we keep having to change our dictionaries and catalogues?

APPENDIX: A NOTE ON THE VIOLAS MENTIONED BY TINCTORIS AND ITS RELEVANCE TO THE EARLY HISTORY OF THE VIOLIN

Modern writers on the violin have not fully appreciated the significance of Tinctoris's statements about violas. They often state that the ubiquitous early use of the term combined with the modern instrument so named implies that the alto member of the 'family' was the original one that the violin and 'cello developed from. This has no basis that we can see since the early use of the term had no association with size.

Tinctoris's discussion of the viola can be paraphrased as follows:
It is an instrument invented by the Spaniards and called by that name both in Spain and in Italy. It differed from the lute only in size and shape, being smaller, being flat instead of round and in most cases being curved inwards on each side. He then mentioned another viola strung and played differently from the lute. It was played with a horsehair string bow and the strings were arranged in a bulging way so that each string can be bowed without sounding any of the others. The most usual type of this kind of viola had three simple strings tuned in a pair of fifths. Another type had five strings tuned unevenly in fifths and unisons.

The first viola he mentioned, which was strung and played like a lute, was the viola or vihuela da mano which must have been smaller than its later 16th century descendants. Gitternists or lutenists of the 16th century (such as Pietro Bono, who was both) were usually accompanied by a "tenorista" who often, it seems, played such a viola (7).
The second of his bowed violas can be none other than the lyra da braccio and the first none other than the violin. How else would we define the violin in contrast to any other type of bowed instrument: essentially flat backed, with a waist, a curved bridge and tuned in fifths? The three strings are no problem. The high-twist gut basses that allowed 5-course lutes and viols to become 6-course lutes and viol could allow 3 string bowed violas to become 4-string violins without a change in character.

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ADDITIONAL COMMENTS on Com. 41

Eph Segerman

Bob Spencer has gone some way towards clarifying the theorbo-chitarrone-archlute-etc. muddle in the current issue of Early Music. Incidentally he has an 18th century 6 course, 38 cm string-length lute with a treble rider. It seems that the treble rider is more strictly associated with time (from the second quarter of the 17th century) rather than with the number of courses.

Some 11-course lutes have all strings over the fingerboard and these are the ones most appropriate for conversion to 13-course lutes. A two-pegbox 11-course French two-headed lute is illustrated by Mace.

English and Italian instruments made after about 1580 very often have double first courses. French 11-course single-pegbox lutes and their 13-course conversions usually have single first and second courses. Otherwise the first course only is single.

Glued-on frets past the tied ones, though mentioned as occasional practices by Robinson and Dowland, hardly appear in illustrations and must have been very occasional indeed.
Interest in the viola bastarda is growing rapidly and it is necessary to correct some misconceptions which we have heard stated and seen in print before they become too rooted in the lore of modern early music culture.

Praetorius (1619) (1) gives 5 tunings for the viola bastarda, all with 6 strings. Some modern players say that 7 strings are needed to play the music which is typically in a divided style and often with a range from A to d'. They follow Bessaraboff (2) (1941), p.426, who stated that "a 7-string viola bastarda is represented in a painting by Domenico Zampieri (Domenicino) ca. 1620". His identification of this instrument could be based on the presence of the rose below the fingerboard. Such a rose appears in Praetorius's drawing of the viola bastarda and not on his other viols. But Bessaraboff himself correctly stated elsewhere (p.430) "...a rose is not necessarily the sign of a viola bastarda..." when arguing against Sachs who stated that it was. The size of the instrument in the painting, with about 85cm string length, is rather large for the technical demands of the music and there is no reason to believe that it is none other than a particularly large consort bass viol or a particularly small double-bass viol with an unusually extended range. The earliest mention of 7 strings as a standard viol feature was Rousseau's (3) statement in 1689 that St Colombe introduced the use of the 7th string simultaneously with metal-covered strings in about 1675.

Furthermore these modern players argue that Praetorius's 6-string tunings covering that range are suitable for chords (lyra style) but not for passage work. We shall later discuss the relationship between the viola bastarda and the English lyra viol but we will now show how the instrument and its tunings and usage as described by Praetorius are well matched to surviving viola bastarda pieces.

Figure 1. Praetorius's tunings for the viola bastarda

Praetorius's tunings 1 and 2 are the same as for the consort bass viol in England. Tuning 1 is also that of the German consort tenor viol. As Praetorius states (Bessaraboff's translation p.277), the viola bastarda "is a type of Viola da Gamba, and it must be tuned as the tenor of the Viola da Gamba (instead of which it can be used in case of need). But its body is somewhat longer and larger (deeper)". His illustration (Plate XX no. 4) shows an open string length of 73 cm which, according to our work on gut-strings (4) just allows an open-string pitch range from A, to d' in Cammerthon pitch standard which tunings 3, 4 and 5 indicate.
On this string length the usual viol left-hand technique, of chromatic fingering (one finger per fret) occasionally shifting the whole hand up or down, is effective, but "extensions" involving a tone between adjacent fingers are awkward. The fifths, between open strings in tunings 3, 4 and 5 mean that one cannot, with chromatic fingering, reach every note that one might want to in all of the keys used without frequently shifting the left hand in quick passages. This apparent difficulty is presumably what has deterred people from playing the viola bastarda repertoire in these tunings. However, since we have no evidence of other tunings, if these tunings work, we should not invent alternatives. Simulation on the 7-string bass gamba will certainly allow one to play all the notes that are written, but one will lose the particular articulation and the possible gracings of the original tunings.

We find that each one of Praetorius's tunings 3, 4 and 5 is well suited to a limited number of keys. Because of the fifths between open strings, the only left hand position which can allow a complete diatonic scale with chromatic fingering without extensions is with the first finger on the 2nd fret. In this "basic" position, tuning 3 allows all the notes of the scales of G, D and A major without the need for position change. Similarly tuning 4 allows C, E and D and tuning 5 allows F, C and G.

The bastarda player would presumably choose his tuning according to the keys being played, and would play mostly in the "basic" position, occasionally shifting his left hand up or down when the music demands it. In our experience when such position changes are necessary, fingering above the frets is never required (except on the first string) and we always find either an open string or a note of longer duration than that of the fastest notes to effect this change. Thus this fingering style appears to be very workable in the examples of viola bastarda music that we have examined.

The repertoire bears out Praetorius's statement on the musical usage of the instrument. In Bessaraboff's translation, p.277: "a good master will venture to play (on the viola bastarda) madrigals; ... (in playing) fugues and Harmony he can go through and through with all ease and through all the voices— he selects [things to play] sometimes above in the treble, sometimes below in the bass, sometimes in the middle in the tenor and alto." In an example from Bonirzi that we have studied (3), the viola bastarda line mostly derives from the bass of the 4-part chanson except in the alto part and three in each of the treble and tenor parts.

The much discussed association between the viola bastarda and the English lyra viol arises from Praetorius's chapter on the viola bastarda (p.47) where he discusses an English viol with sympathetic strings. This is easy to associate with a variant of the lyra viol which had sympathetic metal strings, the invention of which was ascribed by Flaxford (6) to Daniel Farrant and by Kircher (7) to the Duke of Somerset. Praetorius's inclusion of the lyra viol as a type of viola bastarda is understandable since both instruments are so much like consort viols yet they each have special roles to perform outside of playing particular consort parts. They also have similar tunings. We know of lyra viol tunings to match all but the fifth of Praetorius's viola bastarda tunings. *

*Tuning 3 is called 'Alfonso Way' in the Ballet Book (8) and the Manchester Gamba Book (9) and is Ferrabosco's (10) 'second tuning'. Tuning 4 is called 'Eights' in the Ballet book, 'Sette of Eights' in the Manchester Gamba book and is Ferrabosco's 'third tuning'.

- 30 -
The styles of written music for the instruments differ considerably, the lyra viol music consisting of a mixture of chords, of sequential notes jumping up and down to give the impression of 2 or more separate parts and of divisions, while the Italian viola bastarda music mainly contains florid divisions on one part at a time. Of course we cannot be sure that the viola bastarda did not extemporize chords and we cannot be sure that the lyra viol did not extemporize more florid divisions. An example of more extended use of a viol than its written music indicates is Ganassi’s recommendations concerning bows, which include low hair-tension for playing chords, a style of playing not generally discussed in the 16th century.

Another similarity is the size of these instruments, between that of the tenor and bass consort viols. Figure 3 compares string lengths given by Praetorius and the Talbot ms (c 1690).

Figure 3. Comparison of string lengths of viols

<table>
<thead>
<tr>
<th>Praetorius</th>
<th>String Length</th>
<th>Talbot</th>
<th>String Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cant Viol de Gamba</td>
<td>41.2 cm</td>
<td>Treble viol</td>
<td>40.6 cm</td>
</tr>
<tr>
<td>Tenor= Alt= Viol de Gamba</td>
<td>58.6 cm</td>
<td>Tenor viol</td>
<td>61.0 cm</td>
</tr>
<tr>
<td>Viol Bastarda</td>
<td>73.0 cm</td>
<td>Lyra viol</td>
<td>71.4 cm</td>
</tr>
<tr>
<td>Klein Bass = Viol de Gamba</td>
<td>75.6 cm</td>
<td>Bass Viol</td>
<td>81.3 cm</td>
</tr>
</tbody>
</table>

These sizes have little resemblance to those of viols played today. We shall be writing much more on this issue, but for now, suffice it to say that modern writers have been misled into doubting these early writers because of misinterpretation of Praetorius’s pitch standards.

Munrow’s (1976) paragraph on the viola bastarda (p. 89) needs correction. It says "... Praetorius’s statement that the viola bastarda was used mainly as an accompanying instrument, like the theorbo... seems to be mistaken. All the repertoire for it from Girolamo dalla Casa onwards makes it clear that the viola bastarda was a virtuoso speciality, using a normal small bass viol in normal tuning, and is not in any way to be confused with the idiosyncrasies of the lyra viol. In other words, the viola bastarda was simply the continental equivalent of the English division viol. However, modern writers have regularly repeated Praetorius’s assertions to the contrary". There is nothing inconsistent in a virtuoso part being an accompaniment (eg. the lute and occasional ms. bass viol parts in the consort of six written for by Morley and Rosseter) and students of the instruments should use the mentioned statement by Praetorius in his section on the theorbo (p. 52) as a guide to a major musical function of the viola bastarda, ie. to accompany solo singers by intimating all of the other voices in a multi-voiced composition.

We have shown above how Praetorius’s tunings in fourths and fifths are eminently suitable for the written music. A normal bass viol of this period does not have the range for much of this music. The division viol, described as such, did not appear until the latter half of the 17th century when the viola bastarda was all but forgotten. A divided style of playing was ubiquitous throughout the whole history of the viol, and even the lyra viol tablatures are no exception. Considering our discussion above on
the similarities between the lyra viol and the viola bastarda, we do not see any basis for the dogmatism of the quoted statement.

A writer as prolific as Praetorius could not help but make some mistakes, but we have yet to see evidence of any in his writings on the viola bastarda. He suffered the serious defect of not knowing or telling us all that we would like to know, but think of how much more ignorant we would be without him. When there seems to be an apparent disagreement between different early sources, it is much more fruitful to explore possible interpretations which would remove the disagreement and to learn from those that work, than to jump to the conclusion that one or other of these sources is in error.

REFERENCES

1. Praetorius, Michael (1619) Syntagma Musicum II De Organographia Facs. (1964) Barenreiter.
2. Bessaraboff, Nicholas (1941) Ancient European Musical Instruments.
7. Kircher, Athanasius (1650) Musurgia Universalis sive Ars Magna Consoni et Dissoni...

Late Additions to the List of Members (continued from page 52)

Michael Lowe, The Hermitage, Wootton, Woodstock, Oxon, Tel: Woodstock 812120
Tom Savage, 4 St. Ignatius Terrace, Fairhill, Galway, Eire.
Søren Schultz, Alykkevej 2 DK 3230, Grasted, Denmark. Tel: 03-290299.
CAMMERTHON AND CHORTHON

Organologists not specifically involved with organs might have missed an important paper by Thomas and Rhodes (1) on Praetorius’s pitch standards (2). In it they confirm Ellis’s (3) determination of $a' = 425$ Hertz for the pitch pipes described and dimensioned by Praetorius, who identified this pitch with “Chorthon” pitch standard. They also convincingly argue that he was referring to the only pitch standard adhered to by his North German intended readership. This pitch standard was also called "Cammerthon" there. The word "Cammerthon" means chamber pitch implying instruments, and "Chorthon" means vocal pitch in church choirs. Praetorius discussed the pitches of the organs that accompanied the choirs, and, when talking about old choral organs tuned a fourth higher or a fifth lower than his contemporary standard, he was most thankful that choral pitch in his time usually was at that standard. It was his concern for vocal pitch which led him to name his pitch-pipe standards "Chorthon" rather than "Cammerthon" although the latter was more universally adhered to internationally.

Much of his discussion was motivated by his reaction against a move by some of his contemporaries to raise the standard a semitone. He expressed a preference for a Chorthon standard about a tone lower than Cammerthon, such as was used in all of the churches in Prague and various Catholic centres, a standard which reduced vocal strain and effort and improved the tone. (He mentioned that these places used both standards, and since we can show that the Gross Sechs Chorichte Cither which was made in Prague was at the low standard, we conclude that both standards were used outside of church.) To enable vocalists to sing a tone lower, he suggested that stringed instruments should be tuned down (allowing their strings to last longer and stay better in tune) and other instruments should transpose. He maintained that harpsichords, flutes and other instruments made for the lower pitch sound better, but such instruments are quite inconvenient for use in combined choral and instrumental works (such as Praetorius wrote for), presumably because the chorus was inextricably associated with the organ and all of the organs he was concerned with were at Cammerthon. If he had his way, Cammerthon would be used only for amusement at the table and convivial occasions, and all organs would be tuned and built for a pitch a tone lower. But alas such a change would be quite impossible in his Germany, so everyone there is forced to retain the standard as it was, being called both Chorthon and Cammerthon.

It is clear that Praetorius was advising his readership to use the lower pitch standard whenever they could, but not in church. When he was advocating the maintenance of the current church standard, he was striving for an achievable goal (removing all footholds that the advocates of a higher pitch could advance from) rather than fighting for a lost cause (lowering the pitches of the organs).

ELLIS AND MENDEL

Ellis erroneously chose to use Praetorius’s preference for a low Chorthon to rationalize the conclusion that Cammerthon was a tone higher than $a' = 425$ Hertz. He wanted a higher pitch standard so that the particularly low vocal range (in Cammerthon) reported by Praetorius would correspond with the ranges in contemporary choirs. Mendel (5) compounded this error by concluding that the Cammerthon standard was even higher from comparison with the ranges of professional singers.
Neither Ellis or Mendel considered that the method of voice production (and its effect on range) could have changed since Praetorius's time.

PRAETORIUS ON ENGLISH PITCH STANDARDS

Praetorius made specific statements about pitch standards in England. He said that the pitch in England and in Italy was the same as that of the German princely choirs, presumably Cammerthon. He was probably referring to choral pitch since he followed this by a somewhat tentative statement that English instruments such as cornets and shawms (or hoboys) were pitched just a little lower. At another point he said that long ago in England and the Low Countries the wind instruments were voiced and tuned about a minor third lower than his Cammerthon.

None of these statements is useful in determining the pitch standards of stringed instruments. Our analysis of the small English cittern had to assume that he thought that it was at a low standard to account for his peculiar tuning. His discussion of the orpharion gave its tuning in Cammerthon and his listing of string pitches gave tunings in this and in a tone low pitch standard.

PITCH STANDARD OF ENGLISH STRINGED INSTRUMENTS

Now that Thomas and Rhodes have set the record straight on the Cammerthon pitch standard of Praetorius, we have combined Praetorius's string lengths with data on tensile strength (mostly derived from Mersenne) and the ranges of the string materials as derived from the reported ranges of instruments, and come to conclusions about the pitch standards of the various instruments he depicted. Some of the details of our analysis are available (in FoMRHI and Galpin Soc. J. 1974) and the remainder will be. We will here just summarize the conclusions. All pitch standards are given relative to Cammerthon.

Praetorius's Chor-laute and many other instruments were at pitch standards 1 to 4 semitones low. His violin and viol families and the English wire instruments (the small English cittern, the orpharion and bandora in their usual English nominal tuning) were all at pitch.

By comparison, Talbot's measurements, when properly interpreted, show that the violin family, wire instruments and English lutes and theorbo were at pitch, but the viols were at a standard a tone low. The French theorbo and French lutes were 2-3 semitones low. Simpson's 30 inch string length for the division viol fits perfectly with Talbot's data.

Mace's English 2-headed lute, if the same size as the one Talbot described, implies that he adhered to a tone-low pitch standard.

Mersenne's (9) bass viol was slightly bigger than Talbot's, implying a 2 to 3 semitone-low standard for early 17th century French viols. An interlocking piece of evidence is that if we assume that the early 17th century English viol consort when playing alone, often played at a tone below the French viols (4 or 5 semitones low) for sweetness of sound, then Mersenne's and Praetorius's statements about them in these circumstances will fall into place. It is clear that both these authors made some errors concerning English viols, but it is not difficult to understand where they were led astray. The implication of this is that otherwise English viols were at approximately the same standard early in the 17th century as later, i.e. about a tone low.

Whenever the type of English lute playing with viols was specified on the music, it was generally a mean lute or a bass lute (tuned a fourth lower), so we assume that they were at the same, approximately tone-low standard as the viols.
There is some evidence indicating that the consort-of-six, written for in Morley's and Rosseter's Consort Lessons (10) seems to have been intended for use at either pitch standard, presumably since it mixed instruments normally at different standards. A small treble lute appropriate for the Cammerthon standard was specified on both title pages. The treble violin, cittern and bandora were all at their normal pitches. At Cammerthon pitch a particularly small bass viol of 72 cm string length was needed, and if early 17th century viols had the same distribution of string lengths as the later ones that Talbot described, a lyra viol would have been appropriate. The illustration of this consort in the Henry Union painting (11) shows the bass viol played in a way particularly appropriate for lyra-style music, i.e. a short bow striking the strings only at the beginning of a note letting the strings resonate afterwards rather like on a lute. Mace later in the century indicated a similar flexibility by prescribing the use of the leero-viol as a division viol. At the alternative tone-low standard, normal treble and bass viols would be used. The cittern can be tuned a tone down with no problem of strings becoming unusable. The bandora's seventh course does become unusable tuned a tone down so the music carefully avoids using the seventh course. The treble lute could be tuned a tone down with no problem since only six courses were used in this music. A mean lute could have been used as well. We have no data about flute or recorder technique or pitch standards in England at the time, and so cannot discuss the probabilities of either using different instruments a tone apart or transposing.

When violins played with viol consorts in the 17th century, it is possible that they were adjusted especially for the lower pitch standard. This adjustment is evident in many 17th and 18th century paintings of violins playing with lutes (eg. fig. 237, 238 and 245 of Buchner 1st ed.) (13), in which the bridge is moved down the soundboard away from between the nicks in the f-holes towards the tailpiece (14). If the soundpost remained in the same place, this bridge placement, on the other side of and further from the soundboard, would give a weaker tone, an asset in balancing with weaker-toned instruments. When violins played with only bass viols, the use of leero-viols at Cammerthon would be a viable alternative.

17th CENTURY ENGLISH CHURCH PITCHES

Church organs and bells of identified pitch represent the only other data we know of concerning 17th century English pitch standards. Of the half dozen such organs and bells included in Ellis's large list (15), all but one are well within a semitone semitone of Cammerthon. The exception is a 1683 organ at Durham which is almost exactly a tone higher. Praetorius mentioned that some old organs were tuned a tone or a tone a half above Cammerthon. Thomas and Rhodes suggest that high pitches could be a disease of organ old-age. When Nathaniel Tomkins published his father Thomas's 'Musica Deo Sacra' in 1668 (16), he included a statement of absolute tempo and pitch: semibreve = 36 M.M. and a tenor F organ pipe is 2½ feet long. The latter leads to a = 474 Hz, a tone above Cammerthon. The organ at Worcester Cathedral that his father played on and was very attached to was rebuilt to Cammerthon standard (15) between Thomas Tomkins' death in 1556 and the publication of 'Musica Deo Sacra', possibly as a result of damage during the second siege of Worcester. Nathaniel's nostalgia is understandable. Thomas Tomkins' high-pitched organ was built in 1613-14. (17) It is not inconceivable that Praetorius in 1619 was reacting to knowledge of this organ as well as perhaps other aberrant high-pitched new organs when he was advocating a universal Cammerthon standard. The pitch of its replacement shows that his view was widely held in the 17th century.
The amount of available information on 17th century English pitch standards is obviously limited. We very much doubt whether we are aware of it all (eg. we have not seriously looked for wind instrument data). Let us have some correspondence on this and try to get a comprehensive view.

CONCLUSION: This note contains many speculative conclusions based on rather scanty data coupled with our analysis of string pitches. That little data though cannot be denied, and any alternative speculations need to be consistent with careful reinterpretation of that data. We are not now under the Ellis-Mendel handicap that Hayes(18), Bessaraboff (19) and Donnington (7) suffered from thanks to Thomas and Rhodes, so the time is ripe for reinterpretations of the data that confounded those scholars so.

NOTES

4. See Bessaraboff, Nicholas (1941) Ancient European Musical Instruments. This section is essentially a paraphrase of his translation p. 358. He made two important
   (i) The 4th word 'tuned' on line 20 should read 'played'. This implies that the 'other instruments' were not stringed instruments and so required transposition, and thus the next sentence concerning difficulty for inexperienced instrumentalists becomes clear.
   (ii) The 11th and 12th words 'should be' on line 27 should read 'is', and the next two words 'used' and 'only' should be interchanged. This changes the exclusiveness from Chorthon in churches only to churches using Chorthon only.
17. Tomkins, Thomas (1668) Musica Deo Sacra...
ON THE STRING LENGTH OF THE 16th CENTURY VIHUELA DA MANO

E Segerman and D Abbott

Some of the vihuela music (1) involves a full stop (barré) on the first fret while fingering the fifth fret, involving a stretch of about 19\% of the string length with equal tempered fretting. This is very difficult for most players on an instrument as large as the surviving vihuela in Paris (2) which had an original string length of about 80 cm.

The only other known information on the sizes of vihuelas is iconographic. On representation size can be determined by comparison with objects of known size. The most convenient such object is a human player of the instrument. A method for scaling representations is given in the Appendix.

In the Table we show the results of measurements of string length on photographs of 4 drawings, 2 sculptures and a painting of instruments believed to have been intended to be vihuelas. Because of crudity of drawing, either because of the artist's technique or the small size of the original, some of these data could be in error by more than 10\%. Our feeling is that most of it is accurate to less than 10\%. Distinguishing vihuelas from guitars is not helped by the habit the artists had of not being very concerned about getting numbers of strings or pegs right. With justification discussed here later, size is the primary criterion.

It seems then that these data offer some evidence for string lengths of about 60 cm (5 depictions), 70 cm (2 depictions) and 80 cm (the surviving Paris instrument). The first courses of such instruments could be tuned to \( f' \), \( d' \) and \( c' \) respectively in a pitch standard within a semitone below modern. This set of relative sizes is remarkably similar to the instructions often appearing in Baroque guitar books on how to transpose 'alfabeto' notation for guitars of 3 sizes to play together, where the smallest is tuned a fourth above the largest and the middle-sized one is a tone above the largest.

Bermudo (8) mentioned a six-course "descant" as one of a trio which can play together, the others being a vihuela and guitar. He did not describe the "descant" as he did (rather repetitiously) every other instrument involved, implying that it was so little different from another instrument already described that it did not need to be independently considered. We cannot imagine it to be other than a small vihuela. His instructions indicate that the descant was tuned a fourth above the vihuela and that the first course of the guitar was tuned a fifth above that of the vihuela when the three played together.

It seems reasonable to relate the surviving Paris 80 cm vihuela in \( c' \) to Bermudo's proper vihuela, and the 60 cm vihuela in \( f' \) to Bermudo's descant. This implies that the guitar's first course was tuned to \( g' \), a most appropriate tuning if we consider that the size of the Dias guitar at the Royal College is typical. The Guerrero illustration (9) shows a guitar of this size (about 55 cm string length). Bermudo implied a \( a' \) tuning for the guitar, which is consistent with this if we assume that mid-16th century Spain used a tone-low pitch standard. On this assumption the descant would have been considered to have been in \( g' \) and the large vihuela in \( d' \). Bermudo indicated that the vihuela player could imagine any pitch level for the instrument's tuning, but \( g' \) or \( a' \) was most usual. Luis Milan
The surviving Paris vihuela has space for 9 frets on the neck. In chapter LXV Bermudo wrote that the vihuela has 9 frets, but his illustration shows 10 and his fretting calculations are for 10 frets. He could have been inconsistent, but it would be reasonable to consider that he was thinking of large ones when mentioning 9 and small ones when indicating 10. Luis Milan mentions 10 frets and since his music involves noticeable hand stretches, the small vihuela seems to be the more appropriate one, though he mentioned both large and small ones when discussing the relative thickness of strings to put on.

Sixteenth century Spaniards clearly distinguished between the vihuela da mano (with the 'da mano' dropped after Milan's publication) and the guitar. Bermudo referred to the separate families of vihuelas and guitars. He mentioned a 5-course guitar. Fuenllana (10) wrote music for a 5-course 'vihuela' with the interval of a third in the same place as in a guitar, which was followed by 4-course music specified for guitar. It we assume that the usage of each writer was consistent (as we must do unless or until there is contrary evidence) then neither number of courses nor nominal tunings are the distinguishing factors. The vihuela was a more aristocratic instrument, but the inclusion of guitar music in the printed books of Fuenllana and Mudarra (4) indicates that aristocrats played guitars as well. The guitar had at least one course in octave tuning while the vihuela had none, so this is a possible source of distinction. A more probable source of distinction is size. Mudarra's (4) guitar music included a point where the 3rd and 8th frets need to be fingered simultaneously. With equal-tempered fretting (as specified by Bermudo), this stretch involves over 21 of the string length (Milan's music for vihuela requires a much more advanced technique but it requires a stretch of less than 19 of the string length).

Only after the decline of popularity of the vihuela towards the end of the 16th century, and perhaps somehow related to this, do we find evidence for larger instruments being called guitars. It is curious that the guitar in Spain in the mid-16th century played a similar little-brother role (same body shape, essentially the same technique but smaller) to the vihuela in aristocratic circles as it played to the lute before then in its previous incarnation with a round back.

Bermudo's distinction between 'vihuela' and 'descant' (vihuela) seems to us to imply some greater legitimacy to the larger instrument. This parallels Milan's illustration of a larger instrument than the one that he probably wrote for. The size distinction between the vihuela and the popular but somewhat less aristocratic guitar could have led to this linguistic bias.

We understand that Diana Poulton has heard of the existence of another surviving vihuela in South America, the history of which goes back at least to the first half of the 17th century. We look forward to more information on this instrument becoming available.

We would appreciate hearing about other illustrations of vihuelas. These would either add support to the generalizations made above or add new dimensions to this rather difficult problem.
the existence of many 16th century Spanish broadsheets showing illustrations of vihuelas and guitars. One, reproduced on the dust jacket of the Jacobs edition of Milan’s works, having 4 strings and a string length of 40 cm, seems to be a small guitar. Another used by Mason on publicity handouts for his Dec. 1st Wigmore Hall recital shows 6 strings over the body (ambiguous over the fingerboard) and a string length of 54 cm. It could be either a particularly small vihuela (equivalent to the English treble lute) or a normal guitar. If such small vihuelas of equal size to larger guitars existed (perhaps being distinguished by number of courses and back curvature) then they, together with the 80 cm size would be able to play the duets for two vihuelas tuned a fifth apart by Valderrabano. These broadsheets certainly need to be looked at.

APPENDIX I. THE SCALING OF INSTRUMENTS IN SCULPTURES AND PICTORIAL REPRESENTATIONS

Ideally we should have tabulated a set of average dimensions of people and their clothing, taking into account age, sex, social standing, period and locality. We would relate instrument sizes with those features most reliably known and easy to measure. The data are unfortunately not available to us now. There are data on variation in stature with time in the literature, but all we have found so far is a comparison of the average modern man’s height 5ft 9in with his height in 1700 of 5ft 4½ in, a difference of 6¼ in. Armour in museums testifies to medieval and Renaissance shortness. It is said that nutritional factors are probably responsible, and that their greatest influence on ultimate bone size occurs during babyhood. Cranial development is more advanced than other bone growth at birth and this could mean that head dimensions are less affected by nutrition than other measurements. Head size is usually very difficult to estimate in art works because of hair styles and other head coverings.

There are two measures relating to head size, either one or the other of which is usually available on representations. One is the interocular (pupil-to-pupil eye) distance and the other is the distance between the mouth opening and the centre point between the eyes. On pictorial representations the former is more useful if the subject’s face is pointed close to or above or below the observer. The latter is more useful if it is pointed to the side of the viewer.

Until better data becomes available we decided to use measurements of modern people for our scaling. On 8 adults, which included members of the household and guests, we measured the interocular distance and the mouth-centre of eyes distances and the average values were 63.2 mm and 64.6 mm respectively. The root mean square deviations of the measurements from these averages were 3.6 mm (5.7%) and 5.3 mm (8.2%) respectively. We noticed that there was a tendency for people who were particularly high in one of these parameters to be low in the other, and vice versa. Consequently, we averaged the parameters for each individual first and then found the root mean square deviations of the individuals was 1.8 mm (2.8%) about the mean of 63.9 mm.

Considering the errors involved and the probability that Renaissance people were a bit smaller, we have decided to use 63 mm as a standard estimate for either of these measures, and to add or subtract a few mm, if the facial proportions on the representation seem to resemble those of the more aberrant of the people measured.

We hope that these estimates will be precise to within a semitone or 6%. We cannot guarantee that the artists maintained this level of accuracy, but they offer most of the data on instrument sizes that we have, and such data must be taken very seriously.
# Table of ViHuela Representations

<table>
<thead>
<tr>
<th>Drawings</th>
<th>Ref</th>
<th>Approximate String Length (cm)</th>
<th>Number of Strings Depicted</th>
<th>Pegbox</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Orpheus&quot; in Milan's El Maestro</td>
<td>1</td>
<td>70</td>
<td>6</td>
<td>10 pegs</td>
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<tr>
<td>Dolphin rider in Narvaz</td>
<td>3</td>
<td>57</td>
<td>5</td>
<td>8 pegs</td>
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<td>&quot;Psaltcs&quot; in Mudarra</td>
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<td>picture too small for pegs to be shown</td>
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<td>German-Catalan dictionary</td>
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<td>58</td>
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<td>Drawing in Milan El Maesto</td>
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<td>Drawing in Bermudo</td>
<td>8</td>
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<td>12 pegs</td>
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BIBLIOGRAPHY

7. Pórtico de la Iglesia del Salvador, Ubeda (Jaén) Coronacion de la Virgen, Coleccion González Martí, Valencia. illustrated on publicity for Pujol’s courses 1973 and 1974, copies lent by John Roberts to Jake Jackson, who has kindly let us examine them.
10. Fuenllana, M. de, Orphenica Lyra (1554).
12. Valderrábano, E. de, Silva de Sirenas (1547).

WHY ARE LUTE PEGBOXES BENT BACK? E.S. and D.A.

Lutanists are often asked why the pegbox is set back at such a sharp angle. We believe that a remark by Ganassi in the first chapter of Regula Rubecrion (1542) has some bearing on this question. He stated that viols are best played when held nearly vertically, and that holding them cross-wise, as some people did, was inferior since it took up twice as much space. We can imagine that this space factor would have been most relevant when the company was huddled around a fire in wintry weather.

A 1562 illustration of viols played cross-wise (held rather like a lute) is Veronese’s famous “The Marriage at Cana”. The viols shown there could well have been constructed so as to minimize the antisocial space-taking effect of this playing position since their pegboxes are bent back at a remarkably lute-like angle.
I am often struck by the lack of similarity between the pegboxes and necks of modern lutes and those seen in contemporary paintings. Emilie Germain and Dilys Andrews have clarified many points of lute design. The intent of this note is to amplify a little on the subject of pegboxes and necks. None of what I have to say is new but it has never been spelt out clearly in the form given below.

I restrict my comments to lutes; not theorboes, archlutes or chittarone. These instruments are not yet well enough understood to make clear recommendations to prospective makers.

The information given below can easily be verified by studying any reasonably large set of contemporary illustrations of lutes, such as the Lute Society's picture collection. The rules given below are not invariably true, but they do hold for typical instruments of each kind.

A. SIX TO NINE COURSE LUTES - All strings are on a single pegbox with no treble rider. There are usually eight clear frets on the neck although nine are sometimes found. (e.g. Agostino Carracci - Man with a lute, 1576)

B. TEN COURSE LUTES - The pegbox is normally as in A above but a treble rider is sometimes found. Occasionally the lowest three or four courses are on a separate, bent-back pegbox with a single nut (not the stepped nuts found on many modern lutes). There are usually nine clear frets on the neck, with the fingerboard/soundboard join at the position of the tenth fret, or thereabouts. (e.g. ter Brugghen - The singing lute-player, which is in the National Gallery. A double headed lute is to be found in Jan Miere Wollenweber's Young man playing a lute and a young woman playing a cittern; again in the National Gallery)

C. ELEVEN COURSE LUTES - The pegbox is normally single with a treble rider and the eleventh course passing over an extension of the nut, off the fingerboard. The neck is as in 3 above. (e.g. Francois de Troy's portrait of Charles Le Moyne in the Louvre or ?Teeter Franchois's painting of a lute player (Early Music, October 1975, p552))

D. TWELVE COURSE LUTES - There are two S-shaped pegboxes with eight courses on the main pegbox and 4 diapasons on the stepped nuts of the second pegbox. The diapason pegbox is parallel to the neck and the other is bent-back. The neck is as in 3 above. (e.g. ter Borch - Woman playing a lute; in the National Gallery). It has been said that some eleven-course lutes were made in this way but I can find no hard evidence to show that this was done.

E. THIRTEEN COURSE LUTES - As Michael Lowe points out (GSJ 1976) 13-course lutes are almost always eleven-course lutes with two diapasons carried on a bass rider. (e.g. see surviving instruments)

Robert Spencer, however, mentions on page 313 of Early Music, July 1976 that the last stage of development of the lute (post 1720) was a lute with a theorbo-like head.

Many of the paintings mentioned above are illustrated in Early Music, April 1975 and October 1975.
MUSEUMS, COMMERCIALISM AND INSTRUMENT DRAWINGS

E. Segerman and D. Abbott

Several museums holding early instruments have been issuing drawings of these instruments at very commercial prices. The drawings are usually made very attractively and the price is comparable with other objects on the market which are similarly interesting as wall decoration. Another justification given by museum officials for the commercial price is that instrument makers are going to make profits from instruments constructed from the drawings, and the museum has a right to share in these profits. Though we could argue the last point, we will accept these justifications. Nevertheless we feel that there are many non-commercial instrument makers needing authentic design information on early instruments who are not being properly catered for. They often cannot afford to buy a commercially-made instrument and are willing to trade considerable labour for cost to get an appropriate instrument to play on. The price of the drawing could double the financial outlay to make an instrument, and this can be a hardship.

Another way that these museums neglect the amateur maker is that often not enough information is included in the drawing for an inexperienced maker to construct an instrument. The experienced maker can make better guesses as to what this information will be, but the probability that he will produce a reasonably accurate copy is still lowered.

We do not argue with this policy if a museum wants to restrict its intended markets to interior decorators and professional makers, though we are sure that there is an element of convenient self-delusion involved in that amateur makers are a large fraction if not the majority of their customers.

We have been shocked to discover that many museums expect to make the same profits from the sale of drawings of their instruments even if the measurements and the drawings are made by others and if the others intend to distribute these drawings on a non-profit basis. Their legal position on this with respect to copyright law is highly questionable (see Com. 28). So is their moral position as publicly supported caretakers of artefacts of our common history. Nevertheless we organologists need the cooperation of the museums in our researches so we need to play the game according to their rules no matter how illegal or immoral these may be.

We appreciate that museums are underfinanced, in that what they feel they need to do costs more than their given budgets allow, so commercial operations can be very helpful. But whom to thus commercially exploit can be a problem when their prime purpose is to serve the public, present and future. Those who themselves commercially exploit the museums' holdings are reasonable victims, but what is a commercial enterprise is often a question of arbitrary interpretation. NRI Design Service, though non-profit, does charge money for the designs, and this factor alone seems to be enough for museums to class us as "commercial". If we paid the royalty the museums seem to expect it would more than double the cost of most of the designs to our members. Our members are hungry for information on instrument design, and since early instruments were much more diverse than modern ones, many designs need to be collected to get a perspective of the range involved in authentic design. Because of this need for quantity such a high price in designs is unacceptable.

Our plan then is to try to work up designs in a rather scholarly and unartistic way and seek permission to distribute them from the museums holding the original instruments. If they demand their pound of flesh for this permission, we will re-do the design in a more scholarly and even less artistic way and try again. At worst the information could all be verbal and numerical with geometrical analyses for all shapes rather than outlines, and we can't imagine them having the audacity to charge us for that!

Jeremy Montagu

I reviewed this book in GSJ 29 and had forgotten, until I received my copy of the Journal, that I promised to list here all the additional information that I had accumulated on any of the instruments. Description of the book, and comments on the text, will be found in GSJ 29, and, despite temptation, I do not intend to amplify them here. I shall assume that you have bought the book, which is cheap enough and is an essential hand-list to the Carse, the Full and the general collections of the Horniman Museum, which is the best public collection of European wind instruments in this country, and I shall go through, starting with the plates, page by page.

Plate 1, fig.11. This tabor pipe is Pasque.

Plate 9, fig.44. Passe de lausette is marked I.IR as usual. It is presumably Swiss.

Plate 14, fig.63. The mouthpiece of the cornett is not original; it was made for Carse by Canon Galpin.

Plate 20, fig.90. This set of Perinet valves appears to be on a trumpet, but I cannot find any instrument in the following lists to which it belongs.

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fig.91. It would be better to use the alternative term of Système Belge for this set of 'Vienna valves' since they are on an Antwerp valve trombone.

p.66, Carse 53: This instrument is in parentheses because it was stolen many years ago.

p.68, Carse 157: the same

184: the same

p.71 Heltz recorder, see fig.7 (there is no cross-referencing from text to plates or vice versa; I will therefore list them here).

p.72 English Flageolet, Keith Frowse, see fig.8

Double Flageolet, Painbridge, Carse 17, see fig.9

p.73 French flageolet, anon., Carse 141, see fig.10

Tabor pipe, anon., 324-1885, for Provencal, read Pasque; see fig.11. I think that this may be a Victoria & Albert Museum number; many of their ethnographic and folk instruments went to the Horniman.

Pitch-pipe, Full, 227, see fig.12

p.74 Fife (in B flat), anon., see fig.24

Piccolo (in B flat), Köhler, see fig.21

Piccolo (in F), Lawkins, see fig.26

Piccolo (in A flat), Thibouville, see fig.22

p.75 Set of Two Flutes, T.Lot. The lengths vary according to the joints used, but the bores remain constant, so that these dimensions could have been given, as well as a range of lengths, at least giving maximum and minimum, as (a) x-y. I don't like 'Flute in D' as a name, anyway; the flute is not a transposing instrument, at least in this size, especially when one gets to the 8-key and Boehm instruments. 'Concert Flute' might be better, or just 'Flute' for this size.

p.76 Flute (in D), Ketscher, see fig.13

Flute (in F), Goulding, D'Alamine, Potter, see fig.25

p.77 Flute (in D), Laurent, see fig.14

p.78 Flute (in D), Prowse, Carse 68A, see fig.15

Flute (in D), Rudall & Rose, Carse 97, see fig.17
p.76 Flute (in B flat), Astor, Carse 14A. The key has been removed and the hole blocked with wax.

p.79 Flute (in D), Siccuma, see fig.16
   Flute (in D), Clinton, see fig.18
   Flute (in B flat), Improved London, see fig.23. Who was 'Improved London'? Was he one firm, or did a number of makers and/or dealers use this stamp? What was the improvement? Nobody seems to know; has anyone done any research on it?

p.80 Flute (in D), anon., 1972.221, see fig.19
   Flute (in D), Rudall, Carte & Co, 1972.157, see fig.20

p.82 Oboe, Stanesby Jr, see fig.27
   Oboe, J. Power, see fig.28
   Oboe, Wylde, see fig.29
   Oboe, Colde, see fig.30
   Oboe, Maino & Orsi, see fig.33
   Oboe, Zimmermann, see fig.31 (there is a copy of one of Zimmermann's Trade Lists in the Museum's Library, around 1880-90 if I remember rightly).
   Oboe, Rudall, Carte, see fig.32
   Oboe, Lorée, see fig.34
   Cor Anglais, Brod, see fig.56
   Cor Anglais, Rivet, see fig.55

p.83 (sorry to keep harking back to what I've missed), Oboe, Delusse T. Lot, the body is stamped Delusse and the bell is stamped T. Lot

p.84 Bassoon, Gedney. Sounds a semitone below modern pitch. I think it's a pity not to include cross-reference information where available. Carse Catalogue, which this handbook is intended to replace, notes that this was no.153 in the Royal Military Exhibition Catalogue; there are a number of other R.M.E. instruments in this collection.

Bassoons, Anon. & Proser, Carse 139 & 318. Both had the wrong crooks at one stage, 139 did not fit the instrument and the Proser had a pin hole, so it can't have been original for a 4-key bassoon. For the Proser, see fig.35

Bassoon, Goulding, Carse 125. This instrument has a single-reed mouthpiece, which may well be original (cf. the James Wood mouthpiece in the National Museum of Wales, St. Fagan's)

Bassoon, Savary, see fig.37


Bassoon, Schott, see fig.36. Sounds at A.440

Bassonore, see front cover. R. Sorley Pegge (henceforth R.S.P - he gave me a lot of notes and was enormously helpful when I worked at the Horniman) said this instrument was probably by Winnen, who taught Triébert, and was certainly French. I have given the Museum all the information that Sorley gave me, but not much has got into the handbook, hence the need for this Communication.

Bassoon, Hawkes. Hawkes is stamped as the importer; it is not made by Hawkes.

p.86 Musette, anon., Hall 185, see fig.43
   Musette de Musett, see fig.44. This is not 'anonymous' but is stamped I.R.
   Soprino Sarrusophone, see fig.45
   Reed Contrabass, see fig.46

p.87 Clarinet, I.S.W. Carse identified this as Johann Stefan Wielch of Berchtesgaden, but cf. Langwill (4th edn) for this.
   Clarinet, Goulding & Co, Carse 126. Mouthpiece is marked 'J. Wood fecit'.
   Clarinet, Winnen. The mouthpiece is not original.
Clarinet, Baumann. RMP told me that Baumann made the C# key for Xavier Lefèvre, who invented it, pre-1800. Carse thought that key was added, but RMP said it was original.

Clarinet, Actor, Carse 82, see fig.47

Clarinet, Hillhouse, mouthpiece marked 'J.Wood fecit'.

Clarinet, Astor, Carse 82, see fig.47

Clarinet, Hillhouse, mouthpiece marked 'J.Wood fecit'.

Clarinet, Bilton, Carse 60, see fig.48

Clarinet (in A), anon., Carse 253. Carse catalogued this as in B flat.

Clarinet, D'Almaine, Carse 47. Stamped Wood's Patent and has Wood's tuning slide.

Clarinet, Buffet Jeune. Correct cat.no. to 28.3.62 (these figures are the accession date, i.e. 28th March 1962). see fig.50

Clarinet, Ketzler, Carse 1698, see fig.49

Clarinet, Rudall Carte, see fig.52

Clarinet, Hawkes, see fig.51

Tenor Clarinet, Nichan, see fig.57. Carse called these Alto Clarinets, which I had thought was the more usual term.

Proud Clarinet, see fig.50

Saxophone, Killeireau, see fig. 60

Octavin, Dodring, Carse regarded this as a dealer's mark; cf. Langwill.

Octavin, anon., see fig.61

Tarocato, see fig.62

Cornett, see note for Plate 14 above. see fig.63

Serpent, Carse 223. RMP thought might possibly be by Baudouin, but on a later visit thought this doubtful.

Serpent, Baudouin. RMP said the crook was probably English.

Serpent, Eilton, see fig.64

Upright Serpent. Carse called this a Bass Horn; RMP said the proper name was Serpent de Cavalrie and that this one was probably French.

Serpent Forveille, see back cover. RMP said that Darché was at this address (7, rue des Fossées; only bits of the stamp survive) 1837-1855, rather later than the book suggests.

Bass Horn, anon., Carse 284. Carse catalogued this as 'said to have been made by F.Pace', but RMP said it was certainly not by Pace and might be Frichot's original model, made before 1803; see Grove.

Bassoon Barcons by Jeantet and Tabard. RMP said should be called Grandlyre or Upright Serpent. For the Jeantet, Carse 246, see fig.66

Bass Horn, anon, Carse 124, see fig.65

Key Angle, Ketzler, see fig.67

Ophicleide (wooden), see fig.69.

Ophicleide, Gautrot, Carse 106, see fig.70 (to be pedantic, the French instruments should be spelled Ophicléide).

Key Trumpet, Carse 95, see fig.68. 'existing state' presumably refers to the fact that there are no crooks.

Trumpet, Bass. The mouthpiece is not original, nor is it right for the instrument, since it does not project past the back bow.

Trumpet, Hodisch. A lash-up using an alto trombone bell.

Trumpet, I.G.U. This is in E flat, not D.

Trumpet, Kerner. This is in F with D crook.

Fanfare Trumpet, Carse 196, see back cover.
Fanfare Trumpet, Carse 249A, see fig.71. Carse thought this pair was by Köhler.

Trumpet, Carse 66, is in E flat, not D, and has a cornet shank in it and a modern mouthpiece.

Trumpet, Carse 100, is circular, rather than folded. Cavali Trumpet, Premier, is in high pitch F.

Trumpet, Sandbach & Wyatt, see fig.73. It has 4 crooks.

Trumpet, Pace, Carse 199, is in D.

Trumpet, Carse 76, has 4 crooks.

Trumpet, Bohland & Puchs, has 2 crooks.

Trumpet, Wabillon, see fig.74. Has high- and low-pitch tuning slides.

Slide Trumpet, Carse 64, see fig.72. In F.

Slide Trumpet, Köhler, Carse 147. The Péret valve was added later. There is a full set of crooks, F-C, and two tuning bits.

Slide Trumpet, Wyatt. According to Carse, this was made in 1890 (not reconstructed) and was exhibited at the Royal Aquarium Exhibition in 1892.

Slide Trumpet, Köhler, Carse 71. According to Carse is a Harper's Improved, and it has a full set of crooks etc. in its original box. The mouthpiece is certainly a Harper.

Trombone, Nagel. I am not convinced that this is a reconstruction. Tubular stays do not justify this description. The bell of this instrument is rotted to the extent that it is only the coating of lacquer (very thick, like all the brass instruments in the Horniman) that is holding it together. The great puzzle about this instrument is the mouthpiece that can be seen in all Carse's illustrations but that has now vanished; it does not seem to have been with the instrument when it arrived at the Horniman in 1947. Is so extraordinary a mouthpiece authentic, or was it a figment of Carse's imagination?

Trombone, Ricchi. The 'part of' means that there is only the bell joint.

Trombone, Bernareggi, see back cover.

Trombone, Courtois, see fig.76.

Trombone, Van Engelen, see fig.91.

Trombone, Keat, see fig.75.

Valve Trombone, Besson(?) (the registre is marked Besson Breveté), see fig.77. In effect of the registre is to lower the pitch by a 4th.

Valve Trombone, Perdo. Roth, see fig.92.

Bimbonifone. This Carse classified as a valved bugle, but valve trombone is more accurate. It has 5 whole tone and one semitone descending valves, and one ascending semitone valve.

Hunting Horn, Hull. In flat pitch F (between E and F modern). It has its original ivory mouthpiece.

Horn, Carse 254. In E flat. RMP said c.1705 English.

Horn, Carse 296. Sharp pitch - produces E with an E flat crook.

Horn, Startzer. According to Carse it has the date 1770 on it, and there are no crooks.

Horn, marked Raoux, Carse 209. According to RMP the crook is not original, it is probably not by Raoux, and if it is a Raoux it is Lucien-Joseph. See fig.80.

Horn, Raoux, Carse 166, see fig.81. Cor solo by Lucien-Joseph Raoux.

Horn, Carse 122. The attribution to Jahn is from RMP, about the only one of his comments that has got through.
p.97 continued

Hunting Horn, Carse 230. In D. Marked Gautrot, etc, with the GA and the anchor as usual.

Hunting Horn, Carse 248. In B natural (!); a real lash-up. The mouthpipe socket accepts a trumpet mouthpiece.

Hunting Horn, Jacquot, see fig.79. In D. RMP says second half of 19th century.

Horn, Collard & Collard (who were dealers). RMP says made by Smith of Wolverhampton.

Horn, Key. According to Carse, three crooks took the mouthpiece, and there were seven couplers (i.e. three master crooks). Eric Halfpenny worked out the permutations and combinations and they used to be shown on a label by the instrument. See fig.82.

Hunting Horn, Gautrot, Carse 44. In D. RMP said properly called a trompe à huit tours (not nine).

Hunting Horn, Duchêne. In D. RMP said 1862-7.

Horn, Potter. Carse thought this was French, imported by Potter.

Horn, 5. Co. Boosey, according to Carse.

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p.98

Cornet, Kretzschmann. See fig.83. Should be called Cornet Simple.

Cornet, Face, 35.107, see fig.87

Cornet, Kent. Has 3 crooks (all my references to crooks were correct in 1961, when I checked them all).

Cornet, Guichard. Complete set of crooks and two original mouthpieces.

Cornets, Köhler, Carse 236 & 35. The valves should be called either Shaw's Patent Swivel Valves, or Köhler's Levers.

236 has 2 crooks. For 35, see fig.88

Cornet, Distin, Carse 198. Made by Sax and imported by Distin, who was his English agent at one stage. Bell over the valves model. See fig.89

Cornet, Metzler. Has 5 crooks.

Post Horn, Kent. Has a long tuning slide.

Cornet, Köhler, Carse 181, see fig.84. Has McFarlane's clapper key and a complete set of crooks.

Cornet, Köhler, Carse 187. This is Bayley's Improved Acoustic Cornet.

Cornet, Carse 182. According to Carse, said to have been brought from Russia. I seem to remember seeing Sediva instruments like it in Prague (see GSJ 21)

Cornet, Wallis. The valves are the wrong side of the mouthpipe and it may have been made for a left-handed player. There is a Wallis Trade List of about this period in the Museum's Library.

p.99

Cornet (Echo). If there are only three valves, how does the echo work?

Clevidor, see front cover

Saxhorn, Sax. Marked La Famille Distin, and made for their concerts.

Saxhorn, Distin, see fig.85

Tenor Horn, Carse 50. Bell-over-the-shoulder model. Carse thought made by Uhmann, Vienna, but might also be American.

Flügel Horn, Gautrot, see fig.86. Soprano in E flat.

Ballad Horn, Audall, Rose, Carte. This is not a Ballad Horn, which was Distin's patent name, but a Vocal Horn. Samson called his valves Finger-Slides.

Bugle, Farquharson, see front cover.

p.100 Bugle, Carse 133. This is a Cycle Club Bugle and it is marked W.S....E.
Saxhorn, Boosey. This is a Koenig Horn, and it has three crooks and compensating pistons.

Bugle, Carse 36B. This is a Boy's Bugle, pitched in the usual E flat but with small bore to make it less effort to blow.

I hope that these details may be of use, now that the Carse Catalogue is out of print. Morley Pegge gave me more detail on the brass than on the woodwind. Perhaps another FOM w member can give us more detail of the woodwinds. It may be worth saying again that as well as the handbook, the plates can be bought as a separate little folder, costing only 15p., so that if you know anyone working as a student of woodwind instruments, there are ample illustrations available very cheaply (where else can you buy 92 photographs for 15p.?) to illustrate any written work.

FURTHER ON COMMUNICATION 29

E Segerman and D Abbott

Comm. 29 has aroused some discussion amongst lute makers, especially at the annual informal get-together at the Lute Society Summer School. We talked to people who have seen many more early lutes than we have, and as a result some points need modification.

C 1. The end clasp can be thinner than the ribs so that it can more easily bend around the compound curve. On the inside, opposite it, with about the same width, somewhat shorter in length and up to 3 times its thickness, is an inside clasp called 'fausse' or 'contrebragne' by Mersenne. These two clasps sandwich the ends of the ribs which, according to Hellwig's X-rays, can often be rather broken-off inside.

C 7. The neck block cutaway is not as common on original instruments as we thought. This is a pity since the acoustic and repair advantages with no strength disadvantages are so obvious.

Several points need to be emphasized with respect to Comm. 29. We attempted to indicate what we hoped were typical parameters of early lutes. The proper research assembling all of the data possible so as to try to determine what is typical (and what were significant variants from typical) at each time and place has not yet been done. As we said, some was just guesswork based on relatively little data. For instance the suggestion in C 13 to increase the rib thickness to 2 mm. is based only on an original mid-16th century lute back in our possession which has sycamore ribs 1.8 - 2.5 mm. thick Mersenne (1636) said 2.5 mm. We have since been told by an authority that most of the lutes he has restored had ribs closer to 1mm. in thickness.

We hope that there was no implication read into Comm. 29 Section C that Philip McCleod Coupe agreed with all of our suggested modifications. Until the proper research is done (and perhaps even after, if the data cannot resolve issues) it is appropriate that there be friendly differences of opinion.
Most scholars in the early music field feel that offering the products of research to the concert and instrument-buying public as it happens is very natural and healthy. They are learning more and more about how and on what early music was really done, and the performers and instrument makers are getting better and better at recreating it. Thus, if mistakes are made in ignorance along the way and if there is a time lag in the response of performers and instrument makers to the research because of their investment in old ways, it will still all come out as authentic as can be in the end. It is in this spirit that these books on early instruments were written.

For the scholars this practical realisation of their work is most stimulating, but there is a very serious danger when we consider the effect of communication of false information to the concert audience and the instrument buyers whose commitments are primarily to musical appreciation and expression and only secondarily to historical accuracy.

The problem is one of initial aesthetic commitment, analogous to imprinting in animal behaviour. Readers of Conrad Lorenz will know that baby geese will follow the first moving object they see after hatching, and if it happens to be Lorenz, the real mother goose gets ignored. We all know that first impressions are the most lasting. I have been spoiled from enjoying the more authentic sonorities of recent performances of those Monteverdi pieces that moved me so when I first heard them in the 1936 Nadia Boulanger recording. That recording is the only meaningful performance for my personal aesthetics and this is most disturbing since I intellectually know better.

As any propagandist knows, information offered to the public when they are highly receptive to it sticks so tenaciously that subsequent refutations of errors can never be more than partially effective. When people are shown that they have been misled the usual reaction is annoyance and rejection; the danger then is when members of the public realize that they have been misinformed, they will either turn away from early music or reject authenticity as a significant factor to strive for (as has happened with the folk music movement).

Both authors have acquired deep understanding of certain classes of early instruments and could write authoritatively about these, but it is somewhat impossible to attempt comprehensive books on early instruments when much of what is written involves the interpretation of the work of others that the authors have not understood on such a deep level. It is perhaps unfair that this review is written by me who can only claim that some competence in the area of strings, an area in which the authors could be expected to be the weakest. But since we all agree on the supremacy of strings for 'serious' early music, the needs for accuracy in this area are most pressing. A commentary on the contentious points of the strings sections of both books was supposed to be part of this review, but it is becoming so long and taking so much time (being the prime reason for the delay in production of this issue) that it will need to be a separate communication in the next issue.
The amount of information surviving about early music and instruments is strictly limited. In a very few years, this information on early music-making will be sufficiently analysed and argued for us to know what they most probably did and used, to know what they most probably did not do or use, and to delineate what aspects of their activities we shall probably never know. We will then be able to distinguish between the authentic, unauthentic, and conjectural, and write authoritative books on early music and instruments. Both authors mention the realization that their books are far from the last word on the subjects they treat but this will not prevent many readers from uncritical acceptance of what appears so attractively in print.

The casual reader will not be seduced into early music by either book. He will quickly tire of the texts of both. The Munrow book is remarkably thorough and the detail is too complicated to take in quickly. The Montagu text is simpler but written in a dryer, less involved style. Relating the text in the latter to the illustrations on different pages and with different codes is most exhausting. Thus the casual reader will quickly be reduced to just looking at the pictures of peculiar objects in association with peculiar names. The new convert will find both books very helpful in accelerating his learning, but since there are many errors in each, the dangers mentioned above are most serious. The experienced serious student of early music already accustomed to both the wild speculation and the ignoring of data contrary to expectations by the best of scholars will not suffer from these dangers. He will find each book a mine of valuable information not easily available elsewhere and will keep copies of both close at hand.

The books differ greatly in the treatment and choice of illustrations. The Montagu book restricts itself to early depictions of instruments and photographs of surviving ones. This is appropriate since the book is about early instruments. In spite of the text of the Munrow book being mostly about early instruments, the illustrations are largely about surviving folk relatives of early instruments (country cousins), modern simulations of early instruments, and the people who contributed their musical or instrument-making skills to the Early Music Consort of London. His generosity in plugging the people who contributed to his success and his honesty in pointing out those non-authentic aspects of the instruments shown do not detract from what I consider to be the irresponsibility of implying that make-believe early instruments played with obviously modern technique are good enough. I appreciate the attempt in the illustrations to impart an immediacy of early music being played today, and would be most happy with the depiction of accurate copies of early instruments played in positions typical of those shown in early illustrations, but too often this is not the case. It is true that the majority of the illustrations are appropriately early, but they are rarely given as much prominence as the modern and folk instruments. The much welcome exception is the cover. The illustrations in the Montagu book are its strongest point, being generally very clear. Many are not readily available elsewhere and those which are are produced with greater quality.

The Munrow text is a remarkably good collection of current beliefs about early instruments and the bibliography is an excellent guide to the readily available secondary literature. It also offers a most valuable selection of translations of early sources. I had great difficulty in finding an original thought. It is a tremendous job of research of the type that Rutherford called "stamp-collecting", with no synthesis.
Montagu clearly hadn’t read as much about what others have said as Munrow did, and this shows not only the pitiful bibliography. Montagu was much less inhibited about thinking for himself. As expected, this has led to both excellent insights and considerable howlers. Though I can learn more facts about early instruments from the Munrow book, I get more feeling of their reality from the Montagu book.

In conclusion, members of FoMIRHII would be well advised to acquire both books, the Munrow book for its comprehensive coverage of modern sources and many quotations from early sources, and the Montagu book for its stimulating ideas and excellent illustrations.

We hope that other specialists will complement the survey of contentious points that we will include on strings in the next issue. The books are so different in style and valuable in their own ways that each will deserve second editions. Let us help to get them right.

APOLOGY. E.S. and D.A.

We must apologise for the serious delay in the appearance of this set of FoMIRHII communications. All of the contributions except ours were on time. The main cause for the delay was the book review Comm. 44. We were given to understand that publishers are particularly keen to have their books reviewed as quickly as possible after publication, so we decided to hold over until E.S. finished it, which seemed imminent. Well it got longer and longer until D.A. convinced him to split it, giving the general part as Comm. 44 and the specifics in the next issue. Meanwhile our other contributions remained in manuscript form because D.A. had a serious infection of the disease E.S. usually suffers from: typewriting. We have now been rescued from more serious consequences developing from this problem by the appearance of an angel in white by the name of Christine McWilliam. Like all the best angels she is constantly improving her lute playing, and after lessons she volunteers to help with the typing.

Again, we are very sorry for the delay and feel that the fellows would be justified in transferring production of the quarterly to others. We can’t honestly promise that errors of judgement will never happen again, but we do promise to try harder to avoid them.

LATE ADDITIONS

Peter John Lang has about 400 Kg of Rio Rosewood mostly in boards about 5 feet x 6 inches x 2 inches. Most of these include the centre of the tree so one gets usable wood on either side of the centre. Price £1.50 per Kg, preferably in bulk. He has some boards without the central bit. Address: 744a Fulham Road. Phone: 01 736 0630.

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