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FELLOWSHIP of MAKERS and RESTORERS of HISTORICAL INSTRUMENTS

Bulletin no.16

July, 1979

AUDITOR'S REPORT: The Accounts for 1978 were audited (or to be more exact, the ledger, the cheque book, the receipt books, and all the bits of paper such as invoices and so on, were compared) and were given qualified approval. The 'qualified' was because the bank statements were framed in such a way that it was in some cases impossible to tell what a credit represented. I have had a sort-out with the bank, and I hope that it will be easier to tell what's going on next year. They were on the whole approved because the discrepancies were minor and mostly in our favour - ie if they did go wrong, we've got a little of their money rather than vice versa. Anybody who is doubtful is welcome to give me a ring and come and inspect the books.

We finished the year with a surplus of £345.58 (plus advance subscriptions for 1979), whereas the year before we had had a surplus of £137.06. It looks, from advance estimates from our printer, as though we shall be using up that surplus to cover us for the rest of 1979 and I am afraid that we shall almost certainly have to increase the subscription for 1980 - more news on that in the next Bulletin.

REPRINTS OF BACK ISSUES: As I told you last time, Quarterlies 2-9 are out of print. I asked for volunteers to organise reprints, and I have had two responses, one for North America (U.S.A. and Canada) and the other in this country to cover the rest. There would be a considerable saving in postage if we had an Australian volunteer, or New Zealand; any offers?

U.S.A & Canada: Theodorus Miller (RR1, Port Washington, B.C., Canada VON 2T0) can provide copies at 10c. for two pages. I have asked him, but have not yet had an answer, whether these will come single or double sided, flat or folded and stit ched, and what suitable envelopes and postage costs will be. An answer came just in time - see p.8 for the details.

Everywhere else: Geoff Kime (11 Dunhill Road, Goole, N.Humberside DN14 6SS) can provide copies at 2p for two pages. These will be single-sided flat sheets paginated so that if you have a long-arm stapler or needle and thread you can stitch them up as normal issues. We're sorry that they are single-sided, since this double the bulk, but Geoff and I agreed that you were probably better off single-sided at 2p than double-sided at 10p a side. Suitable envelopes for one issue cost about 10p and postage per issue about 20p by surface (and in UK) and £1 abroad by air.

Number of pages: Q 2:32; Q3:72; Q4:44; Q5:52; Q6:52; Q7:52; Q8:76; Q9:72.

In all cases, divide by two (two pages to a sheet) and multiply by either 10c (Canadian) or 2p (British) and add 10p per Q for an envelope (and however many cents a flat A4 envelope costs in USA - legal size if you haven't got A4) and whatever 200 grams postage costs - in UK as in previous paragraph (the projected increases of about 25% are built-in to those figures).

Please don't expect same-day service from either Theodorus or Geoff. Theodorus I imagine has got to go down-town to get them done, so they'll wait till he is going anyway, and Geoff has got to fit them in with whatever time his firm can spare on the machine. Personally I'm very grateful to both of them.

NEW FELLOWS: Luis Esteves Pereira, Felix Raudonikas and Marco Tiella have been elected Fellows. A friend of mine took a calculator to Felix in Leningrad a month or so back; I gather he would still be very grateful for help with music and with strings - see p.12 of Bull.13. It is very difficult for individual Russians to send money abroad and if you have anything suitable that you can spare, he and his colleagues will be very grateful.
FURTHER TO: Bull.15, p.5 on oils: Neil Buckland replies to my comment on his previous note that "we should be interested in "authentic" oils because they're the only ones which have been tested on instruments over any great length of time. I don't think modern manufacturing processes for vegetable oils, chemical additives, etc, have been in use for very long and I doubt that any laboratory could adequately duplicate the effects on an instrument that two or three centuries of playing, weathering and oilling would have - so 'authenticity' is relevant, at least in so far as we know whether or not the 'authentic' oils did or have damaged old instruments......The law in Australia is such that foods can be labelled 'pure' which contain any number of chemical additives, and even if your laws are better they probably allow exceptions and loopholes. I tend only to trust the cold-pressed oils I buy in health food shops - they are imported, sealed, from America with a label which states that they have no additives. Chemical firms are not likely, I think, to see purity in quite the same terms - one should at least be careful with them. Also, we know that almond oil was used on woodwinds in the 18th century, and it should be pretty simple to find an old recipe/home-making/craft book which tells how it was extracted. Cold pressing is surely the most likely method(?)."

I am inclined to agree with him regarding cold-pressing and to withdraw my suggestion of chemical supply firms unless one can check for additives. However, some of his other suggestions take us back to the long and acrimonious correspondence I conducted with Michael Zadro in Early Music some years ago and to the Nürnberg conference on instrument restoring in 1974 (a few of the papers from which are printed in MICAT 1, reviewed in this issue, but not the relevant one unfortunately). Briefly, there is a considerable difference between oilling an instrument that you are using continually, and oilling an instrument that will then stand unused in a museum for a century or two. If you take a modern instrument (whether you are 18th century or 20th century player) and oil it with a drying oil such as linseed or almond, continually refreshing the oil as you go and as one does, you will be fine, but when the oil dries, as it will do eventually, it will then form a crust in the fibres of the wood, expanding as it does so, and crack the instrument. This won't be your concern as you'll be dead by then, but it will concern your eventual successors. This is why there are so few uncracked instruments by Bressan, Denner I or II, Stanesby I or II and others; their 'modern' owners did use linseed and almond, and eventually the instruments cracked. Whether our modern 'reproduction' instruments are of such quality that it is worth worrying about their preservation for a century or two is a matter of opinion; if you think they are, then don't use a drying oil, but if you think they're not, then use what you will (but don't use a mineral oil such as light liquid paraffin - evidence at Nürnberg showed that it promoted mildew and an instrument oiled with it won't even last your lifetime; you do need a slight acidity in the bore). But if you are using an instrument worth preserving for the future, please use a non-drying oil. The oil recommended at Nürnberg was ground-nut (pea-nut, arachide, erdnusse, etc). Whether this is still recommended I don't know. Would some of our conservationist colleagues such as Cary Karp please join in?

Bull.14, p.3 on ivory: Cary Karp writes:

If all, or even most of the ivory on the international market were obtained through licenced hunting there would be less reason to make a fuss. Unfortunately, plenty (perhaps more than half) of the ivory in current trade is taken by poaching, a practice which does endanger the survival of the elephants -- "reputable" ivory dealers and necessary culling of elephant herds notwithstanding. Poaching occurs because there is a market demand for ivory. If the practice is to be terminated either the demand for ivory will have to diminish or considerably more stringent trade controls will have to be put into effect. The latter solution has thus far proven only certain that matters would only be
improved if everyone who could abstain from purchasing or using ivory (however "clean" the source) would simply do so. As to current stocks of ivory obtained from elephants long dead (We've got four and a half such tusks on our workshop floor, so I'm not talking about a problem which does not effect me.): The only thing I can think of is not using the stuff at all until legislative or other action has brought the problem of poaching under control. Afterwards the ivory (which certainly will not have diminished in value in the interim) can be doled out onto an entirely "legal" market at a modest enough rate so as not to upset the balance between legitimate supply and demand. Some numerical data on the problem is to be had in two articles which appeared in the New Scientist, 15 April 1976 and 20 October 1977, under the title "The Ivory Connection". (Anyone who can't otherwise find these can write me for xerox copies.)

Cary has sent me copies of the xeroxes, and anyone who finds it easier to call in here to read them than to go to a Public Library or write to Cary is welcome to do so.

On the same subject, Philip Davies has sent the following note; he also sent photos of an English Guitar with a rose made of this material. It looks very well but it is very obviously cast and not carved. Years ago I heard from a fellow Galpin member in America that he had excellent results with what I presume was a similar material (it was a dental material) when replacing and repairing woodwind ferrules; for that job you have to add colouring just as a dentist does when making a false tooth to add to those of your own which may not be quite as white as nature intended.

The dental material, TOOTH ACRYLIC, is an excellent and easily worked ivory substitute. Complicated shapes can be produced by making a wax model of the shape and size required in "ivory"; from this a two-part plaster of paris mould is prepared and the wax flushed out with hot water. The tooth acrylic polymer powder is then mixed with just enough monomer liquid, pressed in the mould and hardened by heating in a water bath. The plaster mould is broken up to recover the "ivory" carving. This process is the same as that used in making dentures or in jewellery by the lost wax method. Carving wax is easier than carving ivory, as it is soft and mistakes can be made good by melting on additional wax.

As I am a dentist I have been able to process my own "ivory", but as the laboratory equipment necessary may be more extensive than an instrument maker would wish to install for this limited purpose, perhaps the best source of this material would be a local dental laboratory or dental technician, who already have all the material and equipment.

As he is also a skilled maker of fine detailed work, you may be able to interest the dental technician in your work, and he could then provide you with wax and carving instruments, and do the moulding and processing of your ivory substitute.

Comm.191: Hugh Boyle has sent me an errata sheet to this book. Please make the following corrections: p.25, 6 lines from bottom, 'p.233' should read 'p.267'. p.58, line 6, 'distance' should read 'diatonic'. p.130, line 8, after 'Though frequency' insert 'ratios'. p.132, 12 lines from bottom, insert 'not' to read: 'which do not include the tonic'. p.171, line 12, for 'strong' read 'string'. p.251, delete either the 7th or 8th line from the bottom, depending on whether you prefer to read '1' or 'one'.
Comm.192: Paul Gretton tells me that the issue of Cornett & Sackbut costs DM.5, payable by any means that ensures that he gets five marks; i.e., make sure that you and not he pay any bank charges, conversion charges, etc. This covers that issue only, and anybody who buys it will be told when another issue is about to appear; the cost of doing so is built into the DM.5. He hopes that if enough people are interested, both in buying and writing for it, it may become a periodical rather than what I call a spasmodical, and then he can fix a subscription price. He is not sure that is as 'organisation minded' as we are with FoMRHI (little does he know about the quarterly panics and phone calls) but I hope he succeeds. Early brass may be a minority interest, as he says, but surely there are enough people interested for such a periodical to succeed?

A Comm. herewith from Luis Esteves Pereira: I asked him whether the radio-frequency oven he refers to is the same as, or similar to, a microwave cooking oven, because of the rather perturbing things one sometimes reads about waves leaking and causing damage to human tissues. He replied:

May I tell you that the oven I described is not the same thing as the present micro-wave cookers now on sale for domestic use. The big difference is that the industrial oven (as well as the plastic welders) operates in the short-wave range, say, around 30 MHz frequency and the power is produced by means of ordinary transmitting valves, either triodes or tetrodes (3 or 4 electrode valves). The cookers are an adaptation of radar gear and operate in the so-called micro-wave region, say 3 MMz and the power is generated by a pulse modulated magnetron (2 electrode special self-oscilating valve). The difference in power is tremendous - hence the oven I described delivers something between 100 to 1000 watts, depending on the application and the valves used, the pulsed magnetron delivers quite easily 30 to 60 KW, because it works only during some microseconds and rests ten time as much.

Both the radiations may be harmful to the human but the last, being so powerful, is much more likely to be dangerous if not appropriate precautions are taken, either by the maker of the oven and/or by the user.

Bull.15, p.6: Luis says that he has heard from one member regarding the polyglot dictionary he suggested. I saw the other day a brief report of something on those lines published by Barenreiter, and I think that anyone interested in such a project should check that work before proceeding; if their coverage is reasonable, there isn't much point in producing another, but if their's is inadequate or inaccurate, another publisher might be interested in a rival work.

BAROQUE GUITARS: I've heard from two members recently who play baroque guitar. Mitsuo Yokoyama sent me a programme of a concert he gave in Tokyo last March on five-course baroque guitar, with a soprano, baroque violin and viola da gamba (and a solo lute). Harvey Hope brought me a record he has made, using a number of baroque guitars (one after the other, not together), which he asked me to review - see elsewhere in this issue. It's the first time we've been asked to review a record, and we would be happy to review others so long as they are of instrumental interest and made, like Harvey's, so that one can hear what the instruments sound like and compare them either with others on the record or with others.

A JOB: Malcolm Aldridge is leaving his job as Curator of Instruments at the Music Faculty of King's College, London University and wonders if any of our members might be interested in it (if it's still open - he wrote to me a month or two back, and there was no answer when I tried to check by phone today). It could be combined with a job that sounds like general
boysbody to the Faculty (they call it Administrative Assistant), in which case it would be full-time; if it were just as Curator of instruments it would be part-time. For more information, get on to the College (address under Malcolm's name in main List of Members and under King's College in the Supplement herewith).

ADVERTISING: Walton Mendelson wrote to ask whether any of our members would like to take part in a Consumer Guide to Early Instruments in Divisions. This would be a two-part guide, the first part would be a list of makers and their instruments, with prices and so on, and if I understand him correctly would also include ratings based on a questionnaire returned by players of their opinions of a maker's instruments (I may be wrong in this interpretation of his letter - if I'm right I hope his libel laws aren't as strict as ours). The second part would be a catalogue section which would consist of displays of makers' brochures. Entries in the first part would be free; entries in the second part would cost $150 per guide page (ie your brochure could be reduced so that several of your pages could appear as a page in the guide). Layout and typesetting extra. The guide would be a separate production from Divisions itself and would be advertised and sold in music shops etc. If interested, get in touch with him at the address in the Supplement herewith. I'm not clear whether makers who don't take space in the catalogue section will get listed in the first section - it's always worth asking.

FREQUENCY GENERATOR: Larry Domonkos (address in the Supplement herewith) has sent me a flier for the Pitch Box his firm, Sterling Music, produces. It generates eight octaves of quartz crystal controlled equal temperament. I'm not sure how useful eight octaves of equal temperament are to our members, as I told him, but the price is so low ($68.00 plus shipping of $5.00 in USA but more overseas of course) that it might be better to count the beats from equal temperament rather than pay a lot more for a machine that will push out meantone or whatever. The price is low because there are no frills; just an octave dial, a twelve semitone dial and an on/off switch to combine with your ear. He will be producing a microphone and zero-beat visual indicator shortly if you want to pay for whatever extra that'll cost. PS. See a further note on p.8

COMPUTER CATALOGUING: Pete Holmes adds to his Comm. herewith that if anyone is interested and sends him data in reasonable state, he can get the college operators to punch it on the cards, leaving him free to check the format, sorting and running. If I were to get out a programmable list of my iconographic material (what BM and other manuscripts I've checked, church carvings, etc) who would join me? I'm not sure it's worth doing just for mine (I can handle my own scribble OK for myself), but if, for example (and if I may name a few members' names), Ed Bowles, Laurie Wright, Mary Remnant and anyone else with such lists joined in, we would have a very useful tool, for the computer can be programmed to spit the stuff out in any order so that print-outs could be by instrument, by country of origin, by date, by present location or in any other way.

We're open to any other suggestions for joint efforts. If you have solo ideas, get onto Pete direct.

COURSES: These are all a bit short notice at this stage. Walter Hermann Sallagar has a course on Aufführungspraxis and Playing Technique, 1600-1800 on original instruments, led by himself, Nicholas McGegan and others from August 12th-24th.

His plans for 1980 include instrument making 1600-1830, certainly including baroque traverso, recorder and oboe, and perhaps others - if interested get on to him soon because much of this sort of planning depends on demand. Meanwhile, you may not be too late for this August; his phone number is in the Members' List.
Robert Lundberg (address in the Supplement herewith) is teaching a course on historical lute construction at the Erlanger Musikinstitute in Erlangen, West Germany, August 20-25. Last year's course was attended by a dozen or so professional makers from various countries. He is also directing a seminar for the Lute Society of America in August (Ray Nurse, who is also teaching at it, tells me that it's in Vancouver, but neither gives dates) at which there will be complete measurements and photographs of over 170 extant examples, drawings especially prepared for the course, stereo x-rays and several original lutes in process of restoration.

Incidentally, we had a nice compliment from him when he joined recently. He said that he got our original come-on in 1975"but was at that time in revolt against the masses of new societies and newsletters, etc. I recently had an opportunity to read over a few of your bulletins; I felt immediately that this was too good to pass up." We think we're quite good, and it's always encouraging when new people agree with us!

Paul Mosby (also in the Supplement herewith) has a woodwind holiday on baroque instruments, July 30th-August 3rd. Since this isn't the first he's done at Winchester, if you're interested in such activities for next year in this country, get in touch with him, in the hope that there'll be another.

The Centre de Musique Ancienne, rue Charles-Bonnet, CH-1206 Genève, Switzerland, has sent me a notice of a course La Musique Baroque à Londres for recorder, baroque violin and cello, lute and harpsichord, with Michel Piguet and others, from 24-28th October.

REQUESTS: J.J.Hildreth says "I am desperately searching for literature on violin bow construction and violin tools". If you can help him, his address is in the Supplement herewith.

Colin Everett says that he has recently become interested in viol making and wants to know of published plans, especially of the V&A Richard Meares bass of 1677 (no.170-1882) and Joachim Tielke c.1700 bass (no.168-1882) and of the Berlin Barak Norman bass 1697 and the Brussels Joachim Tielke bass of 1701. He also would appreciate information on authentic viol bows. Can anyone help him? Address in main List.

Bruce Haynes has had very little response to his suggestion in Galpin Soc. J. 30 of a Register of Early Reeds, to include details of double reeds of all sorts. He gives a number of drawings of the shapes and dimensions which should be recorded. If anyone can help him in this vital quest (reconstruction of instruments without reconstruction of reeds is a waste of time, and there are many times more instruments than there are reeds surviving), please write to him at de Ruyterstraat 47, The Hague, Holland. His original request is on pp.145-151 of GSJ 30.

While I was in Israel earlier this year, I gave a couple of lectures at Bar Ilan University. They are trying to set up a centre of early music there (one of our members, Joachim Braun, teaches there) but they are ham-strung by Israeli customs duties which charge well over 100% import duty on instruments, as well as by their own inflation problems which are far worse than ours. There are a considerable number of instruments that they need (ravale harpsichord, clavichord, baroque violin with bow (and eventually several of course), baroque gamba, Dowland period lute) for baroque music, and others (fiedel, portative, cornett, crumhorn, sackbuts) for earlier periods, and others (handhorns and other orchestral instruments) for later periods. If any FoMRHI members were willing to offer instruments at cost, I would see if I can raise any charitable money to pay for them. Of course if anyone were able to offer any spare instruments as gifts, their gratitude would be immense. Israel is just beginning to wake up to early music, and I think that it is important that they should start with reasonably authentic material, rather than some of the rather dubious instruments that are beginning to be made there.
CODA: (had planning to get this far at the top of a page, unless something else comes in before this goes off). I'll be at the Early Music Exhibition at the Royal Horticultural Hall, Vincent Square, London S.W.1, from 13th to 15th September (at least I hope I shall; it just occurs to me that I should have heard about the stand there by now) and I look forward to seeing any of you who come to it there.

Deadline for the next issue will be October 2nd; if you've got anything done by then, let me have it at the Horticultural Hall. And if this issue is a bit thinner than some, might it be because you haven't sent us anything?

Jeremy Montagu

REPRINTS OF BACK ISSUES: A letter arrived from Theo Miller this morning. It reads as though his copies will come printed on both sides and stitched like the originals. Postage in Canada will be 45p for single copies and £1.55 for each year set (2-5 and 6-9) — four copies is as many as it is safe to put in one envelope. Postage to USA will be 55p for singles and £2.05 for each year set (2-5 and 6-9). These figures include the cost of envelopes.

FREQUENCY GENERATOR: A.W. Simpson says that he has bought one of the Sterling Pitch Boxes. It seems solidly constructed and well engineered. It measures 2½"x5"x5½" and has a 3" loudspeaker. His only criticism is that the on/off switch on the volume control knob is not very positive so that it is easy to leave it switched on. There is some distortion in the bottom octave, which is probably inevitable with so small a speaker. The accuracy is governed by a quartz crystal, similar to that in a wrist-watch, and the integrated circuit is spot on — the maximum error is about one cent. He is sufficiently confident with the device that he has decided to import a few to sell at the Early Music Fair in September; allowing for import duty and carriage the price should be £38 or thereabouts.

FLUTE PLANS: Felix Raudonikas is preparing a plan, with full details, of the Tromlitz flute in Leningrad (he says a number of members have written to him asking for this) and he will send it as a FoMRHI Coram, as soon as it is ready. He says, by the way, that he is not a member of the staff of the Museum, but works privately with the exhibits with the courteous permission of the Museum authorities.

REEDS: Daniel Papuga has two addresses of cane suppliers of soft-cane, suitable for uilleann pipes; he has not ordered from either yet himself: Madame Ghys, Le Roseau du Var, Avenue Jules Grec, Antibes, France (specify the type of reed you want); Ronnie Watheen, 'Es Clot', Deya, Mallorca, Spain ('cut to size and ready for gouging').

OFFERS: Susan Andersen (Mrs. Theo Miller) has recently built a monochord, patterned on the illustration in Praetorius; she offers plans for a small charge to cover to xerox and mailing to anyone interested.

REQUESTS: She asks for plans, or information about availability of plans, for a psaltery, and any suggestions for sources of information about psalteries. She does not say which shapes she is after.

Daniel Papuga (address in Supplement herewith) wants to make “conical whistle-flutes similar to ‘Clarke’ whistles but an octave lower”; are there any examples around that anyone can tell him of? He also asks whether ivory distorts at all through time? If so, how would one calculate dimension changes in old ivory instruments?

David Ross (new address in Supplement, but I would hold messages for him) is coming over here in September or so and wants to study clarinets, old and new. If anyone has specimens that they would let him look at in detail, please let him or me know. He will be over here for a while.

That's the lot.
**FELLOWSHIP of MAKERS and RESTORERS of HISTORICAL INSTRUMENTS**

1979 LIST OF MEMBERS - 1st Supplement, as at 8th July 1979

* in left-hand margin denotes a change of address from the main List

* Malcolm Aldridge, 104A Newlands Park, London SE26 5NE.

Anguedda Werin Cymru - see Welsh Folk Museum.

Peter B. Armitage, P.O.Box 42247, Nairobi, Kenya; tel: 337143 (violin fam. 
& other strings).

Stephen E. Bacon, 2001 Bay View Drive, Hermosa Beach, Calif. 90254, USA; tel: (213) 372-5739 (cmtt, flute, M, R, P; early wind, acoust, iconogr, res.)

Peter Baldry, c/o Mrs. P. J. Baldry, Rapkins Cottage, Guildford Road, Broadbridge Heath, Horsham, W. Sussex RH12 3PQ (lute, cornett, M, P).

Daniel H. Baughum, 17 High Green, Gt. Shelford, Cambs CB2 5EH; tel: Shelford 3192 (woodwind; M, R).

* Charles Barker, 41 Highfield Road, March, Cambs. (lute; M).

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

Frederick Battershell, Route 2 Box 3X, Roscommon, Mich. 48653, USA; tel: (517) 275-8382 (viols, hurdy-g, dulcimer, harp, psaltery; M).

* Lawrence D. Brown, 3605 Shaw Avenue, Cincinnati, Ohio 45208, USA; tel: (513) 871-6717 (lute, theorbo, chit, orph; M).

Thomas H. Beeston, Box 683, Oracle, Ariz. 85623, USA; tel: (602) 896-9121 (lute; M, P).

Ture Bergström, Hastrupvej 2, Beldringe, DK-4720 Præstø, Denmark; tel: 03-792505 (ren.woodwind, regals; M, R, P).

Serge Bischler, 1 rue Cavour, CH-1203 Geneva, Switzerland; tel: (022) 47.2713 (lute; M).

* Christian Brosse, D-2411 Borstorf, Möllnerstrasse 16, West Germany; tel: 14545/7271 (violin, viol; M, R).

* Lawrence D. Brown, 3605 Shaw Avenue, Cincinnati, Ohio 45208, USA; tel: (513) 871-6717 (lute, theorbo, chit, orph; M).

David J. Butler, School House, Tivetshall St. Mary, Norwich NR15 2BP; tel: Tivetshall 350 (lute; M).

* Simon Darton, Warmingham Craft Workshops, The Mill, Warmingham, nr Sandbach, Cheshire; tel: 0127-077 246 (harp, lute, cittemes; M).


* Simon Darton, Warmingham Craft Workshops, The Mill, Warmingham, nr Sandbach, Cheshire; tel: 0127-077 246 (harp, lute, cittemes; M).

* Patrick H. Corran, National Institute for Biological Standards & Control, Holly Hill, Hampstead, London NW3 6RB; tel: 01-435 2232 ext. 228.

* Simon Darton, Warmingham Craft Workshops, The Mill, Warmingham, nr Sandbach, Cheshire; tel: 0127-077 246 (harp, lute, cittemes; M).


Susan Andersen - see Theodorus Miller (psaltery; M; recorder, P).
H.J. van Dijk, Tilanusstraat 42 III, 1091 EL Amsterdam, Netherlands
(keyboards, MP; BPT, res).
Larry Domokos, 505 South Harrison Road, Sterling, VA 22170, USA; tel: (703) 437-4336 (electronic tuners; M).
Pauline E. McRitch, 1088 Queen’s Blvd, Kitchener, Ontario, Canada N2M 1C2.
Jens Egeberg, Aalekistevej 46 st.tth., DK-2720 Vanløse, Denmark
(woodwind, bowed strings; P).
EMIMA (Early Musical Instrument Manufacturers Association) – see Terry Pamplin.
Andrew Fairfax, Flat 1 60A Beacon Hill Road, Newark-on-Trent, Notts.
(violins, viola; MP).
Stuart G. Forbes, 2506 Huntington Lane Apt. #1, Redondo Beach, Calif. 90278, USA; tel: (213) 376-1753 (recorders; MP).
Daniel Foster, Rt. 1 Box 219, Blocksburg, VA 24060, USA (gamba; MP).
J.M. Green, 9 Monks Road, Wollaston, Wellingborough, Northants NN9 7FF; tel: 0933-665197 (ren. string instrs).
Ronald J. Hachez, P.O. Box 3171, Newport Beach, Calif. 92663, USA; tel: (714) 646-5794 (guitar, vihuela; MP).
Richard Hahn, 719 East Mabelle, Moscow, Idaho 83843, USA; tel: (208) 882-3000 (flutes; M).
Deryck Rammert, 18 First Avenue, St. John’s, Newfoundland, Canada A1B 1N5; tel: (709) 755-8488 (lute, guitar; MP).
Lyn Hawkins, 36 Neerim Rd., Caulfield, Victoria, Australia 3162.
Martin J. Haycock, Hampton Croft, Clannagh Road, Santon, Isle of Man
(psaltery, harp, cittern; M).
Miles Bellon, Unit 255, 27 Clerkenwell Close, London EC1 (early keybd; RM).
J.J. Hildreth, Box 1134, Weimar, Calif. 95776, USA (violin, bows, nyckelharp; MR).
Peter Hoogerheide, van Ovenweg 122 III, 6707 BG Wageningen, Netherlands
(organ, viola, ren. ww; M).
Gildas Jaffrenou, Ker Alba, Bodkelen, 56610 Arradon, France; tel: 19.44. 26.06.73 (harp; M).
Graham Lyndon Jones – see Barbara Stanley
Brian Jordan, 60 Princedale Road, Holland Park, London W11 4NL; tel: 01-229 8676 (music & music books; D).
John Kelsey, Editor Fine Woodworking Magazine, The Taunton Press, P.O. Box 355, Newtown, Conn. 06470, USA; tel: (203) 426-8171.
Curator of Instruments, Faculty of Music, University of London King’s Collegen, Strand, London WC2R 2LS; tel: 01-836 5454 ext. 2392.
Helge Korvald, Hammerstadegt. 42, Oslo 3, Norway.
David J. Law, 100 Amersham Road, Terriers, High Wycombe, Bucks HP1 3AB; tel: 0494-445284 (keyboards, MRJ, res; rbc, bowed psaltry; M).
Robert A. Leightner, 115 Dunder Road, Burlington, Vermont 05401, USA; tel: (802) 663-5464.
London University – see King’s College.
Jack R. Longmore, 31 Copse Crescent, Felsall, Walsall, W. Midlands
(clavichord, spinet; M).
F. Caisa Lund, Gildegaard, S-270 12 Rydsgaard, Sweden; tel: 0411-71327 (prehistoric instrs; CW, res).
Robert Lundberg, 6532 SE 71st Avenue, Portland, Oregon 97206, USA; tel: (503) 775-9388 (lute, archlute, theorbo; MRJ).
Lawrence Lundby, 505 Elmside Blvd, Madison, Wisc. 53704, USA; tel: (608) 244-0477 (perc; P; lute; M; help in drafting plans).
Robert W. Meadow, Peters Valley, Layton, N.J. 07851, USA; tel: (201) 948-6930 (lute; M).

Nicolas Meus, 35 rue de Florence, B-1050 Brussels, Belgium; tel: (02) 538 19 34 (all instrs, W; asst. curator Brussels Conservatoire).

Walton Mendelson, 3161 Yorkshire, Cleveland Heights, Ohio 44118, USA (lute, oboe).

Hermann Möck, Postfach 143, D-31 Celle, West Germany; tel: 05141/84056.

Charles Müller, 57 F Jenkin Road, Carlingford, Australia 2118 (lute; M).

William L. Monaich, 288 Richmond Terrace, Staten Island, N.Y. 10301, USA; tel: (212) 727-5065 (viol, bar. violin from R; valuer).

Paul Mosby, 4 Creighton Avenue, London N10 1NU; tel: 01-444 9830 (oboe; M, R, C, P, L).

Kenneth J. Moss, Wingfield House, Tacket Street, Ipswich; tel: Ipswich 212516 (piano; M, R, C).

Eric Moulder, 26 Farnley Road, South Norwood, London SE25 6NZ; tel: 01-771 9549 (crumhorns, capped reeds; M, P).

Fritz Mueller, Tatlayoko Lake, B.C., Canada V0L 1W0 (guitar, dulcimer; M).

Stephen Murphy, Les Remparts, Mollans sur Ouvèze, 26170 Eaux les Baronnies, France (lute, guitar, viol; M).

Museum of Fine Arts, Boston, Mass. 02115, USA; tel: (617) 367-9300.


Newark Technical College, Chauntry Park, Newark-on-Trent, Notts. NG24 1PB; tel: Newark 5921.

Ray Nurse, 3370 West 23rd Ave., Vancouver, B.C., Canada V6S 1K3; tel: (604) 738-9924 (lute; M, P).

Terence M. Pampin, Little Critchmere, Manor Crescent, Haslemere, Surrey; tel: 0428-51558 (viol, violin, guitar, recorder; M, P; EMIMA Hon. Sec.)

Daniel W. Papuga, Vestgrensela 14, Oslo 8, Norway (bagpipes, flutes, flag; M, P).


John Paul, Parkway, Waldron/Heathfield, Sussex TN21 0RH; tel: Heathfield 2525 (harpichord; M).

John Poynter, University of Melbourne, Parkville, Victoria, Australia 3052; tel: 341 7202 (viol, P; Keybds, C, R).

Brian Rattray, 34 Spylaw Street, Edinburgh EH 13 0JT; tel: 031-441 1098 (viol, lute, violin from R; M, R).

Mary Remnant, 15 Fernshaw Road, Chelsea, London SW10; tel: 01-352 5181 (pfte, bowed str, organ, guitar, recorder, bells, psaltery, etc.; P, L, W).

PetervanRijen, Boomastraat 56, 5038 CT Tilburg, Netherlands (lute, viol, bows; M).

David Ross, c/o 303 East Gaylord, Mt. Pleasant, Michigan 48858 (early wind, esp. clarinet; M, C, P, R).

St. Fagans Museum – see Welsh Folk Museum

Christopher Sayers, 75 Dorset Road, Merton Park, London SW19 3HE.

Otmar Seemann, Sobieskigasse 29, A-1090 Wien 9, Austria; tel: 34441 41 (keyboards; C).

Norman Sohl, 10629 Marbury Road, Oakton, Virg. 22124, USA; tel: (703) 938-5256 (med. instrs & general woodwind; M, R).

Kenneth Sparr, Strömstigen 25, S-149 00 Mynshult, Sweden (lute, vihuela, guitar; M).

Daniel Spicka – add tel: 542189/268018

Barbara Stanley & Graham Lyndon Jones, 20 Queen Street, St. Albans, Herts; tel: St. Albans 59551.

Gerhard Straßer, Porzellangasse 22/14, A-1090 Wien, Austria; tel: Wien 34 88 865 (ren & bar instrs; M, R, C, P).

A.W. Simpson, Castle Hill House, 76 High Street, Lewes, Sussex.
Edward R. Turner, North Pender Island, B.C., Canada VON 2M0; tel: 629-3595 (keybds, hpschd; M,R).

G. F. C. Veness, 38a North Hill, Colchester, Essex CO1 1QR (med. perc., tamb. bærn, keybd).

André Verhoog, Strautenweg 43B, 3082 WR Rotterdam, Netherlands; tel: 010-291255 (lutes; M).

Welsh Folk Museum, St. Fagans, Cardiff, South Glamorgan CF5 2QA; tel: Cardiff 564491 & 564991 (esp. harp, crwth, pibcorn; R,C).

K. A. Williams, 48 York St., Mont Albert, Victoria, Australia 3127.

Jacqueline Wiltshire, 100 Severalls Avenue, Chesham, Bucks.; tel: Chesham 2464 (harp).

Dennis Woolley, 1 Museum Hill, Haslemere, Surrey; tel: Haslemere 51915 (hpschd, spinet, virg, clavchd; M,R).

Laurence Wright, 36 Cae Cwyniog, Llanfairpwllgwyngyll, Gwynedd LL61 5JS; tel: Llanfairpwll 548 (ren. ww, lute, cittn, crmtt, M,P; French transl).

Mitsuo Yokoyama, 2-7-12 Bakurocho, Nihonbashi, Chuo-ku, Tokyo 103, Japan (bar. guitar & lute; P).

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General Facilities

Acoustics: Stephen Bacon

Books: Tony Bingham, Brian Jordan

Iconography: Stephen Bacon, Mary Remnant, Laurence Wright

Literary References: Christopher Page, Laurence Wright

Museums: Boston: Fine Arts Museum (Barbara Lambert)

Brussels: Conservatoire (Nicolas Meeu$$)

København: Musikhistorisk & Claudius (E.M. Rolsted)

St. Fagans: Welsh Folk (Roy Saer)

Music: Brian Jordan

Plans: Lawrence Lundy (drafting)

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Nyckelharpa: J.J.Hildreth

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FoMRHI Book News

Rosamond E.M.Harding: The Piano-Forte, its History traced to the Great Exhibition of 1851. There had been rumours for years of a reprint of this classic work, and I had heard through the trade that it was never likely to appear, when I suddenly saw copies in a book shop. A "completely revised" second edition was published by Gresham Books (Old Woking, Surrey) in 1978 at £11.50.

Jeremy Montagu: The World of Baroque & Classical Musical Instruments (David & Charles, £8.95; Overlook Press, New York, $18.95 to the end of the year, and then $23.95; Jacaranda Press, Australia, no price stated). A bit embarrassing perhaps to blow my own trumpet, but it doesn't look as though anyone else can because, despite several requests, my publishers haven't sent FoMRHI a review copy, and the protocol is that if the publishers don't send a review copy, we can't review it. Perhaps they didn't like what Eph said about the last one, though if I didn't object I don't see why they should. Anyway, roughly speaking, the mixture as in my World of Mediaeval & Renaissance Musical Instruments, with a nice picture of the Mozart family (Wolfgang, violin; Nannerl, square piano; Leopold, theorbo) on the front cover in UK and Australia, and a gaggle of flautists and a gambist player on the cover of the American edition. There'll be copies for sale at the Early Music Fair.

Das Musikinstrument have sent me their latest catalogue which includes several things that look interesting, including a book on Joachim Tielke by Günther Hellwig (DM 96) and one on making viols (Die Viola da Gamba) by Nikolaus Harders (DM 28). They don't send us review copies, so we can't tell you anything about standards of authenticity, but if you want a copy of their list, the address is Das Musikinstrument, D-6000 Frankfurt-Main, Klüberstrasse 9, West Germany. The list they sent me is called Fachbücher Musikinstrumente, and they say that there is a Fachbuchverzeichnis of 850 titles.

Bouwerskontakt May 1979 has arrived. It includes a 6-page article on a table-organ (a regal) from Dom Bedos, by Wim Krijger; a 17-page article by Toon Moonen on the manufacture of the Brussels crumhorns, which looks excellent if you can read Dutch (if Toon were willing to do it, we could do with a translation for FoMRHI); a 6-page article, also by Toon Moonen, on the construction of a French flageolet, but I've just discovered that the first page of our copy is blank; and 12 pages of their members list. Xeroxes available from Djilia as usual at 10p a page plus postage etc. Enough of their members join FoMRHI that I should say that if you can read Dutch you really ought to join them - they publish enough good stuff.

Gerhard Stradner sent the following note; the book costs DM 95, he says about £23.50 (as at May 11th exchange rates).

Richard Bleutschacher, Die Lauten- und Geigenmacher des Füssener Landes, Hofheim am Taunus 1978 (Friedrich Hofmeister)
ISBN 3 87350 004 3

The Füssener School of lute and violinmaking is regarded as the oldest of its kind in Europe. It is dealt with for the first time in a comprehensive way and receives the proper attention in this book. The most important Renaissance lute makers can be traced back to the region of Füsssen. Many of them left home and went abroad, such as the families of: Tieffenbrucker, Albert,
Sellas, Buchenberg, Maler, Gerle, Epp, Greiff, Hieber, Hollmayr, Kaiser, Kögl, Lang, Möst, Heringer, Pfanzelt, Foss, Stehele, Steger und Burgholtzer. Moreover, many violin makers of later centuries, such as Alletsee, Geissenhof, Stoß, Pendl, Hellmer, Eberle, Bairhoff, Thir, Niggel, Christa, Petz, Posch, Schonger, Rief, Willer, Maldonfer, Frank, Wiedenhofer, Techler, Pichtel, Edlinger, Wachter and Gedler, who came to be well reputed in the European capitals, prove to be of Fuessen origin. Beside genealogical research work, which has yielded surprising connections, the author offers lists of the Fuessen violin and lute-makers with illustrations of their labels, first in alphabetical order (24 pages), then arranged according to their native village (14 pages). The ordinance of the Fuessen lute-makers of 1562 is considered the earliest of its kind. There is a facsimile, which is also quoted literally and discussed in detail. Furthermore, there is an interesting instruction about the felling of the trees. Black- and white photographs of many instruments not published before (59 pages) complete the book (text 108 pages) and make the book a recommendable monograph, that not only offers many new impressions and insights, but is also valuable as a book of reference.

Gerhard Stradner, Vienna

As this looks like being a thin issue, I have stuck this in as I received it, but do please send single-spaced typing, not space-and-a-half like this, and if the middle of this page is blurred in the printing, it is because it was folded - please send things flat. j.m.

Tibia, 2/79. Dr. Moeck, who has recently joined FoMHHI, sent me a copy of this "Magazin für Freunde alter und neuer Bläsermusik" because he gave us a write-up in it. It has several interesting articles, one on woodwind making in Berchtesgaden (mostly on the Walch family, of course), one on editorial practice in 18th century music (mostly on figured bass realisation), one on Mozart’s oboe concerto (flute concerto, K.314). There are also a number of short articles and reviews of books, music, and records, as well as odd bits of notes and news. If you read German it could well be worth taking a look at; annual subscription costs DM 18 in Germany and DM 21 abroad, and it would be worth looking for it wherever their instruments are sold if you want to try an odd copy. Their address is in the Supplement herewith, under Hermann Moeck’s name.
This book does not deal with the authentic construction of early instruments. Reading Jeremy Montagu's review of it (Comm151) I thought "sounds great, but what's it got to do with Pomrhi?" I felt much the same when I received my copy: that a review for one of the craft or educational journals would be more apt. MHRHIs are not particularly interested in nail chimes, square recorders, or unauthentic hurdy-gurdies.

However, I feel that there are three groups of people who should possess and read this type of book, or at least know of their existence and comparative merits. I would argue that every Pomrhi reader belongs to at least one of these groups.

Firstly, "Making Musical Instruments" is a godsend to any school teacher who gives craft or music lessons to children aged between about ten and fifteen. The clear instructions and explanatory drawings should enable even those with limited craft teaching experience to guide their pupils through at least the simpler of the score of projects described. Others with more experience and a little imagination will of course gain impetus from the book for their own ideas. I feel that the craft teacher who is interested in music has more chance of success with this type of work than the person who usually confines himself to the music room. Inter-departmental co-operation, either in terms of personnel or expertise may well be required.

Secondly, we are all, at times, involved in the education of young people, whether as their parents, relatives or friends. Subscribing to Pomrhi implies a commitment to exchanging information and fostering interest in musical instruments. A book such as Bryan's clearly supports such aims and should be recommended for purchase by public libraries, for example. It would make a most acceptable gift for any child within the suggested age range.

Thirdly, many school children read our bulletins. I suggest they buy it, ask for it as a present, or recommend it for their school library. In making some of the projects they will have a load of fun, learn a bit about acoustics and start or augment their collection of instruments. They will also learn a little about the history of their instruments. They might even be stimulated to further study and to view the instruments they see in museums and on the concert platform in a new light.

The book's layout is straightforward. Ten percussion projects are followed by four wind (o.k., so a kazoo is a mirliton), and six strings. Most instruments are given about one page of text, a half-page drawing showing constructional details and a photo of the instrument being played. The recorder, fiddle and hurdy-gurdy are given much more space to deal with their greater complexity. On the whole I agree with Bryan's selection of instruments and progression of difficulty, from claves to rommelpot to tabour; and elastic band harp and simple monochord to psaltery and hurdy-gurdy. The simplest would probably take one child one craft session, the most complex a small group up to half a term, I would imagine.

Woodwinds are notoriously difficult to deal with in projects of this sort, because of the problems in drilling the bore, and voicing and tuning them. It is by no means certain that a flute or recorder can be coaxied into producing any musical sound at all let alone playing in tune. Bryan wisely uses either ready-made tube or fabricated square section. Bamboo tubes are fine for pan pipes and the recorder should be o.k. if a water-proof glue is used, not the white PVA as suggested. The use of copper tubing
for the transverse flute seems ideal. The trouble is that copper salts tend to be toxic and saliva is acidic. I'm afraid that I'd also want to proscribe the flute section on the strength of the diabolical embouchure shown in the photo and the advice to get the upper notes by blowing harder. I wonder if Bryan has tried using plastic tubing for recorders as suggested by Tomlin in Woodwinds for Schools. The craft instruction is interspersed with usually sound historical information. One can forgive the occasional error: "During Bach's time the orchestra always used recorders because they could play louder" (than the flute).

A mildly avuncular tone pervades the book; this is fine as long as it avoids talking down to the young readership: "Strange sounding instruments were developed with even stranger-sounding names like crumhorn and racket".

My criticisms are only of details (apart from those of the flute). I shall continue to recommend this attractive little book. As Bryan doesn't give suggestions for further reading I'm taking the liberty of giving my own off-the-cuff list:

- P. Tomlin Woodwinds for Schools
- T. Robinson The Amateur Woodwind Instrument Maker
- R. Roberts Musical Instruments Made to be Played
- M. Galloway Making and Playing Bamboo Pipes
- J. Montagu Making Early Percussion Instruments

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PoMHRHI Comm. 209

Jeremy Montagu


Music by Francesco Corbetta (Suite in C, 1648), Gaspar Sanz (1674 & 1675), Robert de Visée (Suite in d min, 1686), Gio. Bat. Granata (1674), François Campion (1705) and Santiago de Murcia (1732), played on guitars by Giorgiou Platestainer (Milan, 1651), Alexandre Voboam (Paris, 1652), Louvet (Paris, 1761) and two anonymous French instruments dating from c. 1750 and the second probably a little later.

The music is well and sympathetically played and tastefully ornamented, though there are one or two quick runs which are not quite as clear as they might be. The chief interest to me, and I think to most PoMHRHI members, is the clear distinction between the sounds of the different instruments. By no means do all five-course guitars sound the same, and there is a marked difference between the 17th and the 18th century instruments. This is brought out all the more clearly by the tunings used, which are based either on the composers' instructions or on other contemporary evidence, so that the bass courses are sometimes in octaves and sometimes in unison, and in three cases (Sanz, de Visée and Campion) re-entrant, with the bottom two courses higher than the third (Sanz, aa d'd' gg bb e'e'; de Visée, aa dd* gg bb e'; Campion as de Visée). The record will also be of interest to players, since the music sounds quite different when it is played on the original instruments than it does played and arranged for the modern 6-string guitar (if it didn't, we'd all be wasting our time) and I hope that it will attract reviews in the general musical press for that reason.

Each guitar is illustrated on the sleeve and there are good clear notes by Tom Evans. The recording quality is good save for a couple of rather clumsy editorial tape-joins with a marked change of dynamic level or microphone placement. If you have any trouble getting copies, Tony Bingham stocks them and both his and Harvey's addresses are in the List of Members.
Will Jansen, The Bassoon. Another section (Part II) of this work has now arrived, and I should start by saying that the volume of plates (reviewed in the last issue, Comm.190) begins to make much more sense now that there is more text to go with them. Even so, the plates remain difficult to find, since they are referenced by figure and not by plate, and sometimes confusing (there are also a fair number of illustrations on text pages, including on p.326 the thumb sides of five bassoons, the finger sides of which are on plate 10, numbered figures 202 and 27 respectively).

Part II is as repetitive and as heavily larded with misprints as Part I (there are a few repeats of plates, too, which is more than most publishers can afford to provide). It begins with "Wind instruments come into two main groups, woodwinds and brass instruments; of these, woodwind instruments have keys". Since a number of brass instruments also have keys, this does not seem to me to be sufficient distinction. This section, in fact, is not a very coherent description of key systems, and it becomes more and more apparent that Mr. Jansen has seldom if ever looked at any instruments other than bassoons, so that when he is talking of, for example, overlapping spatulae (touches), he does not refer to renaissance use on bass instruments, and when speaking of Milhouse's use of swallowtail keys he seems unaware of their presence on oboes as well as (and long after) on bassoons. He is of course a very strong propagandist (and, as he says, sales agent, though as a help to his Dutch colleagues rather than for profit) for Heckel bassoons and as a result he tends to admit rather grudgingly that some other makes have some good features and that there are a few (very few) things to be said in praise of one or two makers of French system instruments and of the French system itself. Thus it is apparent to him that with Heckel's various inventions, the bassoon "had become the instrument the many unperformed or rarely performed bassoon concertos were waiting for."

There are many extraordinary statements; eg "The bassoon and contrabassoon are the only woodwind instruments of the orchestra having a small part of their sound tube made of metal" - what about the oboe (the staple), the cor anglais (the crook), the bass clarinet (the neck and bell), etc? There is also a vast amount of incredibly detailed and very useful information; the only trouble is that one is rather worried that there may be among it other statements equally extraordinary which one does not know enough to contradict.

There is a section in this part on bassoon acoustics provided by Dr. C. J. Nederveen, author of a well-known book on woodwind acoustics, also published by Frits Knuf, which seems excellent, save that he seems to think that it is the difference between the single and double reed which explains why clarinets behave as stopped tubes and oboes and bassoons as open tubes; since a moment's consideration of the saxophone and the fact that bassoons can be played either with double reeds or with miniature clarinet mouthpieces without affecting their acoustical behaviour, would prove that this assumption is wrong, this can only be due to a slip of the pen or to some re-editing of his text.

This part ends with the beginning of a massive list of bassoon makers, some of which is summary and some of which represents a very considerable expansion of and addition to Langwill's Index. Jansen does not pull any punches and has no hesitation in listing more than one maker as producing "bassoons of inferior quality, put on the market after 1946" - he says that the firm in question changed their name but "the bassoons remained as bad as ever".

Further instalments will follow.
A warm welcome to this long-awaited and much-needed Journal (I am told that the delay was due to moving the Museum to its new address - as in our List - and that now things are getting settled, no. 2 will follow before long - there will be no charge for 1979 membership - and 1980 should see no. 3). It is much-needed because up to now it has not been easy for the non-specialist to find material on conservation unless he does enough of it to find it worthwhile subscribing to the specialist journals and wading through all the reports on picture, etc., restoring in the hope of finding something about musical instruments. I know that Cary has referred us to various abstract sources, but I hope that perhaps either in MICAT J or MICAT News he will take pity on us and refer us to important material that appears elsewhere. Otherwise those of us who do the odd bit of restoring will never really catch up with the latest technology, and this can only lead to harm to the instruments which we are all intent to conserve.

This issue contains five papers from the 1974 conference of restorers at Münberg, a conference to which I have often referred in the past (and see also the Bulletin in this issue, page 3). Rainer Weber describes two techniques for restoring woodwinds, one replacing missing pieces of wood, practically fibre by fibre, the other the use of a micro-welder with which it is possible to weld or solder incredibly finely (the flame of the welder can be controlled down to a diameter of 0.2mm). This was an extremely exciting paper to listen to, and a revelation of what was possible to almost everyone in the audience. Wolfgang Bünning describes cleaning and retouching the varnish on string instruments (in German), also a very interesting paper. Cary Karp describes the techniques and the desirability of precisely measuring single-reed mouthpieces. Anthony Baines delivers a polemic against taking the easy way out in the performance of early music, playing on the instruments which are easy to play, whether or not they are anachronistic, rather than on those that we know were used but which are difficult to play. I must confess to have learnt heavily on my memories of this paper in several things that I have written since 1974, and I am delighted to have it in print so that I can swipe even more of Tony's ideas. This is a paper that all players should read, and since so many players are inevitably influenced by the availability of instruments, it should be read by all makers, too. The final paper was again a very exciting one, by Ursula Menzel on the restoration of brass instruments using original techniques (also in German). She brought with her a vast array of tools, scrapers, burnishers, dent-balls and others, and showed precisely how the job was done.

Most of the discussion which followed each paper is printed here, and my only regret is that we could not have all the papers from the conference; perhaps the missing ones may appear in due course. Perhaps, too, there won't be quite so many misprints next time; as always, when there are misprints in the text, which are easily recognised, one fears that there may be misprints in the figures, which are less easily spotted. But now that the first MICAT J has appeared, it is time to emphasize that everyone who does some restoring, however little, should join MICAT so that they can benefit from (and also contribute to) the knowledge of the full-time restorers. Full information is available from Cary Karp at the address in the Members' List.

This issue contains the second part of Pauline Durichen's translation of Mahaut's *Transverse Flute Method* and two other articles, one by John Jackson and Elizabeth Phillips entitled Some Guidelines for Early Music Performance, and the other by Ron Read entitled The Trumscheit and I.

The latter consists of a brief descriptive history of a very short period in the tromba marina's use and an equally brief account of the construction of a not very authentic example; if you get a copy of *Divisions*, do make sure that you either get a copy of the errata slip or that you correct the pitches given as the harmonic series. The Guidelines might, I suppose, be useful to someone starting a Collegium who knows nothing about early music, and it could also be useful to specialists in any one period who are seeking to expand their temporal repertoire and have not the time to read the major studies such as Reese and NOHM etc. Brief as the Guidelines are, they are likely to be disputed by as many people as those who agree with them.

Walton Mendelson, who edits the Journal, has an interesting suggestion to overcome the problems of advance payment for instruments, when a prospective buyer may know nothing of a maker (whether he will ever deliver, for instance) and the maker knows nothing of the customer (whether he would ever pay, for instance, if he were not charged in advance). He suggests the use of a letter of credit. The customer deposits the agreed price in the bank (plus a small charge, in Cleveland either a quarter of one per cent or $25, whichever is the greater), the bank tells the maker that it is holding the money; when the evidence that the transaction is completed is presented to the bank, it sends the money to the maker. Obviously the initial contract has to agree what the evidence should be, whether proof of despatch or proof of receipt, and equally obviously the established maker has no need of such a device, for his reputation is sufficient evidence that an instrument will arrive, just as the established customer has a reputation that he will pay, but for the beginning maker and the unknown customer, it seems an idea well worth pursuing.

Review of: David Ross, *Musical Instruments at the University of Iowa: A Catalogue*. 23pp, illus. Available from Prof. Frederick Crane, School of Music, University of Iowa, Iowa City, Iowa, USA 52242, at $1.25.

Brief but clear descriptions of 39 instruments from Africa (7), Burma (1), China (1), The Philippines (13), New Guinea (3), replicas of instruments from Pompeii (4), North America (9) and South America (1). Of these, fifteen are illustrated. One of the North American instruments is a local archaeological find, a fragment of a bone flute carbon-dated to c. 6300 years before the present day, and four of the others date from the turn of this century and are thus older than many such instruments preserved in museums. The Philippine instruments are of similar date and were among the exhibits at the St. Louis Exposition of 1903-4. While they do not have the accompanying documentation which they might have had if they had been collected by an anthropologist (such as, for example, the Hutton or Mills material in the Pitt Rivers Museum), nevertheless their date makes them important for comparison with material collected by more recent ethnomusicologists.
A Speculation on Viol Construction Methods

This construction technique is based on considerable surmise and some very thin evidence. I look forward to having it supported or attacked by other FOMRHI members who may try it; it has proved quite workable and useful for two builders. If the technique is at variance with the "mainstream" of viol building, it may be because my background is in building plucked instruments, and is innocent of any experience in the violin-making tradition. This has allowed me to approach the viol through abysmal ignorance, but with freedom from preconceptions.

Part of my desire to find a fresh approach to some aspects of viol construction stemmed from the remark of an experienced and talented viol-maker, to the effect that "the really difficult thing about a viol is shaping the upper block; with all its compound curves and angles it's much more difficult than a lute." I've discovered that when I have great difficulty with any particular operation of building, it's generally because I'm using the wrong method. I am convinced that "the old guys" designed their instruments to permit simplicity and speed of construction wherever possible.

Using "false tables," it took me twenty minutes to shape my first upper block; with this under my belt, it should take no more than ten minutes for future instruments.

The theory is built upon some of the illustrations in Diderot's *L'Encyclopédie* I Plate XII, "Outils propres à la facture des instumens à archet." ("Proper tools for the manufacture of bowed instruments.") Figures 11, 12, and 13 are "moules do violon" ("violin moulds"); figures 14 and 15 are "fausses tables" ("false tables," not as Hellen Tullberg's translation in the recent Picton reprint has it, "wooden templates.")

The violin moulds are not unlike those of today in their basic form. There are no viol moulds illustrated, nor any "false tables" for violins. Perhaps the "false tables" perform the same general function in viol construction that moulds do in violin-making? Their chief difference, if one visualizes the upper table somehow suspended above the lower one, is that the false tables make no provision for corner blocks or neck block. I will discuss the neck block later. As for the corner blocks, many early viols appear to have been built without them, though blocks may have been added at a later time in some cases. I am not claiming that all -- or any -- violins were built in Diderot's time without corner blocks, but when traditional techniques were handed down from an earlier time, the use of false plates may have been accepted as simply the "proper tool for building viols"......further, false tables have some definite advantages over heavier, more substantial moulds, including their light weight in large sizes, and the assistance they offer in the shaping of the blocks.

Figure 14 is clearly the bottom table, with a wedge coinciding with the "fold" of the back. What are the three dots of the wedge section? I don't know. Perhaps the points of nails used to attach the wedge to the flat part of the table, or to temporarily attach the neck block to the wedge? Any other suggestions? The notch in the bottom of the lower table seems obviously to accommodate the tail block.

Figure 15, the top "false table," presents difficulties. Are there notches on the "other" side of it to accommodate neck and tail blocks? Does the upper table fit "into" the sides, or on top of them? Is it -- as the notch seems to dictate in the case of the lower table -- the size of the inside of the ribs, or is it the size of the outside of the instrument? This, for me, is the shakiest part of my thesis; I have chosen to make the upper table the dimension of the inside of the ribs, and to notch the table
to half its thickness so that it fits over the neck and tail blocks. I am not confident that this is how Diderot's luthier did things, but it seems to function well.

My method for using these false tables is as follows: upper and lower tables are first sawn from 1/4" plywood. A wedge is then cut at the angle to which the back will be cranked, and this is nailed, screwed, or glued in position on the lower table. A template of the folded section of the back must now be made, the thickness of the ribs subtracted from its width, and the resulting shape transferred to the wedge of the lower table. This operation requires some thought, and is perhaps easier to work out than to explain; not only must the shape and dimensions be correct, but the wedge must be placed the right distance forward on the table. When the template shape has been transferred, saw away the excess material from the wedge with bow or band saw, cutting vertically to the plane of the table.

Cut a notch in the lower table to accommodate the tail block, and cut notches half the depth of the upper plate to accommodate both neck and tail block.

Make the tail block, leaving its outside surface (the one to which the ribs will be glued) oversize. Fit, and glue it with a papered joint, into the notch of the lower table.

An oversize neck block is cut, it's bottom angle is sawn to match that of the wedge, and it is attached to the wedge with a glue-and-paper joint. (Or a screw? Or a nail? Has anyone seen a hole in the bottom of a neck block on an old viol which might be evidence of this procedure?)

The upper table is now placed on the two blocks. A clamp or two may be used to hold the whole assembly together and steady on the bench.

The perimeters of the tables will give you convenient guides to permit the quick and confident carving of the blocks to shape. It is simply a matter of cutting the blocks in a straight line from the edge of the upper table to equivalent points on the edge of the lower table. The first time you use the lower table, undercut the wedge in a continuation of the line of the neck block. This will permit you to glue the ribs to the neck block before you cut them away to allow for the fold of the back. When using the same false table for subsequent instruments, of course, this will not need to be repeated.

With the blocks shaped and the false tables in place, you now have a "mould" without sides. Now bend the ribs to fit snugly against the "mould." The ease of this task may surprise someone who is used to a more substantial mould. Leave each rib-piece a bit over-long during the bending. A bit of string or masking tape may help hold the ribs in place while they set and dry after bending over a hot pipe; with a sure hand doing the bending, this may not be necessary.

The top false table may be removed to permit clamping the two bottom ribs to the bottom block. I left the neck block over-long to permit me to use small nails in the waste portion to clamp the ribs to the block during gluing. There is likely a better trick than this, but lute-making habits are hard to shed. The neck block and ribs can be cut off at the correct length and angle when you fit the neck.

With the upper false table in place again, the C-bout ribs can be easily mitred to the upper and lower ribs "by eye," using a fine saw and block plane. Glue the rib-ends together, clamping them with masking tape (or glue-and-paper, if you're a traditionalist.)
Lift the upper false table off the ribs, carefully free and remove the lower false table, and glue linen or parchment reinforcements into the corners of the ribs. Corner blocks could be fitted instead, but be aware that the linen-reinforced joint is remarkably strong.

Cut the ribs down in the shoulder-area to allow for the back fold. Put the upper table back in place to hold the ribs in the proper shape while the back of the viol is glued on and clamped with tape or string.

Both false tables may now be set aside for use with the next instrument, and construction of the viol proceeds as usual.

I found the false table construction technique resulted in sides which were not quite as flat or symmetrical as they might be with a more substantial mould. The deficiency was very slight, however, and the accuracy and speed with which the blocks could be carved were gratifying.

The false tables themselves were quick, simple, and cheap to make and use.

Notes:

FIG. 2 Elevation View of Stages in Viol Body Construction

A: False tables alone

B: Assembly of false tables with end block (right) and neck block (left)

C: Sides wrapped around the assembly of false tables and blocks

dashed lines show surfaces hidden from view

dotted lines show the final body-neck join

FIG. 3 General and End Views

A: Neck-side ends of false tables before first viol

B: Same as A but after first viol

C: General view of assembly after shaping of the neck block

D: End view of C
ON BAROQUE LUTE STRINGING AND TUNINGS

Djilda and Ephraim Segerman.

We shall define a baroque lute as one with more than 7 courses. The need for more courses in the bass reflects the increased role of a low bass in the music which is a characteristic of the development of the baroque. This note is mainly relevant to single and double-pegbox lutes popular in Europe during the 17th and 18th centuries outside of Italy and Spain.

Many lutanists avoid the baroque lute because of the complexity of the variety of tunings. Some baroque lutanists avoid exploring large fractions of the repertoire because of the tunings which are unfamiliar. There is general fear that changing tunings will require changing strings if instrument resonance is to be maintained. Major tuning instability for a considerable time after a tuning change is also an expected trouble.

We hope to show how these difficulties are not as serious as they might seem. Only the 6 highest courses are here considered. The basses, usually tuned diatonically down from the 6th course in the key being used, generally create no particular trouble.

All-gut stringing was universal before the 1660's, and after then the replacement of the lowest basses on lutes by strings with metal open-wound on a gut core was probably quite slow in becoming accepted. If all-gut stringing is to be used today, it is very important to observe the universal injunction given in early times to tune the highest course as high as it will safely go without breaking. If tuned much lower than this the lowest string has no chance of offering any resonance. This means that the actual pitches of the strings depend most of all on the string stop (i.e. open-string length). Contrary to popular wisdom, the pitch that a string of a particular material on a particular string stop breaks at depends very little (if at all) on string diameter or tension, so highest pitches and string stops are directly related. Highest-pitch tuning presents no problem in solo performing, but when a lute plays tableture in an ensemble of instruments, its string stop pretty well determines the pitch standard that the ensemble needs to play in. Authentic pitch standards varied rather more than modern instrumentalists (who tend to want to play wider-ranging repertoire than early instrumentalists) can comfortably go along with.

We assume two classes of baroque lute tunings, those based on Renaissance tuning and those not. These are shown in tables 1 and 2 respectively. A basic tuning is assumed for each class, according to which one strings up an instrument for optimum resonance and balance. Within each class, a tuning change of no more than 2 semitones on each string will get from any tuning to any other tuning. On the type not based on Renaissance tuning (Table 2), except for the first course which can come down 2 semitones, all of the courses in all the tunings are within one semitone of
how they were tuned in the basic tuning for which the stringing was optimized. Resonance on a string is usually not seriously changed when tuning a string up or down a semitone.

The first column of the tables has sequential numbers to identify the tunings. The second column gives the five intervals between adjacent strings for the 6 highest courses (ignoring higher octaves in octave pairs) which characterize each tuning. Each tablature letter indicates the fret on the lower member of the adjacent pair that needs to be fingered to be in unison with the higher member. It is assumed that the bass is on the left and the treble on the right.

The third column shows how many semitones up or down from the basic tuning (given at the top of the column) that each of the 6 courses needs to be tuned to arrive at the tuning. The symbols +, o, - and = represent 2 semitones up, one up, no change, one down and 2 semitones down respectively. Bass is to the left and treble to the right as before. Subsequent columns give examples of where the tunings were used and the names used for them.

In Table 1, tunings 2, 3 and 4 are obviously closely related. The full tunings are f c f h f e f, f c c d h f e f and f c d c h f e f respectively. The latter two are the same as the first except that an extra course has been inserted between the 5th and 6th courses of the first tuning. All of these tunings appeared in the first decade of the 17th century and are clearly related to the lyra viol tuning f h f e f called 'Bandora set' by Hume, 'Leerow way' in the Ballet Book and 'Lyra waye' in the Manchester Gamba book, and used in printed books by Jones, Hume, Ford, Ferrabosco, Maynard and Playford. A relationship with the bandora (tuning f c f f e f) is also evident.

A curious aspect of these "cordes avalées" tunings (2, 3 and 4) is a total open-string range of 2 octaves and a 6th. This range is 2 semitones greater than any other lute over the same string stop. Some possible explanations for this large range are, 1: lutes with particularly long string stops were used for this repertoire; the improved tone on the lowest string because of greater length is traded off for greater range; 2: poorer tone on the lowest string was tolerated, because of a) the novelty of the tuning, b) that course was rarely used and never used melodically; the result being that the higher octave string accounted for a larger-than-normal fraction of the acoustic output from that course; and 3: the instrument used was the early type of two-headed lute with the two bass courses having longer string stop, coming from a second bent-back pegbox; this possibility is supported by the tablatures never requiring these courses to be stopped. Our guess is that this is the order of increasing probability.
# TABLE 1

## HIGHEST 6 COURSES OF BAROQUE TUNINGS
**BASED ON RENAISSANCE TUNING**

<table>
<thead>
<tr>
<th>No.</th>
<th>Intervals</th>
<th>tuning</th>
<th>deviation from Renaissance tuning</th>
<th>Examples of where the tuning occurs and the name given</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>f f e f f</td>
<td></td>
<td>f f e f f</td>
<td>(Ubiquitous in Italian baroque and early baroque elsewhere (Mersenne: accord ordinaire ou 'le vieil ton') (Mace: 'Old English')</td>
</tr>
<tr>
<td>2</td>
<td>f h f e f</td>
<td></td>
<td></td>
<td>Besardus: 'corde avallées'</td>
</tr>
<tr>
<td>3</td>
<td>d h f e f</td>
<td></td>
<td></td>
<td>Francisque: 'cordes avalées'</td>
</tr>
<tr>
<td>4</td>
<td>c h f e f</td>
<td></td>
<td></td>
<td>Danyel</td>
</tr>
</tbody>
</table>
### TABLE 2

**HIGHEST 6 COURSES OF BAROQUE TUNINGS NOT BASED ON RENAISSANCE TUNING**

<table>
<thead>
<tr>
<th>No. intervals</th>
<th>Deviation from basic tuning</th>
<th>Examples of where the tuning occurs and the names given</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ffdef</td>
<td>oo+oooo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Board Dufaut</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Burwell</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mersenne</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mace</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others</td>
</tr>
<tr>
<td></td>
<td></td>
<td>'harp-way flat' 'Lawrence'</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>ffedf</td>
<td>oo++++oo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>harp way</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>ffede</td>
<td>oo+++o-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>ffedd</td>
<td>oo+++o=</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>ffded</td>
<td>oo+oo=</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>edfed</td>
<td>+o--oo=</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>fedfe</td>
<td>ooo--o=</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>fdefd</td>
<td>oo--o=</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>edfdd</td>
<td>+o--o=</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>gdefd</td>
<td>-o--o=</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>fdede</td>
<td>+oo--=</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
It is obvious from the third column of Table 2 that if one avoids tunings 1 and 2, all the strings can come up a semitone relative to the breaking pitch of the first string, giving more resonance on the lowest bass string. The basic tuning on which the stringing is optimized would then be f e e e e, resulting in every course in every tuning being no more than a semitone away from that course in the basic tuning. The symbols for retuning of the first course for each tuning all change with - becoming o and = becoming -.

If one wants to include the Renaissance tuning f f e f f in the same stringing as those in Table 2, a basic tuning to optimize the stringing on could be f f e e f. The resulting deviations from the basic tuning are shown on Table 3. From this Table it can be seen that all deviations for all courses and tunings are within two semitones of the basic tuning, and if we exclude tunings 6 and 11 from consideration each course in each tuning will change no more than two semitones when retuning to any other tuning.

In summary, this note presents special basic tunings (which do not correspond to tunings actually used) to which lute stringing is optimized. Each basic tuning is a compromise for a set of different real tunings which minimizes the deviations from optimum sound for each string and each tuning in that set. In the retuning from one to another, except for when tuning 11 is involved, the second course does not change.

The retuning procedure given here is not new. The early sources (e.g. Mace and Burwell) give specific instructions on how to change from one tuning to another. They clearly follow the principles of minimal pitch change per course. This principle has been here extended to cover the other tunings.

APPENDIX On English 17th Century Lute Pitch Standards

Let us consider what the Talbot Ms. (c.1690) called the 'French lute' with tuning 8 and the pitch of the highest string given as f'. It had 11 courses and the two examples he measured had string stops of 27 15/16 inches (71.0cm.) and 27 inches (68.6cm.). From this information and our knowledge of the strength of gut strings, we deduce that the pitch standard used on these lutes then was something like 2 or 3 semitones lower than modern. But we know from the Burwell book and other sources that earlier in the 17th century in England, 11 course lutes with this tuning were thought of as having the highest string tuned to b^ or b^'. There is no indication that the sizes of such lutes changed in the second half of the 17th century, and if we assume that they did not, this implies a pitch standard 4 or 5 semitones higher or 7 or 8 semitones lower than modern. If such a lute played with a melody instrument or voice, one would expect that the instrument or voice would have accepted the lute's pitch standard and done whatever transposition was necessary.
While 11-course lutes tended to have string stops greater than 65cm, 12-course lutes (all of which we know about being two-headed with 4 diapason courses on the second head) tended to have string stops less than 65cm. Tim Crawford has recently written about an Oxford manuscript which has music for a 12-course lute consorting with one treble and two bass instruments plus a viol part in tablature using lyra tuning.\(^{22}\) With pieces in the keys of A minor and C major the highest strings of the viol and lute had to be e and g respectively relative to the other instruments, and in G major these strings had to be b in both cases. The viol and lute tablature parts are of course ambiguous as to octave. When the lute first course was tuned to g, the overall tuning was in the 5th tuning in Table 2, and when it was b, it was in the 7th tuning. The Talbot Ms. gave the string stop of a 12-course English two-headed lute as 23\(\frac{1}{4}\) inches (59.7cm.). If a lute of this size was used in this ensemble, there is no problem if we assume a pitch standard 2 semitones below modern since both the lute and the lyra viol (the string stop of which given by Talbot as 28 1/8 inches or 71.4cm.)\(^{23}\) are at highest safe pitch for their string stops. When we consider the pieces in G major, the same pitch standard can be used by the lyra viol which tunes its top string down a fourth, but because of the contracted open string tuning (f d e f d instead of f h f d e in the other keys) the lowest string needs to be tuned down only a tone. But the same lute cannot be used at this pitch standard since tuning up a 3rd would break the highest string and tuning down a 6th would lose all resonance on the basses. Lowering the pitch standard of the ensemble a 3rd by retuning and/or transposition to meet the lute’s pitch doesn’t work well because the lyra viol is pushed down to its lowest possible pitch level and it is doubtful whether it could balance satisfactorily with the other instruments. The only solution to this problem that we find sensible is that a second smaller lute was used for these pieces. One the size of the surviving instrument in Linköping Sweden\(^{24}\) with string stop of 50.0cm. just fills the bill by being at its highest pitch at the tone-low pitch standard (relative to modern) of the ensemble.

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\text{\textbf{TABLE 3}}
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<th>Tuning</th>
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<td>6 5 4 3 2 1</td>
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<td>5</td>
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REFERENCES AND NOTES

Burwell's over-pessimistic statement (on p.15 of the facsimile and p.22 of the transcription) was:
But for to play upon severall Tuneings you must have more than one Lute for twoe reasons Cheifely The first reason is that the Lute must be strung according to the Tuneing As in the Trumpett tuneing the Thirds, the Sixths, the Seavenths must be smaller than in other Tuneings because they are sett higher The other reason is that if you change the Lute from one Tuneing to another it will never stay in Tune the strings returneing allways to the pitch they were before.


5. Besardus, J. B., Thesaurus Harmonicus... (1603).
Tuning table p. 146 v. and pieces p. 146 v. to 148 v. and 168 v. and 169 r. The tuning table is in error, in that the octave to the seventh course is 'f' on the 5th course instead of 'e' on the 4th, and the octave to the eighth course is 'a' on the fifth course rather than on the fourth. These errors are deduced from playing the whole repertoire on the pages above. This conclusion differs from that given in L.S.J. VI (1964) p.19.

Tuning table p.22 and pieces p.22 r. - 24 v., 31 r. and 31 v.

7. Danyel, J., Songs for the Lute Viol and Voice (1606) piece XXI 'Anne Grene her leaves bee greene'.
In the tuning diagram, the numbers expressing intervals between adjacent strings include two errors but the tablature indications of octaves are correct.


In this edition the tuning notation has the following correspondence with ours (with ours on the right): 1 is 5, 2 is 3, 3 is 8, and 4 is 9.

11. Mersenne, M., op. cit. p. 88. The two names in parenthesis in this column are the composers of the pieces given when illustrating each tuning, and not necessarily names given to the tunings.


13. These names are given to the tunings by Robert Spencer in his table of contents and notes associated with the Board Lute Book facsimile. Unfortunately he did not give which source or sources these names came from.


15. Denkmäler der Tonkunst in Österreich, Jahrg. XXV/2 - Band 50, Österreichische Lautenmusik Zwischen 1650 und 1720, p. 89.


22. Crawford, T., Chelys Vol. 6 (1975-6) p. 61 to 68.


I have been disturbed by recent trends in the philosophy of makers and players of early instruments. It would seem that authentic appearance is far more important than authentic sound.

For example, in Comms 188 and 189, Eph Segerman and Martyn Hodgson take Ian Harwood and Philip Macleod-Coupe to task for the semi-circular lute backs which they specify. Fair comment, but is it really so vital, acoustically, that the back is not an exact semicircle? Let’s face it, many of the small to medium sized late 16th century lutes weren’t far off being semicircular anyway. Again, Martyn Hodgson talks about lack of information on original decoration. These, in my view, are matters of appearance rather than acoustics although they may influence the sound of the instrument to some very small degree.

Neither reviewer has much to say on soundboard design. Even so, this is probably far and away the most important single aspect of lute construction. Makers today faithfully copy the thicknesses and dimensions of original soundboards and their bars to an alarming degree of precision. They ignore the fact that most old soundboards were made of fir while they are working in spruce or pine.

Surely, until we know the density, stiffness (along and across the grain) and internal damping characteristics of original soundboard materials, we are taking a chance in assuming that they are the same for the timbers in use today?

I believe that the early instrument business would be healthier if makers spent rather less time on appearance and decoration and rather more on acoustical considerations. This might even result in a new living tradition of early instrument making on a businesslike basis rather than the ‘precious’ approach, making expensive pieces of reproduction furniture, copied down to the last worm hole.
Ho-hum; one really does feel a bit fagged when matters, which were thought of as being settled years ago, are resurrected as though original concepts. Of course, if anything faintly resembling new data comes to light, then we must all be prepared to change our current habits of tradition and convention. In the Comm., however, there is nothing new, merely an expression of a personal position, which Bill damson would like to see more widely adopted. He imagines some conflict between 'authenticity' aurally and visually; in reality no such conflict of interests exists. Indeed, the two aspects of the instrument go hand in glove. I suppose I could and maybe should simply end here, but the whole matter is so very important and indeed quite fundemental to the performance and practice of Early Music, that I believe it requires a somewhat wider airing.

First, to go through the above Comm. in a little details

-No Maker or Player of repute I know of, or have heard about, has stated or inferred in any way that 'authentic' appearance is more important than 'authentic' sound; much less far more important. In fact the unspoken, but underlying,assumption is that the sound in instrument makes is of the prime importance. Perhaps B.S. mistakes our silence for lack of interest; far from it, we simply take this priority as read.

-Yes, I'm sorry to have to point out the obvious, but the shape of the body is very important acoustically. Perhaps if someone has only made semi-circular Lutes, he will not appreciate this. Makers of all other stringed instruments take its importance as being axiomatic - quite rightly. Further, early writers also heard and noted the very different aural characteristics of different shaped Lutes; surely we are all aware of the 17th century French preference for Almond/Pear shaped Lutes. Even during the Lute decline E.G. Baron went out of his way to point out the differences and the advantages of particular shapes for specific uses, etc. Lets face it, many of the small to medium sized late 16th century Lutes were quite far off being semi-circular anyway.

-Actually what I said about decoration in the review was "Since the general shape of the instrument in the drawing is based on an extant old Lute, it would have been helpful for those more adventurous and skillful persons to indicate the original decoration, materials, number of ribs, precise shape and size, etc." (on the plan). This seems to me to be one of those comments that one just can't argue with. Of course it would have been of more help if more information had have been shown. Please note that I also had the slight wit to mention other original details, which could have been shown with advantage; this would seem to have been overlooked.

-Parts of the instrument, which were once thought of as being simply decorative (1), are now seen to have a significant influence on an instrument's sound. With Lutes examples of this are: Rose pattern and its size; the precise shape of the body, etc. Perhaps other 'decorative' features may turn out to have a less obvious and subtle influence on the sound (e.g. bridge design) and, of course, the ease with which the instrument may be played; this latter factor is not mentioned in the Comm., but must surely be of importance.
So let's play safe and assume that many, if not all, of these 'decorations' do indeed have some influence on the overall sound an instrument makes; nothing is lost, except it requires a little more time and skill to make the instrument (what's so wrong with a nicely finished, fine looking instrument anyway?). Many other established instruments have decorative features, which appear to have little if any other function. For example, let's do away with the Fiddle's scroll and substitute a square block of wood of the same mass and C.G. (actually M. Chanot did something very similar to this and I can't say his instruments were a roaring success); of course such an action would be quite silly and if so for the humble Fiddle how much more so for the noble Lute.

— It is quite true that I had little to say about belly design; my task was to review the Booklet not to write one. The review merely reflected the level of information on this subject in the booklet; I should possibly have mentioned this deficiency in the review, but quite honestly since the Lute in the booklet did not aim to be 'authentic' I felt that such a criticism might be unjust. Unfortunately it would seem that the little that I did write was overlooked; to repeat: "Accommodatingly, whilst not proposing to quibble over many details of design and construction, some of which may still indeed be the subject of speculation (e.g. barring, wood thicknesses, pitch standards, etc.), it would clearly be inappropriate in a review for BoNWhA to omit comment on some of the more obvious areas of difficulty and/or problems arising out of an examination of the work". If this isn't a clear indication that I would assume a degree of flexibility in the areas of barring, wood thicknesses, etc., then I really don't know what is.

— In the very first reconstruction of an authenticated original instrument, it may well be true that some Makers attempt to copy the precise dimensions of the belly and barring (actually an impossible task unless one has the instrument to hand with its belly off; how many old Lute bellies have been accurately measured, I mean really accurately). Surely this is better than making up ones own dimensions as B.S. seems to be asking us to do. Of course, subsequently no Maker with a modicum of skill would then blindly ignore the characteristics of the actual pieces of wood he was working on; it is simply naive and vaguely insulting to suggest that any reputable maker behaves in this way. I am sure we would all be most interested to know who are these makers who copy bellies etc "with an alarming degree of precision"; I for one would dearly like to meet them.

— Before being led up the proverbial garden path about fir, etc, I think I would like to know the precise botanical identification of what B.S. thinks of as fir, spruce and pine; in this quite enormous family of trees, generalised names are of very little use. In the current Timber industry these names are often used to identify the same piece of wood. In any event, in 17th century England, for example, 'fir' was widely used to describe all manner of softwoods. A better historical identifier is the place of origin of the timber.

— If indeed there is a large body of evidence to suggest that Lute bellies were made of a wood significantly different to that used for the soundboards of the majority of other stringed instruments, then this vital data must be presented. Presumably B.S. has been chipping bits off old Lute bellies and having them analysed by some reliable
independent Organisation, since visual tests alone are by no means sufficient to establish the precise species and origin in this family of trees (especially with old wood, which may have been treated in some way); so more details please.

Surely para. 4 contradicts in some part the last sentence in para. 3. The selection, carving and/or thicknessing of soundboard wood is probably the single most important characteristic, which distinguishes an experienced craftsman from a relative novice. The craftsman is very aware of this operation and it is a test of his skill how well he takes factors such as density, stiffness, etc., into account. With greater experience much of this process becomes intuitive.

I would like to know the sample of makers B.S. studied to arrive at his belief that makers spend too much time on appearance and decoration at the expense of aural considerations; so could we have the statistical analyses and the names of established makers B.S. included in his sample - anyway he omitted to include me and many other makers I know. However, I can assure him that 'acoustical considerations' are of prime importance to me, even though I do try to make 'copies' of extant authenticated instruments. Moreover, it should be pointed out that 'decorative' work takes rather less time for an experienced maker, than might be thought by those who have not gained sufficient expertise in this area of instrument making.

It should be of interest to note that those makers making instruments, which not only sound good, but are copies of or very close to extant old Lutes (and of course other instruments), seem to be those with the soundest businesses and the longest order books on the Continent as well as in the U.K. To the best of my knowledge all these makers are alive and well and therefore represent by definition in that mystical phrase 'a living tradition'. Perhaps B.S. would be happier inventing new instruments; this profession has a long and honourable tradition.

Having dealt with the matters touched upon in the Comm., I feel it right just to make a few rather more general short points:

The prime purpose of a review seems to me to inform a wider public of the contents of a book(let), by a general survey and by indicating its omissions and errors as well as its aims and achievements. Of course nobody is perfect and we can all so very easily make mistakes, but I do think it noteworthy that two independent reviewers adopted a very similar stance over some important matters. Mr. Macleod-Coupe's booklet is entitled 'Lute Construction' and was published under the auspices of the Lute Society (has B.S. purchased and read a copy?). I believe that it is quite reasonable and fair to assume that with such a title and provenance we should expect detailed instructions on how to make all the various different shapes, sizes and configurations of instruments, which go up to make the Lute family. In this aim the book fails; hence my suggestion of a title change to direct potential purchasers to the area where it does succeed and in my review I summarise by saying "This booklet should certainly enable a beginner to construct the 7 course Lute shown in the associated Working Drawing and provides a useful introduction to Lute making in general".
If we are ever to attain anything approaching that aural 'authenticity' from previously 'obsolete' instruments that we are all seeking, then I am quite positive that not only should the technique of the player be as close to early practice as the state of current knowledge allows, but also the instruments themselves and associated 'accessories' (e.g., strings, reeds, bows, etc) should be as close to the originals as is possible. Naturally, the inherent characteristics between different pieces of wood must be taken into account in any reconstruction, but the instrument shape, size, barring and, yes, ideally its decoration should be copied; there is simply no other way of attaining even a first approximation of what Francesco Cavano, John Dowland, Alessandro Piccinini, Renémond Gaultier, Sylvius Leopold Viess, et al., themselves heard. We should constantly beware of inflicting our own conscious, or even sub-conscious, ideas of aural beauty onto instrument makers, players and the public at large. Otherwise we can so easily fall into the trap that ensnared the early 'modern' harpsichord makers; that of producing 'plucking pianos'. Nobody with any wit, I trust, now questions the far greater beauty (not to say authenticity) of the sound produced by harpsichords now being made by individual makers as compared with the earlier instruments in the modern revival. Further, all recognise the distinctive aural characteristics of Italian, Flemish, French, German, English instruments; in short, there is no longer the 'standard all-purpose' harpsichord. Actually, this is not exactly true; the instrument still exists and is sold I am given to understand; the complete obsolescence of these monsters is only a matter of time and education. This quite enormous advance was made quite simply by a few dedicated makers, who simply decided to return to the original sources and make copies of extant originals (some even painted the soundboards and made us realise how beautiful visually as well as aurally the harpsichord could be). In some areas, say Baroque woodwind, it is as if authenticity of appearance as well as sound has never seriously been questioned (except possibly on the still tricky business of pitch standards); in others (e.g., the Viol family) there is possibly even greater confusion and ignorance than with the Lute. Nevertheless, I am confident that with the will and the existence of organisations like FoMHHI the same process of advancement that we associate with Harpsichords will take place with other 'early' instruments.

A further most excellent and very practical reason for copying extant authenticated old instruments in detail is the lack of anything like a Master and apprentice system for constructing these previously obsolete instruments. With the accepted modern orchestral instruments there are very well established designs, methods of constructions and criteria of aural beauty. Clearly for 'early' instruments no such tradition exists and the only way we have of discovering how these instruments were actually constructed is to consult the literature (pretty scanty), look at iconographic evidence (even worse) and to make copies of the originals. If we attempt to solve constructional problems (e.g., an asymmetrical back) by side-stepping the issue and inventing our own, much simpler, shape, then we cannot claim to have even approached a mastery of the art of Lute making; we have merely produced a parody of a Lute.

Finally, I am confident that any reputable maker of historical instruments sees his job as making instruments which are aurally and visually as authentic as current scholarship allows. This is a difficult, but satisfying, task. However, these difficulties do not constitute a strong enough set of reasons to invent and make instruments, which never existed historically.
Bill submitted the preceding Comm. with a note stating that his objective was to be provocative, inviting me to reply in the same issue. Well, here goes!

1. **Authentic sound**

I am very glad that Bill raised the point questioning the value of pursuing authenticity beyond the sounds that are made. Since his stated viewpoint is shared by a large number of people in the early music field, it needs to be taken very seriously. In my discussion of this position, I want to make it absolutely clear that when I write "Bill" I am addressing all of the people with this philosophical attitude, and am making no personal remarks.

I am sure that Bill's position is not as simple as he states. He does take visual factors into consideration. He won't play an instrument that doesn't look like a lute. For instance the pegbox needs to be bent back at a sharp angle and have wooden pegs. Bill would surely agree that the effect of the pegbox on tone is negligible. I suggest that the reason for such non-acoustic authenticity is that if one is making any effort at being authentic one wants this to be seen to be so, or conversely, any obviously unauthentic visual feature could reduce credibility of attempts at authenticity in other areas. The instrument does not have a sign on it saying "maximum authenticity in sound irrespective of appearance". So what is Bill's cut-off point beyond which visual factors don't matter? I suggest that it is at the limit of knowledge concerning authentic design-features that the general early-music public has. The level of this kind of knowledge will probably increase with time because of general information dissemination. So an instrument that is visually authentic enough for Bill now could well not be in a few years time. Thus his lute investment in time and money could be in jeopardy.

Unfortunately, Bill's basic premise of authentic sound does not escape from modification by the highly restricted area of concern for authenticity and the easy compromise with 'practicality' discussed above. His authenticity -in-sound concept is probably based on authentic type of soundboard construction and barring, and authentic playing style. But between the player and the wood of the lute is a set of strings, the types of which profoundly affect the sound. Though recognizing the tonal superiority of gut treble strings, Bill probably feels that nylon monofilament is not so inferior as to offset the disadvantages of gut in trouble and expense. He probably hasn't heard all-gut bass strings on lutes (very few have) but he might have read about or deduced (correctly) that they lack the clarity, sustain and projection of the metal-wound-on-nylon-floss basses that he has always used. All-gut basses also are expensive and since he has no intention of 'reducing' the quality of tone on his lute, * he quietly ignores the new availability of more authentic stringing. All of this is perfectly reasonable, but he really must admit to himself that he is striving for easily-achieved good sound according to his own aesthetic standards rather than authentic sound.

* After playing lutes with all-gut stringing for a few months now, I find nylon stringing gives an unpleasantly harsh and metallic tone.
2. **Decoration**

Our N.R.I. lutes are rather basic as far as decoration goes, but I would like to spring to the defence of other lute makers who use much more decoration. Bill writes about "instrument making on a businesslike basis". Decoration is good business practice. A maker who knows his craft can add the decoration with remarkable speed. Customers financially able to buy a lute nowadays are often willing to pay considerably more for the distinction of a decorated instrument. The obvious craftsmanship of the decoration is unconsciously indicative of the not-so-obvious craftsmanship that went into giving the lute a good sound. Does anyone, when first examining a lute, not almost immediately look at the quality of the rose carving?

Also, decoration is authentic. The amount of decoration was often indicative of social status. And who wouldn't want to play a lute fit for a discriminating lute-playing king?

3. **Soundboard construction**

Except for the sentence mentioning types of woods, I agree with Bill's paragraphs 3 and 4. It is because modern makers "faithfully copy...original soundboards" that this factor is not an issue of contention in the book reviews mentioned. If the makers get it as right as present knowledge allows, even if it is to unnecessary precision, why object? And how would Bill have them spend "rather more /time/ on acoustical considerations"? He of course means research, but few, if any, makers have the time, training, inclination, equipment or opportunity to do the physical and statistical research Bill suggests.

4. **Soundboard woods**

When claiming that old soundboards were made of fir Bill is no doubt thinking of statements such as that of Mace in Musick's Monument (1676) who wrote (p.49) 'The Best Wood is call'd Cullin-cliff /probably Cologne-cliff/; and is no other than the finest sort of Firr, and the choicest part of that Firr". Under 'Fir' the OED gives three types; Scotch Fir (Pinus sylvestris), also known as 'Scotch Pine', Silver Fir (Abies pectinata) and Spruce Fir (Picea excelsa) also known as 'Norway Spruce'. The last of these possibilities has the alternative botanical name 'Picea abies' and alternative common names of 'European spruce' 'Swiss Pine','Roumanian Pine', etc. This is the usual species used today for soundboards and Christmas trees.

According to 'A Field Guide to the Trees of Britain and Northern Europe' by Alan Mitchell (1974) Norway Spruce was introduced to Britain probably before 1500, so mature trees and their timber would probably have been familiar to Mace's readers. The Silver Fir was first introduced in 1603 so its familiarity to Mace's readers as timber is doubtful. Scotch Pine is native. If Bill wants to believe that Mace's "Firr" was Scotch Pine, we would all understand. I would vote for Norway Spruce though.

David Rubio has been concerned with possible species differences between soundboard woods used a few centuries ago and now. He remarks that modern
Norway Spruce is translucent at soundboard thickness while early soundboards are quite opaque. As proof that the difference is not one of age he cites the instance of an 18th century French violin with an authenticated original soundboard which is translucent. I believe that it is possible that treatment of the wood (as postulated by several specialists on historical violins) could account for the opacity. This is an area which would benefit greatly from further research.

5. "A new living tradition of early instrument making"

Bill seems to be in favour of authenticity in overall concept while distaining concern with authenticity in non-acoustical detail. In artistic terms his view of authenticity is impressionistic while mine is Renaissance. In my view, without the authentic details, the validity of an overall concept is suspect since we really don't know the relative importance of the details to the original makers and players.

If Bill is complaining about how concern with detail makes some makers lose the overall concept, I agree with him when this occurs. Some makers sometimes seem to be more intent on creating jewelery in wood rather than making practical musical instruments. I don't see this though as a widespread problem. Oversimplified basic instruments at unnecessarily high prices are a bigger problem. Most professional lute makers today make decent-sounding instruments, decorated or undecorated, when strung with nylon. The real challenge of the moment for both makers and players is in coming to terms with more authentic stringing. Some clues for makers are in Bill's following paper.

FoMRH1 Comm 219
EARLY 16th CENTURY LUTE RECONSTRUCTIONS
- SOME EVEN FURTHER COMMENTS
Martyn Hodgson

I was pleased to read John Downing's excellent contribution on early 16th century Lute reconstructions; this is the sort of speculative work we need much more of, if we are to make any great progress towards an understanding of the construction of these early (?) Lutes.

I am especially happy to see that there is complete agreement over the prime importance of iconographic evidence in this area, particularly with regard to the variation in bridge placement; clearly this was never really standardised. Any offers to undertake a major statistical survey of instruments depicted in the Lute Society's picture collection? This is a major project, but one which I am convinced would well repay serious attention.

Just a few small points on Comm. 196:
- I agree the ratios given in Comm. 1 and Comm 128 should be expected to give the same result, but since any variation is not very great compared to contemporary iconography I do not intend to pursue the matter.
- I am full of admiration at the way in which Arnaut de Zwolle's Lute nov turns out to have a low bridge position; I merely translated what he wrote. Precisely what he meant will, alas, ever remain a mystery.
- I thought the cut-out in the top block of the Warwick Frei Lute was in a separate additional piece of wood, which had been added in (presumably) the 17th century when the instrument was converted to carry more courses. I had understood that this cut-out did not extend to the original (?) block. Unfortunately, I appear to have lost/displaced my data on this instrument as well as the Galpin Society article; could someone confirm or deny my suspicions?

Finally, to return to the subject of an iconographic survey; the importance of such an exercise is clear. If properly undertaken it could tell us how common (or uncommon) the Almond/Pear shaped Lute really was in the early 16th century or whether the survival of these instruments is due to their popularity in the 17th and 18th centuries; the mean bridge position and standard deviation could be established; similarly for ratios such as neck length to body length, etc. This seems to me an ideal area for a Doctoral thesis; perhaps someone with an influential post in one of our Universities could suggest it.

FoMRHI Comm. 220

TONAL BALANCE AND BAR DEPTHS - FURTHER COMMENTS ON COMM 142

William Samson

I am grateful to Djilda Abbott, Martyn Hodgson and John Downing for their published comments on Comm 142 and to Geoff Mather for his private communications.

After a little experimentation, I believe that Djilda has hit the nail on the head when she talks about 'deep bars'. The lute referred to in Comm 142 has light barring (10 mm deep and 3 mm thick for the two bars nearest the bridge) whose layout is pretty well identical with that shown in John Downing's drawing in Comm 196, fig 2. I suspect the very lightness of these bars enhances my treble response and deadens the basses.

More recently I have built a small 7-course lute with a string stop of about 60 cm (based on Hieber/Venere). The sitka spruce soundboard was built with fairly hefty bars (about 14 mm deep for the two bars in front of the bridge). The bass response of the resulting lute was terrific but the trebles were rather weak. I removed the soundboard and reduced the depths of all the bars by about one third. The basses have softened a little but now the top notes come out loud and clear. I realise that this is based on my subjective judgement but I have played the instrument before an audience in both states, in the same hall, and am convinced that the instrument projects much better with the shallower bars.

Supporting evidence for my conclusions may be found by measuring the depths of bars in surviving old lutes. A quick glance at the small amount of data in my possession shows that those lutes with top strings tuned high have relatively much shallower bars than those with top strings tuned low (theorboes etc.). Perhaps a maker with access to more data than I have could analyse bar heights on a sound statistical basis.
AN ACOUSTICAL PROBLEM

I have recently been helping a colleague, Roger Blench, with organological research and we conducted an experiment the other day, the results of which have foxed us so badly that we would welcome any explanation that anyone can produce.

As is well known, a reed-blown cylindrical tube produces a pitch close to that of a stopped flute of the same length and overblows odd-numbered harmonics (3rd, 5th, 7th, etc, starting with the one that is a twelfth above the fundamental), whereas a reed-blown conical tube produces a fundamental pitch most of an octave higher (the precise difference, due to the theoretical completion of the cone, is not, so far as we know, relevant to this problem) and overblows all the harmonics, starting with the one an octave above the fundamental. In this context, reed-blown covers double reeds, as on the oboe, single reeds, as on the clarinet, and the human lips, as on trumpets; so far as we know, nobody has experimented with free reeds, as used on mouthorgans and on pipes with fingerholes in Malaysia, in this connexion as yet. The principles of this behaviour were established by James MacGillivray in a paper read to the Joint Congress of the International Association of Music Libraries and the Galpin Society at Cambridge in 1959, and published in Music Libraries and Instruments (Hinrichsen, 1961).

We had been discussing instruments such as the hose-pipe trumpet, an instrument commonly used by lecturers to show how easily one can make a trumpet, and we started wondering how and why a seven foot length of cylindrical hose-pipe would produce the same pitches as a seven foot classical trumpet, which is partly cylindrical and partly conical, and why a four foot six length of cylindrical hose-pipe produced the same pitches as a four foot six conical bugle. We wondered whether the generally accepted idea, that the human lips exercise greater control than a reed, was true. As a result, we conducted some experiments and we have found that this generally accepted idea is not true.

Up to a certain length of tubing, the theory holds good in practice, but after a certain point it no longer does so. We have not yet established the precise points, which depend upon the bore:length ratio, but our results so far are as follows.

With a tube 7mm in diameter, which just accepts an oboe staple, a tube 28.7cm long behaves as expected (conical tubes overblow octaves, cylindrical tubes overblow twelfths). With a tube (all tubes henceforth are cylindrical) 72cm long, a cylindrical tube behaves as though it were conical, when blown with the same oboe reed. At this gauge it was too narrow to blow by any other means.

With a hose-pipe about 2cm in diameter, a length 78cm long behaves as a cylindrical tube whether it is driven by a clarinet mouthpiece or the player's lips. A 114cm length of the same hose-pipe behaves as a conical tube, whether it is clarinetted or trumpeted.

With an aluminum tube 2cm in diameter, a 48cm length behaves as though it were cylindrical; with a 2.5cm diameter aluminium tube, a 205cm length behaves as though it were conical.

With a length of cylindrical plastic drain-pipe 3cm in diameter, a 120cm length behaves as though it were cylindrical, a 225cm length behaves as though it were conical.

These rather random lengths and diameters are simply the bits of tubing that I had around the house; obviously we need to cut off bits, a cm or
less at a bite, to see at what point for each bore diameter the change-over in acoustical behaviour comes; if possible we ought to try to construct long conical tubes to see whether anything even funnier happens (though the existence of bassoons and pre-tuning-slide horns suggests that they behave as expected).

The question we ask you is: Why do long cylindrical tubes behave as though they were conical?

A few other questions arise, too. Why do all these tubes, when struck with a flat hand on the end (i.e. as stamping-tubes), produce the same pitch as when they are blown? I.e., is a stamping tube an aerophone and not an idiophone?

Why do the aluminium tubes we used, when struck as though they were tubular bells, produce the same pitch as when they are blown? I.e. is a tubular bell an aerophone and not an idiophone?

Another that occurs to me only as I write, is how do the Leblanc great-bass clarinets behave? My memory, admittedly from a long time ago since I blew one, is that their bore:length ratio should make them, according to these experiments, overblow octaves and not twelfths; do they? And if not, why not?

We do not particularly like upsetting accepted acoustical theory; if you can prove us wrong, please do so, and if you can't, please tell us why this is happening.

FOMRHI Comm. n° 222

ON ACCURACY OF MEASUREMENTS

Many members, along some issues of our Bulletin have been discussing the pros and cons of the necessity of being accurate (and at what extent) when publishing measurements of old instruments, presumably for subsequent replication by builders.

One of the arguments is that it is desirable to use a percent accuracy well above the necessary for the manufacture of replicas, in order to avoid the need or desire to remeasure the original. This practice is said to avoid too much handling of the old instruments, sometimes in poor conditions of conservation.

I understand that the most part of the members defending such a procedure are makers/restorers and/or scholars of wind instruments, specially of woodwinds.

Unfortunately, I have no experience at all in this area of instrument making or restoring, but, in my own craft, the organbuilding, I would like to point out that this problem of accuracy of measurements is more or less out of question. Let us see why:

- First, because it is not common to build replicas of old extant instruments.
- Second, because the size of the instrument itself and of its parts, it is allowed a quite sizeable margin of play with measuring, specially as far as the wooden parts are concerned, like chests, wind trunks, etc.
- Third, because even with the much more precise measuring of the pipes, these have so many variables inserted in its construction (lan guid, lips, foot-holes, etc) that even if we intend to replicate a certain rank of old pipes, is the final voicing that can give or not the approximate duplication of the old sound.
It seems, therefore, to me, that this problem of accuracy is, in fact important, but it must be understood viz-a-viz the kind of instrument we are dealing with and that it seems to be useless to use a 0.01 mm approximation when drawing or measuring some kinds of instruments.

L.A. Esteves Pereira

FOMHEI Comm. no 223

ON SEASONING TIMBER

I have been rereading the comm. 71 (Djilda Abbott, Eph. Segerman and David Rolfe) and 99 (John Rawson). When considering all the difficulties and problems involved with drying and seasoning timber, my memory started working backwards to the beginning of the 50's.

At that time, I worked in a commercial firm, selling engineering on behalf of several foreign firms, mainly from England (both partners of the firm were Englishmen). I remember to have made a study to try to resolve the problem of drying cork, for a factory of cork stoppers and other cork artifacts. As you probably know, at that time, Portugal was the first world producer of cork, either raw or manufactured. You may imagine the interest taken by the industry on the solution of that old problem – drying the water soaked planks of cork. Water soaked, because they come from the tree in a cylindrical shape and must be flattened before being used. The soaking takes one or more weeks and the flattening/drying is very difficult, because the final quality of the cork is dependent on the methods and conditions used, similarly as it is with timber.

The study and tests carried out consisted of soaking a cube of cork, 10x10x10 cm. in water, for 8 days. After that time, it was transferred from the water directly to a radio-frequency oven which dried it out in 8/10 seconds. The cube, after dried out, was cut into two halves to see the conditions of the complete section. The drying was completely even, the same degree of humidity was measured (with an appropriate tester) near the surface or half way two faces.

This is so because the heating generated by the short-waves used (about 27 MHz) heated all the molecules of the material, which acted as a dielectric between the two electrodes of the oven. The heat is, of course, generated by the vibration of the molecules, one against the others, driven by the alternating electromagnetic field present. The two electrodes remain cold. The RF power used was about 100 W.

A similar principle but installed in a much bigger machine was used to "cook" and dry the sheets of plywood in replacement of the old press using steam heated plates, which transferred the heat from outside layers to the inside, instead of heating all layers of wood and glue at the same time and temperature.

Something like 30 years have elapsed and I changed my area of interest. I don't know what have been done with that technology. Any member knows? Any member thinks that RF heating may be useful to resolve the problems of timber drying and seasoning, specially if we consider small pieces usually employed in the making of musical instruments?

L.A. Esteves Pereira
Electronic aids for tuning instruments in equal temperament are now readily available, and some members may be interested to know (a) how accurate they are, and (b) if they can be used for tuning to other temperaments. I shall describe briefly the device I use, which I assume to be essentially similar to others on the market, at least as far as the method of generating a range of frequencies is concerned.

The device contains a high-frequency oscillator which, although it is not crystal controlled, seems to be very stable. I checked mine against a digital frequency meter, and lost patience after an hour of waiting for it to drift more than 0.1 Hz in 440. There is a fine frequency control which allows one to set a standard pitch, e.g. against an A fork; in what follows I shall assume that a standard pitch for A has been set. I calibrated this control in cents, using the frequency meter; it was a tedious job, but the calibration appears to be stable.

Two levels of frequency division are provided. One is by powers of two, giving octaves, and this is necessarily exact because of the way the divider works. The other gives the equal tempered semitones within an octave, and this is necessarily inexact because it uses integer approximations to the divisors. In my device the integrated circuit used is the AY-1-0212 made by General Instrument Microelectronics Ltd for the electronic organ trade. The following table gives the errors to the nearest 0.1 cent, calculated from the divisors used; relative to A all notes apart from D# are flat.

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<tbody>
<tr>
<td>C</td>
<td>1.1</td>
<td>F#</td>
<td>1.6</td>
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<tr>
<td>C#</td>
<td>2.3</td>
<td>G</td>
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<tr>
<td>D</td>
<td>2.0</td>
<td>G#</td>
<td>0.4</td>
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<tr>
<td>D#</td>
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<td>A</td>
<td>0.0</td>
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<tr>
<td>E</td>
<td>1.3</td>
<td>A#</td>
<td>0.3</td>
</tr>
<tr>
<td>F</td>
<td>1.8</td>
<td>B</td>
<td>1.7</td>
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For equal-temperament tuning these errors seem unlikely to matter.

It is a simple matter to use the tuning aid for tuning unequal temperaments, provided that the fine frequency control has been
calibrated. The method is to work through the tuning recipe in sequence, and calculate the cumulative difference in cents between the desired pitch of each note and its equal-tempered equivalent. For example, Benade's recipe for Werckmeister III starts with C and tunes the three fifths C-G, G-D, D-A each about 5.5 cents narrow. Then perfect fifths are tuned upwards from A to B, and downwards from C for all the rest; if this is properly done the fifth B-F♯ comes out about 5.5 cents narrow, so completing the absorption of the comma.

Clearly, one can start from A, and tune A-D, D-G, G-C in this order. As a perfect fifth is about 2 cents wider than an equal-tempered one, the contracted fifths are each about 3.5 cents narrower than equal, so the tuning aid should be set about 3.5 cents sharp for D, 7 cents sharp for G, and so on. It is possible to work out settings for all twelve semitones in this way, but it is better to use the tuning aid only for setting the narrow fifths, and to tune the perfect ones by ear.

It seems sensible to take the errors listed above into account when tuning the first three fifths, so for D, G and C the aid should be set about 5.5, 8 and 11.5 cents sharp respectively.
Several contributors to FOMRHI Quaterly have discussed the question of producing some form of catalogue but, to date, no concrete steps appear to have been taken to establish one. In a recent study of Brass Instruments prior to 500 AD, I produced, for myself, a catalogue that documented this very limited area of study.

In addition to the catalogue, I produced an index which listed all entries by keyword only. This index proved invaluable in my study, both for cross-referencing and for jogging my memory about instruments located several years ago, and since forgotten.

All entries in the catalogue and Index are numbered and this number prefixed by "DR," "IC," "SD," and "SR" depending whether the entry refers to documentary references, iconographic references, specimen details or specimen representations. This latter category contains statuettes, models, etc. and, at times, is not too easy to justify. Nevertheless, it is included in my present listing which runs as below:

**DOCUMENTARY REFERENCES**

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<tr>
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<th>DR016</th>
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<td>CELTIC</td>
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<td>DR002</td>
<td>EUSTATHIUS</td>
<td>DR018</td>
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The alphabetic listing of the index runs:

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<th>ANTONIUS</th>
<th>DR061</th>
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<td>APOLLO</td>
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<td>IC155</td>
<td>APPULEIUS</td>
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<td>...</td>
<td>etc.</td>
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<td>etc.</td>
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The whole file is stored in the friendly (sometimes) neighbourhood computer at Middlesex Poly and listings can be produced on this fairly readily. The process of compiling the catalogue (about 2400 entries) and writing the program has been very time-consuming but now the latter exists it can handle any amount of data and output it in this particular format. Are FOMRHI members interested in extending this catalogue? Do they feel that its format or presentation is a reasonably acceptable one?

In my case, I can appreciate the enormous advantage gained from having this invaluable reference and am sure that other workers in similar fields would similarly gain. As for the expertise and knowledge, can there be an organisation better suited to undertake the task of extending the catalogue and making it comprehensive than FOMRHI? It would require considerable organisation and planning but, to me, seems to be a task that we must not shirk!

As we all have our specific areas of expertise it would be logical to utilise these in creating the catalogue. I have listed many of the brass instruments prior to 500 AD. Perhaps, if other members are interested in
the other groups of this date they could undertake to act as individual co-ordinators for these. In this way a catalogue could be produced in stages with group co-ordinators for, e.g. 7 - 500 AD; 500 - 1000 AD; 1000 - 1300 AD; 1300 - 1400 AD; etc.

Working within such rigidly imposed dates would undoubtedly cause many problems - my catalogue contains several instruments of disputed date. However, the chronological approach has the distinct advantage of keeping each individual index down to a manageable size; my two indexes are 23/24 pages and the catalogue about 150 pages. It is probably clearer to mark appropriately those disputed items and to repeat them in the various indexes. Thus, at any stage of development, the overall catalogue would consist of a series of chronological catalogues further sub-divided by instrument types.

The most likely problem with such a scheme would be in persuading members to part with their painstakingly acquired data. This would be particularly problematical in the early stages of the project as a certain proprietorial feeling to one's data inevitably exists when one has spent years collecting it. Perhaps this problem would be eased if the ownership of the catalogue is vested in FOMRHI. All non-contributors who then ask for copies could be charged appropriately by FOMRHI, contributors receiving a free copy in return for their contributions.

In view of my particular interest I would be prepared to co-ordinate the listing of instruments prior to 500 AD and, in addition, to handle the overall data processing side of the operation. I would be interested to hear what other FOMRHI members think of this proposal and, more importantly, how many are prepared to contribute. So - over to you.

Peter Holmes
So... be drawn from the shallowest wells, and even puddles can refresh with their lessons in life. Consider the revival of the recorder. Modern interest in historical types is inversely proportional to those types' historical importance. The 16th century models, heirs to the wealth of vocal and instrumental music of that era, can scarcely compare in popularity today with the 18th century flute a bec, which was mainly relegated to the back pockets of amateurs, occasional pastoral effects in operas or cantatas, and "sewing machine" sonatas.

The transition in the early 18th century from the bulky consorts of Praetorius to the graceful fluting of late baroque musical architecture was a nadir for recorders. Compositions, pictures, and references in books suggest the survival of the smallest, which shrilly piped variations à la van Eyck, hackneyed wind sonatas, and some ritornelli. Clearly this is a musical vacuum which the nature of the modern recorder revival abhors. It has none of the distracting musical worth of the earlier renaissance, but enough of its exotic glimmer to attract folks away from the humdrum world of Telemann and Marcello.

But what shall be the nozzle through which we puff our airs into this vaccuum? The fingerings of van Eyck (and even back to Janbe de Fer) are "baroque" (in the sense that the XIVth note is fingered or similarly, which doesn't work on most 16th century types). But pictures show that simple profile identified with "renaissance" instruments. The headlong rush towards authenticity is checked; the beast shakes its head in dull confusion. "What can this be?" "Baroque" fingering is mostly a function of the size of the lower holes. Even a cylindrical bore can be made to honk out those upper notes if its holes are big enough. A tapered bore will also push them up with smaller holes, as well as make them easier to produce. Historically, perhaps the typical "choke" of 16th century recorders became lower, with less of a flare at the foot, so it served more as a taper. A result of this tapered bore is a "tighter" feel to the instrument, a feel that seems more conducive to the dynamic expression that baroque music appreciates. Further tapering by Hotteterre & Cie. yielded a "high resistance", "flexible", flute a bec.

There are three instruments I know that might serve as models for an early baroque flauto, Wien 8521 and 8518 at the Kunsthistorisches Museum, and an Ivory Instrument at Ten Haag. The pitches are about g', c", and a" (a'440). Their tapers (ratio of minimum to maximum bore diameters) are .87, .79, and .84. A taper of .75 seems the least with which I could coax out the highest notes with any musical reliability in the experiments I made. Later flutes a bec have more taper, .54 for the Terton, although there's a Sassen 5th flute with a taper of about .71.

Experimenter within the ranges of dimensions of instruments of the time gave the following instrument, a satisfactory start:

- **Windway length**: 40mm
- **Windway widths**: 10.3 - 11.3 mm
- **Windway curvature**: 30.4 mm diameter
- **Cutup**: 3.8 mm
- **Windway "height"**: (from underside of edge) 70mm
- **Chamfers**: .7mm, medium angle
- **Outside diameters**: 27.3mm at window, 21.0mm minimum, 32.3mm at foot
- **Fingerholes**: mm from block bottom mm diameter

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<th>mm from block bottom</th>
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<tr>
<td>100</td>
<td>5.8</td>
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<td>130</td>
<td>6.2</td>
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All are undercut.

The pitch is c" at a'411. The octaves III-X and VII-XIV are a little too big. It plays van Eyck well, with a good compromise between the ease of upper notes (c'" is a little sticky) and fullness of lower notes. It gets around agilely enough, and two such flauti playing duos such as in T'Uitnement Kabinet sound very lush and exciting, with strong combination tones. The instrument has a resistive feel that encourages "expression", but the ultimate test is in combination with violin of other "real" instruments. I haven't had much of a chance to experiment, and never in a situation where a search of tone colors available to other instruments was made, but so far, the little flauto, an octave above other instruments, doesn't blend very well with them. It remains an instrument of limited musical use, a cheerful novelty compared to the rich lights and shadows other early baroque instruments are capable of. But I'm sure better effects can be had when other instruments adjust to the shallow brilliance of the flauto (if they could ever be persuaded why they should).

I will be very happy to give further information, as well as to receive comments.

Bob Marvin

Woburn, Province Québec
making double reeds for renaissance wind instruments

by Kenton T. Meyer
and Edward L. Kottick

A query by Anthony Doherty in the April, 1979 issue of this Quarterly, and other queries that have appeared in past issues, have prompted Ken Meyer and me to offer our little reed-making pamphlet as a communication. We do this with some trepidation; it is so basic and primitive that double-reed players will scoff at it; yet reed-making is so skilled an art that the novice may have little success without the initial aid of a double-reed making friend. We use this in the University of Iowa Collegium Musicum and insist that anyone who plays double reeds makes double reeds. We use up a lot of cane, but people learn to make reeds.

I. Introduction

This document is based on notes I took while Ken guided eight of our Collegium wind players through two 2-hour sessions on the reed making process. Just about everyone ended up with a playable reed on his first try.

Your friend, the oboe player, makes reeds by the dozen in order to get one good one; well, his reed has to respond from pp to ff and play over a range of two and a half octaves. Much less is required of a shawm or krummhorn reed; thus its construction and finishing is correspondingly less subtle. That is not to say that it is crude; a krummhorn reed also requires careful finishing.

But reed making is an art that takes skill and experience. These you're going to have to acquire, and the only way to learn is by making reeds. If you're working by yourself I suggest you enlist the aid of a double-reed playing friend. Ask him to help you through your first few reeds (never mind his skepticism). I'm assuming that you are familiar with reed terminology, but he will have to translate my words into specific movements of knife and cane.
I'm also assuming that you know how to sharpen your reed knife. If not, stop everything and learn that first.

II. Tools

1. Reed knife
2. Oil stone and oil
3. Alcohol lamp or cigarette lighter
4. Needle files
5. Small, flat file
6. Fine sandpaper
7. A length of 1" dowel or broomstick handle
8. Needle-nose pliers
9. Mandril
10. Plaque
11. Twine
12. Small saw (fret saw)

III. Supplies

1. Gouged bassoon cane (gouged and shaped cane can be used for smaller reeds, but is hardly worth the extra expense since you always have to do some shaping)
2. Assorted diameters of brass tubing (for staples)
3. Carpet thread
4. Soft brass wire (buy a roll of 14 gauge oboe wire and a roll of 20 gauge bassoon wire)
5. Colorless nail polish or waterproof plastic coating
6. Various thicknesses of cork
7. Cork cement

IV. Shaping

A. Measuring. - Measure the reed you want to duplicate. Assume it was larger when originally made, so add \( \frac{1}{4} " \) after doubling the length:
   \[ \text{Length of cane} = \text{length of old reed} \times 2 + \frac{1}{4} " \]
   Cut the cane to the proper length with the fret saw or a 3-corner file. Cut from the top of the cane. This is the first of many opportunities you will have to split the cane before it becomes a reed.

B. Thinning. - Here is where some experience will prove valuable, but in general:
   1. Larger reeds are thicker, smaller reeds thinner.
   2. Free reeds (e.g. shawm) are thicker, encapsulated reeds (e.g. krummhorn) thinner.

   Look at the butt of the old reed and try to estimate its thickness. Remember that a thick reed can always be thinned, but...... Thin by wrapping fine sandpaper around the dowel. Rub the inside of the cane over the sandpaper until it is sanded down to the desired thickness.
C. Mapping. - With a pencil (marking on the underside of the cane) mark a) the centerline of the length and b) width of the cane. Map out the shape of the reed. The extra ¾" goes in the center. (1/8" on each side of the centerline.)

Fig. 1. Mapping—view of inside of reed blank

1. If the reed will have a tube: wrap some wire around the tube to take its measurement. The ends of the cane are equal to ½ the circumference of the tube. Center everything carefully.
2. If the reed will fit on a bocal: put the old reed on its bocal or on the mandril and figure its circumference that way.

D. Cutting. - Cut the reed to shape with the knife. Cut from the middle to the ends. This is another opportunity to muck it up. Carefully use a file to finish it off smoothly. Keep the sides of the cane perpendicular to the top and bottom surfaces.

not this way  this way

It is suggested that you make patterns for all your reeds.

V. Profiling

Mark the position of the end of the butt and the center of the reed on the top of the cane. Score the end of the butt marks with the knife or the 3-corner file. Leaving the bark on the ends, and using your knife to both cut and scrape (but stick to scraping until you get the hang of it), profile the cane so that it is thickest at the butt and thinnest at the tip (remember that at this point the tip of the reed is in the center of the cane). Use file and sandpaper as necessary.
The cane should look lighter at the center when you hold it up to the light. You should be able to see the pencil lines on the inside of the cane when held up to the light. The cane should look white. The cane should be symmetrical. Work evenly across the reed, rather than a section at a time.

You probably will need to thin more than you think -- but remember, you can always take more off later.

Important! Free double reeds should be thicker in the middle; that is to say, these reeds should have some heart. Encapsulated double reeds have no heart and should be thinned straight toward the tip. Rauschpfeife reeds want to be heavier than krummhorn reeds.

The last things to do in the profiling operation are:
1. Thin the reed toward the edges of the blades.
2. Lightly score a line across the center of the reed, with the knife.
3. Score the butt as shown to prevent cracks. Use a sharp knife, and be sure you score rather than merely compress the fibers of the cane. Score the middle of the butt; then place an equal number of score lines on either side of the middle score.

VI. Soaking

Soak the reed for 24 hours.

VII. Folding

Remove the cane from the water. Fold it over the scored center line. The reed should be symmetrical.

If the reed takes a staple, either use an old one or cut off a piece of brass tubing of appropriate diameter. Cut to correct length with file or saw. Open the cut end and deburr, but do not flair.
VIII. Tying On

A. Tying on a Reed with a Staple. - Fit the reed on the tube. Loosely wrap brass wires around the butt of the reed -- two wraps and a twist, and don't cross the wires. Use oboe wire for smaller reeds, bassoon wire for larger reeds. The middle wire should be closer to the top wire. The top wire should be just at the top of the staple. Do not tighten yet; at this point everything is just held lightly in place.

Heat the end of the staple just until the cane starts to sizzle. Twist the wires tight with the needle-nose pliers. Rewet cane and reheat staple as needed. Minor cracks in the butt are OK. If the reed cracks through the blade, you've done it! Start all over again and resolve to do a better job of scoring the butt.

B. Tying on a Reed without a Staple. (Tying on a Mandril) Attach the wires tightly to the reed. Give each a few twists, but not to the point where the butt begins to open. Firmly wrap the butt (wires and all) with wet twine. Slowly force the mandril in and open up the butt. As you do this use pliers to squeeze the sides to help open up the butt. Get the mandril in as far as you can without cracking the reed. Hold the reed at the top of the butt during this operation, and don't crack the blades.

Remove the twine. Tighten the wires, making sure they are correctly placed and on straight. Don't worry about minor cracks in the butt.

Let the reed dry on the mandril or the bocal to be sure that it retains its shape. When completely dry tighten wires again. Repeat until the reed shrinks no more.

Fig. 3. Tying on — side view
IX. Wrapping

A. Wrapping a Reed with a Staple. - Tie nylon carpet thread to the back of a chair and sit on the chair in reverse (get an oboist to explain this to you). Lay the string across the butt from bottom to top. Start wrapping firmly from the top of the butt to the bottom, then back up. Continue wrapping past the end of the staple, so that the sides of the reed close. Tie off the string with 2 or 3 half hitches. Cut off excess string. Clip the wires to ¼". File sharp edges if needed. Bend wires down. Cover the thread with colorless nail polish or a waterproof plastic coating.

On larger reeds you might try tying the thread to the bottom wire. Wind up to the top wire and beyond (to close the reed), then back down to the bottom. Tie it off with 2 or 3 half hitches.

Glue an appropriate cork on the staple if required.

B. Wrapping a Reed without a Staple. - Put the reed on the mandril. Tie the nylon thread to the bottom wire. Cut off the short end of the thread. Take one wrap on either side of the wire. Then go back and forth, crossing over the wire, keeping the winding symmetrical and even. Apply as much pressure as possible. Continue until a ball is formed. It looks just like the ball on a bassoon reed, so get a bassoonist to show you how to do it.

Then wrap up the reed, clip wires, etc. as described for the other reeds.

Use a waterproof plastic coating on the wrapping if it is your habit to wet reeds by immersing them completely. If you can just immerse the blades, colorless nail polish will work OK.

X. Clipping

Lay the reed on a cutting block and clip the tips of the reed by rocking the knife across the middle of the tip to each side. You now have a reed. It may even play. If it is too stiff scrape towards the tip (use the plaque). If it plays flat clip a little bit more off the tip. Let the reed dry out thoroughly before doing any further adjusting.

XI. Finishing

Make final adjustments according to Moeck's How to Finish Reeds for Double Reed Instruments. (In Moeck's terminology *clamp = wire, tongue = plaque, thorn = mandril.*)
Bibliography


FoMRHI EVENING
Jeremy is having open house on the evening of the first day of the Early Music Exhibition, Thursday 13th September. All members plus their families and friends are welcome, and also any ex-members, prospective members or anyone just interested. Light refreshments will be provided - but bring some of your own beer etc. if you wish.

LEFT-HANDED TAPS AND DIES (Further to Comm. 204)
Rick Baines has found a supplier. BA and BSF threads. Set of 6 was £4 (old price). Tracey Tools, 58 London Road, Kingston, Surrey, phone: 01-546 9723.

NON-REPORT ON FoMRHI SEMINAR by Eph Segerman
The Seminar announced in FOMRHI Q. 13 and 14 (on p.13 in each) really did happen in February 1979 at N.R.I, in Manchester. It went on for all day on Saturday and most of Sunday. The announced papers by Page, Gill, Yakely and Fallows were duly given and much discussed. As host, I volunteered not to give my paper to provide the extra time that was needed for full discussion of the other papers. Last minute difficulties prevented Wright from attending; his wisdom was missed but the time his paper would have taken was well used otherwise. Everyone was so engrossed in what went on that none thought about taking notes for a report here. Suffice it to say that we all learned much from each other, new valuable speculative insights were aired, and the goal of arriving at a new history of plucked fingerboard instruments that reflects recent research into the area is a little bit closer. There was no agreement reached concerning publication.

NOTES FOR CONTRIBUTORS
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