Elena Dal Cortivo

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FOMRHI Quarterly

COMMUNICATIONS

FELLOWSHIP OF MAKERS AND RESEARCHERS OF HISTORICAL INSTRUMENTS

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FELLOWSHIP of MAKERS and RESEARCHERS of HISTORICAL INSTRUMENTS

Bulletin 58 **January, 1990**

A Happy New Year to rather more of you than usual; thank you to a considerable number of you for responding to my request to get your renewals in early; it's a great help.

This Bulletin is going to have to go off to Eph unusually promptly (by the 2nd) because I'm going to Jerusalem for some meetings on the 3rd. So if anything from any of you, whether Comms, notes for the Bulletin, or changes of address, arrives more than two post days after the deadline (which was 29th December; there's no post on Sunday 31st nor on New Year's Day), it's going to be too late and will have to wait till April. Sorry about that, and I hope our mail by snail doesn't hold your things up, but it may. The meetings were only arranged at the beginning of December; if I'd known in October, I'd have warned you. Postscript to this paragraph — Really our Post Office gets lazier and lazier. I came in this morning, New Year's Day (I shall open the Bate this afternoon anyway), to deal with Saturday's post — there wasn't any; they hadn't bothered to deliver any. I know that there should have been because we had a delivery at home (where they hadn't bothered to deliver on 27th or 28th!). All three days are normal working days, but apparently not for the Post Office.

I forgot to tell you last time (but I hope that you noticed) that the Faculty has bought me a new printer, an NEC 24-pin pinwriter P6 plus. I think it's a great improvement over the built-in Amstrad printer, and the last Bulletin was much more legible as a result. The other great advantage is that it is far faster; instead of going off for a cup of tea while a page prints, there's hardly time to sit down before I put the next one in. This is an enormous help for things like the Bate Guide Books, where, in order to print in two columns per page, every column has to be printed as a separate entity, putting each page in twice; it's laborious but it works even though in theory it's not possible with this programme. This Bulletin might look better and be easier to read in columns, too, but that would make it very difficult to insert your notes by cut and paste, and I try not to retype things unless I have to. However, I have done my reviews in this Q in columns. If this makes them easier to read, and if you prefer them this way, please let me know, and I'll continue to do so, and will do any other Comms of my own that way. I probably won't bother if I don't get any reaction because it does take longer to do (one has to work out the length of the columns and set the second column on the first page down to allow for a full-width title), and it takes longer to print because each column has to be printed as a separate document (the program thinks that each column is a page; it works well because one can go on editing as much as one likes, whereas if, using old-fashioned WordStar, one goes into columns, which can be done at the touch of a key, one cannot make any changes thereafter), and one has to offset the even-numbered columns, which means, in a Comm that covers more than one page, printing first the odd-numbered columns and then the even-numbered, or vice versâ. Working out the right amount of offset took time and experiment on the first one, but thereafter it's just a matter of having made a note of it.

MY ADDRESS AND HOW TO GET LETTERS TO FoMRHI: Every so often letters addressed to me go astray, or arrive here having been forwarded on from somewhere else. The most recent one went back to New Zealand and had to be sent again, a great waste of time, money, and trouble. The normal cause of the trouble is that they have been misaddressed. The correct address is: **Jeremy Montagu, Faculty of Music, St.Aldate's, Oxford OX1 1DB, UK.**

In theory the post code OX1 1DB should alone suffice, since any large user such as the Music Faculty has a code unique to its building. However, the Post Office, despite its constant exhortations to all and sundry to use the post code, seldom looks at it itself. Oxford, obviously, is necessary. St.Aldate's is the name of the

street we are in and thus also necessary. It is perhaps a pity that we have no street number, but we haven't one (I have to tell visitors that we are between Christ Church — one of the many colleges of this University — and the Police Station). Most essential of all is the building, which is the Faculty of Music. If a letter were sent to the Faculty of Music, Oxford, I suspect that it would get here (but please don't try it!). Where things start to go wrong is when people leave the Faculty out and use variants of St.Aldate's. There is, for example a St.Aldate's College; it has nothing whatever to do with the University, but is one of the many places which take foreign students, trading on the fact that they don't know that there is no connexion with the University (these 'colleges' don't pretend that there is such a connexion of course, but just avoid, as is perfectly legitimate, stressing that there isn't) and try to teach them something. Oxford is full of these places.

One other way of getting things to me is to address them to Jeremy Montagu, University of Oxford, but that annoys the University Offices who have to readdress them. Unlike more recent universities, who are bunched together on a campus, we're scattered all over the city. The College (Wadham) of which I'm a Fellow is 12 minutes fast walk away, which is one reason I seldom get there — the other is that running both the Bate and FoMRHI leaves me with little spare time; the University Offices are rather further in the opposite direction.

So do, please, always include Faculty of Music in the address, whatever else you may leave out, and if you use St.Aldate's leave it plain; don't dress it up.

LOST MEMBERS: We've now lost Danny Hathaway of Vancouver WA (not BC), and Günter Mark of Utrecht. Philip Lord and Sebastian Nuñez are still missing; they, and Günter Mark, all live in Holland — can any of our other Dutch members produce addresses for them, or if they bump into them, ask them to get in touch? We owe them Q 56 and Q 57, and they may want renewal forms (though Danny has already renewed, so if we don't find him, we'll owe him for all of 1990!).

FURTHER TO: Bull 57, p.5: Sam Quigley of the Boston Fine Arts Museum (see a separate Comm herewith as it was a couple of pages) and Elizabeth Wells of the Royal College of Music (see below under *MUSEUM NEWS*) have both responded to my suggestion that other museums might send me in information so that that section isn't all Bate Collection; Arnold Myers of the Edinburgh Collection has several times done so in the past. How about some more of you who work in, or who have regular contact with Museums? We need to know what's going on in Museums, for that's where so much of our basic information comes from.

Comm.941: Several people have responded favourably to this Comm, describing it as 'very sensible' etc. There's been no reaction yet from Bruce and Ardal, which is a disappointment. Bob Barclay wrote:

I have just read your Comm. 941 in FoMRHI on the subject of ivory. There has been so much biased press coverage of the ivory trade problem that it is gratifying to see somebody finally put the problem in perspective. I have a large stock of ivory, purchased at least ten years ago, in the Ethnology Laboratory of the Canadian Conservation Institute. I will continue to use this stock, as and when the need arises, because <u>not</u> to do so would mean that the animal which supplied the material indeed died in vain. On the same lines, I was pleased to read that you abhor the burning (albeit very dramatic) of hundreds of tusks for the purposes of publicity. What a waste for such an equivocal gesture! It would surely be much more dramatic to burn the poachers. Nevertheless, there are still craftsmen who prefer to use the real thing, and there are still customers who demand it. They

should not forget that for small parts of musical instruments walrus ivory is an acceptable substitute. Furthermore, the animals from which it comes do not die simply to provide two teeth, and neither are they hunted systematically as the fur seals were.

Comm.943: David Rycroft writes:

'Traversoes' like potatoes? No!
Like tempo and concerto,
Let's opt for either -os or -i :
Traversos or traversi!

I'd say that Ardal has convinced me that he's right and I'm wrong; traverso should be regarded as the modern name for an early instrument, just as we use sackbut to denote an early trombone, whether quite as early as that should indicate or not and whether English or not, and, I suppose though I'm rather agin this one, as we use dulcian (I'm agin it because there is a perfectly good English name, curtal, when we're writing in English). It's a pity that we haven't got more such one-word names available for the early versions of instruments still in use; hoboy could mean ahawm as much as, or perhaps more than, oboe, for instance, and I can't think of any thing for clarinet, bassoon, or trumpet. Hand horn is easy, but *corno da caccia* is all that's available for the earlier type.

A Comm. herewith from Alec Loretto: Alec permits me to add that I described this bocal in *Galpin Society Journal XXI*, 1968, p.18, and I kicked myself there for not having done my homework properly in advance; not till I got back to London did I realise that this, which looks original, would be, if so, the only surviving Bressan bass recorder crook; all the others are bits of gas-piping, bent curtain rail, odd tubing, etc. That's why I asked Alec to measure it for us. The main reason for adding this note is that when I saw it in 1967, it still had its mouthpiece. This was silver, like the crook, expanding laterally like a fish tail (though not forked). Between this expansion and where it fitted on the crook (Alec has noted a swelling in the tubing for it to lodge on), was a small sump, from memory a centimetre or so in diameter and one and a half to two centimetres deep. Again from memory this was not a siphon but a tube projecting downwards with a pull-off cap on the bottom so that when it filled up with condensed moisture one simply pulled the cap off and emptied it. It was at the lowest point (in use) of the crook, so that any moisture which condensed on the metal of the crook would run down into it. If this has really been lost, and isn't rolling around in the bottom of the case or a drawer, it would be a tragedy. It's only marginally visible in Alexander Buchner's *Musical Instruments Through the Ages*.

PLANS HEREWITH: Donald S.Gill has kindly responded to my request in Bull.57 p.4 by sending a copy of R.K.Lee's list which you'll find herewith. Let's have more, please.

STOLEN INSRTRUMENTS: Julian Goodacre has sent a list of things stolen from Ian Ketchin's workshop; if you see any of them, please ring Ian on 031-652 2072:

1. Full set of silver mounted Northumbrian pipes by Burleigh, copy of Robert Reid. Fitted with brass 11-key chanter, blue/grey velvet cover, burr walnut curved bellows. In a box.
2. Also in a box, a stand of Burleigh brass-mounted drones; the G drones have three tuning beads.
3. A German ebony flute unkeyed [I'm not clear whether this means keyless or with 8+ keys removed].

INSTRUMENT DISCOVERED: Uta Henning tells me that a four-octave bible regals was recently discovered in South Germany. Since her card is not reproduceable here (she knows our format but often ignores it), write to her for more information.

ARTIFICIAL IVORY: Helen Morgan (Nigel's wife) writes:

I have had some artificial ivory recently from Jean Sauzedde as recommended by Jon Swayne (bull.55,p.3).

At the time of writing M. Sauzedde says he has the following thicknesses in stock - 1.5, 1.8, 2, 2.5, 3, 5, 7, 10, 12 and 15mm, and he confirms that, contrary to what Jon Swayne has been told recently, the ivory is still being made. The only difficulty is that often there is a delay of 4 to 5 months before sufficient orders are obtained to make it worth making the next batch. It is made in a block of 150 kg, from which the different thicknesses are cut.

The price we paid was 382Ff for a piece of 15mm weighing 2.4 kg, and the postage was very expensive. Postage would be kept down by ordering it in weights of up to 2 kg as that is the limit that can be sent by small parcel post. M. Sauzedde's business address is:

M. Jean Sauzedde,
Coutellerie "Au Sabot"
Eurl Sauzedde-Biguet,
Zone Artisanale de Racine,
63650 La Monnerie Le Montel,
France

Tel: 73 51 48 28

These details may be of interest to other readers - and save a few more elephants!

PERMUTED INDEX: Charles Stroom has sent us an updated Permuted Index. I'll send it on to Eph, but my feeling is that we can't afford to print it every year. It costs the same as a Q, and we can't afford to produce five Qs a year. We could, I suppose, charge you extra, but unless we did it by orders in advance, wemight wind up stuck with a stock that nobody wanted to pay for. We'll see what Eph thinks (I imagine in the Bulletin Supplement), and your reactions would be welcomed. Would you pay an extra £2 plus postage for it? Would you rather have it as a free extra every five years or so? If so, how many years is the optimum, after using the old one and the subsequent Qs to find something too much nuisance? We probably can afford it every few years.

NEW BOOK: See the flyer elsewhere herewith from Roberto Regazzi; photocopy it if you want to order it.

WOODWORM: Carl Willetts writes: *"I have just found to my horror that a wooden chest in which I store a number of instruments has fresh worm-holes in it. Given that woodworm takes 3 years to incubate I need to treat any affected instruments before any wormholes appear. Thus two questions:*

- How do I tell where eggs have been laid as I do not particularly want to treat unaffected instruments

- What should I use on the instruments which will not harm them, or me when I come to play them?" [he's a woodwind man].

I replied to him: *"I can't answer from my own knowledge because I've always wondered how the things get in without leaving holes. Do they? Or are holes an indication that they've got in as well as that they've flown out?*

As for treatment, I use Rentokil, not having a fume cupboard and a source of cyanide. If we had a really bad infestation I would ask one of the bigger museums, which do have fume cupboards, to do it for me. Ideally, after using a good dollop of Rentokil (applied either into the holes with the thing that comes on the can or a syringe (the latter for choice) or with a soft paint brush if it's very bad, I fill each hole with melted beeswax into which I've mixed some Rentokil for added protection, the point about filling the holes being that if a new hole appears it's either one I've missed or a sign that they're still active.

I hope that Rentokil won't hurt me, and even though sloshing liquids on to wooden instruments isn't good for them, it's better than worms."

The reason for including my reply is that I'd like to know:

a) How can you tell whether they've got in? Are some of the holes entrance holes and others flight holes? How do you tell them apart?

b) Does anyone know a dope toxic to worms and not us? There are several other chemicals around, which I've got, but I didn't mention them to Carl because the bumph with them warns that they are highly toxic to us, too. There seems little future in poisoning Carl as well as the worms. The trouble is that most of the literature in this area is based on furniture and other wooden things that you don't stick in your mouth.

COURSES: The Magnano Festival has courses in August (11th-20th) on clavichord with Bernard Brauchli, organ with Esteban Elizondo, harpsichord with Georges Kisa, organ building andmaintenance with Alberto Galazzo and Jörg Gobeli, and a choir directed by Eva Kisa, as well as concrets, lectures and an exhibition. For more details write to: Corsi di Music Antica a Magnano, Via Roma 48, I-13050 Magnano (VC), Italy.

A reminder of the Bate Bassoon Weekend with Andy Watts and Paul White, March 3rd/4th. Cost £20 and the usual format save that the Saturday reed-making and maintenance session will be in the afternoon instead of the evening, with more playing in the evening.

I've not fixed anything in the Summer; I've wondered about hand horn or natural trumpet, but would anyone come for those? Last time we did a horn one we had four people, and we can't afford that. If you'd be interested in either subject, let me know and I'll lay them on. Trumpet would be Crispian Steele-Perkins, and horn I hope would be Tony Halstead; the repair and maintenance for both would be Peter Barton.

MUSEUM NEWS: Elizabeth Wells writes: *"The Royal College of Music Museum of Instruments will be open from January 1990 only on Wednesdays, 2-4.30 pm, in term time (parties and special visits by appointment) and this is subject to review."*

She asks me not to comment further, so I won't, but I'll add from the leaflet that she sent me at the same time that admission costs £1.20 (concessions £1.00).

The Bate Collection was recently given Arnold Dolmetsch's first clavichord, marked no.1, 1894. I'm told that it's a copy of a Christian Gotthelf Hoffman of 1784, which then belonged to AD and is now in the Belle Skinner Collection in Yale, and it appears to be a straight copy with no messing around. It's wholly fret-free, five octaves FF-f^3, with 4' strings for the bottom twelfth, FF-C. I'm hoping that Margaret Campbell can fill out its provenance; we only know it from when it belonged to McKnight Kauffer (the artist) and Marion Dorn, and that's likely to have been in the twenties. It needs restringing, and John Barnes has promised to

send me the gauges he's using on its twin, a later one from the same set of six, in the Russell Collection in Edinburgh. All we need now is a copy of Arnault and/or the Urbino intarsia and one fretted in pairs, and we'll have a complete history of the clavichord; we have my John Rawson copy of Roger Mirrey's fretted in threes, the Hieronymus Hass of 1743, and the big anonymous German of 1810 or so.

I should have told you last time that our Special Exhibition (now just ending) was of Instruments of the Bible, with a very much more detailed Catalogue than before, which may go some way to answering Eph's criticisms of my articles under that head in NGDOMI. The Catalogue, which covers pretty everything that we know and don't know on this very tricky subject, remains available at 50p. I've decided to stop doing Special Exhibitions, for the moment anyway; few people come to see them (except this one, which is why I've done it for the second time), and I can use the space to show more instruments from the Collection.

The Bate Friends is beginning to build up well. I'll send Eph a couple of the leaflets in case he feels like putting them in; like the Regazzi leaflet, you can photocopy it if you feel inclined to respond.

CODETTA: That's it on the 29th, but I'll keep it open till the morning of the 2nd in case anything else comes in. I've still got some reviews to write over the weekend and Monday, and also the Membership List Supplement to do, which I'll also hold till Tuesday morning. Nothing else has come in; no FoMRHI post at all.

DEADLINE FOR NEXT Q: April 2nd, please. There shouldn't be any panic over that as I'll have been away before then. I should be back by then, but anyway you'll have a bit of spare on that because of the time it takes to do the full List of Members. Try to get things in by April 2nd, though; it makes it easier if everything's to hand.

CODA: Enjoy the rest of the winter and the spring; not too much snow and ice I hope (unless you're a skier or skater, in which case good luck), and no floods, earthquakes, or invasions, please God.

Jeremy Montagu

Hon.Sec.FoMRHI

BULLETIN SUPPLEMENT

E. Segerman

The updated Index by Stroom has 26 pages of Chronological Index and 65 pages of Permuted Index. The additional Chronological listing is on page 16 of this Q. I could duplicate whatever anyone wanted at 5p a page + postage.

Including Regazzi's book advert in this Q. makes me uneasy. It could open the door for loads of book adverts. It is included this time because Jeremy promised it in his Bulletin. I want some discussion before doing any more.

John Barnes has sent a notice of the Rhodes Bursary Fund. It is on page 27.

R. K. Lee,
353 School Street,
Watertown,
Massachusetts,
U. S. A. 02172.

Close Range Photogrammetry - Precision Plans
Conservator of Musical Instruments - Restorations
Payments to R. K. Lee, Account 29'266'00, Swiss Credit Bank, Oerlikon Branch, Zurich, CH-8050, Switzerland
Overseas Price List of 23 Nov., 1989
Effective until 23 February, 1990-All Prices Quoted in Swiss Francs

This price list supersedes all previous lists for sales in the continents of Europe, Asia, Australia, and South America. Payment is to be made in Swiss Francs (Sfl) to account number 29'266'00, Swiss Credit Bank, Zürich-Oerlikon, Zürich, CH-8050, Switzerland.

When I receive notice of payment from the bank, I send the order via airmail within 10 days. Please do not use the postgiro system unless the receipt is clearly and legibly marked with your name on it. In addition, please notify me separately of the order so that I may know that payment will arrive and that the plan will be in stock for prompt mailing.

This price list is temporary, because I am in between catalog printings. If you have specific questions about a drawing, I will be pleased to answer them for you via airmail. Generally, I photograph each instument in sections (from above), and take detail photographs of such items as the keyboards, action parts, hardware, decorations, framing, stands and anything else of factual interest. If you are interested in detail photographs of an instrument, I can have them made for you in about 4 weeks on special order. The charge for this service is Sfl 50- plus the charge of the photographic laboratory. Color photographs, 20 X 25 Cm by a professional printer are Sfl 52- individually; black and whites are Sf 18-. Quantity prices may be available, so please ask for a quotation. Furthermore, I have available standard sets of the soundboard decorations of the Blanchet, Hemsch, and Ruckers instruments (see below). Photographic data is also available on many more instruments than I have plans for, e.g. Ferandi Rossi, Milan 1597; if you have a special requirement, please ask me for assistance.

Francois Etienne Blanchet, Paris 1765	Sfl 60
Johannes Petrus Bull, Antwerp, 1778	Sfl 70
Henry Hemsch, Paris, 1756	Sfl 70
Albertus Delin, Tornaci,1752 (R. K. Lee adaptation)	Sfl 170*
Ioannes de Perticis, Florentinus Faciebat Anno MDCLXXXI	Sfl 70
Ioannes de Perticis, Florentinus Faciebat Anno MDCLXXXIV	Sfl 70
Andreas Ruckers, Antwerp, 1640	Sfl 70
Anonymous Organ, Swiss Family abYberg, mid 16th Century	Sfl 80
Salpinx, Olympia, 450 B. C. (Trumpet)	Sfl 45
Blanchet Photographs	Sfl 95
Hemsch Photographs	Sfl 95
Ruckers (set of 16)	Sfl 75
Various-Trombae Marinae (Fall 1989)	Sfl 85

*Includes two mylar templates

Francois Etienne Blanchet, Paris 1765.

This instrument is in the collection of Dorothy and Robert Rosenbaum. The range is FF-f'''; coupler; 2 buff stops; 3 rows of jacks; 8'4'8'. The entire instrument is gilded and painted in the grotesque style. All decorations and details are in original condition. Photographs of the decorations, soundboard paintings, interior framing, keyboards, and action are available on special order. The plans are in two plates at 1/4 scale, with principal dimensions shown. This is the finest French harpsichord in North America. The plans were made by the photogrammetric radial line method.

Johannes Petrus Bull, Antwerp, 1778.

This instrument is in the R. K. Lee collection. The range FF-f'''; 8'4'8' strings; jacks, 8'4'8'/8' peau de bufle and 8'lute (nazard); buff stop; machine stop to bufle (knee lever); knee lever damper bar on 8' strings. The instrument drawings were made by direct measurement in full scale during extensive restorations in the 1960's, and include all technical details of the instrument known at that time including the stand and hardware. The instrument was originally stained and varnished to resemble walnut, while the interior was in light green paint(some of which has been preserved). The natural keys are of bone with unusual curved-front ebony sharps. The musical sound and varied colors make this a fine harpsichord of great musical versatility. The action is typically Flemish, with high leverage and very firm feeling action. Please note that I reserve the right to fold this plan because of its large size, instead of mailing it on rolls. It must be folded to conform to Canadian postal regulations.

Henry Hemsch, Paris, 1756.

This instrument is from the collection of the Boston Museum of Fine Arts, left to them by E. F. Searles who acquired it in Paris in the last Century. It is my conjecture that this instrument is a relic of the Bavarian kingdom's embassy in Paris, perhaps sold as a consequence of the Franco-Prussian war. In the previous era, the Bavarians were an independent kingdom and the French were their ally against the Austrians; however, they were then forced into alliance with Prussia against France. The instrument carries the arms of the Bavarian Wittlesbach family, and is decorated by the same atelier as did the Blanchet harpsichord of above. Hemsch was tuner to M. del la Popliniere, whose protege was Jean Phillipe Rameau. The range is FF-e'''; 8'4'8'; coupler; buff; ebony naturals, ivory covered sharps of boxwood. This instrument has a smoothness in color change over its testatura that is unmatched by any other French harpsichord that I have heard. Full size plan made by stereophotogrammetry. Contoured drawing of the Louis XV stand carvings. Color controlled photographs of the soundboard in 4 prints at 20X25 cm are available.

SINGLE MANUAL HARPSICHORDS

Andreas Ruckers, Antwerp, 1640

This instrument is now in the Yale University Collection; it was formerly in the Bell Skinner collection. The Skinner catalog states that the instrument came from the estate of a Burney pupil, Miss Elisabeth Twining; it also bears a label attributing ownership to G. F. Handel. The instrument was restored by Frank Hubbard and data is presented from that restoration. A series of 16 (uncontrolled color) photographs of this harpsichord in 12X18 cm size is available in a set along with those of a 1638 Hans Ruckers virginals belonging to Harvard University that allows comparison of the painting styles of the two Ruckers. The 18th Century keyboard range is shown as well as the prior 17th; C-d''' and C/E-c'''; the registers are 8'4'. This little instrument has always been my favorite Flemish harpsichord with a brilliant, but sweet tone quality, since 1952 when I first played upon it. The plans are in full size made by direct measurement using trammels.

Johannes de Perticis, Florentinus Faciebat Anno MDCLXXXI.

This instrument is on loan to the Boston Museum of Fine Arts; it appeared in the Franciolini catalog, so the attribution to Perticis is highly suspect, since this name is only found on forgeries. The instrument itself has ornamental details identical to an instrument in Leipzig dated 1621, but of different shape, which also passed through Franciolini's hands. The inner instrument is 8'8' with a range of C/E-f'''. The pitch is A=385 Hz in brass wire. The sound quality is an excellent example of the Italian school, and is unusual for having soundboards at both the nut and the bridge. This feature makes the instrument much easier to hear from the player's position. The exterior of the outer case is painted identically to an instrument in the Germanisches National Museum, both of which have been attributed to the 20th Century (for painting); however, the interior lid painting, the case itself, and the inner instrument are stylistically and physically characteristic of the 17th Century. The plans were made by stereophotogrammetry in full size.

Johannes de Perticis, Florentinus Faciebat Anno MDCLXXXIV.

This instrument is from the Ralph Richey collection (on loan to R. K. Lee). This virginals, though not shown in any Franciolini catalog, is absolutely typical of his work (Ed Ripin). The crudely executed repairs by Franciolini have been eliminated and replaced by reproductions of the original des.gn, based upon existing remains. The crude Franciolini rose has been retained as a document of his work; Ripin has surmised that the original rose may have been taken for Franciolini's own collection. The instrument was restored by R. K. Lee, and detailed data was collected then. While compact, this instrument is very successful musically and is pitched at A=385 Hz in brass wire. Full sized plans were made by stereophotogrammetry.

R. K. Lee/Albertus Delin, Tornaci, 1752.

This plan is intended for modern construction by experienced woodworkers who are not familiar with harpsichord making. Many details of harpsichord making, tools, jigs, fixtures and the like are depicted. The plans

consist of more than five large (full size scale) plates plus mylar layout templates. Several approaches to furniture style are suggested; this has been done because a clavicytherium is so very tall and prominent in any room. Its appearance will be a matter of substantial importance to the interior decorator (photographs of completed instruments are available on request). Either a single manual harpsichord or clavicytherium can be built from the plans. The data are taken from the Hague Delin (which has a somewhat darker French sound), and the Berlin Delin (which has a brighter, brassier sound). The range is GG-g'''; 8'8'; buff; a machine stop like the Bull harpsichord can be added making a peau de bufle possible. This is very successful and produces a sound that is very similar to a forte-piano. This is my favorite harpsichord, both because it has the beautiful sound of a good French harpsichord and is simple to maintain (owing to the absence of a 4' stop).

RENAISSANCE POSITIVE ORGAN

Anonymous organ, shown by Dr. Cecil Adkins to have been in the Swiss family named abYberg since the middle of the 16th Century. The instrument is presently in the collection of the Basle Historical Museum. The range is f-a'', pitched at A=444 Hz. The stops are gedackt 4', principal 2', quinte 1-1/3', and a zymbel 1/2'. The organ stands on a table and is pumped from behind by a second person. The plans were drawn by Dr. Cecil Adkins during restoration in Basle. Two large plates at 1/2 scale. This organ is musically very successful, and is suitable for music up to and including Frescobaldi.

SALPINX

This is the oldest surviving trumpet. The instrument is from the classics collection of the Boston Museum of Fine Arts. It was found in the mud of a cave near Olympus, Greece in 1929. Its is surmised in the museum records to have been made in the 5th Century B. C. The length is 1,551 millimeters from the tip of mouthpiece to the tip of the bell, when assembled. The instrument has a bone mouthpiece similar in form to a modern trumpet, but without a back bore. It is comprised of 14 sections, precisely turned from bone (ivory?) with bronze ferrules, and terminates in a handsome, finely cast bronze bell. The instrument is a marvel of classical Greek technology. Photographic plan in full scale with measured dimensions by Mary Kirkpatrick.

Plans of Two Trombae Marinae by Dr. Cecil Adkins (in preparation).

Johann Ulrich Fischer, Landshut, 1720 (MUBNM K200), Gregori Wenger, Augsburg, 1713, (STMHM43716), and Anonymous French (possible) (BMFA 17.1733).

BOOKS

"The Amateur Wind Instrument Maker", by Professor Trevor Robinson. Revised edition of 1980; please write to the University of Massachusetts Press, Amherst, Massachusetts 01002 for price and ordering details.

SPECIAL REQUEST FOR INFORMATION

From:
Mr. Thomas C. Cubasch
Publisher
Verlag Der Apfel
Gumpendorfer Strasse 12
A-1060 Vienna/Austria

PUBLICATIONS IN PRINT

I am working on a BIBLIOGRAPHY that should hopefully cover books, catalogues, journals etc. on the various fields of conservation, for example:

General conservation, archeology, bone/antler/ivory, book and paper, glass, ethnological objects, paintings, wood/furniture, ceramics, leather/parchment, mummy, music instruments, metal, coins/medals, photographs and audiovisual materials, polychromy sculptures, preparation/ taxidermy, stone, mural painting, rock-art, textiles, natural history objects, health hazards and health control, disaster recovery planning, climate and humidity, storage, lighting, examination/ documentation/registration, display, safety and security, causes of deterioration, transportation/ packaging/handling, architectural heritage, landscape and gardening, scientific examination. (Comprising in each case reference works, materials, technology and techniques).

(This bibliography will not include single articles in bulletins, conference papers etc.).

Although some of you might argue that this is a somewhat similar task to what AATA, ICCROM and CIN are offering already, this bibliography however will be concerned with **publications still in print** in one of the western languages and available in the western world (in order to make it easier to start with). Annual revision is planned.

The idea being that a conservator can at a glance (or several glances) see what is available at present, the bibliography will quote author(s), title, date and place of publishing, number of pages, price in the country where published, name of the publisher and the ISBN, ISSN as well as AATA-reference-numbers. All of which will be alphabetically listed for the subjects mentioned above.

Therefore **I am requesting any information** which can be provided to complete the current listings. Especially material published by associations, organizations, museums, galleries, libraries, archives, institutions, local or national authorities etc. The sort of material not readily available through the normal book trade. It goes without saying that this type of material is more often than not more important than the material normally available, because of its specific nature and it is unfortunately not always accessable by the majority of readers.

IF YOU CAN HELP DON'T HESITATE IN CONTACTING ME. THANK YOU.

Also I would like conservation-teachers, conservators, scientists and librarians to make suggestions as to books they feel deserve a re-print or a translation (mainly into English, French, German, Italian, Spanish) and to invite you to contact me if you are interested in forthcoming publications which I shall be quite happy to discuss with you.

Finally I would like to hear about any student projects with a view to publishing just as well with conference preprints or postprints.

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FoMRHI QUARTERLY — COMMUNICATIONS FOR 1989

FoMRHIQ 54, January 1989 68 pp.

--------	New Acquisitions to the Kenneth G.Fiske Museum
--------	Plans: Italian Stringed Instruments at The Shrine to Music Museum
--------	Music and Book News
Comm.894-6	Reviews of: *Manual or Method of Instruction for playing the Welsh Harp*, E.Roberts; *Harpsichord & Fortepiano*, Oct. 88; *Galpin Society Journal* XLI; *Larigot* no.2; *American Musical Instrument Society Journal* XIII; *Early Music* Nov. 88; *Pitch, Π, and other Musical Paradoxes*, C.E.H.Lucy.
Comm.897	*New Grove DOMI*, JM 10; the Le & Me, Jeremy Montagu.
Comm.898	*New Grove DOMI*, ES 12; M entries, Ephraim Segerman.
Comm.899	Accreditation and Elitism, R.Barclay.
Comm.900	Conservation Standards and Accreditation, Cary Karp.
Comm.901	Historical Tests on Pleyel's Music Wire, Paris 1811, Rémy Gug.
Comm.902	Ivory, Ardal Powell.
Comm.903	Urgent Communication on Ivory, Bruce Haynes & Ardal Powell.

FoMRHIQ 55, April 1989 52 pp.

-------	Plans: Museum of Instruments, Royal College of Music, London.
-------	Check List of Instruments by Named Makers in the Jeremy Montagu Collection.
Comm.904	*New Grove DOMI*, ES 13; N & O entries, Ephraim Segerman.
Comm.905	FoMRHI and Conservation / Restoration, Roy Chiverton.
Comm.906	A Response to Cary's Comm.900 on Conservation and Accreditation, Jeremy Montagu.
Comm.907	University of Edinburgh Collection ... progress report 1988, Arnold Myers.
Comm.908	Response to Comm.889, Jonathan Swayne.
Comm.909	Plastic, Ivory, Gold and South Africa, Ardal Powell.
Comm.910	GPS Agencies Artificial Ivory, W.R.Stevens.
Comm.911	Instrument Drawings, Roy Chiverton.
Comm.912	High Tech in Instrument Making, Stephan Blezinger & Jesper Evald.
Comm.913	The Flutes of Robert and Willem Wijne, M.C.J.Bouterse.
Comm.914	Observations on the Wear of Two Keyboards Separated by 200 Years, R.K.Lee.
Comm.915	No Percussion in More Part [Polyphonic] Dance Music, Berthold Neumann.
Comm.916	Rhetoric for the Voice and Instruments, Ephraim Segerman.
Comm.917	The Birmingham Wire Gauge and its Musical Sisters, Rémy Gug.

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--------	List of Publications, The Bate Collection.
--------	List of Publications, Günter Dullat.
--------	List of Publications, Music Department, Haags Gemeentemuseum.
Comm.918-23	Reviews of: *Larigot* 5; *Traverso* 2; *Kunitachi College Handbook VIII — Bagpipes*; *The Sounds of Oceania*, R.M. Moyle; *The Early Mandolin*, James Tyler & Paul Sparks; *J. Australian Assoc. Mus. Instr. Makers* VII:2 & 3.
Comm.924	*New Grove DOMI*, JM 11; the Ns, Jeremy Montagu.
Comm.925	Comments on Comments about Conservation, Cary Karp.
Comm.926	The Destruction of the Tropical Rain Forests — What Can I Do?, Simon Lambert.
Comm.927	Bassoon Reeds by Triébert and Massabo, Paul White.
Comm.928	Responses to Comm.903 on the Subject of Ivory, Ardal Powell.
Comm.929	*Traverso Newsletter*, Ardal Powell.
Comm.930	La Gaita Gastorena, ?
Comm.931	The Morley Consort Lessons and the English Cittern, Peter Forrester.
Comm.932	Historical Wire-Micrometers and Diameter Values, 1780-1850, Rémy Gug.
Comm.933	Fortepiano Building in Vienna as Reflected in the Dispute between Jakob Bleyer and Martin Seufert, Edward Swenson.
Comm.934	An Unknown Bentside Spinet by Albert Delin, Nicolas Meeûs.

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Comm.935-9	Reviews of: *Musical Ensembles in Festival Books, 1500-1800*, Edmund Bowles; *The Recorder, a Basic Workshop Manual*, Adrian Brown; *J.Australian Assoc. Mus. Instr. Makers* VIII:1; *Metrics of Recorders & Traverso*, Sverre Kolberg; *Holz als Rohrstoff ...(Wood as Raw Material for Making Musical Instruments)*, Hans Georg Richter.
Comm.940	Update on Responses to Comm.903 on the Subject of Ivory, Ardal Powell.
Comm.941	Don't go Overboard about Ivory, Jeremy Montagu.
Comm.942	The Use of Drawings of Original Instruments, Simon Lambert.
Comm.943	Traverso or Traversa?, Ardal Powell.
Comm.944	Harpsichord Jacks at the Royal Swedish Academy of Science, 1739-1753, Rémy Gug.

The set for the year (FoMRHIQ 54-57) is available for £8.50 by surface and £11.50 by airmail (£10 airmail to Europe) from Barbara Stanley, Hon.Treasurer FoMRHI, 21 Broad Street, Clifton, Beds SG17 5RJ, UK. Single copies cost £2.50 by surface and £3.00 by airmail. The Index of Comms 1-500, 1975-1983, costs £1.00 by surface and £1.50 by airmail. The Chronological and Permuted Index of all Quarterlies from Q 1 to Q 52, and Comms from 1 to 881, costs £2.50 by surface and £3.00 by airmail. Please note that orders for all other back issues still available should also go to the same address.

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Review of: **Don L.Smithers, *The Music and History of the Baroque Trumpet before 1721*, Frits Knuf, Buren, 2nd edn. 1988. 352 pp. mus.ex., 21 platea; Hfl.98.**

An unreserved welcome for the corrected reprint of this book, first published by Syracuse University (and Faber) in 1973. It is a reprint with, in the back but referred to on the appropriate pages, an addendum which corrects a number of errors and inserts a number of omissions from the first edition, and reflects a certain amount of more recent work by other authors (though Reine Dahlqvist's important doctoral dissertation, and both the New Grove and the New Grove Dictionary of Musical Instruments, are conspicuous by their absence). It is something of a nuisance to have to keep a finger or other marker in the back, but one can see the financial advantages of producing a second edition in this way (but in that case, why does it cost so much? Ninety-eight guilders is as much as one would expect to pay for a new book of this size, newly set in type), and it's worth putting up with in order to have this book available again. The one really distressing factor in these addenda is the intemperate language used by Dr.Smithers when responding to criticisms made of the first edition. An author's feelings are always hurt by adverse criticism, but it is the wisest course to hide this hurt and not to respond in this way, wisest because to the outside reader such responses as these jar badly and negate the otherwise scholarly tone of the work as a whole; they are vituperative rather than engaging in scholarly debate (which can be strongly-toned enough, but not downright insulting like this). Some also sneer too strongly at other authors for errors and omissions exactly like those which some of these addenda correct in Smithers's own work, which also jars on the reader.

There is comparatively little material on the instrument itself, though what there is is important, and for that readers must turn to Bate, Tarr, and Baines. What there is here is an enormously detailed survey of the repertoire and use of the trumpet throughout most of Europe (nothing east of Bohemia and Moravia, little north of Denmark, and nothing south of the Pyrenees which, considering the almost total impenetrability of Spanish libraries, is not surprising, though Portugal should have been easier) from the Middle Ages to the early 18th century. The work of all the more important composers (many of whom had been hardly heard of before this work appeared) is considered, their trumpet-writing styles discussed, including the ranges of the parts they wrote and their use of non-harmonic passing notes and other relevant quirks.

There is a lengthy appendix, an inventory of musical sources for the baroque trumpet, and it is noteworthy that not only here, but also wherever works are mentioned which survive in few or unique copies, library sigla and shelfmarks are given. Dr. Smithers has consulted the work of many earlier authors and has repaid his debt to them by providing full source material for his successors.

A few further, or new, corrections should be made. In my copy plates 20-21 appear where 17-19 should be, and *vice versâ*. The bell garland (p.26) affects the sound, as well as adding strength and decoration, by controlling the vibration of the extremity of the bell. '2 eighths of an inch, i.e. one half inch' (p.29) was careless and should have been spotted and remedied in an addendum. Nakers (p.35) *are* a type of kettle-

drum', and the iconography shows that they varied quite widely in size; there is no question but that those on the Adderbury frieze are makers despite their curious position (which is due to the exigencies of fitting both them and the player into a very cramped space). The remarks about syllabics in Fantini's introduction to his tutor (p.85) reflect correct mouth and throat shape. Rauschpfeifen (p.120) is not, as Boydell has shown in his book from the same publisher, a synonym for wind-cap shawm, and this should also have been corrected among the addenda. The importance of Bendinelli, whose tutor was published after the first edition appeared, is perhaps not given as much weight as he deserves as a source for improvised fanfares, the only fully written example of which is that in Monteverdi's *L'Orfeo*, which does receive the attention it so fully deserves; Bendinelli suffers by being involved in one of the intemperate attacks (Add.51) referred to above. More debatable is the discussion of mouthpiece depths (p.23); Joe Wheeler always said that once one was accustomed to a big mouthpiece, the high notes became easier than with a shallow one, contrary to previously accepted wisdom, and Crispian Steele-Perkins, one of the very few players able to play the dodgy harmonics in tune without resorting to unauthentic fingerholes, has recently confirmed this.

However, these are all comparatively minor points, and, with the exception of Bendinelli, do not reflect the main thrust of the book, which remains as useful as ever.

FoMRHI Comm. 946

Jeremy Montagu

Review of: **Malou Haine, *Musica; Musical Instruments in Belgian Collections*, Pierre Mardaga, Rue Saint-Vincent 12, B-4020 Liège, Belgium, 1989. 214 pp, 156 colour plates, 12 black-and-white (some of them X-radiographs). 1,950 Belgian francs or 347 French francs.**

The amount of text is minimal (though what there is is slightly patronising, slightly talking down to the general public about how we, the experts, do things), and is really only there to explain that the reason why there is very little technical information is that the book was designed to reveal to the public the treasures of Belgian museums. It is a revelation, too; many of the wonders of the Brussels Conservatoire and the Antwerp Vleeshuis are omitted to allow space for things that most of us never knew existed in other museums.

All the text, including all the captions, is trilingual: French, English, and Flemish. The pictures are first rate. The choice is wide, from the 16th to the 19th centuries, and covers the whole range of European instruments, including a few European folk (non-European are omitted for reasons of space; maybe one day there will be a companion book for the rest of the world, for the Conservatoire, the Vleeshuis, and above all the Musée Centre-Africaine in Tervuren have superb material, and doubtless there are other collections I don't know of, just as there are here for the European). There's a lot here that I'd never heard of or seen (did any of you know of a good Renaissance trumpet maker in Bruges, Gorgen Choquet? I didn't, but here's a trumpet of 1582, from the Brugge Gruuthusemuseum, which looks well up to Nürnberg standards. Most of us will find something we didn't know in our own areas in this book, and the price is not unreasonable for so many good photos.

This is a book that's well worth having.

FoMRHI Comm. 947

Jeremy Montagu

Review of: **Bernhard Schultze, *Querflöten der Renaissance und des Barock, Band 1: Eine historisierende, literarische Anthologie*. The author, Unertlstr. 33, D-8000 München, 40, West Germany. 4th edn, 1989. 667 pp, facsimiles. DM 140 plus postage (and it's very heavy).**

This is an anthology of literature on the flute, mostly on playing and fingering charts, from Agricola (both 1528 and 1545) to Boehm and Schafhäutl, with a little on making (Diderot and Bergeron) and on acoustics (Lambert). It is to be followed by a second volume on *Akustik und Rekonstruktion*, which Bernard, who has just joined FoMRHI, has been working on for sevreal years. This first volume also has an appendix on Monochord and Temperament, which includes a useful graph of a chromatic scale on C constructed from Schlick, Grammateus, Praetorius (*mitteltönig*) Werckmeisteer, Rameau, Valotti, Lambert, and Kirnberger (II), showing how many cents each pitch is above or below zero (since it's in cents, obviously zero represents equal temperament) in each temperament. It's a very useful and clear way of showing how these temperaments differed, and worth expanding to show some of the commoner other ones also.

Each author is cited first by a facsimile from one of the standard German encyclopaedias of the last century (Mendel, Gerber, etc; while something more up to date such as the MGG might be better, that's still in copyright and these aren't). This is followed by a brief introduction covering any other salient points, either historical, textual or interpretative, by Bernard. Then the relevant material is printed, again in facsimile. Some of these, especially some of the earlier ones, or those in manuscript such as Pierre Trichet, are a bit hard to read, but almost all of these are followed by a typewritten transcription. All Bernard's material is typewritten and the whole book is produced on the photocopier in A4 format.

I can imagine no book more useful to anybody working on the early flute in any way. Here you have in one volume all the early descriptions, all the early playing instructions, all the early fingering charts, just about all the information there is, from 1528 to the mid-19th century, and all of it in facsimile, so that while there is some very useful commentary by Bernard in his introduction to each section, you can pay whatever attention to this that you wish; nobody has been at the original text, and it is there just as the author published it. I would imagine that Bernard got it all together for his own use, and then decided to make it available to his colleagues – I can only thank him, and wish that others would the same for other instruments; it is invaluable.

FoMRHI Comm. 948 **Jeremy Montagu**

Review of: **Nelly van Ree Bernard, *The Psaltery; An annotated audio-visual review of different types of psaltery*, Frits Kunf, Postbus 720, NL-4116 ZJ Buren (Gld), Netherlands, 1989. 168 pp, plates, text figures, music, constructional drawings, audio cassette. Hfl.66 paper covers, Hfl.88 stiff bound.**

This is a slightly simplistic, somewhat idiosyncratic, but reasonably comprehensive survey of a few types of psaltery and dulcimer. It starts with a historical survey and a reconstruction of two of the psalteries in the Pseudo-Jerome *Epistle to Dardanus*, ignoring (or anyway not pointing out, which is equally unfortunate in a book written for the beginner and the general public) that these were attempts to make *sense* of St.Jerome's mistranslations of instruments mentioned in the Bible. Whatever *nevel 'asor* may have been (and as readers of my very detailed 1989 catalogue of the Bate Collection's recent Special Exhibition of *Instruments of the Bible* will know, this is one of the instruments which will remain forever unidentified), it was not a ten-string psaltery, neither triangular nor square. There is no evidence that these instruments ever existed outside Pseudo-Jerome's imagination, any more than the American-doughnut-shape trumpet which did duty for the *Choros* (the misinterpretation of *machol*); St.Jerome said that it was a psaltery, and he said that it had ten strings, so here was a something which had ten strings, and it was a matter of faith, not reason, that it was right, which is why these pictures went on being reprinted through Virdung (she has a crack at one of his versions, too), Praetorius (ditto), and on into the 18th century.

More rational reconstructions start with a tetrachord, based on some stone carvings and early illustrations, where (and again she does not point out these possibilities of unreality) exigencies of technique, material, and space may have led to the portrayal of fewer strings than actually existed. She does, however, make a good musical case for the four-string instrument, with copious music examples and exercises, and clear descriptions of technique, both plucked and struck. This is followed by a larger rectangular instrument, which she calls the Canon Entero, whih appears also, though with much more complex stringing patterns, in Arabic sources (which she illustrates), and the Media Canon. Then comes the big rectangular instrument with one corner curved off, familiar, as indeed many of these are, from the *Cántigas*, which she seems, in one of her illustrations, to confuse with the harp-psaltery. Then the Ala Entera or Istromento di Porco, and thence to the trapezoid psaltery and dulcimer. From here on she is often quoting, with copious facsimiles from original sources, from tutors from the 18th century onwards.

Instructions in playing technique are very clear at all points, though she never progresses to the advanced techniques such as damping with spare fingers or the side of the hand that are used in China and elsewhere. Also clear are the instructions how to make the various types and styles of plectra (plastic "quill" tooth-picks would be useful; she does not seem to have met these), and she does say at all points "this is the way I do it" or "that I have made it", and never claims any authenticity. The same applies to the music; the recording, all of which is transcribed in the

book, is of the sort of variations on tunes from the *Cantigas* and other sources that she likes and that she thinks suitable. All in all a considerable advantage over much of the "this is the way it was" which we see too often.

The one area of real deficiency is the constructional drawings. These are reduced in size to 1 : 3.65, a curious figure which is presumably explained by the problem of fitting the largest to an A4 page. However, the result is that although the pictures are reasonably clear, none of the dimensional figures nor any of the string gauges are legible. Conceivably blowing them up with the enlargement facility of a photocopier might help (I've not tried that), but a magnifying glass offers no improvement; it merely changes a small illegible blob into a large illegibe blob.

This is a pity because otherwise we have here a useful book, especially for the beginner, which has full instructions for making and playing instruments of something approaching reality, unlike the sort of things that too often turn up in books for beginners to make instruments. I imagine many of us do get asked 'How do you make a ...', and it would otherwise have been a good book to recommend; queries about psalteries and dulcimers have been turning up quite often recently.

The cassette shows a lot of the potential for tonal variety by different methods and places for plucking or striking; it's no great musical experience, but it's not meant to be; it is good didactic material. Sixty-six Dutch guilders is probably quite a reasonable price in most currencies other than our continually slipping pound; at over £30 it seems a bit steep, but that's our fault, not theirs.

FoMRHI Comm. 949

Jeremy Montagu

Review of: **Sumi Gunji, *Lute*, Kunitachi College of Music, Collection for Organology, 5-5-1 Kashiwa-cho, Tachikawa-shi, Tokyo, 190 Japan. 49 pp, numerous ill.**

Sumi Gunji, *Bowed String Instruments*, same publisher. 40 pp plus a 15 page supplement to the Lute and 4 to the Zither.

Two more of these excellent handbooks on musical instruments of all sorts. *The Lute* begins with a good small scale drawing of a biwa, the main Japanese form, followed by drawings of variant forms. It then goes on to survey other main forms such as Arnault's lute and the Arabic 'ud and tar. There is then a lot of detail which, even without being able to read Japanese, one could probably puzzle out about biwa fretting and playing technique. This is, as usual in these manuals, followed by an extremely comprehensive collection of drawings from worldwide iconography of all the various types of plucked lute.

The *Bowed String Instruments* is similarly laid out, going into a great deal of detail on how bows work, how they originated, and all the various types of bowed string instruments, and all the different ways in which bows are held, in the world.

These are really very impressive works of scholarship, well produced, well laid out, with good clear illustrations and distribution maps, and quite frankly, as a lecturer on the history of instruments, I am not merely impressed but full of envy; I only wish I could produce something as good as this.

FoMRHI Comm. 950 **Jeremy Montagu**

Review of: ***JAAMIM vol.VIII:2*, August 1989 and *Larigot no.6, November 1989.***

There's more on wood in *JAAMIM*, this time on 'Some aspects of the dynamic performance of King William Pine' as part of experiments in trying to find good local timbers for instrument making. The experiments are interesting, and could be worth repeating elsewhere on other timbers, but the results, since we are not local to Australia, are of less interest to the rest of us.

There is also an article on 'Propolis varnish for harpsichords', and a good 'General observations on acoustics' by a violin dealer who is no scientist, as he says, but who does have to sell violins. It will probably stir up a good deal of controversy.

This issue of *Larigot* contains several articles reprinted from a Couesnon publication of about 1912. The first is on the cornet à pistons by René Brancour, and illustrates and describes a number of important historical types, drawn from examples in the Paris Conservatoire Museum. This is followed by a page illustrating the various types of cornet made by Gautrot (who were taken over by Couesnon in 1884) between 1828 and 1847, presumably including models by Guichard since, according to Langwill, Gautrot did not join Guichard until 1835. An article by Gabriel Parès describes the rôle of the cornet in the orchestra and themilitary bnd, with a list of which composers used it in which works,a list which is very incomplete; the only Berlioz work listed is *The Damnation of Faust*. Next is an entertaining exchange ofletters between Couesnon and Conn, followed by a description of the old Pris Conservatoire by Charles Vogel. All historic documents well worth reprinting.

Bruno Kampmann describes a number of unusual and little-known brass valve systems.

Jacques Favier quotes, somewhat selectively, and discusses three papers of Bob Barclay's: 'Towards a Code of Ethics for the Preservation of Musical Instruments in Public Collections', 'Ethics in the Conservation and Restoration of Early Brass Instruments', and 'Care of Musical Instruments in Canadian Collections', showing more interest in, and sympathy towards, the problems of conservation than a number of our members have done. It might be quite interesting to ask Bob if he would be willing to reprint those papers here, but whether he'd be willing, after the various débâcles with Cary and others, I don't know.

Michel Smiga provides a complex and technical description of how to mould and cast missing keys or parts of keys for woodwind instruments, winding up with a warning against messing around with original instruments until one has some proper training and plenty of practice.

ATTENTION ALL DUTCH-SPEAKING MEMBERS: Because JAAMIM is published in English, and because I can read French, I can do these reviews and reports. Won't one of you PLEASE do the same for Bouwerskontakt? It's years since we had any notes about what they've published, whereas they quite regularly list what's in our Qs, though without any description or comment, which would help our members to decide whether it's worth trying to get hold of the articles.

FoMRHI Comm. 951

Eohraim Segerman

New Grove DoMI: E.S. no. 14: P entries

Panormo, Vincenzo by C. Beare
The guitars made by G. L. Panormo deserve more than the casual mention given.

Pegbox by D. D. Boyden
The mechanical mechanism for tuning modern guitars and double basses is incorrectly described as a 'metal ratchet'. A 'worm-gear mechanism' would be a correct term.

Performing Practice by H. M. Brown (4,5) & R. Winter (6)
This excellent entry is marred by a few errors and questionable judgements.

4; 15th and 16th century music: When discussing the Ganassi and Ortiz books, it is suggested 'since 16th century writers advised players to imitate singers in every particular ..., that ensembles of vocal soloists also embellished their melodic lines on occasion.' What I argue with is the 'on occasion'. There is no reason other than modern aesthetic judgement to reject the implication of the sources that embellishment was normal in all performances. Performers then would have at least graced (the early writers mentioned gracing but did not acknowledge any need for instructions), and they would have divided as well as they could.

Sets of instruments early in the 16th century usually had 4 sizes in 3 tunings, not 3 sizes, as stated.

It is stated that equal temperament was adopted on all fretted stringed instruments. This should be qualified to include only gut-strung instruments. Wire-strung instruments like citterns used mean-tone fretting.

The discussion on 16th century pitch standards only includes the theory that English sacred music was sung at a pitch a minor third higher than modern (without mentioning that in the same theory the organs were pitched a fifth lower than the voices) and the semitone-high tendency for the pitches of surviving recorders. The implication here is strong that 16th century pitches generally tended to be higher than modern. This is absolutely false. Praetorius (1619) wrote that pitch earlier than his time generally was 2 semitones lower than his own standard (which was close to modern), and closer to 3 semitones lower in England and the Netherlands. In another passage, he wrote that Bavarian pitch at the time of Lassus was two semitones lower. He was almost unique amongst early authors in providing enough information for us to determine what pitches (in absolute terms) he was writing about. In the light of this, we are led to suspect that the surviving recorders were recorder-band instruments that did not conform to the standard of concerted music with mixed instruments.

5; 1600 to 1750: I have my doubts whether the desire of composers and performers to be brilliant and expressive in playing or singing melodies was new in the baroque, as stated. Brown contrasts baroque rhetorical expressivity with the 'balanced, classical polyphonically intricate music of the 16th century'. This standard modern view seems to derive from a shift in the nature of published music from polyphony to accompanied monophony, an increase in the notation of expressive characteristics of the music, and the apparent sufficiency to modern ears of polyphony performed with little expressivity compared to an apparently greater need for expressivity in accompanied monophony. This view deserves to be questioned. The transition between the late Renaissance and baroque in Italy was marked by the rejection of the highly divided style of singing and playing prevalent then (and taught by many manuals) which sacrifices expression of the words in favour of one type of musical expression. All melisma makes this sacrifice, division much more than gracing. But there is no evidence that the less melismatic interpretations of Renaissance music were any less expressive of the words than in the early baroque. Continuous across the transition was the commitment of instruments to imitate singers and for both to imitate the rhetorical style of public speakers.

During the Italian baroque there was the steady slow growth of a new style where

emotional expression of the meanings of individual words (as in rhetorical oration) became unimportant and the continuous direct expression of an emotional state, employing utterances of emotion such as cries, gasps, groans, etc. (as can be found in the theater) became popular. Associated with this new style was the messa di voce. Brown listed Caccini, Bernhard and Tosi as baroque writers on the voice and vocal technique, writing that 'all discussed dynamic nuance in detail and encouraged singers to practice messa di voce, the gradual swelling and diminishing of a single pitch.' This statement is highly misleading. Caccini (1601/2) only listed it as one of many ornaments on a note. Tosi (1723) defined it briefly and advised that it should be used sparingly. Only later in the 18th century did it become a regular component of vocal and instrumental style.

Agazzari (1607) is amongst the writers listed who offered instruction on playing from figured bass. I would have liked to have seen mention that Agazzari instructed the continuo player to imitate a singer's style, which he stated was as if one was reciting an oration.

Brown writes 'Monteverdi and his contemporaries often made ornamental figures an integral part of their compositional style, so that additional embellishment can hardly have been tolerated'. This could well be true for additional division, but I am sure that the performers felt free to follow the traditions of adding gracing, which no writers objected to. Brown later says as much.

Much of what is written about rhythmic alteration in the baroque applied to the Renaissance as well (as Sancta Maria reported), but this is not mentioned.

This entry is confused about what Praetorius wrote about his pitch standards. His Chor-Thon was the same as his Cornetten-Thon and his Cammer-Thon (which was a fraction of a semitone lower than modern). What is stated is that Praetorius's Chor-Thon was higher than his Cammer-Thon, and Cornetten-Thon was higher still.

The modern orchestra is defined here as a relatively fixed ensemble of instruments with strings at its core, and its origins are traced to the mid-17th century with Lully's petits violons du roi and the opera orchestras of Venice. Doesn't the earlier English Consort with music published by Morley and Rosseter qualify?

6; After 1750: Surely the baroque violin had a non-concave bow rather than a concave bow. It is remarked that Paganini was still using a gut E string in the 1830's. Musicians had no alternative except silk until c. 1900. Kreisler was still using a gut E string at the time of World War II. A comparison of late 18th century orchestras with modern ones remarks on the lower proportion of strings in the earlier ones, concluding that the balance must have been different. This ignores the fact that the earlier fiddles had higher string tensions than modern ones, and so were louder.

Piccinini, Alessandro by P. P. Scattolin

For some reason that I cannot fathom, modern writers (Kinsky, Mischiati & Tagliavini, Smith and this author) have taken to disbelieving Piccinini's claim to have invented the archlute (the first extended-neck lute) in the mid 1590's, and his report that the chitarrone (as a restrung and retuned bass lute) predated this, but then it later adopted the extended neck in imitation of the archlute. They seem to be reacting to Piccinini inventing the extended-neck chitarrone, which he never claimed. Evidence presented against his claim includes a request (before the claimed invention) from Duke Alfonso for a diagram of the tuning on Caccini's chitarrone (which is more evidence for the claim than against), and the existence of extended-neck lutes with labels that predate the year of the claimed invention. These instruments could easily have had their extended necks added later, possibly in the original maker's workshop. If we believe Piccinini, we would expect this modification to have been commonplace. The nature of the job leaves no evidence that distinguishes between a new extended-neck lute and a modified original lute. See Comm. 712 for more on this.

The instrument that is accepted by all as Piccinini's invention is the Italian pandora, not 'bandora' as stated. This instrument seems to have corresponded more to the English

polyphant than to the English pandora (or bandora).

Pitch by M. Lindley & K. Wachsmann (1), J. J. K. Rhodes & W. R. Thomas (2-5)
1: The pitch standard a fraction of a semitone lower than modern that was Praetorius's CammerThon is here called 'P'. Lully's orchestral pitch is here considered to be a semitone lower than P, or P-s (where 's' is one semitone). This is based on what I consider was a misinterpretation of Muffat's statements about pitch. Those statements make best sense if Muffat's Cornett-ton is P, as Praetorius said it was, Lully's pitch was P-2s, as Quantz and Agricola said Paris pitch was before the 1720's, and Lully's opera pitch was P-3s, as was Quantz's very low French chamber pitch.

2: See Comm 342 for the conclusion that P was 430 Hz (0.4 semitone below modern 440 Hz) rather than 425 Hz (0.6 semitone below). The same Lully pitch statement as above is here made. Grant O'Brien's opinion that Ruckers harpsichord pitch was P-s is quoted, but see Comm 593 for Shann's opinion that it was P-2s for the common 6-footer.

4: It is suggested that English organs built after the Restoration were mostly at P+2s. The evidence given is the Tomkins information that F was a 2 1/2 ft pipe for the Worcester organ rebuilt at the time of the Restoration. Previously the organ was pitched lower, with the 10 ft pipe being C' 'according to the keys' and sounding F' 'of the choir pitch'. It is stated that Tomkins previously had to transpose up a 4th (5 semitones) to accompany the choir, so the organ was pitched at P-3s. This is an error. A choir C is a fifth above an organ C (choir F). He would have transposed up a fifth or down a fourth. So if choir pitch was P+2s, organ pitch was P-5s. Wulstan would have it that the choir would have been at P+3s and the organ at P-4s.

5: I know of no evidence that the gut available for violins in the 19th century was any better than previously.

Pizzicato by S. Monosoff
The first indication of its use is given as in Monteverdi's Combattimento...(1624). It is indicated in Tobias Hume's 1605 publication.

Poliphant by I. Harwood
The discrepancy between Randle Holmes's statement of 41 strings and his listing of the number of pins (totalling 29) at the different positions on the instrument is mentioned. This can be resolved if we assume that he was counting bridge pins (perhaps all the pegs were not there) while indicating where the tuning pegs were located, and that the two shortest sets of strings were doubled courses, each using one bridge pin. The probable relationships between this instrument and the angelica, the pandora invented by Piccinini, and the Ukranian bandura could have been discussed to advantage.

Position by S. Monosoff
Stated is: 'Before 1600 evidence of playing above first position is slight. Some viol treatises (particularly Ganassi's Regola Rubertina 1542-3) mention the possibility, and higher positions are shown in some paintings.' What is ignored here is the existence of fingerboards that extend over the body, and when frets were used, they usually extended past first position. This pertains to many medieval as well as Renaissance instruments. These features surely weren't there for decoration only!

Presto by D. Fallows
Concerning early 17th century composers such as Schutz, it is stated that: 'In practically all such cases presto may be taken as the equivalent of tempo giusto, against which the adagio or tardo could be inserted as deviations,...' I doubt whether this statement is supported by any historical evidence other than that presto was not particularly fast. My guess, that presto was a bit faster than tempo giusto, and adagio was a bit slower, could possibly be just as valid.

Psaltery by J. W. McKinnon (1) & M. Remnant (2)
1: In ancient times this name was one of those that applied to the pillar-less harp,

here called the triangular harp. We must believe that its players were quite happy that, with its construction and stringing, it would not collapse without a pillar. It is quite possible that its sound would be magnified if a thin board were wedged between its two structural members, parallel to the strings. An example of this is shown in Fig. 3 of the entry. This advantage would be somewhat offset by the strings then only being approachable from one side. This can be corrected by another set of strings being placed on the other side of the board to preserve harp technique, or by changing playing position to give both hands access from one side. The board can be replaced by a thin box to give added resonance, and the original amplifier function of one of the structural members at the ends of the strings could become redundant, allowing simplification. In this way the rote (played from both sides in harp position) and the medieval psaltery (played from one side in a new position) could both have evolved from the ancient pillar-less harp. The evolution of the use of the term psaltery need not be as great a mystery as implied in this entry.

2: Steger's identification of the rote from the inscription on an 11th century carving is reported but apparently misunderstood. The author writes: 'but other examples, particularly manuscript illustrations, show that the strings run parallel to the soundboard'. The strings are parallel to the soundboard(s) in the rote. The rote's strings were of gut while those of the psaltery were of metal. I don't know of any basis for the speculation that earlier medieval psalteries 'may more often have been [strung with] gut'. The baroque 'double psaltery', also known as the 'arpanetta' or 'spitzharfe', appears to be a late survival of the rote.

J J K Rhodes Bursary Fund

Last year the first grant for keyboard research was awarded and it is to be repeated this year.

The Fund was set up by members of the Friends of St Cecilia's Hall and the Russell Collection in memory of the work of J J K Rhodes who died in December 1985.

The purpose is to encourage research into either the technical or decorative aspects of historical keyboard instruments or into the musical matters that can be illuminated by such instruments, particularly if connected in some way with the Russell Collection of Keyboard Instruments, University of Edinburgh.

A second grant of up to £750 is available for award in 1990. Applicants should write to the address below before February 28th requesting an application form. The award will be made early in April.

The Rhodes Fund Committee
University of Edinburgh
Faculty of Music
St Cecilia's Hall
Niddry Street
Edinburgh
EH1 1LJ

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Museum
of
Fine Arts
Boston

FoMRHI Comm 952 D.S. Quigley

Boston Museum of Fine Arts – 1989 Report

Dear Jeremy,

'Tis the season to send along greetings and good wishes for the new year. We've had quite an eventful year at the Collection of Musical Instruments and I'd like to give you an update on our activities.

The most important events of the year both had to do with our exhibition gallery. As of March 1st, 1989 the public has been able to visit the gallery on Saturdays and Sundays from 1 to 5 p.m. (in addition to the regular 2 to 4 p.m. weekday hours). Perhaps even more importantly, a new localized climate control system has been installed to maintain the environment in the Musical Instruments Gallery as well as the adjacent Trustman Prints and Drawings Gallery. It replaces an old, inadequate system and, although the change-over required an evacuation of all instruments on view and the closing of the gallery for eight weeks, the long-term stability of humidity and temperature is now assured.

We were very fortunate to have acquired several important Boston-made instruments. In March we were given a fine square piano by John Osborne (about 1825), and just this past month we added two very fine E-flat keyed bugles by the early Boston maker, E.G. Wright. Two other notable additions to the Collection were a beautiful 1845 Rudall & Rose flute (1832 Boehm system), and an impressive Javanese large zither or, *celempung*. While on the subject of acquisitions, I must at least mention the Javanese *gamelan* (gong-chime orchestra) for which we have been negotiating since the summer of 1988. Patience Is A Virtue, Hope Springs Eternal, and all that (might I add: A Bird In The Hand...), yes, you correctly surmise a bit of frustration with the tediously slow bureaucratic pace of the Indonesian Government. Nevertheless, we have had a recent exchange of formal papers and we are again optimistic that before too long we will actually be granted an export license and be able to bring this wonderful orchestra to Boston. You can be sure I will send you a note when it arrives.

Conservation continues to be a major focus of our efforts. In the past year Gary Stewart, of the Shrine to Music Museum, cleaned and repaired our valve trumpet by Charles Mahillon, and the cornopean by William Grayson, both from about 1840. For the purpose of a small special exhibition outside the gallery, he also cleaned and stabilized quite a few African instruments.

Fortunately the Collection's keyboard instruments are in relatively good condition, thanks to years of close attention by John Koster who is hard at work finishing up his catalogue of them. The exact publication date is still up in the air because the Getty Grant Program did not see fit to award support this year. They invited a re-submission of the typescript and we have been led to believe that a future application will be successful. We are very hopeful they will come to our rescue since we consider the publication of major scholarly work about the Collection to be of utmost importance.

There have been two "spin-offs" from the catalogue work. A slide set of keyboard instruments can be purchased now in either of two versions: sets of either 50 or 20 portraits can be had by contacting the Museum's Slide Library directly. The other is a collection of extraordinary full-scale technical drawings by Stephen Korbet, all of which will be reproduced in the keyboard catalogue. Once they are completed (by March 1990) we will make them available as a separate set; they should prove to be of great value to builders and scholars of keyboard instruments, as well as being lovely drawings.

Since last December we mounted several small exhibitions just outside the gallery door. In addition to the current show entitled "Music South of the Sahara," two installations of European instruments have been spotlighted this year: "Domestic Music Making," and "Musical Instruments of the French Baroque." We use this exhibition area to rotate various groupings of the permanent collection, and sometimes, to display particularly fine instruments or prints belonging to other institutions or private collectors. And speaking of exhibitions, if you saw the Goya show in the Gund Gallery, you know that our 1796 grand piano by John Broadwood, with its case designed by Thomas Sheraton, had a very prominent position under the life-sized portrait of its original owner, Manuel Godoy. Although our gallery had to do without it for three months, the piano's inclusion in this very popular show generated a good deal of interest in our Collection.

We have a good year coming up, too. Aside from the unforeseen (which always makes things interesting), we expect to receive the *gamelan* finally, to complete a number of checklists of the Collection (now in preparation), to "put to bed" the keyboard catalogue, to continue our pursuit of Boston-made instruments, and to join in the celebration of the centennial of the Department of Asian Art with a number of special concerts in the Music at the Museum series.

There's more to tell but I've already gone on much longer than I had intended so this major opus will be brought to a close here. May your holidays be joyful and the new year bring you much good fortune.

Sincerely yours,

D. Samuel Quigley
Keeper of Musical Instruments

FoMRHI Comm: 953 Alec V Loretto

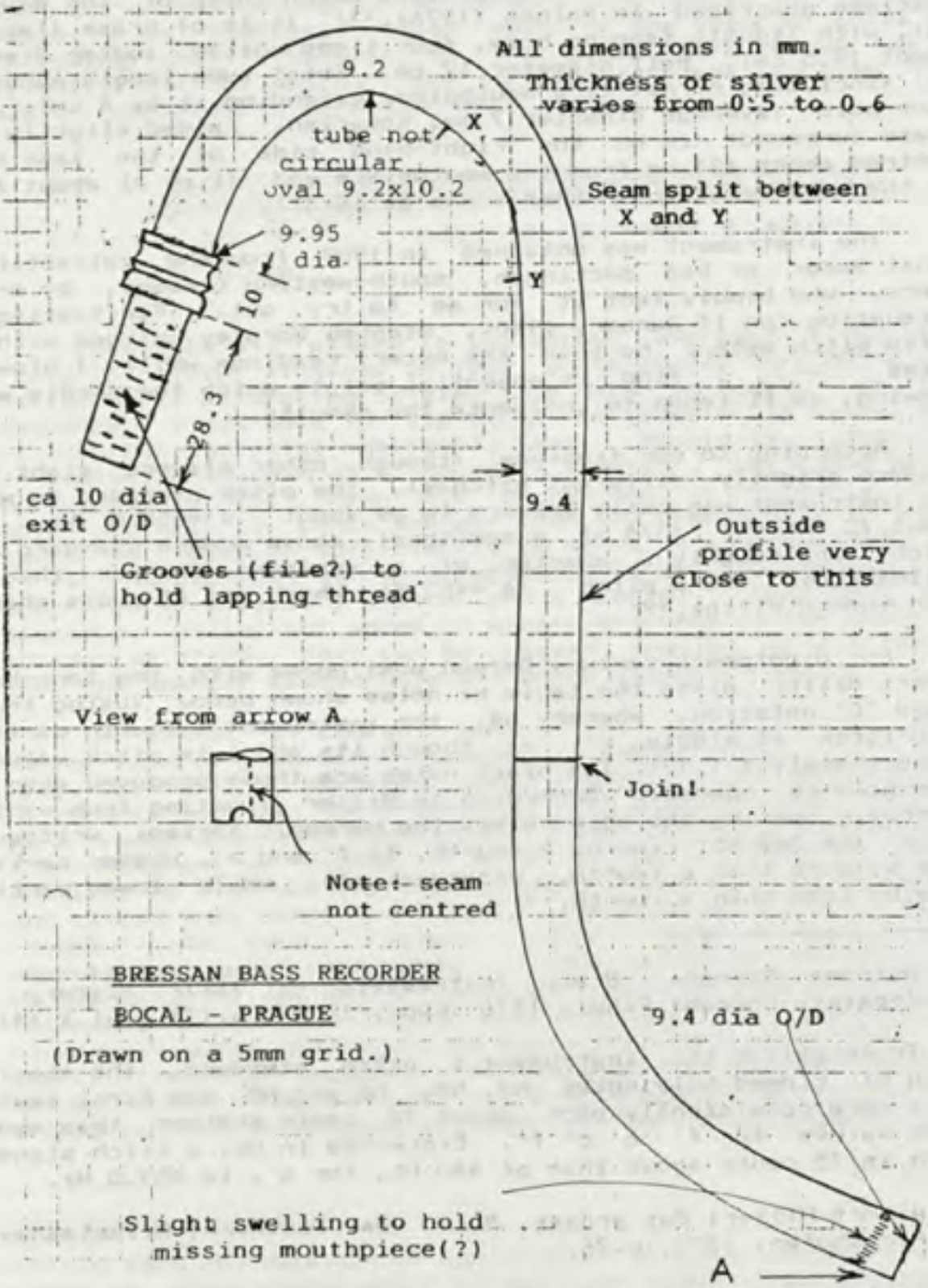
FoMRHI Members Teaching in Prague

During September 1989 Barbara Stanley (FoMRHI Treasurer) & Alec Loretto conducted an instrument making course in Prague. It was supported by the British Council, The British Embassy in Prague, The Czech Music Society with Course Director David Freeman, a recent FoMRHI member. The course had experienced many set backs including two changes of venue with a consequential change of tutors - the original team was Jane Julier and Eric Moulder. On September 8th the ten day course got under way with eleven students each making a flute and a recorder. Barbara who had made her first renaissance flute in 1972 chose as the model to copy a tenor in D from the Verona Collection. I was undecided whether to select a renaissance alto or Ganassi model, having made my first in 1969 and 1973 respectively. I opted for the former derived from instruments in the Brussells and Vienna Collections. Lacking in the East are the small workshops producing the instruments needed to create the music of the past - much as Arnold Dolmetsch did earlier this century. This course was to serve many purposes, one of which was to begin the long job of establishing these specialist workshops. Future courses are planned. FoMRHI Members are assured of a warm welcome in Prague all the more so if able to offer specific skills and information. During the course the students were able to enjoy hands on experience at the Prague Musem with its fine collection of instruments. An opportunity was taken (at the request of Jeremy Montague) to measure the bocal of the Bressan Bass Recorder - according to many, the only surviving bocal by this maker.

FoMRHI Comm: 954 Alec V Loretto

The Prague Bressan Bocal

The bocal is made from silver. It is a little the worse for wear and the seam has opened slightly over a distance of about 35mm. There is a surprising join in the bocal very well executed but clear to see. The general line of the bocal is still clean and flowing in spite of the small dents and bulges. The bocal plugs into the top of the cap and the string windings are held in place by small filed grooves. Well proportioned and elegantly shaped rings prevent the bocal plugging in too far. At the blowing end appears a slight swelling with a semi-circular cut-out, probably acting as a locating slot for the missing mouthpiece. This was probably made from ivory, judging by the large amount of that material on the instrument. The soldered seam, visible for most of its length is not centred. The enclosed sketch gives dimensions and the general shape. Sincere thanks to Paul the Curator of the Instrumental Collection. His kindness and humour were appreciated by all of us.


All dimensions in mm.
Thickness of silver varies from 0.5 to 0.6
9.2
tube not circular oval 9.2x10.2
X
Y
Seam split between X and Y
9.95 dia
10
28.3
ca 10 dia exit O/D
Grooves (file?) to hold lapping thread
9.4
Outside profile very close to this
View from arrow A
Join!
Note:- seam not centred
BRESSAN BASS RECORDER
BOCAL - PRAGUE
(Drawn on a 5mm grid.)
9.4 dia O/D
Slight swelling to hold missing mouthpiece(?)
A

FoMRHI Comm 955

INTONATION TESTS on a POST HORN in F with ONE TONE-HOLE

The instrument we tested is of typical southern German circular post horn shape, date unknown, probably late nineteenth century. The Maker's inscription on the side of the bell is A. Schürrlein / Nurnberg. Its specifications closely match those of the Bavarian specimen described in Baines (1976).[1] It is of brass (lacquered), with lightly tapered bore, four times coiled (outer diameter about 14.5 cm), bell diameter 12 cm, total tube length about 179 cm (including cornet-type mouthpiece extending it by 4 cm). The tone-hole (average diameter 7 mm, squarish, raised slightly by a brass surround) is on the right-hand side of the last coil, centred about 124 cm from the mouthpiece end (i.e. at about 69.3% of the tube length -- Baines's was at 68.3%).

The instrument was obtained in 1989 from the collection of Ernst Buser of Bad Säckingen, south-western Germany, by Arnold Myers, who kindly lent it for me to try out. For testing its intonation (on 14 January 1990), Stephen Worsley obliged with his Seiko pitch meter: he took the meter readings while I blew the notes -- I find it essential *not* to watch the needle while blowing, as it tends to influence the results.

According to our findings (though other players might well produce slightly different pitches), the pitch standard to which the instrument was built appears to be about a'=459.5 Hz, i.e. about 75 cents (3/4 of a semitone) above modern standard A440 pitch, and roughly a quarter of a semitone sharper than Old Philharmonic 'sharp pitch' (a'=452.5) which was 48 cents sharper than modern pitch).[2]

For nineteenth-century German post horns with one tone-hole, Albert Hiller gives the table of notes shown below (using transposed 'C' notation, whereby h4, the instrument's fourth partial, is written as middle c' -- though its absolute pitch value is approximately *f'*).[3] The black notes are those produced when the tone-hole is opened. According to Hiller (quoting from earlier sources), opening the hole raises the harmonic series: written c' and *e'* (h4 and h5) rise by a fourth, to *f'* and a'. Higher partials rise by more than a fourth, progressively, while lower partials rise by less than a fourth.[4]

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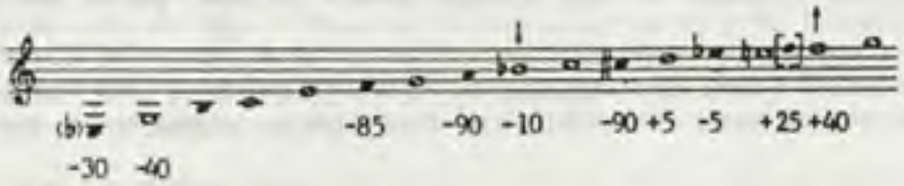
[1] Anthony Baines: *Brass Instruments -- Their History and Development*, London: Faber, 1976 (repr. 1978), p.171 & pl.X (4).

[2] To establish the instrument's pitch standard, the absolute pitch of closed-hole notes h4, h5, h6 and h8 was first tested. These were consistently each about 75 cents sharper than modern pitch values for *f' a' c'' f''*. Expressed in Hz, a pitch standard which is 75 cents above that of 440 Hz, for a', is 459.5 Hz.

[3] Albert Hiller: *Das grosse Buch vom Posthorn*, Wilhelmshaven: Heinrichshofen, 1985, p.26.

[4] Explained in Albert Hiller: 'Finger-holes in Post Horns: an Explanation', *The Galpin Society Journal* XLIII (1990), pp.160-1.

With the post horn we were testing, however, the open-hole notes actually sounded very flat when played in isolation (to avoid pre-conceived interval matching against other notes): with this particular instrument the tone-hole is slightly too close to the bell, presumably. Taking the pitch standard as a'=459.5 (=e' in the transposed series below), the degree of flatness, in cents, is indicated below each of the aberrant notes in the following table. Several of the closed-hole notes were also slightly flat or sharp, but for the b^{b}' (h7) and high f" this was of course to be expected.[5]



(open-hole h4, played in isolation, averaged f'-85 cents -- only 15 cents (instead of 100) above closed-hole h5, e'. When deliberately attempting to play this note 'in tune', in a scale sequence, I was able to 'lip it up' to about f'-35 cents, maximum -- but this was still noticeably flat. Similarly, open-hole h5 in isolation sounded at a'-90 cents (=$a^{\sharp}$+10), but could be lipped up to about a'-25. Open-hole h6 yielded $c^{\sharp}$"-90 cents (=c"+10), which is only 10 cents sharper than the closed-hole c" (h8). It cannot be lipped up sufficiently to serve as a usable $c^{\sharp}$", but is in fact acceptable as an alternative to the closed-hole c". The open-hole h7 yielded a usable e^{b}"-5 cents. Open-hole h8 (not listed by Hiller but added in square brackets in the above table) sounded as f"+25. This can be 'lipped' down to give a better f" than the sharper closed-hole h11 which yields f"+40.

Our tests, of course, were of the 'kitchen sink' variety, rather than of laboratory standard. Repetitions, with the same player or with a different one, would no doubt provide slightly different readings. Nevertheless, the above results are offered as a rough-and-ready subjective commentary on the intonation of the instrument we tested. With a little practice it proved possible to even out the discrepancy of tone quality between open- and closed-hole notes fairly well. By lipping the aberrant notes roughly into tune, simple diatonic tunes using written f' as keynote are quite manageable -- such as those in Hiller (1985) pp.176-206, all of which avoid the missing note d' (though the intonation is hard on the ear with the present instrument). The blowing is quite strenuous, as the written octave f' to f" = c" to top c"' on a B^{b} trumpet. In contrast to southern German post horns, northern German ones were apparently a tone lower, in E^{b}. I have not yet tried one, but they must be a bit easier to blow.

DAVID RYCROFT

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[5] In fact the degree of conformity of most of the closed-hole notes to equal-temperament values was closer than we expected -- largely due, perhaps, to one's habitual tendency to lip them 'into tune', unwittingly.

FoMRHI Comm. 856

More on 19th century bassoon reeds

Greg Lehey

I found Paul White's communication about Triébert and Massabo reeds (FoMRHI Communication 927, July 1989) interesting mainly by virtue of the discovery that there were other kinds of reeds considered "normal" for this time and place. In my admittedly limited experience of 19th century bassoons, I have found no other kind of reed than those he describes. While on the subject, it may be worth mentioning that it was presumably a typographical error to imply that modern bassoon reeds are only 45 mm long; a modern reed for a German bassoon ranges in length between 56 mm (German) and 59 mm (Vandoren "Fagott" reed).

In my collection I have three bassoons by Savary *jeune*, dated 1828, (undated ca. 1835) and 1847. Two of these came with reeds, whose dimensions are summarised in the following table.

Number	1	2	3	4	5	6
Length	62.5	65.5	64.0	58.0	63.5	59.5
Blade length	27.5	29.5	29.0	21.0	28.5	28.0
Width at tip	18.5	17.0	18.0	16.5	17.5	15.5
Front wire	double	triple	triple	triple	triple	double
position	32.5	34.5	33.0	35.0	32.0	29.0
arch	6.0	5.6	6.0	6.5	6.2	5.5
Rear wire	double	double	double	double	double	double
position	26.5	26.0	25.5	26.5	23.5	22.0
arch	6.4 (?)	6.3	6.5	7.0	6.7	6.0

Dimensions of 19th century bassoon reeds

Reed 1 was supplied with the 1828 instrument, purchased in Paris in January 1989. It is not certain that the reed belongs to the bassoon.[1]

Reeds 2 to 5 were supplied with the 1847 Savary.[2] Numbers 2 and 3 are in good playable condition; number 4 has obviously been trimmed beyond any hope of reuse: there is every reason to believe that it originally had the same dimensions as reeds 2 and 3. The blades are about 0.7 mm thick at the tip. Number 5 is in very poor condition: the blades are damaged, and the cord has become almost completely unravelled.

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1. I am told that this instrument was found in a cinema which was to be demolished. If that is the case, there is good reason to believe that it had been there since the end of the silent film era. If this reed really did belong to it, this would be a *very* late date for the use of such a reed. The instrument is also interesting for being one of the few cheaply built Savarys - although there is no reason to doubt that it is genuine, it is made of a different wood which shows none of the "flaming" of the traditional Savarys, and the keywork is also more primitive than usual having, for example, no rollers on the F/Ab keys.

2. The 1847 Savary was purchased in London but, as I am informed, is of northern French "origin". Apart from the instrument itself, I received not only four reeds in a case but also a case for the instrument itself. The instrument is in very good condition, and it seems reasonable to assume that the reeds were intended for use with the instrument. In any case, they bear a striking resemblance to reed number 1.

Reed 6 is a modern Vandoren reed, included for comparison.

In comparison to Paul's reeds, there are a number of points to be noted: firstly, none of them bear a maker's stamp. Secondly, I was not able to get the detailled information about scrape that Paul supplied. The reeds are available for examination by anybody who is intereded, however.

Three of these reeds (numbered 1, 2 and 3) are in playable condition. Each reed seems to work equally well (or badly!) with each of the three instruments. There is a distinct tendency to "rattle", but the biggest problem would appear to be getting the notes above g'. Although all instruments have at least two harmonic keys (the 1847 model has 3), indicating the intention for use above this note, even the high a' becomes difficult almost to the point of impossibility with any of these reeds. I believe this to be due to the reed and not due to the instrument - I have tried the instruments with a modern German reed and they have no difficulty with the high notes though there are, of course, significant other problems.

The development of the modern woodwind in the nineteenth century did not result in overnight changes. The clarinet is an extreme example: the classical 5-keyed clarinet remained in production for decades after the Boehm instrument was introduced, being played by players with lower technical requirements. Considerations of reliability also played a large role. I could imagine that this could have been paralleled in bassoon reeds: popular music did not require the extreme high notes, and the old-style reeds may have had significant advantages over the new style, such as a more robust tone or better yield.

FoMRHI Comm 957 Julian Goodacre

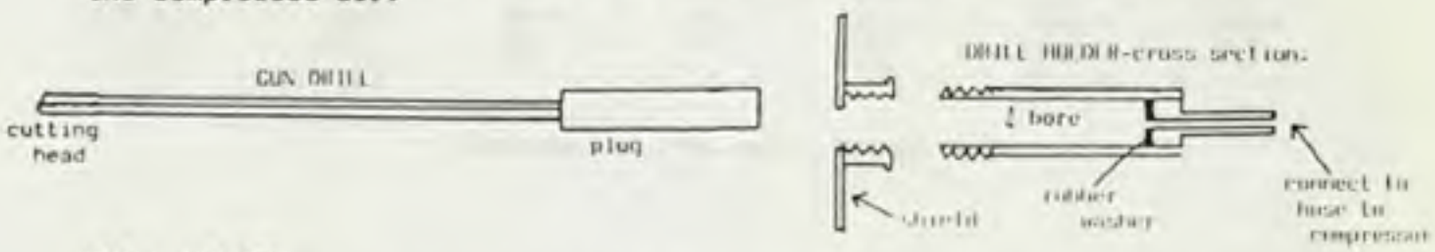
Woodwind Instrument Making : Use of Gun Drills for Long Hole Boring

INTRO

I bought seven 20" gundrills from 1/8" - 3/8" diam two years ago and find them quick and accurate to use. Sterling Gun Drills who make them dont supply any information on how to use them so I have adapted my previous system for boring . It works well, but I am aware that other makers use gun drills and I hope this Comm will encourage other Comms about their use.

GUN DRILLS

They are made of three sections. The cutting head is accurately shaped, ground and drilled and is only about 1" long.It is brazed onto a tube of margionally smaller diameter. Like the cutting head the tube is of a'crescent moon' section. Compressed air is forced down this tube and the shavings are continually blasted back through the open section (the dark side of the crescent moon).The tube is brazed into a solid round plug with a hole down the centre for the compressed air.



DRILL HOLDER

This plug fits loosely into ¾" steel water pipe and I have used this as the basis of my holder, using a short length which is threaded at one end. The other end is plugged, but has a length of tube set in it to connect it to the air hose. A rubber washer is glued onto the inside of this plug. This holder is fitted inside a wooden handle (not shown in diagram)to make it comfortable to hold.

The securing part of the holder is made from a section of ¾" pipe socket (internally threaded) with a shield welded or somehow fixed on to it.This shield is about 6" X 6" and has a ½" hole drilled through it in the middle of the socket. The shield protects yourhand from having cold shavings blasted at it while you are boring:slightly unpleasant sensation.

Withthe solid plug of the drill placed inside the holder and the shield tightened onto it, the plug is pushed back onto the rubber washer to make an airtight seal and to stop the drill rotating.

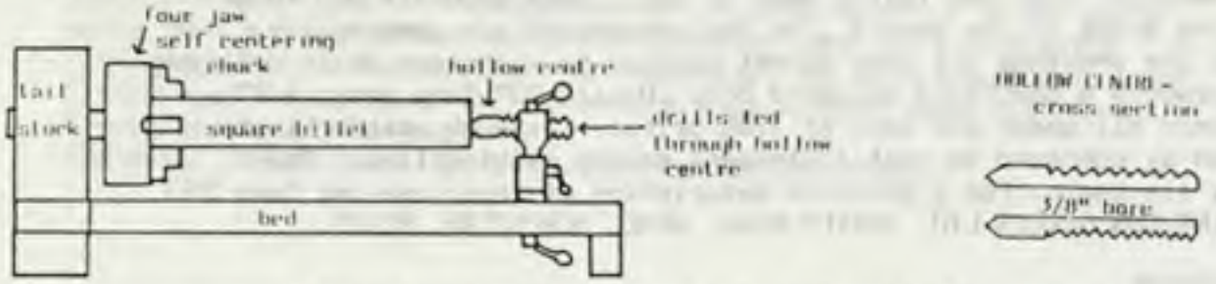
COMPRESSOR

I have made up a compressor from an ancient piston type fridge compressor, driven by a ¼ horse motor. On the inlet side is fitted an air filter (Ford Escort) to avoid any shaving or whatever becoming lodged down the air hole in the drill itself. (The air hole of an 1/8" drill is of hyperdermic proportion). The compressor doesnt have a storage tank - just a small vessel for condensation with a tap at the bottom to drain it occasionally. This vessel is also fitted with a pressure relief valve. This is a ball

bearing held down by an adjustable spring which is set to regulate at about 35 psi. The air pressure required doesnt seem to be very critical - I leave the whole device to grumble and fart away continously while I am boring.

I know of two makers who use modern fridge compressors- those little black bombs that abound in scrapyards and dumps. I am told that they work well and appear to be far more straightforward than my arrangement.

HOLDING THE WOOD IN THE LATHE



I bore square billets holding them in a four jaw self centering chuck (see Comm 958). At the tailstock end I use a hollow- or 'ring nose' centre. This is basically a steel tube with the front edge sharpened. It is tightened into the end of the wood in the same way as a normal pointed centre and it cuts a circle into it, leaving the actual centre of the wood free for boring.

Hollow centres can be bought to fit into tailstocks or a holder fitting into the toolrest clamp. Most tailstocks are fairly long and thus one cannot enjoy the full length of the drill.I have mine fitted permanently in a holder on a removable slide on the lathe bed.The inside bore of the centre is accurately drilled to accept 3/8" silver steel rod. This bore must be perfectly aligned to the centre of the chuck.

BORING

A drop of raw linseed oil will reduce friction between wood and hollow centre. I use lathe speeds from 700 - 1,200 rpm depending on whim. As with all long hole boring it is critical that the hole is started accurately. The die is cast in the first ½". I have a series of pilot drills set into the ends of 3/8" silver steel rods. These make the initial bore, guided by the internal bore of the hollow centre. I am still experimenting with these. Currently I start with a small centre drill followed by a 1" long undersized twist drill and then a 1" long 'D' auger which is slightly tapered. Perhaps it would be better to start by entering the gun drill through a sleeve of the correct size and forget about pilot drills?

The actual boring takes very little time.Switch on the air and feed in the drill , taking great care to align it properly- I have a block of wood with a groove in it for the back of the drill to rest on.This rests of the lathe bed and supports the back of the drill at exactly the right alignment. Very little hand pressure is required. Light up a strong herbal cigarette and observe how boring has now become rather interesting. The occasional blockage of shavings can be cleared by pulling the drill back out of the wood . You will hear when the drill comes out the other end!

FoMRHI Comm 958 Julian Goodacre

Woodwind Instrument Making : report on Gundrills, Live Centre, Metal Turning Tools, Plastic Calipers and Four Jaw Self Centering Chuck.

GUN DRILLS

Sterling Gun Drills Ltd make and supply gun drills from 1/8" - 1 3/8" diam -- maximum length 5' .They are intended to drill metal but work well in wood , requiring a compressor to blast out the shavings. They are fairly easy to use , very accurate and fast-drilling about 1" per second . As the compressed air continually blasts the shavings out they do not need to be withdrawn while drilling. They produce a beautiful polished bore .Drills 20" long under 3/8" diam were all under £50 each at 1988 prices. Six week waiting list-not bad by compared to most instrument makers waiting lists! They really are magic. For a detailed description of their use see Comm 957
STERLING GUN DRILLS LTD. MAXTED ROAD. HEMEL HEMPSTEAD. HERTS.

LIVE CENTRE

Paisley Machine Tools make and sell well made Live (rotating) tailstock centres, with totally enclosed sealed bearings. With a 60° taper and an 1½" diameter it can be used to centre any tube up to about 1 3/8".They also make a range of female rotating centres from 1/8" - 1 3/8" mouth diam . Morse tapers 1, 2, & 3 . Very reasonably priced at about £20 .State if you require a stiff or free running one. Reg Paisley sends all his customers a small free autobiography 'Nose To The Grindstone' and appears to be very ready to enter into correspondance on most subjects .
PAISLEY MACHINE TOOLS. SPARKS LANE. BROOK STREET. CUCKFIELD.SUSSEX RH17 5JP

METAL TURNING TOOLS

L. B. & S. C. R. import Japanese metal turning tools - a range of seven different tool holders and boring bars with replaceable tungsten steel inserts. These give a lovely finish at suprisingly fast speeds. The inserts are very hard and consequently chip easily if abused or used on intermittent surfaces. Ian Rivers of L.B.&S.C.R. is very helpful and can advise about choice of tools and inserts.
L.B.&S.C.R. 28 BIRKWOOD CLOSE. KINGS AVENUE. LONDON SW12.

PLASTIC DIAL CALIPERS

Hisch Jacobson import from Switzerland a range of three dial calipers made in 'super polymide' . As with vernier calipers they give internal, external and depth measurement but I find the dial far quicker to use than a vernier. Metric and Imperial- Priced around £12 .
HISCH JACOBSON CO LTD. 91 MARYLEBONE HIGH STREET. LONDON W1M 3DE

FOUR JAW SELF CENTERING LATHE CHUCK

Axminster Power Tools import E. European four jaw self centering self centering chucks with sets of internal and external jaws. Backing plates are supplied threaded to fit most standard lathes. The advantage is they will grip on both square and round pieces of wood- very useful when roughing billets and giving good grip on round pieces of work. The disadvantage is their size -4" & 5"- which makes them a bit cumbrous and their spinning jaws are potentially very dangerous. A sturdy guard is essential, but with chuck and guard fitted some tool angles are impossible when turning near the chuck. Priced in the £100 region.
AXMINSTER POWER TOOLS. CHARD STREET. AXMINSTER. DEVON.

FoMRHI Comm 959

Collection of scientific works of Leningr.St.Inst.Thea.Mus.&Cinem. "The aspects of theoretical musicology". Leningrad, 1989 (Part I) 1990 (Part II)?

F.W.Rqudonikas. The Pythagorean System of Musical Tones. Part I

Summary.

The invariance of a melody regardless of frequency shift is a trivial fact corresponds to thb fundamental symmetries of the modal scale. Being based on certain phenomena considered in Fourier's analysis, traditional theory encounters several difficulties in its attempt to elucidate these symmetries. Meanwhile Pythagorean scale contains an nontrivial possibility of solution or the problem. This article attempts to present Pythagorean principles in a general form. Such an approach take into consideration circumstances which have up to now remained beyond the scope of traditional theory. The examination some of symmetries provides a simple method for experimentally verifying statements derived by author from Pythagorean principles. Such an approach allows one to develop a RELATIVE MODAL SINTAX (i.e. universal syntax for usual, exotic, and new scales.

FoMRHI Comm. 960 Peter Bavington

'Whistles' on Harpsichord Strings

This distressing phenomenon is, I suspect, all too well known to harpsichord makers, but I have not found any previous discussion in the literature. I am writing about it in the hope of provoking responses from those with wider experience, or a more coherent theory, than my own.

What happens when an affected string is sounded is that, as well as the intended note, the ear hears a prominent high additional note, definite in pitch but dissonant to the main note and typically 3-4 octaves above it. The volume varies from a level where it produces a feeling of slight discomfort to one where it overwhelms the main note with a discordant howl (or wolf-whistle).

Observations indicate:

1. Whistles are highly directional, ie in certain positions round the instrument they may be inaudible. They appear to be more directional than notes played from the keyboard which have approximately the same pitch as the whistle.

2. Brass strings are more likely to produce whistles than ferrous.

3. Whistles are highly dependent on the absolute pitch of the main note. An affected string sometimes gives a perfectly acceptable sound without whistle when mistuned by a small amount (less than half a semitone).

4. Whistles seem to be dependent on the plucking position. Sometimes, of two strings tuned to the same note, one produces a whistle but the other has no trace of it. Since on most instruments the percentage plucking point (ie the distance from the nut to the plucking point expressed as a percentage of the sounding length of the string) will vary, this may be the explanation. One way of varying the plucking points is to reverse the jacks in the registers so that they pluck in the opposite direction. This sometimes reduces whistles, but on one particularly troublesome instrument the effect was that a new set of whistles appeared in a slightly different part of the compass.

5. On the whole, whistles tend to appear in the bass or low tenor. Nonetheless, one instrument I came across had troublesome whistles in mid-compass.

6. Whistles seem to be associated with thicker soundboards. They seem less common on antique harpsichords than newly made ones.

7. They do not seem to be the result of sympathetic vibration of the over-length (ie the part of the string between the bridge and hitchpins) since damping this out with felt does not produce any amelioration.

8. It is sometimes possible to remove or at any rate attenuate whistles by restringing. I was able to improve one instrument which originally had devastating whistles on several bass notes by painstakingly trying different strings on until, for each note, one was found which was whistle-free, or at least acceptable. It is a help to have available strings of various materials as well as different gauges: I had three different kinds of red brass as well as yellow brass. Sometimes the cure requires a stiffer string (either a heavier gauge or a harder alloy), sometimes a more flexible one: no obvious pattern could be discerned. Perplexingly, strings of identical material and gauge sometimes produced different effects on the whistle.

9. I have noticed that whistles sometimes develop during the first few days of a new string as it stretches, having been quite absent when it was first put on. On the other hand, if a whistle appears when the string is brand-new, it does not seem to go away subsequently.

In view of all the above, I would propose the hypothesis that whistles are caused by higher partials present in the string's vibration which happen to correspond to particular resonance peaks in the soundboard and which, as a result, are selectively picked out and radiated. The dissonant partials nos. 13, 14, 15 and 17 would account for most of the whistles I have heard. (No. 16, being concordant - four octaves above the fundamental - would presumably not be perceived as a whistle.)

This explains why a whistle can sometimes be cured by changing the plucking point (no. 4 above), since this can have the effect of reducing or suppressing altogether the partial that is causing the trouble. Mistuning (no. 3) works by shifting its pitch so that it no longer corresponds to the soundboard resonance. Fitting either a stiffer or a more flexible string (no. 8) would have the effect of increasing or reducing (respectively) the inharmonicity, hence raising (or lowering) the pitch of the whistle-producing partial whilst preserving the fundamental pitch of the note.

These methods work by changing the pitch of the whistle-producing partial so as to move it away from the dangerous soundboard resonance peak. Another approach might be to adjust the soundboard resonances, presumably by removing wood from the underside or adding or removing soundbars. This is intrinsically difficult to achieve after the instrument has been made and strung and the whistles have been discovered. Is it worth attempting, and can the process be made in any way less haphazard?

FoMRHI Comm 961

Work done on Clavichord no6 by Arnold Dolmetsch 1896/7

History On the 18th December 1929 Arnold Dolmetsch wrote about the earliest group of his clavichords as follows:-

> "In 1894 I began making clavichords, copies of a fine large instrument in my possession. The first went to Mr Fuller Maitland; Sir George Grove secured the second for the Royal College of Music; Herbert Horne decorated the third with inscriptions and paintings; it is now in a museum in Italy. The fourth is in my possession.
>
> These instruments succeeded well, but I understood that copying other people's work, the best training for a beginner, should only be a step to higher achievements. The masters did not copy one another. Feeling that I had imagination and skill, I endeavoured henceforth to realize my own ideals."

There are references to these clavichords in Margaret Campbell, Dolmetsch: the man and his work, London 1975, on pages 26, 68, 76, 82, 83, 87, 111 and 124. A price of "£40 or less", presumably for these clavichords, is mentioned by George Bernard Shaw (ibid p82).

The prototype for these instruments was formerly thought to be a Hoffmann of 1784 now in the Yale Collection (see Russell Collection Catalogue p51), but this tradition is probably due to confusion with the later series of clavichords made when Dolmetsch was working with the Chickering Company (1905-11). In a letter to Belle Skinner (May 11, 1908 ibid p237) Dolmetsch asks $1000 for the Hoffmann clavichord and says "I suppose you would have no objection to my examining it, in case of need, for my new clavichords are made practically on its model, and I might want to refer to it later". This reference to his new clavichords seems to imply that those of his earlier English period were different. In fact, the design of the present clavichord is so close to that of J A Hass as to leave no doubt that it is a Hass copy.

String lengths

8ft	Hass 1761	Hass 1763	Dolmetsch 1897	
FF	1471 mm	1473 mm	1461 mm	43%
C	1324 "	1326 "	1321 "	58%
F	1209 "	1213 "	1207 "	71%
c	1011 "	1019 "	1009 "	89%
f	828 "	834 "	833 "	98%
c^1	573 "	565 "	564 "	100%
f^1	424 "	424 "	420 "	99%
c^2	289 "	284 "	283 "	100%
f^2	216 "	212 "	210 "	99%
c^3	145 "	141 "	132 "	93%
f^3	108 "	104 "	101 "	95%
4ft				
FF	1110 mm	1117 mm	1107 mm	65%
C	915 "	915 "	915 "	81%
F	786 "	782 "	782 "	92%
c	611 "		602 "	106%

It is interesting to see how close a copy it is in many ways, showing that the clavichord revival started very much closer to 18th-century models than the harpsichord revival did.

It is also interesting to notice the features that Dolmetsch did not copy. The most serious divergence was his substitution of front key guiding for the usual system of whalebone tongues in a wooden rack at the back. Front guiding tends to be noisier than is desirable in a clavichord. Hass' system of supporting the keys on two balance strings was also not copied, but Dolmetsch's system using balance washers, though not as positive and friction-free, is satisfactory. In place of several layers of woollen cloth used by old makers for the back-touch, Dolmetsch used two strips of green piano action felt with a combined thickness of 5.5mm. This is rather hard and gives rise to noise as the keys drop back. It is not clear why Dolmetsch used bass tangents with tops much thicker than Hass. These are useful for open-wound covered strings and were used by Hubert for this purpose. Dolmetsch probably used covered strings for the 8ft FF - BB, as mentioned later, but the tangents do not correspond to these notes and are of 5 different thicknesses as follows: FF - AA 3.12mm, BB♭ - D 2.49mm, E♭ - G 1.98mm, G♯ - c 1.54mm and c♯ - f³.88mm. The tuning pins are handmade and are similar to Hass where they are visible above the wrestplank, with diameters of 3.3mm from d' - f³ of the 8ft and 4.1mm from FF -c♯' of the 8ft and all of the 4ft. Hass used three diameters in 1761, 3.4mm from f♯' - f³, 4.1mm from FF - f', both for the 8ft, and 3.2mm for all of the 4ft. The actual Hass clavichord that Dolmetsch copied may, of course, have been different. Below the surface of the wrestplanks Hass' tuning pins were tapered and Dolmetsch's were parallel. Dolmetsch's pins were probably originally undrilled like Hass', but they now have holes which were probably drilled by Rhodes and Thomas, who probably also heavily scored the lower ends to improve the grip.

Dolmetsch has three transverse lines across the natural keys (Hass has four), but the sides are not rounded up to the first transverse line like Hass', being merely chamfered to remove the sharp edge. The carving of Hass' key tails is marked out by four transverse scribed lines, two of which remain as part of the decoration. These tranverse scribed lines are missing in this clavichord.

The case is not quite as resistant to twist as Hass', in spite of Dolmetsch including a diagonal bar of beech which is absent in Hass' work. Consequently this clavichord has twisted a little more than most of Hass' instruments.

An interesting departure from Hass' design is the elongation of the 8ft bridge in the treble and bass past the lowest and highest bridge pins. Dolmetsch had probably observed the deterioration of sound which sometimes occurs near the treble end of old instruments where the bridge is cut off close to the top pin and had sought to avoid this defect.

The view of the copying of old instruments expressed in the quotation at the beginning of this report, i.e. that it is suitable training for beginners but should later give way to an individual style, is widely accepted. However, his statement that masters did not copy one another is tendentious and misleading. The established system was that masters trained pupils who copied their masters until they became masters themselves. Having become masters, they made small changes to the designs they inherited, mostly in reponse to changing demand, unless (like Cristofori for example) they were

exceptionally inventive. The few inventive masters made big changes, corresponding to "sports" in the development of forms of life, but most changes corresponded very closely to biological evolution and occurred slowly in a series of small steps. Among craftsmen it is important to notice that they were usually proud to belong to an identifiable school of building working in conformity with current local designs. Even immigrant makers are usually found to have conformed to the practice of their adopted localities. Makers showed their quality in careful execution and good materials rather than in creating new designs.

The philosophy expressed here by Dolmetsch was very much that of the English Craft Movement in which William Morris was prominent. Copying was shameful, other than for beginners, and creativity was obligatory. Dolmetsch's period of copying seems to have come to an end while working for Gaveau in Paris and the clavichords he made in Haslemere (after 1917) had a 4-octave compass C – d^3, with considerably reduced tensions and a seductively yielding touch.

The two strings of middle c on Dolmetsch no 6, strung according to the presumed original strings found on no 2 of 1894 (Royal College of Music, London) have a tension of 7.78kg each at a pitch of a^1 = 415Hz (speaking length 564mm, diameter .39mm). The middle c strings on Dolmetsch no 36, 1922, at a pitch of 440Hz have a tension of only 3.81kg each (speaking length 454mm, diameter .32mm).

This is a large reduction and alters the character of the clavichord radically. It makes the instrument easier to play and makes it easier to produce vibrato, but considerably weakens the sound. Why such an instrument should have been preferred in the 1920's to those based on the more robust-sounding late-18th-century instruments is puzzling, but the most likely reason is that a <u>small</u> weak instrument seemed understandable and justifiable in their social context, whereas a <u>large</u> weak instrument (even though not quite so weak) seemed inadequate and rather ridiculous. If this is so, it confirms that it was no accident that the early revival produced keyboard instruments which deviated from those of the 18th century. The change was deliberate and conformed to current musical demands.

The harpsichords of this period are seldom heard nowadays and present-day production is almost entirely in various old traditions. With the less popular clavichord, however, the deviation was less obvious and is not widely understood. The return to old models is not so well advanced, and deviant models are still in production and use, with lesser makers than Dolmetsch producing really feeble instruments in which heavy keys inhibit the sound still further and reduce the dynamic range. An ironic effect of this false tradition is that this instrument itself was restrung with thinner gauges than Dolmetsch used in 1897, making the sound weak and the touch squashy. It was mainly to return to the correct tensions that the present work was undertaken.

<u>Previous work</u> In 1951 J J K Rhodes and W R Thomas shimmed two soundboard cracks and repaired a break in the bellyrail with a

new piece of wood attached with two screws. They also added a piece of thin plywood to the edge of the soundboard above the bellyrail which is glued and screwed down. They probably drilled the holes in the tuning pins and probably roughened the surface in contact with the wrestplank. All the tuning pins hold adequately, but some are rather tight and many are looser than is ideal.

Many of the keys had warped and these had been made to work in most cases by setting the balance pin so that the keyfront was tilted. The sides of two keys had been shaved, presumably because there was too little clearance between them.

Rhodes and Thomas replaced the original lid string, which had a coarse twist, as shown by the impressions in the top of the case where it had been trapped by the lid. They added three rubber buttons to the top surface of the stand to give the clavichord a three-point support, in order to allow for an uneven floor or a twist in the casework.

The strings which Rhodes and Thomas put on the instrument were as follows:-

	core(steel)	close wrapping (enamelled copper)
8ft		
FF	.21mm	.31mm
FF♯-AA	.21mm	.25mm
BB♭	.21 "	.23 "
BB-C	.21 "	.19 "
C♯-D	.21 "	.18 "
E♭-F♯	.21 "	.15 "
G-A	.21 "	.12 "
B♭-c♯	.21 "	.08 "
d-d♯	.21 "	.07 "
	beryllium copper	
e-g	.313mm	
g♯ - d'	.275 "	
d♯'-a'	.240 "	
b♭'-f³	.235 "	

	core(steel)	close wrapping (enamelled copper)
4ft		
FF-BB♭	.18mm	.11mm
BB-D	.18mm	.08mm
E♭-E	.18 "	.06 "
	beryllium copper	
F-G♯	.313mm	
A-c	.275mm	

The total tension of these strings is about 500kg, and Mr Thomas had left a note in the tool box that a pitch higher than about a^1 = 414Hz might damage the frame. The case twist with these strings at this pitch was 4.5mm. When the strings were removed the twist reduced to 2.0mm.

The present work The strings from 1951 were removed, keeping the tuning pins in order. The existing back-touch gave rise to some key noise because it was too hard. It had every appearance of originality, being attached by 5 tacks which seem never to have been disturbed, and there being no sign of previous cloth having been glued in place. The use of this material was an obvious error on Dolmetsch's part and it was changed with the agreement of the curator in the interests of better musical performance. Three thicknesses of woollen cloth were substituted, using the same tacks in the same holes but including a slip of paper recording the date and my name. The old cloth is returned for safe keeping.

The keys had had little use and were not much worn, but

the fit of many balance and guide mortices was rather loose and the limewood of the keys had warped considerably in many cases, probably due to less than ideal seasoning.

The fit of the balance mortices was corrected in 35 keys by applying a coating of Seccotine (a water-soluble fish glue) to both sides, allowing it to dry and then filing to fit, using a fine flat needle file. Where necessary, a second application of glue was used to build up the required thickness, and filed when dry. The balance pins were then tilted towards the left or right by dropping a tube over them and pressing the tube to one side or the other until the fronts of the keyplates were all horizontal. In several cases the adjacent key had to be removed temporarily because the tails were touching.

The loose guide mortices were next treated in the same way, applying glue to one side of 17 keys and both sides of another 14 keys. The gaps between the keys were next adjusted to be even throughout the compass by bending the front guide pins.

After this was done 15 keys were found to be missaligned at the back and a further 4 keys were found to be noticably twisted. In the case of two sharps, $G^{\sharp}$ and $g^{\sharp 1}$, the best way of aligning them seemed to be by removing the sharp top, bending the guide pin to align the tail and then regluing the sharp top in a suitable position. In all the other cases, the key was held firmly at the balance point in a horizontal position between the wooden jaws of a cramp, with masking tape round the balance mortice for protection and with a vertical piece of wood held firmly just touching the tail of the key on the side away from which it was to be bent. A wedge was then inserted to bend the tail of the key through the desired position and somewhat beyond, fixing the key in position giving about 3 times the desired bend. Steam was then played round the key over a length of about 90mm behind the balance point, and maintained for about 1½ minutes. The key was allowed to cool and the wedge removed, to see if the key had received the desired set. If the tail position needed further adjustment the wedge was inserted again and steam re-applied. The keys that needed twisting were treated in a similar way, twisting the tail through about 3 times the desired angle of correction, fixing it and applying steam. If the first treatment did not produce an untwisted key the treatment was repeated. In this way all the keys were made to lie in their correct positions.

Finally the key fronts were levelled by using cloth washers of several thicknesses with assorted paper washers underneath.

While the tuning pins were removed a rubbing of the "string-plan" was made to enable detailed comparisons to be made with plans of Hass instruments.

Two sources of information were drawn upon for deciding the gauges of the 8ft strings to be tried. Since the instrument is a fairly accurate copy of Hass' design, the gauges marked on Hass instruments are obviously relevant. The equivalent diameters are those given by Grant O'Brien, Organ Yearbook XII, p160, 1981. In 1968 I was privileged to work on Arnold Dolmetsch's clavichord no 2 of 1894 for the Royal College of Music and measured the strings which I

presumed to be original before replacing them. These two stringing lists are given in the Table on page 7, together with the adaptation of Hass' list for the gauges supplied by Malcolm Rose. The fourth column gives the stringing which was finally adopted.

It is interesting to notice from the above table that Dolmetsch's 1894 diameters below f are larger than the quoted equivalents of Hass' written gauge numbers. The explanation seems to be that Dolmetsch calculated these diameters in order to keep the tension approximately constant. The tensions for f, c F and C are 7.56kg, 7.92kg, 7.06kg and 7.88kg respectively. Hass, on the other hand, gradually reduced his tensions towards the bass in this region of the compass, presumably to compensate for the gradually decreasing distances between the tangents and the hitchpins. These decreasing distances would otherwise cause the touch to become increasingly stiff. Hass' tensions, assuming the correctness of the quoted diameters, decrease from 7.18kg to 5.91kg over the same range f - C.

The gauges of the 4ft strings are not marked on Hass instruments and I did not record the diameters which were on Dolmetsch no 2. However there are 4ft gauges marked on the Fritz clavichord of 1751 (Victoria and Albert Museum, London) and these were followed for the Dolmetsch.

Fritz				Adopted equivalents using Rose diameters	
FF-FF♯	gauge	3	.42mm	FF-GG	.40mm red brass
GG-AA	"	4	.38 "	GG♯-BB♭	.36 " " "
BB♭-A	"	5	.34 "	BB-A	.33 " yellow brass
B♭-B	"	6	.31 "	B♭-B	.30 " " "
c	"	7	.28 "	c	.27 " " "

The scaling of c in the 4ft is 6% above that of the 8ft at c', and Hass may have intended a few of the top notes of the 4ft to use iron wire to avoid breakages. However, brass was found to be satisfactory at this scaling and pitch and was therefore used.

The covered strings on notes FF-BB found in 1968 on the 1894 clavichord are believed to be original. In this, Dolmetsch was not following Hass but may have been following Fritz 1751 who used a closely similar design to Hass but used covered strings for FF-C inclusive. I have followed Dolmetsch in the provision of covered strings, but their tensions are designed to fit in with those of the lower plain strings whose diameters are based on Hass'.

	Core	Winding	Pitch	Winding angle	Tension
FF	.36 brass	.40 copper	1.72 mm	54°	4.09kg
FF♯	" "	" "	1.88 "	52°	4.30 "
GG	" "	" "	2.07 "	49°	4.52 "
GG♯	" "	" "	2.29 "	46°	4.75 "
AA	" "	" "	2.54 "	43°	5.00 "
BB♭	" "	" "	2.94 "	39°	5.25 "
BB	" "	" "	3.47 "	35°	5.52 "

The plain string diameters were based on column 3, but were modified empirically according to the feel of the touch and the quality of the sound. Notes e' and f' seemed to benefit from the thinner gauge and there seemed to be an advantage below c' in changing to thicker wire at points a few notes higher than

	Dolmetsch no 2, 1894, presumed original strings	Hass 1761, diameters by Grant O'Brien	Hass using Rose diameters	diameters
FF	covered	000 .71		covered
FF#				
GG				
GG#				
AA		00 .64		
AA#				
BB				
C				
C#	.67	0 .58	.56	.56 red brass
D	.61			
D#	.58	1 .52	.52	.52 red brass
E				
F				
F#	.52		.48	.48 red brass
G		2 .47		
G#				
A	.48		.44	
A#				
B				
c				
c#		3 .42		.44 yellow brass
d	.44			
d#			.40	
e				
f				
f#				
g				
g#	.39	4 .38		.40 yellow brass
a				
a#				
b				
c'				
c#'			.36	
d'				.36 yellow brass
d#'				
e'	.32	5 .34		
f'				
f#'				
g'				
g#'				
a'				
a#'			.33	
b'				
c²				.33 yellow brass
c#²				
d²				
d#²				
e²				
f²				
f#²		6 .31		
g²	.29			
g#²				
a²				.30 yellow brass
a#²			.30	
b²				
c³				
c#³				
d³				
d#³				
e³		7 .28		
f³				

is derived from Hass. Below c, the tension was allowed to decrease, following Hass rather than Dolmetsch and the covered strings continued the reduction of tension.

After stringing, it was discovered that the set of the bridge pins on notes FF-BB was not ideal. These strings have reverse side-draft in Hass' design and for some reason Dolmetsch did not follow Hass in his angle of tilt of these bridge pins. Dolmetsch's pins were too nearly vertical to achieve good contact between the strings and the bridge. A close-fitting metal sleeve was prepared, to drop over the pins and bend them to a similar angle to Hass' bridge pins without damaging the bridge.

Some of the tangent heights above the key surface were found to be inconsistent, so some small adjustments were made so that the key dip with the key depressed just to the point of contact with the string varied smoothly from 2mm at the top notes and 3.1mm in the middle to 3.7mm in the bass.

Dolmetsch seems to have used (and perhaps originated) an untraditional method of listing using white piano celeste felt (used on some upright pianos c1880 between hammers and strings for a soft-pedal effect). This was usually cut in strips about 50mm wide and tucked down in small loops between the courses. For the sake of its appearance as a Hass copy, however, the traditional listing method was used, with a ribbon of red boxcloth woven between the courses.

The baseboard mouldings at each end of the case had become loose and were reglued. There was some casework damage, mainly to the baseboard mouldings at the front and sides, but the curator decided against having them repaired.

When the instrument was playable it was discovered that in spite of the tightening of the balance and guide mortices the keys were still noisier than those of a clavichord should be. With the agreement of the curator a trial was made on middle c of a bushing method for the guide mortices which is completely reversible. A pin was prepared having a diameter at the lower end of 3.17mm like the Dolmetsch guide pins and a diameter at the upper end of 1.8mm for the part on which the key slides. This left room in the existing mortice for a patch of doeskin on each side of the pin. The result is entirely successful and makes the key as quiet as that of a traditional back-guided key. If the instrument is to be used for recitals or recordings, as its fine quality justifies, I recommend that this alteration is carried out for all the keys.

The total tension of the present stringing is approximately 830kg and this has inevitably twisted the case more than the tension due to the previous stringing. The twist after stringing at a^2 = 415Hz was 7.3mm.

This instrument is one of a group of instruments which holds an important position in the revival of early keyboard instruments and is an excellent example of the work of one of the most respected of instrument builders. However it also has a status as a Hass copy of fine quality which is remarkably true to its prototype. Its dual character as a Dolmetsch original and as a Hass copy has influenced the decisions which were made during the present work. The aim has been to produce the best playing

qualities while working within the limitations of good conservational standards. The changes which have been made to Dolmetsch's known practice, i.e. the softening of the backtouch, the reduction of the gauges of the lower strings, the use of red brass in addition to yellow brass, the tilting of the 14 bridge pins, the substitution of traditional listing and the experimental bushing of one key, have all been performed reversibly and with the aim of making the instrument a better copy of the Hass.

The instrument was played by John Cranmer at the AGM of the Friends of St Cecilia's Hall and the Russell Collection on November 22nd 1989 and it is gratifying that its return to good order is in time for the 50th anniversary of its maker's death(February 28th 1990).

The following parts are returned for safe keeping in a labelled box:-

Original front guide pin from key c'
Original green backtouch cloth (2 strips)
Original or Rhodes and Thomas balance washers
Possibly original felt listing (cream coloured)
Possibly Rhodes and Thomas felt listing (white coloured)
2 leather tuning wedges (R & T?)
R & T covered strings
R & T black ribbon (run between guide pins of FF and f^1)
Note to tuners by W R Thomas dated Dec. 5th 1951
Rubbing on tracing paper with dimensions marked

John Barnes
Edinburgh, December 1989.

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1989 FoMRHI List of Members - 3rd Supplement as at 2nd January 1990

*** in left-hand margin = change of address or other change**

* Ian Allan, *add* ravanastron, kemāngeh agūz, crwth, rebec; M.
Juan Carlos Alonso, Casilla de Correo no.6194, Montevideo, Uruguay (recrdr; M).
Lucy Coad, Stradivarium, Quakers Friars, Broadmead, Bristol, Avon BS1 3AP, UK; *0272-264809* (sq.pfte; R).
* Garry Crighton, Goebenstr.8, D-4400 Münster, West Germany.
* Sand Dalton, Rt.2 Box 3197, Lopez, WA 98261, USA; *(206) 468-3875.*
* Mathew Dart, 49 Bonnington Square, Vauxhall, London SW8 1TF, UK; *01-735 0479.*
Stefan Ehricht, *see* Roland Henschel.
* Donald Gill, *add* mandora, mandoline, gallichone.
* Matthias Griewisch, Am Silberberg 12, D-6901 Mauer, West Germany.
Roland Henschel & Stefan Ehricht, Händel-Haus Museum der Stadt Halle, Musikinstrumentensammlung, Restaurierungswerkstatt, Grosse Nikolaistr.5/6, DDR-4020 Halle (Saale), East Germany.
* Jan Hermans, *change to* (pfte, trav, bar.recrdr, bar.oboe; M,C).
* Richard Jones, *(055-665504).*
Brian Jordan, 10 Green Street, Cambridge CB2 3JU, UK; *0223-322368* (music & music books; D).
* Barry G.W.Lloyd, "Wallend", 2c Ospringe Road, London NW5 2JE, UK; *01-482 5074.*
Philip Lourie, Bro-Aled, Llanrhaeadr, Denbigh, Clwyd, North Wales, UK; *074-578221* (lute, orph, band, archlute; M).
* Richard Maunder, *change to* (keybds, ww, M,R,L,W,coll; bs gmba, bar viola, violone, P).
Daniele Mezzateata, v.Giusti 8, I-61100 Pesaro, Italy; *0721/30634* (pfte, frtpno, hpschd; P, res).
Fedor Nekrasov, Schipilovskaja 50 K2, b.50, Moscow 115573, USSR; *393-46-33* (ob, clar, fag; M).
* Terry Pamplin, *add* baryton.
Raûl Orlando Pérez, Ayohuma 1000, 8400 San Carlos de Bariloche, Rio Negro, Argentina (lute, gtar, vih, gmba; M).
* Thomas Prescott, 14 Grant Road, Lyme, NH 03768, USA; *(603) 643-6442.*
Sean Rawnsley, The Old Rectory, Tittleshall, King's Lynn, Norfolk PE32 2PN, UK; *0328-700030* (clavchd; M,R).
Bernhard Schultze, Unertlstr.33, d-8000 München 40, West Germany; *(089) 30 43 44* (trav; M,P,W,coll)
* Paul Starling, 5 Park Grove, Westbury Park, Bristol BS6 7XB, UK.
Raymond S.Taylor, 13 Wisborough Road, South Croydon, Surrey CR2 0DR, UK; *01-657 5382* (recrdr, trav; P,coll).
* Francis James Tomes, *add* tpt, sackbt.
Richard Wilson, 9 Hospital Road, Bury St.Edmund's, Suffolk IP33 3JU, UK (viola; M,P).
Roy Young, 6 Haswell Close, Rugby, Warwickshire CV22 5LU, UK; *0788-72437* (organ, pfte; C,R,M).

Museum:

Halle: Händel-Haus (Roland Henschel & Stefan Ehricht)

ORGANOLOGICAL INDEX

Piano:	Lucy Coad	Daniele Mezzatesta	Roy Young
Harpsichord:	Daniele Mezzatesta		
Clavichord:	Sean Rawnsley		
Lute:	Philip Lourie	Raùl Pérez	
Guitar:	Raùl Pérez		
Vihuela:	Raùl Pérez		
Cittern, etc:	Philip Lourie, *ob*		
Mandoline:	Donald Gill		
Mandora:	Donald Gill		
Gallichone:	Donald Gill		
Crwth:	Ian Allan		
Rebec:	Ian Allan		
Ravanastron:	Ian Allan		
Kemānje agūz:	Ian Allan		
Violin family:	Richard Wilson		
Baryton:	Terry Pamplin		
Gamba:	Raùl Pérez		
Traverso:	Bernhard Schultze	Raymond Taylor	
Recorder:	Juan Carlos Alonso	Raymond Taylor	
Organ:	Roy Young		
Clarinet:	Fedor Nekrasov		
Bassoon:	Fedor Nekrasov		
Oboe:	Jan Hermans	Fedor Nekrasov	

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Wales:	Philip Lourie, Clwyd	
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