Quarterly No. 93, October 1998

FoMRHI Quarterly

BULLETIN 93
Bulletin Supplement
Membership List Supplement

COMMUNICATIONS

1597 A working visit to the Mary Rose and the instruments found in her J. Montagu 8
1598 Review: Charivari agréable, Two upon a Ground, SIG CD 007 J. Montagu 9
1599 About technological information in musical instrument iconography: reply to Comm 1571 M. Tiella 10
1600 Werkstatt der heutigen Künste of J. S. Halle: implications on the historical bassoon reed gouge D. Rachor 15
1601 The term ‘transitional recorder’ A. C. Loretto 17
1602 Recorder research A. C. Loretto 18
1603 Schmelzer’s violino piffaro S. Heavens 20
1604 The tunings and sizes of the viole da braccio: a correction and new theory E. Segerman 23
1605 French fiddles, the soundpost and the violino E. Segerman 27
1606 Peg fitting E. Segerman 28
1607 The changeable harpsichord C. Stevens 30
1608 Keyboard instruments building in Abruzzo (central Italy) G. Miscia & M. Tiella
   Keyboard instrument making of the 19th century in Lanciano (Abruzzo, Italy) G. Miscia 36
1609 The Cipollone fortepiano M. Tiella 42

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

Bulletin 93

Renewals: Once again it's time to renew your subscriptions. Still the same rates, £10.50 for the subscription including surface postage to everywhere, with an extra £1.50 if you want airmail to Europe or an extra £3.00 for airmail to anywhere else. And if you're paying in any currency other than pounds, plus the equivalent of £5.00 (about $8.50) to cover most of the bank conversion charges—if you don't add that we only get about £3 which doesn't cover the cost of the Quarterly, still less the postal charges. In foreign currencies if you can get together with friends and send one cheque for several of you, it only needs the one extra payment—they charge us more or less the same whatever the amount. But do make sure you list all the names—any missing names and anonymous payments mean receiving no Qs! And if you'd like to help people in countries where exchange rates are silly—there still are some places where FoMRHIQ would cost a month's salary—adding a bit extra would be a great kindness which is much appreciated.

You'll find an INVOICE herewith. Please check your entry in the List of Members and use the back of the Invoice to send any corrections. Please send your renewals, cheques made out to FoMRHI, not to Barbara, posted to Honorary Treasurer FoMRHI, 21 Broad Street, Clifton, Beds SG17 5RJ, well before January 1st—it makes our life much easier if you don't leave payment to the last minute. And please don't send them by recorded delivery or registered—Barbara would have to go down to the post office to collect them and she hasn't got the time.

And maybe send us a Comm at the same time?

An Apology: Eph asked me to apologise that he left out the Members' List Supplement from the last Q. It's combined with this quarter's herewith.

And one from me in case any of you were looking for me at the Early Instrument Exhibition. For one thing I was abroad at the time (both for a conference and to await a nice new granddaughter) and for another I don’t believe we need the Exhibition every year—nor do Eph and Barbara which is why they said they weren’t going either.

A Request: Barbara is running out of storage space for back Qs (she holds the stocks at present). Can anybody help? I don't know what square footage it takes, but she could tell you. Ideally it would combine with sending out back Qs when people ask for them, which isn’t too onerous a chore since she, Eph and I keep a running stock of current issues. It would be a great help if someone else would take this job off her.

The List of Members: Judging by some recent correspondence, you may like to know a bit about how I organise this. What goes into the Main List or the Organological Index is what people put on the membership form, or what they’ve asked for. I have never used my own knowledge of people’s interests for those, which is why some entries just have the name and address and no list of instruments and no M, R, etc. Some people like to have these things listed; some prefer not; some of course are so well known that they hardly need them. So I just put what people say, and when they don't say anything, I don't put anything! The only thing that I don't put for anybody is Dr, Prof, etc, and that's because some people tell us and some don't, and some Dr are PhD and some are medical doctors, and so on, and also we don't know who of our women members are Miss, who Mrs (or Dr), so when we started we decided to leave out all titles, no Mr, no Ms (I dislike calling a woman a manuscript), no anything else—in some languages I don't even know whether a member is male or female! Just names and wherever possible forenames rather than initials to make it more a fellowship and less formal.
FoMRHI History: Making that explanation reminds me that Bob Barclay asked me for a brief history of FoMRHI and suggested that other members might be interested, too.

FoMRHI was founded in 1975. Eph and Djilda Abbot (his then wife and the mother of the two sons, named William and Henry after the two Lawes) were staying with us in Dulwich (where we used to live before coming to Oxford) for the duration of the Early Instrument Exhibition at the Royal College, and so was John Cousen. Eph and Djilda (maybe just Eph but I think it was joint) had had the idea of a Fellowship to encourage both authenticity and the rapid interchange of ideas. They asked me to run it as they hadn’t the time. After some persuasion, and partly because I had enjoyed the contact with many colleagues that I’d had as Galpin Society Secretary and was rather missing it, I was mug enough to agree.

So we worked out a membership form, which hasn’t really changed since then except glitzing it up—certainly the description of our aims is still the same as it was when we started—which I typed out and took into a local copy shop on the way up to the RCM, and I touted it round the exhibition to sign up members—Dick Burnett was no. 1. We produced a short Q dated November, with a Bulletin no. 1 dated October, with a List of Members (30 of us) ‘as at 29th October 1975’—names, addresses, instruments but no phone numbers at that stage, and the Draft Rules. List of Members and Rules went to the 30 members; the rest went to everyone we could think of who might join. The resulting List of Members (much as today, with phone numbers and organological but not geographical index) for January 22nd 1976 had 117 members, from America to Australia. International subscription rates were airmail only in those days to encourage quick communication—it got so expensive with price increases for airmail that we had to relax that.

We had Fellows right from the beginning. We were very firm that only those who gave to others should have a vote; the members who just read the Qs should not control the Fellowship. There’s been little change since then except that a few years ago, chiefly through my laziness, we’ve stopped bothering to vote for anything, including new Fellows. Strictly the officers (Eph, Barbara and I) should stand for election every three years, but since nobody ever offered to stand for any of the three jobs when I asked for nominations, I stopped asking. If anyone wants to offer as Editor, Treasurer, or Secretary, please let me know!

Things to Come: We hope that you will get the first fascicles of the Permuted Index in January—depends on whether it gets sorted out by then. Simply to keep it within the size we can afford to print and mail, and also the size the machines will staple to avoid more expensive and less efficient ways of binding (the index we hope will be perfect, but it certainly wouldn’t be if it had a ‘perfect’ binding!) it will come in several bits, probably a couple in January and a couple in April. So please forgive any frustrations of not knowing what we published from ‘L’ on, or wherever it may break, for three months. If you then decide you want it in a ring binder or whatever, you can drill your own holes!

Things Available Now: Just this morning there arrived in the post The Musical Gift Catalogue (51 Fortress Road, London NW5 1AD; 08700-797797; fx 0171-2841404; www.musicalgift.com) which is full of highly entertaining things. All sorts of musical stationery, including a gadget that I remember as invaluable from my student days but not seen since: a portable stave ruler that you can carry in your pocket and just rule a quick stave on any bit of paper. They do several sizes of five-line and a six-line (for guitar but presumably it’ll work for lute). Also a clipboard whose base is a 6-stave whiteboard for quick notes you can erase, mugs, jigsaws, aprons, tea towels, coat hooks, clothes, jewellery, even a cushion so you can sit on the composer you like least. Anything you can think of—and if you can think of anything they haven’t, they’d welcome suggestions. Prices are quite reasonable, too.

Artificial Ivory: Jon Swayne writes that ‘Members may be interested in a source of engineering plastics which has recently come to my attention. They are: Rimparts, 42 Berwick Road,
Shrewsbury SY1 2NE. Tel: 01743 366088. Contact: Malcolm Penny. Their closest approach to ivory is a solid cream colour, with no attempt yet to mimic grain effects. But it is much more friendly to machine than, say, GPS, and what is more important, should be less liable to fracture if an instrument is carelessly handled. Available in round bar 300mm lengths from 27 to 77mm diameter. A wide range of solid colours is also available.

Canwood: (Jon still) I have had good service from this firm in the recent supply of Mopane. But a request for a quotation for reasonably large quantity of boxwood has gone unanswered since 2 months or so.

Salomon transcriptions of Haydn London Symphonies: Score and parts of all twelve (flute, string quartet, optional bass, fortepiano ad lib) are available in four volumes at $90 per volume, two volumes $170, three $230, all four $270, plus postage $5 per volume from Capitol Chamber Artists, 263 Manning Blvd, Albany, NY 12206; (518) 458-9231. No email given. They’ll take Visa or MasterCard. Vol.1 is 97, 93, 94; vol.2 is 98, 95, 96; vol.3 is 104, 103, 102; vol.4 is 99, 101, 100 (and don’t ask me why they give them in that order!). They say ‘order now for an extra 10% discount’ but there’s no date to say when ‘now’ stops.

Verlag Hans Schneider (D-82323 Tutzing, German) has published Rudolf Hopfner’s Streichbogen, the Catalogue of the bows in the Vienna Kunsthistorisches Museum. I’ve asked for a review copy – we’ll see if we get one.

J Martin Stafford (298 Blossomfield Road, Solihull, West Midlands B91 1TH; 0121-711 1975) has published three CDs of Thurston Dart playing Bach and Purcell (Vol.1) and Froberger and William Croft (Vol.2) on the clavichord (a Tom Goff), and English organ music (on four historic organs), £10 each presumably including postage.

Sibelius, the computer program for writing music, not the composer, has a new PC version which is being demonstrated at a variety of places; there’s also a demonstration CD-ROM. If you want a demonstration pack, including the CD, or free tickets to a demonstration, ring 0800-458-3111.

Query: Robert Kragting (Pro.Moserstraat 40, NL-6224 BL Maastricht, Netherlands; 043 363 1331) wrote to me saying: ‘For some time now I am intrigued by the 6-course lute on the painting ‘The Ambassadors’ of 1533 by Hans Holbein. It seems to me that Holbein painted the lute as exact as possible. As I want a ‘replica’ to be build of this instrument in the near future, I would like to ask you the following questions: 1) Is there a detailed study of this lute available? (Place of origin, type, wood, construction, dimensions, etc); 2) Do you know makers of instruments that have made such a replica? 3) Do you have suggestions to whom I should address these questions further?’ I have answered question 3 by asking you – can anyone help him with 1 and 2?

New Organisations: Allan Atlas <aatlas@email.gc.cuny.edu> writes that “the Graduate School and University Center of The City University of New York has established a Center for the Study of Free-Reed Instruments, the goals of which will be to foster – and serve as a resource for – fresh scholarship about all aspects of all free-reed instruments, from the harmonium, India’s national instrument, and mouth-blown sheng family of Southeast Asia, China, and Japan to the ‘art-music’ repertories for the English Concertina and accordion to the entire ‘squeezebox’ family and harmonica as they are used in myriad folk and pop traditions around the world. The Center will publish the FREE-REED JOURNAL on an annual basis beginning in Fall 1999. For further information about both Center and Journal, please be in touch with Professor Allan Atlas at Ph.D. Program in Music, Graduate School/CUNY, 33 West 42nd Street, New York, NY 10036, or by e-mail at freereed@email.gc.cuny.edu or http://web.gsuc.cuny.edu/freereed.

The Gesellschaft der Freunde der Wiener Oboe has been founded. Secretary Wolfgang Plank, President Josef Bednark, using the latter’s address: Lastenstraße 13, A-1230 Wien. t&f/
Whether they’ll be interested in historic oboes they don’t yet say, but even the modern Viennese oboe is nearer the classical instrument than the French instrument is, so anyone interested in oboes might find it worth dropping them a line or at least logging on to the web site to have a sniff round.

**Harps:** I reviewed very briefly in the last *Harpa* no.28. I have had an email from the publishers, Odilia Publishing Ltd., Dorneckstr. 105, CH-4143 Dornach (Switzerland); +41-61-701 88 66, fx +41-61-701 88 58, info@odilia.ch, and also by post lists of contents of past issues, etc. They said: “We are indeed promoting the harp, but not only modern pedal harps, but also harp history as you can see from the spring issue. We have created the Study Group on Harp History (p. 4), published a book on Historical Harps (p. 41) together with the Schola Cantorum Basilensis, founded the Erard Society (p. 4), organised the first Erard Symposium and published a congress report (=HARPA No. 18) etc. The list of back issues of HARPA (p. 60 ff) contains many articles on harp history. Among others we had Walter Salmen, Andrew Lawrence-King, Peter Holman and Keith Sanger as contributors. References to all this is available on our web site www.odilia.ch, and we publish in three languages! We regret that in many circles the harp and its history are not yet taken seriously, and would appreciate if you inform your readers correctly about our efforts. What do you think for instance about a list of all harp the contributions you have published in your Bulletin?

“Creation of the **Study Group on Harp History:** The history of the harp has barely been investigated until now. The harp, with its various forms, was not only closely linked to music and dance, but also to the plastic and graphic arts, literature and religion. Deeper knowledge of harp history could therefore also offer a contribution to the history of civilisation. For these reasons, the Study Group on Harp History has been founded. It is made up of experts in the following disciplines: musicology and music history, organology, instrument making, archaeology, iconography, art history, linguistics, the history of literature, the history of religion, sociology, ethnology and theology. Experts in these fields and related areas are invited to collaborate with the Study Group. The aims of the Study Group are the promotion and coordination of harp research, the reconstruction of historical instruments, the publication of research results, and the organisation of events. The journal HARPA as well as the Internet serve as the news and communications organs. Information as above and e-mail: study@odilia.ch, and www.odilia.ch/study.htm”

There’s also a **Harp Almanac** published in America for $25 ($30 abroad) from POBox 40070, St Paul MN 55104; harpalmanac@musicmax.com

**Conferences:** There have been several whose organisation is such that they have given us about a month’s notice. One that looked quite interesting took place in Pieve di Cento in Italy from September 15 to 4 October, the notice arrived here after I left for my own conference on 26 August! If you want to know more, Marco Tiella could probably tell you because he was running a course there on string instrument conservation, with the cooperation of CIMCIM and participation of a number of our colleagues, which overlapped with it.

Stiftung Kloster Michaelstein is holding a Symposium **Posaunen und Trompeten** November 20-22 with a lot of the top historical brass people reading papers. The Stiftung’s address is Musikwissenschaftliche Forschung, Postschleißfach 24, D-38881 Blankenburg/Harz; 03944-90300; Kloster.Michaelstein@t-online.de

**NEMA (National Early Music Association)** is instituting a series of conferences / events designed to focus on and tackle outstanding problems relating to our understanding of early music and its performance. Peter Holman is organising the first conference which will tackle the **transition from Renaissance to Baroque instruments in the seventeenth century.** This process, which involved the replacement of the Renaissance wind consorts with the new Baroque solo
instruments as well as associated changes in the nature and roles of strings, brass and keyboards, is still poorly understood, though it was of crucial importance in shaping the development of ensemble music of all types. The conference will raise questions that any historically-aware performer ought to ask about the performance of music by such composers as Lully, Charpentier, Purcell, Biber, J. S. Bach or Vivaldi. What sorts of instruments should I be using? At what pitch? In which temperament? In what numbers and/or combinations? For this reason we hope to have workshops, demonstrations and concerts as part of the programme. We have chosen the date to coincide with the first weekend of the York Early Music Festival, whose theme for 1999 is, appropriately, wind instruments: **July 2-4**. The location, the University College of Ripon and York St John in the centre of York will make it easy for there to be interaction between the conference and the Festival.

Accommodation and cost: At present the College is holding 50 rooms for the nights of 2-4 July, and have offered us bed, breakfast and evening meal at £36.50. Allowing for two nights at £36.50, it is hoped that the conference fee will be about £15-20, keeping the total package under £100. More news will follow as soon as it is available.

In the meanwhile, I have told Peter that I’ve been getting increasingly unhappy with our name for this period (‘Early Baroque’) for at least from the instruments’ point of view, we have everything shown by Praetorius and everything by Mersenne and only this very vague term for them. What Virdung shows is Renaissance; what Talbot describes is Baroque (the new ones anyway). Surely there should be some more positive term for what comes in between, especially when we have so much information about it and so much wonderful music for it. I’d be interested in your thoughts on this.

**Other Journals:** The *American Recorder* for September has an interesting and entertaining attack on Richard Taruskin’s anti-‘authenticity’ views by James Richman.

The *Bouwbrief* has articles on Wind Systems for Organs, Early Percussion (with a photo of a pair of 16th-century naker-size drums in Vienna without the essential rubric that they are Turkish, not European), and on Materials.

*Lute News 46* has an important note on the aftermath of a burglary in which several viols were stolen, and an article by Martin Shepherd and several letters by others discussing an earlier article by Eph on gut strings.

*Lute News 47* has a comeback from Eph, a report on the Paris Colloquium on ‘Lutes in the Occident’, a detailed description of an 11-course lute by Andreas Berr, and a supplement on ‘Aspects of guitar performance practice 1525-1775’ by June Yakeley.

**And that’s about it:** Help us by getting your renewals in early.

**Date for next Q: December 31.** Remember posts get scatty in the last couple of weeks of December, so please get any Comms (yes please!) and notes for the Bulletin in early, too.

Jeremy Montagu  
Hon.Sec.FoMRHI  
171 Iffley Road, Oxford, OX4 1EL  
jeremy.montagu@music.oxford.ac.uk
BULLETIN SUPPLEMENT

Ephraim Segerman

Catline, catlin and catling

Any half-decent scholar abandons an hypothesis he or she had previously considered to be best fit all the evidence, in favour of a new one that fits the evidence better, no matter how long he or she had considered the previous one best. Catline, catlin and catling were all pronounced the same in late 16th century England (i.e. they were homonyms), so they invited replacement of one by the other, initially in word play, and eventually in ambiguity. Thus catling, which originally meant a small cat, was sometimes used for the musical string, leading eventually to the term catgut. The abandoned hypothesis was that the primary origin of the string name catline was a nautical rope. The better hypothesis is that the origin of catlin was Catalan, since string names appear consistently to have been where they came from. This was all explained in Comms 1289 and 1483. The use of catline by Dowland was apparently a variant of catlin that could well have had a nautical association (cat rope transformed to cat line because it was too thin to be called a 'rope')

Bengt Lönqvist has written, suggesting that the cat-o-nine-tails might possibly be involved in catline etymology. It was a 9-stranded whip, usually made by unravelling a 3x3 rope. He thinks that it would have been particularly effective if made from 9 catlines, like the similar Russian nagaika was made of sinews. It seems to me that a more probable cat association here is that the tails come off the cat, which is the handle that is not unravelled, and that could have been a piece of cat rope.

A neighbour, George Stoppani, a well-known Manchester maker of violin-family instruments, is interested in historical strings. He has been looking at some spare gut violin d strings found in cases that have been left in attics for most of this century. With a bit of a soak they can be easily unravelled, and one can see how they were made. He found most were of the expected high-twist construction, but surprisingly, he found some with 2-stranded and some with 3-stranded smooth catlin construction. It seems that the end of the availability of commercial catlin strings was not in the 18th century, as I had assumed. The construction was just not noticed any more.

Re 'nuts & bolts' Comm. 1469

Peter Forrester has written. He says: "I've since discovered a reference to an adjustable plane similar to my design, in Holtzapffel - a 'reglet' plane - though not toothed (reglets are part of the furniture used as white space in printing)".

Response to Jeremy's Comm 1582 (on tympany)

I apologise for misinterpreting Jeremy's request for information by assuming that he had an expectation about tympany usage that he did not have. I am happy that I was wrong and needn't have made the suggestion that I had. Nevertheless, I'm glad I provoked him to write Comm. 1582. Too often he saves his more important stuff for publication elsewhere (e.g. his excellent tabor-pipe one in GSJ L). This tympany problem was an interesting one, and I wanted to know what it was all about. I don't mind his pointing out my ignorance on the subject. His Comm. has reduced it.

Facts and speculations people

Most people think in terms of facts, which are knowledge, and speculations, which are not. They find my writings on scholarship annoying because they don't think the way I suggest. They present two problems for our field: Firstly, when a new theory conflicts with what they have in their 'facts' category, they can't give it a fair hearing, and if it deserves it, the support it should have. I'm still upset about the loss of Lawrence Wright from our field, largely because of the doubts about his gittern/citole work by the respected leaders. Secondly, when an unexpected new theory is offered that fits all of the available evidence, and has no apparent rival that does the same, they can still keep it in their 'speculations' category because they are not yet convinced, and so it does not get the respect it deserves. They should think about accepting that there is a category between facts (which are really secure) and speculations (for which there is no clear evidence). That is where special efforts need to be made to be objective and open-minded, to appreciate and encourage new ideas of value.

Indexes

Try not to be late in paying the subscription because there won't be room in the April mailing to include the January Q plus the Index volumes everyone else would have received by then.
A Working Visit to the Mary Rose and to the Instruments Found in Her

Three of us, Mary Anne Alburger, Charles Foster and I, recently had the great privilege and pleasure of spending three days with the Mary Rose. Most of you will remember that she was one of Henry VIII’s ships and that she sank in 1545 in Spithead and was raised on 11 October, 1982. Among the many objects raised with her were several instruments which were published in summary, with the Mary Rose Trust’s line drawings, in *Early Music* 11:1, January 1983 by Frances Palmer. A follow-up by Herbert Myers in *Early Music* 11:3, July 1983 pointed out that if (and it was rather a big if) the drawing could be trusted, the shawm was the only surviving still shawm, and at last proof that the conjectures that it was a non-overblowing (or at best twelfth-overblowing) instrument were correct, and that this was the instrument described by Tinctoris in the late 1400s. Thereafter years of silence, with nothing further revealed by the Trust, a fact on which I have several times commented, here and elsewhere. Several people produced instruments from what had appeared in *Early Music*, especially Charlie Foster, and I commented on his still shawm, which did indeed correspond with Tinctoris’s description, in Bull. 34, January 1984. Graham Lyndon-Jones followed this with a short note in the following Q.

Recently things have vastly improved. The Trust has become more welcoming, and Charlie was allowed hands-on access, which led to his Comm. 1459 in Q. 84, July 1996. This in turn led to our visit which will, in due course lead to full and detailed publication, both in the Trust’s own series of catalogues and, with the Trust’s encouragement to publish in greater technical detail in the specialist journals, here and we hope in *GSJ* and *Early Music*. And to at least three measured drawings.

This is the first shot in that series, a very preliminary report written, initially, on the train back to Oxford, so that you must allow for the fact that there is a good deal of comparative research yet to be done, and of course it is not for me to pre-empt the detailed reports of my colleagues. So in brief:

One instrument is all-but in playing condition and another is not far removed. A sharp tap on a dowel to move the block back about 3 mm on the largest of the three tabor pipes, that by E. Legros (I am assuming familiarity with Frances Palmer’s article) would put it into full working order (no—we wouldn’t actually do that!). It is an extraordinary instrument, overall length 850 mm and lip or voicing edge to the end of the foot 767 mm, a considerable stretch for Charlie and me, and we’re both taller than the average population of the Mary Rose. There is another rather fragmentary tabor pipe, but enough survives that one can see that it was almost the same size, very slightly shorter, though more roughly made. Had it not been found some distance away from the Legros pipe one might have wondered whether the same player had made it himself as a copy and a spare. As it is, it raises the possibility that this great length was not uncommon in the period. The other almost playable instrument is a smaller pipe, one with an indecipherable mark (on which we hope to be able to report more fully in due course). This measures OL 468, lip to end 435, and all it needs is a new block. The most important among the wind, because of its uniqueness, is the still shawm (we have decided to use the English name rather than *doucaine* etc), which is missing only the last few cm of its bell and the pirouette and reed (the staple survives). Reproductions of all three of the more complete instruments that Charlie has made, play convincingly at A=460 or so.

The string instruments are more fragmentary. Mary Anne has far more information than has been available before, and body sizes are now known in detail. She has also identified fingerboards and thus almost certain neck lengths. But there is no trace of bridge position, nor of peg-box-pegplate or whatever, nor of tailpiece, so that as yet there is nothing positive to be said about number or length of strings. Nor can we
add anything to the number of instruments — it is still just the two fiddles.

I can add three and a bit bo’sun’s calls to the one on the drawing with Frances Palmer’s article, all of them silver, all different sizes (one bigger, the others smaller), and all functionally identical with the modern instrument, a narrow tube leading to a hollow ball (the ‘bit’ is the two halves of a ball). I can also add most of a tabor, 250mm deep and about 300mm in diameter (we don’t have a complete cylinder), and a tabor beater quite different from any in the iconography, something like a very simple one-piece version of that used in Provence on the tambourin. Charles has already made a first reproduction of the beater, which works well, giving great facility for bouncing strokes and other ornamentation.

Still, therefore, only the one upper-class (and on a ship, upper-deck) instrument, the shawm; all the others are lower-deck, or perhaps for the two tabor pipes with makers’ marks, middle-deck. No viols, lutes, or other ‘art-music’ string instruments, no recorders or anything else that the still shawm might have furnished the bass to. No naval or military instruments other than the calls; no trumpets or side drums. Maybe there weren’t any on board (which is unlikely), maybe they were on deck when she capsized and were swum ashore with their players (about 40 of the men on board survived), maybe they were salvaged in the contemporary or later attempts to raise her. And maybe they’re still there, in the mud off Portsmouth.

More will follow — watch this and other space. The Trust is enthusiastic for access and publication — from now on it’s all systems go. We are all three of us grateful to Maggie Richards and her colleagues for their warm welcome and for all the help and information we received.

FoMRHI Comm. 1598

Jeremy Montagu


I’m sending this up to Eph (it only arrived the day before I typed the Bulletin) because it’s much more his line than mine to write proper review — he knows this repertoire and I don’t except as a listener.

But I thought I’d put in my two-pennyworth because I thought I’d at least play it and as a listener I liked it. In particular it was interesting to hear some of the instruments, especially the unique recreation of the English theorbo (made by David Van Edwards at the instigation of LyndaSayce, who plays it) and the Andreas Ruckers harpsichord of 1623 which I described in one of my Sale Room Reports in Early Music a while back and which had been ravalled by Kirckmann and put into a new case so that it looked exactly like a Kirckmann single manual, just as though Ruckers had worked in eighteenth-century London.

The music includes divisions by Simpson (as one would expect), Finger, and Jenkins, two extraordinary solo viol pieces by Tobias Hume, Gaultier’s Pompe funèbre (on the English theorbo since he was so popular here), Purcell (the title piece), and some Lawes and Locke.

All good stuff excellently played with some virtuostic fireworks. Good listening both for pleasure and for interest.

Finally I must express an interest (and Eph is welcome to leave this out of the Q if he thinks it makes me too prejudiced): I am supervising Lynda Sayce, the lutenist, for a PhD; I examined Kah-Ming Ng, the harpsichordist and organist, for his MPhil and have played with them both and with his wife, Susanne Heinrich. I also know David who made the lute, David Leigh who restored the harpsichord, JanuJulier who made two of the viols, and Edward Fitzgibbon who made the baroque guitar. Trouble is that it’s a small world! Anyway, it’s a nice record and I wish I could keep it!
About technological information in musical instruments iconography: reply to Comm. 1571.

A) For a long time I was involved with questions concerning the benefits of musical instrument iconographies as sources of knowledge. As others did, I also tried to "reconstruct" musical instruments shown in paintings from different ages. The aim was to experiment how e.g. flat bridges and wide tops could have been consistent with playing techniques of music kept in scores or manuscripts contemporary with the pictures. This was an extremely naïve attempt to gain technological information from pictures. There was, and still is, the problem of how to solve the contrast between instrument acoustical and iconographical aspects. Obviously, my instruments were "pure imaginaries". Later I was asked to collaborate with RIDIM (University of Pavia) and I was given a large directory of names and types of instruments already identified in paintings and catalogued by "categories". It was clear that every new image discovered from iconographical sources (being examined) didn't correspond to others that had previously entered the catalogue. I was asked to study the instrument iconographical sources in Trentino (Northern Italy) and it appeared obvious that the directory should be enlarged by some dozens of types of instruments never catalogued.

Then I tried to discover if there were reasons for compiling such a list of types, because every new entry corresponded to an "unicum" and didn't pertain to a type of instrument already defined. Owing to the impossibility of explaining whether a picture can be a document of a real, already existed, type of instrument, I was to abandon the conviction that the study of instrument images should be done in order to obtain "technologically true" information. Should one accept Ch. Written II's conclusions ("Apollo, Orpheus and David" in A.M.I.S., 1, 1975, p.5-55, if they were not a paradox), that some instruments were so realistically depicted, that not a few of the models can be still identified among instruments preserved in museums or private collections? It is evident to me, that the content of cognition one has to have when trying to interpret the shape and details of instruments in paintings, is so high, that the image in itself serves more to stimulate individual cognition than to be an actual means for improving the level of knowledge.

We have no serious reason for being convinced that we do concentrate on "getting the most [technological] indication of truth" out of the evidence available from the musical instrument iconography. On my opinion one has to distinguish among
(1) picture and objects depicted on them - pictures are objects, as they consist of a support, materials and colours; therefore, one may study them for getting the most indication of what the picture consist of, whereas objects depicted are images,
(2) the process of approaching the truth studying pictures of objects that don't exist (never can we be sure that they existed) - there is no reasons for comparing them each other, because all they are images: therefore each of them is an "unicum".

It is for me unthinkable, that we can get most indication of the "truth of the evidence", ascertaing in the pictures characters that we imagine some objects should have had.
That is, the evidence has to be referred to the matter of fact (the painting) and not to
the matter of imagining (the image of an object which often do not exist neither in a
similar shape) examining an object on the basis of our presumption that that object
did exist. I do not deny that pig-mouth psalteries could have existed. I think that it is
influential to examine the technological properties of a certain pig-mouth psalter, which
we know only an old picture of, because we don't know if it existed (we only know that
exist images, to which we assign the name of pig-mouth psalter). Moreover, it seems
that a certain number of musical instrument images have to be thought as images of
instruments designed (projected) by painters (see what E. Winternitz defined
imaginary musical instruments), but such supposition can not be proved.

B) The question is not whether Ephraim's interpretations are invalid, neither - as he
states - can it be any interpretation of any evidence. Ephraim's considerations are not
invalid "in se", even if the presupposition that pictures show actual instruments is, for
me, invalid. The question is why we don't agree reasoning that way about iconography.
For instance, Dmitri Badiarov recently developed a huge research on old pictures of
bowed instruments (see Comm. 1594), measuring lengths, proportions of shapes and
some other details of musical instrument pictures on photograps of paintings. I gave
him a number of imagines, maintaining that these informations come (obviously) from
pictures of instruments an not from instruments, which Badiarov might suppose the
painters depicted.

First of all I am not in awe if scholarship can find truth or not. Every one is free to use
his own imagination for developing a path of research on an actual object (see
Segerman's Comm 1580). I think that everyone concerned in iconographical studies
should appreciate contemporary writings like Goodman's Language of art.

"Pictorial evidence" is an object and therefore, according to common sense, is "true" (it
exists) and we can inspect whatever material it consists of. I simply agree with
whichever, who came to the conclusion that it is impossible to apply to inspections of
art objects the formal way "to choose which set of assumptions is most likely to be
closer to the truth". I think that we have no serious reason for being convinced that we
do concentrate on "getting the most indication of truth" out of the evidence available
from the musical instrument iconography. As paintings consist of materials, one can
"technologically" inspect only the painting; it isn't for me of use "technologically"
inspect the images depicted in it. Not knowing the actual objects which painters
depicted, paintings represent only the objects we want to discern in pictures: in my
opinion, it means that all images do not depict anything else but "themselves". In my
opinion, it is an apory trying to state how much "true" is a pictorial information,
referring it to objects that do not exist.

Many musical instrument pictures are very uncertainly visible for one or another
reason (painter's pictorial style, damages, restorations). But the most interesting clue
is that nearly all of the illustrations of old "encyclopedies" (e.g. Virdung, Mersenne,
Kircher, Fludd, Sprengel and so on) are unrealistic and evidently contrasts with the
shape of extant old instruments. Only drawings in A. de Zwolle manuscript,
Praetorius' Theatrum Musicum, and Dom Bedos' L'art du facteur d'orgue are more
accurate and the authors demonstrated their own system of perspective. We do not know why so many authors published unrealistic illustration; presumably for the lack of historical instructions given to the painters, the lack of technical and graphical informations (ancient systems of perspective), as well as the lack of actual musical instruments, which old painters would have had to know. In fact, it is arbitrary to distinguish how many are "the indications of truth" of the evidences we found in paintings and in books, if we are not able to make such distinctions "storicizing" the images.

Surely what we read in the images is a possible matter for arguing. That is, to superimpose onto the psychological reaction perceived in front of an image what we already know about the subject depicted. I accept that cognitions grow according to the number of observation done: but having got informations from pictures it doesn't mean that we improve our knowledges of technological details of instruments, but only of artistic details of pictures: I think that it is arbitrary to affirm that the "level of truth" of an image increases by comparing it with another image, being both images not less imaginary perceived. Therefore, in my opinion, the "level of truth" of a picture can only be increased by comparing it with the actual object which it is the image of. I would like to quote Peter Holman's opinion (Four and Twenty Fiddlers, Clarendom Press, Oxford 1995, p. 3): "...More generally, pictures reinforce the traditionally idea that instruments should be defined by their shape. A bowed instrument in a painting is accepted as a violin if its body shape conforms sufficiently to our notions of what an early violin should look like - notion that have been fashioned mainly by the subsequent history of the violin, and the development of its 'classic' shape. Not only it is perilously close to being a circular argument, but it also places an unreasonable emphasis on what seems to have been the most variable aspect of bowed instruments at the time".

According to what almost all contemporary scholars think, we have no ways (nor reasons) to discern what content of evidence "of truth" is in pictorial images, non only as they are products of imagination, but also because the level of "realism" is not definable. What concerns old pictures in general, it is sufficient to observe the extremely large number of common objects - buildings, trees and musical instruments too - not obeying the rules of Renaissance perspective depicted from prehistory to modern times. Moreover, even E.Wintermitz openly admitted that especially Filippino Lippi, Piero de Cosimo and Lorenzo Costa depicted imaginary musical instruments. The plain fact is that in order to represent an object, a picture must be a symbol for it, stand for it, refer to it, and that no degree of resemblance is sufficient to establish the requisite relationship of reference. Nor is resemblance necessary for reference; almost anything may stand for almost anything else (Goodman, p.5, but this concept was found already in S.Augustin's writings). One can explain this way what are deviations from the rules of Renaissance perspective which so a few old drawings obey. The laws of perspective are supposed to provide absolute standards of fidelity that override differences in style of seeing and picturing (Goodman, p.10). It can also be argued, that this statement is not properly true, because it is impossible to see the picture from the same point of view from which the painter saw the object (one only has to remember the picture showing which way a Renaissance painter - Dürer and others - drew pictorial images).
Nevertheless, I gladly admit that a few pictorial representations of musical instruments can be seriously recognised as feasible evidence for extracting out what has been called "the most indication of truth": e.g. Herni Arnault de Zwolle's, Vicentino's, Colonna's, Praetorius', Dom Bédos' illustrations obeyed the rules of the same kind of perspective (orthogonal projections) that we still are able to apply. Then we can be reasonably sure, that we understand what they wanted to represent. However, a higher or lower degree of uncertainty arises from woodcuts (Vicentino, Colonna, Praetorius). To interpret woodcuts one is compelled to focus on the carvings and then he dares to state what the painter saw (like what a restorer of art objects usually does). In fact, we read only Henry's and Dom Bédos' illustrations as technical drawings. Particularly odd are the illustrations in Fludd's *Utriusque Mundi* ... We can take advantage of the fact that quite a few, less or more rough, illustrations in old "encyclopedies" (Virdung, Vicentino, Colonna, Praetorius, Mersenne, Diderot's Encyclopédie) are coupled with extensive explanations, so woodcuts allow us to clarify some obscure passages in the texts. In all the remaining cases it seems to me impossible to advance into feasible knowledges to "become closer to truth" of how ancient instruments were designed and built.

I tried to find in ancient writings how painters, depicting musical instruments, were supposed to represent actual items or symbols of moral and material "categories", but I was not always able to find a key for explaining image significances consistent with the ideological aims of its age. However, there are historical sources proving that picture of instruments did demonstrate moral qualities. That is for me an undoubtful evidence of the "symbolic truth" that we can find in the pictorial evidence. For instance, J.Tinctoris' (*Complexus effectuum musices*, 15th.Cent.) wrote: "When painters wanted to illustrate blessed mirth, they drew engels playing together on musical instruments". A very important source is in Ripa (*Nova Iconologia* ..., 1593), where a number of musical instruments are associated with moral qualities (the list is too long for being publish there). Another interesting source of iconology was found, that is the "libretto" of *Philotea* (Paulinus, Munich 1669), where all of the *dramatis personae* are associated with a specific instrument, for caracterizing moral "categories", personified by each singer/actor. On many altarpieces of Franciscan churches in Italy there are depicted angels playing the violin, because Saint Francesco is said to have had such a mystical vision.

These sources should convince everyone that the reason the instruments are present in paintings is mainly (if not only) for iconological purposes. Therefore the study of details should be explained by scholars who are well informed about the iconolgical purpose of the paintings. Thus, in my opinion scholars entangled into inspections of pictorial images agree which each other hoping to be able to dig up technological information below the outlines of a picture. This is the opinion of almost the totality of those who would be disappointed not to benefit from such an enormous number of really charming paintings especially which seem photographically realistic. Their observations have socially a highly important weight and are accepted as though they had been deducted by formal logic.
As to the confusion arising of my statement that each picture is a source of knowledges, I admit that my expression may seem somewhat vague. It should not be forgotten that I am always in doubt about how my way of explaining abstract concepts in a language different from mine can be understood. Therefore I have prepared two versions of the answer to Comm. 1571 which seems to be expected from me. I hope that what I think about this subject comes clearly from the context of the Comm.

In the meanwhile I read Segerman's Comm. 1580 on the subject of "The handling of source errors in scholarship". As to the musical iconography, I think he maintains his previous opinion, even if he admit that "scholarship can never prove than an hypothesis is true, only than it explains all of the available evidence better than others that have been proposed". Really I don't understand why I would have expressed "confidence in getting to truth", since I also agree that scholarship can no prove truth. My aim was only to throw light upon the opinions of researchers in perception of images, whose conclusions - I mean - are generally accepted as gained by scientific processes. Therefore I think that is misleading not to consider Goodman's opinions into the fan of judgements.
During a recent research trip to France, a primary source on 18th-century bassoon came to my attention that apparently many scholars interested in historical double-reeds have overlooked [1]. I use the word overlooked because there is not a single mention of this important source in the many currently available bibliographies of bassoon and double-reeds. The discussion is found in a three-volume work entitled *Werkstatt der heutigen Künste, (Workshop of Today’s Arts)* published in the years 1761-79 by Johann Sammuel Halle. It was brought to my attention by Jean-Marie Heinrich; Mr. Heinrich learned about this source from Rémy Gug, a harpsichord maker and a member of FoMRHI. The quote that specifically discusses bassoon reeds is found in volume 3, in the sub-section ‘Der Flötenborer,’ (pages 367-372) [2]. ‘Der Flötenborer’ contains discussions on the following instruments: bassoon, oboe, fife, transverse flute, recorder, cornett, timpani, trumpet, trombone, horn, and posthorn. The discussion on the bassoon is one of the longest in the subsection, comprising six paragraphs, in which is found a description of the general characteristics of the bassoon such as: placement and material of the keys, tone holes, springs, bocal, and material of the parts of the bassoon. However, in the fourth paragraph Halle writes something very important when he mentions the fact that bassoon reeds must be soaked in water for several hours before one can use them. To my knowledge, there is no other primary source regarding 18th-century double reeds in which it is written that reeds must be soaked for such a lengthy period.

In the fourth paragraph in ‘Der Flötenborer’, on page 368, the Halle writes the following: *Wenn das Rohr in der Luft trocken wird, öffnet sich diese Spalte zu sehr, und es ist alsdenn der Lunge nicht möglich, auf dem Mundstükke einen Thon herauszubringen, wenn man es nicht vorher einige Stunden im Wasser aufschwellen läßt.* ‘If the reed (Rohr) becomes dry in the air, this slit opens too much, making the lungs unable to bring forth a sound through the mouthpiece (Mundstücke). Therefore the reed must be placed into water to swell (aufschwellen) for a few hours.’

Anyone who has played historical reeds made using a reverse tapered gouge knows from experience that these reeds must be soaked a long time before they will play. (A reverse tapered gouge, as described by Ozi and Fröhlich to name two authors, is one that tapers on both halves of the piece of cane toward the center, where the piece of cane is folded.) If a historical double reed is left to become completely dry, the tip of the blades will warp or the opening will enlarge a great deal. The aforementioned quote in Halle is the only place I have found in written bassoon sources and methods, where the length of soaking time of a reed is mentioned. One can speculate that this fact was perhaps so well known at that time that it was not thought necessary to mention, especially in specialized publications intended for readers who were somewhat knowledgeable of the subject. The *Nouvelle Methode de basson* of 1803 by Etienne Ozi contains the most detailed explanation of bassoon reeds up to that time, and Ozi only writes that a reed must be soaked in the mouth in order to stay on the bocal: *Il est nécessaire de les humecter dans la bouche avant de les jouer afin que la ligature, suffisamment imbibée, prenne la force qui lui est nécessaire pour se maintenir au bocal.*

The Halle quote is important because, it is further proof that bassoon reeds in the 18th-century were made using *contrepente* (the French term for reverse tapered gouge). It is now necessary to discuss the different cellular regions of the cane plant in order to understand the effect of the gouge on the finished reed [4]. On a reed based on an 18th-century design, the gouge becomes thinner where the
cane is folded. This means that the tip of an 18th-century reed will be closer to the one-cell layer called the epidermis than in a modern level gouge. (The epidermis is sometimes mistakenly called the bark.) The next cellular region just below the epidermis is the fiber band, where the cellular material is most dense. This region is important to the structure of the plant because it gives the plant its rigidity so it can withstand the forces of wind and gravity. The fiber band is comprised of cells with thicker walls and increased amounts of lignin than cells in other regions. The increased amount of lignin in the fiber band is significant because it makes the fiber band water resistant and less flexible. These two properties of the fiber band are important to the playing characteristics of a historical bassoon reed and in particular to this discussion, because the water resistance and the lack of flexibility of the fiber band causes the tip area to perform in a certain manner. It must be pointed out that the different regions of cellular material flow into each other; there is not a clear line between each of these layers. This is important because the cellular material becomes more rigid the closer it is to the fiber band because of the thicker cell walls. When the tip of the reed is constructed from cellular material in the fiber band, the tip absorbs less moisture than the other areas of the reed because of lignin's water resistance. Therefore, the tip expands less when moist than the area behind the tip, which is constructed from the next cellular region down known as the inner cortex. (The area behind the tip of the reed is comprised of inner cortex material because of the sloping of the reverse tapered gouge.) So as the reed dries, the inner cortex area of the reed behind the tip contracts more, forcing the tip to warp. In other words, the increased water resistance and the lack of flexibility of the fiber band causes the tip of a historical reed to expand and contract at different degrees than the other areas of the reed which are made in the inner cortex. The different degrees of expansion and contraction in turn causes the tip opening to increase or the tip to warp when dry. This is why only a reed made with the tip in or close to the fiber band will warp when left to become bone dry. When contrasted to a modern bassoon reed, it is easy to see why the brief statement in Halle is so important. The modern bassoon reed constructed with a thick level gouge, is made entirely from cellular material of the inner cortex, so there are not different degrees of expansion and contraction in the cellular regions of the cane. Therefore, it is not necessary to soak a modern reed as long as a true historical bassoon reed: warpage is usually not a problem.

After reading the primary sources on reed making for both the oboe and the bassoon from the late 18th and early 19th-centuries, and the more recent secondary sources on historical double reeds, I have come to the conclusion that reeds were made using a reverse tapered gouge. I, of course, am not the only bassoonist to have come to this conclusion—Paul White and others have called for the use of a more historical reed design years ago. However, many modern players of historical bassoons perform with reeds based on modern designs, made with more or less a level gouge. The modern design, where the tip is comprised of cellular material of the inner cortex and not of the fiber band region of the cane, has many implications on the performance aspects of the bassoon such as tone quality, dynamics, ease of response, fingering, range, and flexibility of pitch. A discussion of these performance aspects goes beyond the scope of this short communication, but I would like to say that in my experience, historical bassoons must be played using a sound generator with a design similar to the one for which the instrument was designed. Simply put, historical bassoons perform and sound differently depending on the design of the reed, and in particular, the type of gouge. Ozi knew exactly what he meant when he stated that the center of the cane should be gouged to a thickness of a quart de ligne d'épaisseur or about .55 mm. [5] Having spent three years constructing historical bassoon reeds with this gouge thickness at the center, I concur.

I found this important source by being in the right place at the right time. Otherwise, I never would have thought to look in a discus-
sion entitled Der Orgelbauer. How many other important primary sources on reeds are waiting to be found in writings that have nothing to do with bassoon reeds, the bassoon or even double reeds. So, if any of the readers of this communication know of any other writings germane to historical double reeds, please contact me.

Notes
1. ‘Historical reeds’ refers to reeds constructed using designs found in primary sources and extant reeds believed to be from the 18th to the mid 19-century.
2. ‘Der Flötenborer’ is in turn, found in a section titled ‘Der Orgelbauer’, pages 313-378.
4. This information on the anatomy of the cane plant was provided by Dr. Jean Gerrath, Assistant Professor of Biology at the University of Northern Iowa. Dr. Gerrath is a plant anatomist and has been very helpful with my research on historical bassoon reeds.

The Term ‘Transitional Recorder’

In Issue 92 p3, Jan Bouterse asks who first used the term ‘transitional recorder’ and whether anyone still uses the term in publications. I often use the term in my publications and in talks and lectures. I’ve no idea whether I was the first to coin the phrase. At the time it just seemed an easily understood expression. Twenty four years ago, in 1974, I wrote - Modified or transitional bores might have developed as one “recorder period” merged into the next. Soon after I used the term transitional recorder to describe specifically the sorts of recorders that came between the instruments we know today as renaissance and baroque recorders. Often these have a general outside profile of a renaissance recorder but have a range of the baroque recorder. It seems a fairly obvious term and I would imagine a number of people used it a long time before I did.
In Issue 92 p.3, Jan Bouterse (JB) asks why so few people comment on his articles devoted to research on original recorders, mentioning in particular his Comm 1569 which dealt with instruments by Steenbergen. If what JB claims is true then I’m not certain why his well presented articles attract fewer responses than he thinks they should. But having experienced the same feelings as JB, perhaps the following might put things into perspective.

First, if one is to comment significantly on the findings of JB involving instruments by Steenbergen, it is in many cases essential that those making the comments have measured and played at least some of the same instruments. And thereby hangs a problem. For many people today it is virtually impossible to even touch and measure let alone play original recorders, particularly those in museums. For many years Museums granted ready access to pretty well all instruments to anyone who expressed an interest. Museums woke up to the fact [and some woke very slowly indeed!] that over a period of time, instruments badly handled and carelessly measured were being damaged and at once implemented a total ban forbidding all access. Visitors to the museums could now only look at the instruments, generally through glass. They were often allowed to photograph them, again through glass, and mostly without flash. It’s sometimes possible to purchase instrument plans the quality of which depend very much on who did the measuring and drawing. The outcome of current policies is that a whole generation of younger recorder makers are producing copies of Steenbergen’s, Bressans, Denners etc using someone else’s measurements without ever having touched, measured or played any originals. JB can count himself very lucky that in today’s stringent climate he is granted access to many original recorders, not to mention flutes, oboes etc. Older makers, myself included, can count themselves lucky that they were able to measure before bans were introduced. Indeed, this privilege is still extended to a number of older makers who proved themselves to be careful and gentle measurers. But to comment on JB’s Steenbergen findings, regardless of whether one agrees or disagrees with his conclusions, it is often essential to have met some of the same instruments. And as I’ve pointed out, that is now difficult or even impossible.

Second, even those makers who have played numerous original recorders might be reluctant to comment. And not because they haven’t got worthwhile views to express, but simply because for many people today, particularly recorder makers, there are simply not enough hours in the day. The early music instrument market is competitive and time consuming. To write a reasoned response to JB can take time, sometimes hours and hours. If research is required, even a modest amount, the hours can increase enormously. Many recorder makers find it difficult to devote enough time to their calling, without the extra burden of writing comments on the research of somebody else. All the more so as the hours devoted to preparing replies add nothing to the income.

Third, there are probably numerous keen readers of the FoMRHI Quarterly who have enough time but are not in any way motivated to comment on articles therein. They are just not sufficiently interested in putting pen to paper, even though they enjoy the articles and find them.
stimulating and even provocative. They just can't be bothered! Surprisingly perhaps, these same people may well write intensely researched and time consuming replies to magazines commenting on early Greek history, or on the restoration of early motor bikes, or on how to tune an hydraulic ram for pumping water. It's a matter of where their greatest interests lie and on what subjects they have the strongest feelings. And writers with other interests, like JB with recorders made by Steenbergen, have to be grateful for the few comments their articles generate.

Fourth, some find it quite acceptable to be involved in face to face discussions and even bitter controversies. They might even exchange private correspondence which is strongly critical, hard hitting and perhaps personal. But these same people steer well clear of similar behaviour in public places and never write anything for publication. It might have something to do with thinking it’s simply not cricket. Or even that it’s not done to wash dirty linen in public.

Fifth and finally, I have met FoMRHI members who refuse to offer anything in print for fear of being criticised or even strongly attacked and for these I have the greatest sympathy and understanding. It was such treatment that nearly brought to an end my writing on the recorder. During 1986 an article of mine appeared in an American magazine. It drew a totally unresearched and bitter response, starting a wearying controversy spread over four years before truth prevailed. I found that such an attack can be absolutely devastating and only the encouragement of my late wife, friends and editors persuaded me to continue. One need look no further than previous issues of the FoMRHI Quarterly to see how overly trenchant readers' reactions can be. Perhaps an art form as emotional and as passionate as music will inevitably stir strong responses. The FoMRHI Quarterly is not alone in this world of passion! In both the Editorial of December 1996 and the June 1998 issue of The Recorder Magazine [Letters], at a time when unnecessary bitterness seems to be on the increase, I noticed pleas for moderation and reasonableness when replying to articles and letters.

There are probably other reasons why readers are reluctant to comment on articles or to submit ones of their own and I'm sure JB is not alone in feeling as he does. Many of us wish that every time we have something published, it brings forth generous responses from interested readers. Nevertheless, in spite of the alleged lack of numbers who respond to his articles I hope Jan Bouterse will continue to inform us about one of the great interests in his life - early Dutch woodwind instruments. I very much enjoy his writings. I greatly look forward to his future contributions.
Schmelzer's Violino Piffaro

A *Sonata per chiesa e per camera* by Johann Schmelzer published as a modern edition in 1995 by Musikverlag Alfred Coppenrath contains some unusual instrumentation:

Flauto, violino piffaro, violino I, violino II, viola I, viola II, fagotto, organo.

The flauto (recorder) and the 'violino piffaro' play together throughout as a concertate group separate from the normal violins and violas which themselves form a 4-part choir. The range of the violino piffaro part is quite narrow, from a' to b"; i.e. playable on a normally tuned violin on the top two strings in first position.

It is not clear from the editorial commentary whether the original spelling was 'piffaro' or 'piffero', but since the instrument pairs with a recorder, the intended meaning is presumably not Praetorius' piffaro = shawm = Schallmey-Geigl as the editor describes it, but rather piffaro = pipe or fife = piffero in modern Italian.

I could find no reference to a 'violino piffero' (or piffaro, or pifferato) in any of the standard references. It seems that the only article so far contributed on this instrument is that of Markus Spielmann "Violino pifferato and Viola di Fagotto" in a Viola-Symposium, Innsbruck 1987. I have not managed to consult this article but the gist of it is clear from the editorial commentary.

Web searches on 'violino piffaro' and its variants failed to throw up anything. 'Viola di fagotto' yielded 2 references:

1. a Viola da Gamba Society of America page, which reproduced H. M. Brown's entry in *New Grove*: "a bowed string instrument with the tuning and range of a cello, but played on the arm like a viola. Some of its strings were overspun with copper wire in such a way that it produced a buzzing sound, like a bassoon (fagotto)." No sources or surviving evidence for this are given.

2. several invitations to "get a free adult site membership". This usage of musical instrument terminology was reminiscent of Thomas d'Urfey's *Pills to Purge Melancholy*, but after a couple more mouse clicks I decided not to pursue this particular line of enquiry.

The suggestion in the Spielmann paper is that 'violino piffaro' meant a violin with overspun strings that produced a metallic or silvery sound, contrasting with the gut of the normal violin band. I think it is more likely that the instrument was strung in a scordatura tuning, either partly or completely with metal strings.

Amongst late 17th century Austrian violin music there is a fair amount of multiple stopping, scordatura, pizzicato and other fancy techniques that make effective use of the resonant qualities for which Jacob Stainer's instruments were renowned. The Austrians were evidently keen on creating varieties of sound colour with the violin band for representational or theatrical type music, such as bells, animals, fencing matches etc. So a predilection to experiment with different methods of stringing could be expected.
The entry in John Evelyn's diary for 20 November 1679, as cited in Grove, reads as follows:

"I dind at the Master of the Mints with my wife, invited to heare Musique which was most exquisitely performed by 4 of the most renouned Masters, DuPrue a French-man on the Lute: Signor Batholomeo Ital: on the Harpsichord: & Nicloao on the Violin: but above all for its sweetenesse & novelty the Viol d'Amore of 5 wyre-strings, plaied on with a bow, being but an ordinary Violin, play'd on Lyra-way by a German, than which I never heard a sweeter Instrument or more surpring...."

This is usually taken as the first recorded reference to the viola d'amore; but both early and late types of viola d'amore seem to have been viol-shaped, whereas the instrument referred to by Evelyn was an 'ordinary violin', albeit with 5 wire strings.

Since the sonata requires bowing of only the top two strings, we can dismiss the idea that the violino piffaro was distinguished by overspun strings - unless as sympathetic strings they happen to give an unusual resonant quality to the instrument, which can be ascertained by experiment. Assuming a normal 4-string violin and a date later than 1664, some possibilities are as follows (I = top e" string, etc.):

<table>
<thead>
<tr>
<th>Variant</th>
<th>Strings:</th>
<th>I, II</th>
<th>III, IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>gut</td>
<td></td>
<td>roped or high-twist gut</td>
</tr>
<tr>
<td>2</td>
<td>gut</td>
<td></td>
<td>overspun gut (open or close-wound)</td>
</tr>
<tr>
<td>3</td>
<td>gut</td>
<td></td>
<td>metal</td>
</tr>
<tr>
<td>4</td>
<td>metal</td>
<td></td>
<td>roped or high-twist gut</td>
</tr>
<tr>
<td>5</td>
<td>metal</td>
<td></td>
<td>overspun gut</td>
</tr>
<tr>
<td>6</td>
<td>metal</td>
<td></td>
<td>metal</td>
</tr>
</tbody>
</table>

The usual 'modern baroque' method of stringing is gut for I and II, high-twist or plain gut for III and close-wound overspun gut for IV, but this reflects 19th not 17th century practice.

I carried out a few experiments on a good quality Stainer violin obtained from the West Dean instrument workshop. I should admit though that they were carried out without any real enthusiasm, since I was more concerned with restoring the instrument to its initial playing condition afterwards than with making any serious attempt to get metal stringing to work well.

Since the instrument was initially strung by the modern baroque method, I first replaced the overspun IV with a catline. Tensioning the catline to greater than 4 kg resulted in complete deadening of the instrument's resonance. With the tension lower than 4 kg the instrument played satisfactorily, and the change to IV did not make a noticeable (to me, at least) difference to the instrument's response when playing on the upper strings - with normal tuning, that is. Also, on the basis of the 'equal tension' model, violin stringing must have been fairly light in Austria at that time. Muffat observed in 1698 that German stringing was heavier than French, but it was probably not as heavy as Italian stringing (NRI "Historical violin stringing" data sheet).
Replacement of I and II by steel harpsichord strings (variants 4 and 5) was not a rewarding experience, and turned the instrument into something resembling my 12 year old niece's school violin. This left me puzzled by Evelyn's report, but I did not persist with variant 6. Instead, I tried listening to a recording of Swedish folk tunes played on modern metal-strung fiddles (not scordatura tuned), to try to persuade myself whether the sound could be described as 'sweet' as in Evelyn's account, or 'breathy', which might explain the use of the adjective 'piffaro'. Such judgments are inevitably subjective, and although I was personally not convinced, it is possible that others might be.

Variant 3 (metal strings for III and IV only) produced a rather pleasant echo-like resonance, particularly with the strings tuned a' - e" - a' - e". It was not difficult to persuade oneself that metal strings work well as sympathetic strings. Also, even at the low Corista pitch standard of a' = 380 Hz, for a violin of string stop 32 cm the fl. product (frequency in Hz x string stop in m) of the e" string is 182 m/s, which is actually higher than maximum of around 174 m/s expected to be tolerable with the metal strings available after 1620 (Comm 1593); so the breakage rate of metal strings would have been high if bowed, but probably acceptable if not. However with a shorter string stop of 30 cm, bowed metal strings should be feasible.

Finally I returned to the original gut/overspun gut stringing (variant 2) but this time with the strings tuned a - e' - a' - e" at Corista pitch. This yielded a result similar to variant 3, and made me wonder whether metal stringing was actually necessary. In this case Spielmann may have been essentially correct but was not aware that tuning is at least as critical to the response of a Stainer violin as the strings themselves.

The preferred options for Schmelzer's violino piffaro are therefore:

1. a standard size violin, with gut for the top two strings, and overspun gut for the bottom two strings tuned in octaves with the top two
2. a standard size violin, with gut for the top two strings, and metal for the bottom two strings tuned in unison with the top two
3. a small violin, metal-strung throughout, tuned as in (2)

In all cases the bottom two strings are treated as sympathetic not played strings. Evidence in favour of (2) on other instruments includes variants of the lyra viol, the later type of viola d'amore and the baryton. Evidence in favour of (3) includes Evelyn's account and the early type of viola d'amore. The Hardanger fiddle dated 1651, shown in Grove, has 4 played strings and 4 sympathetic strings, all metal, but it is not clear what its size is nor whether the original bowed strings were metal or gut. I would be interested in any other evidence that could point towards any of the various options. At present I can only conclude that the all-metal version (3) is the one which would contrast most strongly with the normal violin band.
The Tunings and Sizes of the Viole da Braccio: A Correction and New Theory

My deductions of Zacconi's viole da braccio tunings in Comm. 1562 were in error. I was trying to improve on the interpretation by Hayes (1930) of what Zacconi wrote. The original was not consulted because I was intimidated by reports of Zacconi writing in a Venetian version of Italian that is difficult for competent Italian readers to understand, and my competence in reading any Italian is minimal. That was a mistake, since if I had consulted the original, I would have easily found the additional information on the pitches mentioned (omitted by Hayes) that make my interpretation untenable and clearly implies another. This additional information has been presented by Herbert W. Meyers in 'Zacconi's Viola da Braccio Tunings' in GSJ LI (1998), pp. 244-7. I got the tunings right in Table 3 of Comm. 1545 because I wrote that before I questioned the tunings given by Hayes.

Thus the two sections of Comm. 1562 that deal with the family of viole da braccio need revision. The first of these (before 1600), from the middle of p. 41 onwards is withdrawn and replaced by the following:

*Tunings*

Zacconi (1592) wrote that the viole da braccio each had 4 strings. He stated that the range of playable notes on the tenor was from \( A \ la \ mi \ re \) to \( F \ fa \ ut \ fuore \ del \ principio \ di \ essa \ mano \) \( (F \ fa \ ut \ outside \ the \ (Guidonian) \ hand) \). This is the range \( F \) to \( a' \), leading to a tuning of \( F \ c \ g \ d' \). The range of notes on the bass was from \( B \ fa \ b \ mi \ basso \) to \( D \ la \ sol \ re \). This range of \( BBb \) to \( d' \), leads to a tuning \( BBb \ F \ c \ g \). These two tunings are in agreement with both Hayes and Boyden. Zacconi did not give the range of the soprano instrument, but indicated that the highest string of the bass was in unison with \( tra \ le \ corde \ piu \ acute \) (the string amongst the higher ones) of the tenor and with the \( piu \ basso \) (more bass) string of the soprano. Both Hayes and Boyden interpreted the former as the second string of the tenor, but differed in their interpretation of the latter. To Hayes it was the third string of the soprano, giving it the tuning \( cg \ d' \ a' \), while to Boyden it was the fourth string, giving it the tuning \( g \ d' \ a' e'' \). This latter tuning was one that Zacconi gave for the violino (this tuning had only been reported previously for the *dessus* member of the French fiddle family).

It is obvious to me that the interpretation of Hayes is what was meant. If Zacconi wanted to indicate the fourth string, he would have said 'most bass' (il *piu basso*) rather than 'more bass' (*piu basso*). Boyden apparently assumed that Zacconi left the *il* out by mistake. He had every reason to misinterpret Zacconi because he was convinced that the violino was always the treble member of the viole da braccio family.

Boyden's conviction was without any supporting evidence. There is plenty of evidence of the violino playing treble parts with viole da braccio playing lower parts in the 17th century, and of fiddle bands generally being called 'violini' or 'viole da braccio', but no evidence that players of the violino or of the viole da braccio ever failed to maintain their separate identities. Zacconi discussed them separately. In *Orfeo*, Monteverdi appears to be the first to have used them in the same work, but he scored for them separately. The violino had been a respected 'serious music' instrument for some time, but the viole da braccio were previously considered only dance-band instruments.

Evidence against Boyden's tuning is that he has the top string of the soprano two fifths (a ninth) higher than the top string of the tenor, while it is only one fifth higher in the two other Italian reports of the tunings of the members of this family, Lanfranco (1533) before, and Cerone (1613) after. Boyden, in his fusion with the violino, also adds a spurious fourth tuning that the others don't have.
The evidence of sizes in the drawing of the viole da braccio family by Virgiliano (Il Dolceimelo (c. 1600), p. [95]) also argues against Boyden's interpretation. In that drawing, there is a rather larger size difference between the tenor and bass than there is between the soprano and tenor. There is no fourth size. If Boyden's soprano tuning was right, the larger size difference would be between the soprano and tenor, the other way around. The Hayes interpretation fares somewhat better, predicting a smooth progression of sizes, as there is with Virgiliano's drawings of the viols. A proper explanation that fits this evidence is given below.

Sizes:

The pitches given by Zacconi (and correctly reported by Hayes) imply that the viole da braccio were large instruments, all larger than the violino. The sizes can be estimated from the tunings by the method of Comm. 1545, which assumes that the highest stress a gut string would be tuned to was the highest derived from Praetorius's information giving string stops and pitches, and that the maximum open-string ranges of bowed instruments with single string stops through most of the 16th century was two octaves. The most probable pitch standard was corista (a' = about 383 Hz). The possible string-stop ranges would then be 46-55 cm for the soprano tuned to c g d' a', 69-82 cm for the tenor tuned to F c g d' and 103-123 cm for the bass tuned to BBb F c g. No matter how one varies the assumptions within reason, the sizes remain indeed large.

There are a number of 16th century Italian pictures of fiddles, with sizes from rather smaller than a violin to rather larger than a violin, but none anywhere near as large as the tenor and bass sizes above (such large sizes can be seen in pictures of French and German fiddles). This leads me to postulate that the pitches reported by Zacconi represented only the pitches on keyboard instruments that the strings were tuned to, but the actual pitches of the viole da braccio strings were an octave higher. This hypothesis has the advantages over the original octave specification of, in addition to solving the conflict with the sizes in pictures, also fitting the size distribution in Virgiliano's drawing, and providing the correct sizes, as well as the correct size names, of the members of the family that survived through the 17th century.

With this hypothesis, the above sizes are halved. The soprano tuned to c' g' d'' a'' would have a string stop of 23-27 cm, the tenor tuned to f c' g' d'' would have a string stop of 34-41 cm, and the bass tuned to Bh f c' g' would have a string stop of 52-61 cm. The bass would have been suspended against the front of the player's body with the strings vertical. Played this way, there was no impediment to the bass size being close to the maximum of its range for best response on its lowest strings. Comfort in holding against the shoulder would keep the tenor size small within its range. These biases within the ranges explain the relative sizes on Virgiliano's drawing.

The second section on the family of viole da braccio (after 1600) of Comm. 1562 also needs to be withdrawn, and replaced by the following:

**The viole da braccio in Monteverdi's Orfeo (1607), and later**

The viole da braccio were still frowned upon as only dance-band instruments. What changes Monteverdi required to use them in his highly respectable music can be judged by considering the ranges of music they played in Orfeo.

When Monteverdi indicated that a piece was played on viole da braccio, he did not specify which members of the family played which line. The highest parts go as high as a" with an occasional b". They could have been played on Zacconi sopranos tuned c' g' d'' a'', but
would be rather more effective if played on the highest strings of Zacconi tenors tuned $f\ c'\ g'\ d''$. Perhaps Monteverdi had good reason not to use the sopranos in his music. They could have had a shrill sound that was fine for carrying the tune in dance music, but did not blend well enough with the others in a vocal way for his purposes: On the other hand, maybe Zacconi discussed the soprano less than the others because its use was already on the decline.

The lowest part goes down to $G$. It could have been played on a Zacconi bass tuned $Bb\ c'\ g'$, if the player judiciously transposed notes or points that went below $Bb$ up an octave. It would be better though if the bass were tuned a minor third lower to $G\ d\ a\ e'$. If that didn’t happen for *Orfeo*, it happened within a few years afterwards. It is possible that the downward expansion of the ranges of viole da braccio (to 4 strings on all sizes) recorded by Zacconi was because the players inserted soundposts in their instruments (giving stronger bass response), in imitation of the violino or the French violons. Then, when it came to playing respectable music in *Orfeo*, they adopted the roped-gut bass strings (giving richer bass sound) that respectable musicians had been using for some time, which would facilitate tuning to lower pitches and still get as rich a sound as previously was acceptable.

The middle parts could have been been played on Zacconi tenors tuned $f\ c'\ g'\ d''$, but they would be more effective if those tenors were tuned (with roped-gut lowest strings) a fourth lower to $C\ g\ d'\ a'$, then having the same size and tuning as the equivalent member (taille) of the French fiddle band. Again, if they didn’t do this retuning then, they did it very soon afterwards.

We should note here that the sizes of the tenor and bass viole da braccio were the same as they had been in the 16th century, and with their lower tunings, they became our viola and what we now call the ‘Italian bass violin’ (and was then called ‘basso da braccio), without changing either their sizes or the names the players called them.

The resulting set of tunings $f\ c'\ g'\ d''$, $C\ g\ d'\ a'$ and $G\ d\ a\ e'$ are a fourth apart. At this time, only the viole da braccio involved in ‘serious’ music appear to have adopted these tunings. Most still played in dance bands with the original tunings. It appears that these were what Cerone (1613) was referring to when he reported Zacconi-type relative tunings, with old-fashioned sopranos and tenors having only three strings.

There are two pieces of evidence in *Orfeo* that have been used to support the popular theory that when Monteverdi scored for viole da braccio, he expected violini to be amongst them playing the highest lines. One is that when the viole da braccio play, the top line never goes above the compass of the violino in first position. This is also true with the tenor viola da braccio in the above hypothesis (the occasional extension to $b''$ does not pose a problem).

The second is that the list of instruments at the beginning of the print includes the ‘violino piccolo alla francese’ and ‘viole da braccio’, and does not include the ‘violino ordinario da braccio’ (and later ‘violino’) that are specified as soloistic pairs at various places in the score. This can be explained if one assumes that the violino piccolo alla francese was a special instrument only played by violino players (the ones who already played on French types of instruments). Then, when one got a violino piccolo player for a performance, one automatically got a violino player, and he was expected to play that as well.

The strongest argument against the inclusion of the violino amongst the viole da braccio family in *Orfeo* is that there is no evidence of it ever happening before, or after in the 17th century. Of course, they were classed as groups with names such as ‘violini’ or ‘viole da braccio’, but when it came down to the nitty-gritty of instrument names on individual playing parts, they have always remained distinct.

A few more speculations on further developments gets us into the baroque mainstream. Banchieri (1609) introduced two new instrument names, the ‘secondo violino’ tuned to $C\ g\ d'$
and the ‘primo violino per il basso’ tuned to $G\,d\,a\,e’$. To be proper violins by then, they had to have both soundposts and bass bars. His new names could well have referred to new instruments with the same sizes and tunings as the two larger ‘serious music’ viole da braccio, but with added bass bars. We do not encounter these new names again, and can expect that the viole da braccio players took over playing them, and similarly modified their own instruments.

The ‘serious music’ viole da braccio at the highest pitch, when also fitted with a bass bar, would sound just like a violino tuned a tone lower. There could no more be any difference in possible musical functions, and the violino, the senior ‘serious music’ top voice fiddle, displaced the original-tuning tenor viole da braccio. The violino players and the remaining viole da braccio players, though now playing together, had long histories of identifying themselves as players of instruments with particular names, and there was no reason strong enough for them to change these names. Eventually, the dance-band viole da braccio (which Banchieri apparently called *viole da braccio in soprani*), aware of the success of the ‘serious music’ fiddle band with a violino on top, and aware of the successful balance of the French fiddle band (*violons*), with a violin on top and a same-sized tenor also tuned a fourth lower (using roped-gut lower strings), changed accordingly.

This is my story (for now) of the early development in Italy of what we now call the violin family. It is devised to provide reasonable explanations of all of the evidence I know, with no gaps. Other stories that claim to do the same are very welcome. If there is any evidence that I’ve overlooked, or don’t know, that doesn’t quite fit, please let me know, and I can change my story accordingly. It is about time this topic is approached by hypotheses that attempt to explain all of the relevant evidence in detail.

**The modern use of the name ‘violins’ for 16th century fiddles**

Regardless of whether all of the detailed explanations for the evolution of the viole da braccio given here (and of the French fiddles and the violino given in the following Comm.) are the most likely, it is clear that the terminology introduced by Boyden (and followed by many since), which calls all 16th century fiddles ‘violins’, is at least misleading.

The name ‘violon’ was an early 17th century English adaptation of the Italian ‘violino’. Previously, the English used variants of ‘violens’ of ‘vyolons’, which apparently were adaptations of the French ‘violons’. If there was no difference between the Italian and French instruments at the time, there would have been no reason to change the name. The obvious difference was that the violino has been, from its inception onwards, a charismatic individualistic inimitable instrument that could only play the star role in a performing team.

The violin-led Italian fiddle band (followed by the players in the English Royal fiddle band, who had strong Italian connections) must have sounded quite differently from the French fiddle band, which probably still sounded like most 16th century fiddle bands did. I’m just talking about musical style here, not about the differences in instruments.

The violin was always a special type of instrument, and modern use of its name generically for all of the 16th century fiddles gives quite the wrong impression of the playing style of 16th century fiddles. Also, it gives the wrong impression of the innate sounds of the fiddles because they didn’t have bass bars and didn’t use roped-gut lower strings till late, and earlier ones didn’t have soundposts. Historically, he term ‘Renaissance violins’ is a misleading one.
In putting together my story giving explanations for each change in the development of the Italian viole da braccio from the Renaissance into the baroque (see the previous Comm.), it made sense to associate the increase from three to four strings on the smaller members of the family with the introduction of the soundpost, and to associate the dropping to lower pitches with the use of the roped-gut lower strings that ‘serious’ musicians used.

When these innovations were introduced, the violino already had them. It’s use was obviously a French import since its tuning had no Italian precedent, but it was that of the dessus of the French fiddle band from at least as early as 1556, when Jambe de Fer reported its tuning. That importation was probably well after 1556, and it was for use as a soloistic ‘serious’ instrument, probably using its exceptional low resonance in a viola bastarda type of playing style, and incorporating ornamental vocal components that exploited the unfretted fingerboard.

When Jambe de Fer reported the tunings of $g\ d'\ a'$ for the dessus (31-36 cm), $c\ g\ d'\ a'$ for the taille (46-55 cm) and $BBh\ F\ c\ g$ for the bas (103-123 cm), the two highest members of the French fiddle band had four strings each. Early in the 16th century, the French fiddles appears to have been smaller, the same sizes (and probably tunings) as the Italian viole da braccio, and fewer strings for these members, as indicated by the famous drawing of the four philosophers (1516, Fig. 1 in Boyden’s book). The name violons as players of fiddles only became established just before 1550, so the name must have been associated with the Jambe de Fer sizes. To get from the original tunings to those of Jambe de Fer, the top two members of the family would have had to shift about one size larger, and the lowest member to shift about two sizes larger, resting on the floor. What between 1516 and 1556 induced these changes?

The new idea is that the change to four strings on the higher members of the band happened for the same reason as later on the viole da braccio - the introduction of a soundpost. The resulting enhanced bass sound volume (resulting from using a soundpost) seems to have led to an infatuation with lower-pitched sound amongst the fiddle players, and induced the shifts in sizes. Another factor in the shift to larger instruments (at lower pitches) could have been an attempt to enhance respect by emulating the much more respectable viols, which were large (and at low pitches). Jambe de Fer mentioned the respectability difference.

Some time before 1580, roped gut strings became available in Italy, and were quickly adopted by lute players to improve bass resonance and to extend bass range so that the resonance at the bottom was as good as before. Also, they were used by viol players to have six strings on playable instrument sizes tuned to corista. It seems that it was then that Italian musicians acquired dessus violons (either from France or from Italian makers who supplied the French market), fitted roped-gut lower strings to them, and called themselves ‘violino players’.

The French big bass fiddle (bas) of about a metre string stop was a real drag to carry around, so as soon as the players were aware of what roped-gut strings could do for them, they had basses made as small as possible and still keep the bass resonance as good as it was before. The string stop then became about 80 cm. Either then, but possibly somewhat later, the middle member (taille) similarly contracted to a pre-Jambe de Fer size to readily be played against the arm. The reduction in string stop was from about 50 to 40 cm or less. Eventually, the French fiddles acquired bass bars, probably copied from the Italians. In these final states, the set were essentially our violin, our viola and the French bass violin.

Until well into the baroque, the French considered (and played) the violons as a family, distinguished only by size names. It was a team without stars. In contrast, the Italians never properly integrated the violino with the two remaining members of the viole da braccio family as a family. Italian ‘serious’ string music also usually included large viols (usually violoni) as well, so playing would usually not simply be a family activity anyway.
Peg Fitting

It is about time I did a nuts & bolts Comm. Well, sort of. I have been updating and expanding an NRI brochure on instrument maintenance associated with strings. Most of it is standard procedures, and if explanations are called for, they are usually fairly standard. When it came to pegs though, I realised that I didn’t know how pegs really work, and so had to figure it out for myself. Being trained as a physicist helped. Following is the peg-fitting section:

Wood swells or contracts with changing humidity different amounts in different directions. The swelling is most in the tangential direction (going around the circumference in the original log), about half of that in the radial direction (going from the centre of the original log outwards), and hardly at all in the grain direction (along the axis of the original log). Woods of higher density swell or contract more for the same change of humidity than woods of lower density, and harder woods are less compressible, so they exert stronger forces against any hindrance when they change dimension.

Holes that are drilled and reamed in pegboxes go perpendicular to the grain direction. The cross-section of the hole is round when just reamed, but will tend not to remain so when the humidity changes. The dimension of the hole along the grain direction hardly changes at all, but the direction perpendicular to it does. The difference is minimised if the other direction is the radial one (perpendicular to the rings), but this is not necessarily an advantage.

For strength, pegs are turned so that the grain direction is along the peg shaft. When freshly turned, the cross-section of the shaft is circular, but when the humidity changes, it tends to go oval, with the tangential direction swelling or contracting about twice as much as the radial direction.

Consequently, at any humidity other than that at which the pegbox hole was reamed or the peg shaft was turned, there is a tendency to have an oval cross-section peg turning in an oval cross-section hole. This is the norm when we use pegs, and yet they usually still work. If both the peg and the pegbox were made of particularly hard wood, the peg cannot be made to turn smoothly if the humidity is not just right. For pegs to work, we need some of the wood involved to be compressible.

In medieval times, pegs were made of particularly soft hardwoods, and their sponginess made up for any deficiencies in the shaping of the pegbox hole and the peg shaft. In the Renaissance and early baroque, with instruments made by professional makers, pegbox holes and pegs appear to have been more accurately made, and medium-hard hardwoods such as fruitwoods were used for pegs and similar woods like maple and beech were used for pegboxes. There was enough compressibility in each to allow free turning of the pegs once pressed in. Later in the baroque, fashion changed towards pegs being made of hard hardwoods like boxwood and ebony, requiring almost all of the compression to be in the softer pegbox wood.

At the bearing surface of the peg shaft in the pegbox hole, the frictional force depends on the normal force and the coefficient of friction. The coefficient of friction depends on the material on the surface (usually applied to get the friction just right), and the normal force depends on how far the cone of the peg shaft is pushed into the cone of the pegbox hole, and on the compressibility of the wood on each side of that surface. The total friction is the sum over all of the surface in contact.

There is very little compressibility along the grain direction in any wood. Thus the frictional force holding the string’s tension is created by the compressibility of the pegbox wood in the direction perpendicular to the grain direction, and in both directions in the cross-section of the pegbox shaft, modulated by the coefficient of friction. The peg can only turn smoothly if the peg is not pushed into the hole so far that during rotation, the most incompressible dimension...
of the peg-shaft cross-section encounters the relatively incompressible grain-direction dimension of the pegbox hole. If the peg is of a hard hardwood, so that all directions are relatively incompressible, any ovalness in its cross-section limits how far it can be pushed in and still be smooth turning. The grip is then almost all due to the compressibility of the pegbox wood, and to ensure this for a wide range of humidities, the pegbox holes should preferably be reamed during a period of high humidity. I would expect that if the pegbox were made of highly figured wood, where the grain directions get rather mixed up, the compressibility, and thus the grip, would be reduced.

If not prevented from doing so, wood contracts with age. The relative amount in different directions varies the same way that it does when there is a humidity decrease. This raises the humidity that will give a circular cross-section when the wood gets older. The rate of age contraction is greatest when the wood is new. This is the main reason for making instruments out of well seasoned wood. Assuming that the pegbox hole was reamed and the peg shaft was fitted at a particular humidity, with time, at that humidity, these cross-sections tend to become oval. The pegbox hole tends to contract almost exclusively in the direction perpendicular to the grain. If it had a hard hardwood peg in it during that time, it would have been prevented from contracting any more than the peg. Re-reaming the hole to roundness is not necessary because the wood removed would be in the most compressible direction, and the contraction probably would improve grip on the peg. But ovalness in such pegs does require correction because it limits how far the peg can be pushed in and not bind. This is usually necessary within a year of the making of a new instrument, and periodically afterwards.

The procedure for refitting a peg is quite straightforward, though it can be time-consuming. One pushes it into the hole as far as it will go without binding when it is turned, turn it, and pull it out. Observe where the surface of the peg shaft is very shiny, and scrape or sand or file away a small amount only at the very shiny surface areas, and at all of those areas. Then put the peg back in the hole, turn it again, and again observe the shiny areas, which should cover a bit more of the bearing surfaces than before. Remove only the shiny surface again.

Repeat this process until all of the bearing surface in the side of the pegbox nearest the peg head is shiny when the peg is pulled out, and then one is finished. If the bearing surface on the other side of the pegbox gets all shiny first, don't stop. We don't want that end of the peg shaft to be gripped more strongly by the pegbox than the one nearest the peg head. The peg twists a bit between where it is held most strongly and the head being turned. If the twist extends down to thinner (and thus weaker) parts of the peg shaft, there is an increased chance for the peg to split. Also, any twist where the string leaves the peg straightens out when one lets go of the head, and that leaves the string slightly flatter than it was while being tuned.

If the friction against turning the peg is too little to hold the string tension, take the peg out and rub a few strokes of blackboard chalk (or of commercial peg compound) across the shiny bearing surface (mostly on the one nearest the peg head). Work it in with a few turns of the peg in the pegbox. If it still doesn't feel right, repeat. If the friction is too great, applying a few strokes of dried hard soap will improve it. Repeat if necessary.

If an instrument has not been tuned for some time, one may find that a peg is quite stuck in the pegbox. Do not apply unusual force to try to turn it, since that can easily split the peg. A few light taps with a small hammer at the thin end of the peg in the direction of the head will free it.
Robert Smith was born in 1689 and spent most of his life in Cambridge, dying there in 1768. His academic achievements were considerable and he became Plumian Professor of Astronomy and Experimental Philosophy at Trinity, a position he held from 1716 to 1760. In 1742 he became Master of Trinity. He was also the founder of the Smith's Prize for Mathematics which is awarded annually.

His published works include 'A Compleat System of Optics' in four volumes published in 1738. He also published his 'Harmonics or the Philosophy of Musical Sound' in 1749 with a second edition in 1759 and a small work in 1762 entitled 'A Postscript to Dr. Smith's Harmonics upon a Changeable Harpsichord'.

In this article I would like to discuss the reasoning behind Smith's invention of the Changeable Harpsichord, the reconstruction of this instrument and the influence Smith had on other instrument builders.

The 'Postscript'.

Smith heads the Postscript by discussing 'The nature and design of the changeable harpsichord'. "The common harpsichord then", he says, "has no sounds for the extreme notes; yet they are so often wanted that far the greater part of the best compositions cannot be performed without them; except by substituting, as usual, the common sounds Eb, Bb, F C for the extreme sharp sounds D#, A#, E#, B#, &c respectively, and the common sounds G#, C#, F#, B, &c for the extreme flat ones Ab, Db, Gb, Cb, &c; which substitutes differing from the respective extreme sounds by about one fifth of a tone, make very bad harmony.

To prevent this dissonance, the changeable harpsichord has strings ready tuned to the extreme notes, which are written on the Foreboard in couples on one side of each stop, and their respective substitutes in opposite couples on the other side; and when any stop is pushed toward an extreme note or notes as D# and A#, the keys of their opposite substitutes Eb and Bb will strike D# and A# respectively, while the substitutes themselves are silent till that be pushed back to them. The same is to be understood of every stop." Smith goes on to say "For the stops of this harpsichord answer so readily to the touch of the hand, that when a performer has fixed in his mind the order and position of the notes on the foreboard, it is a matter of fact that he soon gets the knack of changing, without loss of time, any sound for another which he foresees is coming into play."

In his 'Remarks' he says "That about five years ago Mr. Kirkman made me a changeable harpsichord, which is much admired by the best judges for the delicacy and distinctness of the harmony; owing not only to a more copious scale and a better tuning than usual, but also to single strings; which when the pens are as strong as they ought to be, throw out clearer and
clearer and distincter sounds than unisons, and loud enough for very large rooms, especially playing Sostenuto, as on the organ. This unexpected degree of loudness I attribute not only to the stronger pens, but partly to the weaker pressure of fewer strings upon the belly of the instrument."

It is evident from his remarks that the instrument that Kirkman built for him had four handstops, using 20 notes to the octave, the other 4 strings being removed. He then illustrates a design for a more comprehensive design that has six handstops and utilises 24 notes to the octave. The arrangement of the stops on the foreboard is shown below:

\[
\begin{array}{cccccccc}
Fb & E & Gb & F# & Ab & G# & Bb & A# \\
Bbb & A & Cb & B & Db & C# & Eb & D# \\
\end{array}
\]

At the end of the Postscript there are a series of drawings showing the arrangements of the stop levers, registers and layout of the jacks. Each register puts in play the designated notes throughout the compass of the instrument. All the information is there to be able to build a harpsichord on the principals outlined by Smith.

In 1978, out of interest, I built, or rather, re-worked a harpsichord that I had, and converted it to a changeable harpsichord. The instrument was one I had built, some years previously, in an Italian style, having two 8' set of strings and a compass of B to e". The registers were made of brass. The registers were connected to the stops of the foreboard by means of bell cranks and rods. Smith's arrangement of actuating the registers by directly connecting them to the stop levers was not possible due to lack of space in my instrument. The jacks were quilled with crow. As the movement of the jacks from one set of strings to the other is small, the length of the quills are critical. The amount of movement of the registers can be regulated by adjustable end stops. At the first trial the friction of registers lying on top of each other made the action of the hand stops hard to manipulate, so it was decided to separate the registers by spacers, which greatly facilitated the movement of the stops.

Smith suggests two types of temperament for tuning the harpsichord, in either what he calls Equal Harmony or Mean Tone. In both these temperaments he supplies the number of beat notes per 15 seconds for each interval. As the prevailing temperament in use at the time was Mean Tone, I decided to use this to tune the instrument. A table of the intervals is given below. To ensure that the tuning was accurate and repeatable I constructed a frequency counter which was coupled to an audio tone generator. The generator was switched in steps which were approximate to the intervals of the scale, but could be fine-tuned by a separate control. I designed the equipment so that it could be run from the mains supply or batteries, and therefore portable.

Before the first demonstration of the harpsichord, an interesting discovery was made regarding the music for this instrument. A friend, whilst browsing round a sale room, noticed a copy of Corelli's music entitled "X11 Sonata's or Solo's for a Violin & Bass or Harpsichord Composed by..."
Arcangelo Corelli. His fifth Opera. Published by J. Walsh. The most surprising thing was that it is signed, next to the title page by Robert Smith Trn. Coll. On the opening of each sonata is a note in Smith's hand of what stops to draw for that particular piece.

The first public demonstration of the harpsichord was given at the Cleveland Lodge Summer School on August 13th, 1981. A lecture recital was, on the 12th November 1982, given at the Holburn Museum at Bath with the late Alexa Fitzclarence (The Countess of Munster), changeable harpsichord, and Petronella Dittmer, violin. The works played included sonatas by Herschel, C. P. E. Bach and Haydn. A further lecture was given at the Institute of Advanced Musical Studies, King's College, London, with Alexa Fitzclarence performing the musical illustrations, on 17th November 1982.

Very little is known about the subsequent history of the changeable harpsichord after the death of Dr. Smith. The only reference to the instrument that could be found was in an advertisement appearing in Boddly's Bath Journal for the 24th. February 1772 for a concert. "Mr. Herschel's Concert will be on Friday 20th at Mr. Gyde's Great Room. The vocal Part by Signora Farinella (late from the Opera at Berlin). The programme to include 'A sonata on the Changeable Harpsichord and a Concerto on the Hautboy by Mr. Herschel, the first violin and a solo by Mr. Shaw junior." It was not unusual to use musical instruments of a curious or scientific nature at public concerts in order to attract audiences. Shortly after the advertisement for the changeable harpsichord there appeared in the Bath Chronicle on 22nd April 1772 “The Pantaleon, on which the two Mr. Noels' are to perform, at Mr. Gyde's on Friday next, is a musical instrument eleven feet long, has 376 Roman strings, and we are desired by several Gentlemen who attended the rehearsal of some of the new pieces lately composed for it, to express their approbation for an instrument, which at the same time that it imitates most other musical instruments in tone, is superior to all in its power and harmony”.

In 1768 a new organ was built by Thomas Parker for the Foundling Hospital in Lambs' Conduit Fields. This instrument incorporated some of the principals of Smith's changeable harpsichord. The organ had, apart from the usual appointments, an arrangement of levers placed near the draw stops to the left and right of the organ. These levers, when moved centrally, put the organ in the common tempered mode. The left-hand levers would substitute the normal Eb, Ab and Bb in every octave.

John Marsh was an astronomer, composer and mathematician of some standing. He had many friends in Bath, including William Herschel. In his "Theory of Harmonics" (1809) and more graphically in his diary for 1800, he gives an account of the Foundling Hospital organ: "I called on Mr. Printer at the Foundling Hospital in order to try the organ there, which I played on for some time and was pleased with its tone and power, and with a contrivance therein for remedying in some degree the defects of tuning in common keyed instruments, which in this organ was done without any additional keys to perplex the fingers, but by means of stops or registers, by setting which before beginning any piece or voluntary the Eb, Ab and Bb in every octave
are either or all or any of them, changed into D#, G# and A# for which notes there were, of course, different pipes withinside." Marsh was also deeply interested in the problems of temperament and in his diary for April 2nd. He writes "Having some time before invented, and settled, a plan with Mr. England of a small organ of one stop, consisting only of one octave and one half from middle C upwards, but with all the quarter tones and some of the extreme flats and sharps, containing twenty five notes of different sounds within the octave. I, on Wednesday April 22nd, received it and on the next day put it in my music room where it makes a neat piece of furniture. As it has so many keys within the octave, it of course could not be played upon, it being merely for the purpose of elucidating the phenomena of the monochord and theory of tuning, harmonics &c." Later Marsh took a mature view of the Foundling Hospital organ for he remarks: "But here another evil arises, that of taking of the hand at any occasional change of key, or transition from a key with sharps to one with flats, which cannot always be conveniently done. In order probably to render this unnecessary, an invention has been lately been applied to an organ exhibited at Mr. Elliott's at Tottenham Court, for changing all the short keys of an organ at once, from sharp to flats, and vice versa by means of a pedal movement. But this intended improvement removes one evil by introducing another. For all the short keys being necessarily either sharps or flats, some keys are rendered more imperfect than in common organs. For example; the minor keys of D and G although they both require B to be flat, and one of them the E also, must each have either C# or F#, for the leading notes; and in the chord of the diminished seventh, upon either of these last mentioned notes, a sharp and flat are both wanted at the same time, as in the chords C#, E, G, Bb and F#, A, C, Eb, which notes on this organ, cannot be obtained, I therefore reckon the contrivance in the Foundling Hospital to be the best, notwithstanding the necessity of occasionally taking off the hands from the keys."

Many patents were taken out with the object of improving keyboard instruments. One such patent was taken out by the Reverend Henry Liston, in conjunction with Charles Broughton*. This he called The Euharmonic Organ built for him by Flight and Robson circa 1810. They had already built a barrel and finger organ for the Earl of Kirkwall in which a three slider chest was used and were engaged in building the mighty Appolonican organ, with its 5 keyboards, two barrels and some 1900 pipes, which was to be finished in 1817. In 1812 Liston had published a book entitled 'Essay on Perfect Intonation. By the Reverend Henry Liston Inventor of the Euharmonic Organ'. Liston proclaims the benefits of his improved organ as: "1. To supply the extreme sharps and flats so that, at the will of the performer the same finger key may produce C# or Db etc. 2. To enable the performer, occasionally, to alter the pitch of the notes as is done on the finger board of the violin or violoncello (instead of tempering the intervals in a fixed scale, in order to divide the imperfection) so that the consonances struck may always be perfect. The first of these improvements was long ago proposed by the ingenious Dr. Smith, then of Cambridge, and fully explained by him in his 'Harmonics'. From him I have adopted it, though with several alterations of some importance." In the preface to Liston's book there are a number of testimonials in praise of his 'Euharmonic Organ', one such testimonial from
Samuel Wesley deserves to be quoted in full for its sheer diplomacy.

Hampstead Road, June 1811.

Mr. Samuel Wesley presents his respects to Mr. Liston, and, before he gives his decisive opinion upon the merits of his ingenious improvement, must beg leave to premise, that S.W. has been accused of inconsistency with regard to his judgement upon the contrivance of Mr. Hawkes and Mr. Loeschman, both of whom have invented a method of mending the old state of the harmony on the organ, and to both of whom he gave great credit for their discoveries. Because Mssrs. Hawkes and Loeschman effect their purpose by different means, it has been erroneously presumed this argument, (or rather fallacy) as Mr. Liston proceeds upon a principal different from either of the foregoing artists, if S.W. approves of this last contrivance, he must necessarily contradict and retract his sentence respecting the other two. Whereas the fact is quite otherwise concerning all three. The truth is, that ALL the methods of improving the chords are very meritorious, and have their several claims to praise and encouragement.

Mr. Wesley approved of Mr. Hawkes's invention on account of its facility and simplicity in the action. He also approved of Mr. Loeschman's because it carries the perfection of the harmony to a greater extent, although, by the necessary addition of pedals, the action unavoidably more complicated. He now has no hesitation in yielding his to most unequivocal approbation to Mr. Liston's very masterly scheme of improvements, which, though requiring considerable study and practice to render quite familiar to the performer, is yet attended with AS LITTLE difficulty, (when its wide extent is duly reflected on,) as any mechanical contrivance can be expected to have, where such minute intervals of sound are truly obtained.

Mr. Wesley, therefore, has much satisfaction in assuring Mr. Liston, that he regards his invention as highly ingenious, quite practicable in execution, and a great and delightful acquisition to a nice musical ear.*

It would be fitting to quote part of the concluding paragraph from John Marsh's "Theory of Harmonics". He is here reflecting on temperament and says: "To conclude, I can see no reason why perfection is more to be expected in music than in anything else, in this sublunary state, and am therefore induced to think, that compleat satisfaction in this respect, must be reckoned amongst the blessings of a future state, wherein we may doubtless reasonably hope to enjoy the most perfect harmony and melody united together, and which we have reason to think it will be part of the employment of the blessed, to chant the praises of their Creator, in ecstatic Hallelujahs, when systems of tuning shall no longer perplex us, and TEMPERAMENT SHALL BE NO MORE."

Since writing this article an organ attributed to Thomas Parker, having remarkable similarities to the organ at the Foundling Hospital, has just been restored and is now part of the Russell Collection in Edinburgh.
<table>
<thead>
<tr>
<th>Note</th>
<th>Freq, Hz</th>
<th>Cents</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>263.2</td>
<td>0</td>
</tr>
<tr>
<td>C#</td>
<td>275.0</td>
<td>76.1</td>
</tr>
<tr>
<td>Db</td>
<td>281.6</td>
<td>117.1</td>
</tr>
<tr>
<td>C##</td>
<td>287.4</td>
<td>152.1</td>
</tr>
<tr>
<td>D</td>
<td>294.3</td>
<td>193.2</td>
</tr>
<tr>
<td>D#</td>
<td>307.5</td>
<td>269.2</td>
</tr>
<tr>
<td>Eb</td>
<td>314.9</td>
<td>310.3</td>
</tr>
<tr>
<td>E</td>
<td>329.0</td>
<td>386.3</td>
</tr>
<tr>
<td>E#</td>
<td>343.8</td>
<td>462.4</td>
</tr>
<tr>
<td>F</td>
<td>352.0</td>
<td>503.4</td>
</tr>
<tr>
<td>F#</td>
<td>367.8</td>
<td>579.5</td>
</tr>
<tr>
<td>Gb</td>
<td>376.6</td>
<td>620.5</td>
</tr>
<tr>
<td>F##</td>
<td>384.3</td>
<td>655.5</td>
</tr>
<tr>
<td>G</td>
<td>393.6</td>
<td>696.6</td>
</tr>
<tr>
<td>G#</td>
<td>411.2</td>
<td>772.6</td>
</tr>
<tr>
<td>Ab</td>
<td>421.1</td>
<td>813.7</td>
</tr>
<tr>
<td>A</td>
<td>440.0</td>
<td>889.7</td>
</tr>
<tr>
<td>Bbb</td>
<td>450.6</td>
<td>930.8</td>
</tr>
<tr>
<td>A#</td>
<td>459.8</td>
<td>965.8</td>
</tr>
<tr>
<td>Bb</td>
<td>470.8</td>
<td>1006.8</td>
</tr>
<tr>
<td>B</td>
<td>492.0</td>
<td>1087.9</td>
</tr>
<tr>
<td>Cb</td>
<td>503.8</td>
<td>1124.0</td>
</tr>
<tr>
<td>B#</td>
<td>514.0</td>
<td>1150.0</td>
</tr>
<tr>
<td>C</td>
<td>526.4</td>
<td>1200</td>
</tr>
</tbody>
</table>

Table of intervals in Equal Harmony

<table>
<thead>
<tr>
<th>Note</th>
<th>Freq, Hz</th>
<th>Cents</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>263.45</td>
<td>0</td>
</tr>
<tr>
<td>C#</td>
<td>274.63</td>
<td>72</td>
</tr>
<tr>
<td>Db</td>
<td>282.25</td>
<td>120</td>
</tr>
<tr>
<td>D</td>
<td>294.34</td>
<td>192</td>
</tr>
<tr>
<td>D#</td>
<td>306.84</td>
<td>264</td>
</tr>
<tr>
<td>Eb</td>
<td>315.47</td>
<td>312</td>
</tr>
<tr>
<td>E</td>
<td>328.87</td>
<td>384</td>
</tr>
<tr>
<td>E#</td>
<td>342.83</td>
<td>456</td>
</tr>
<tr>
<td>Fb</td>
<td>347.1</td>
<td>477</td>
</tr>
<tr>
<td>F</td>
<td>352.47</td>
<td>504</td>
</tr>
<tr>
<td>F#</td>
<td>367.44</td>
<td>576</td>
</tr>
<tr>
<td>Gb</td>
<td>377.77</td>
<td>624</td>
</tr>
<tr>
<td>G</td>
<td>393.81</td>
<td>696</td>
</tr>
<tr>
<td>G#</td>
<td>410.54</td>
<td>768</td>
</tr>
<tr>
<td>Ab</td>
<td>422.08</td>
<td>810</td>
</tr>
<tr>
<td>A</td>
<td>440.0</td>
<td>880</td>
</tr>
<tr>
<td>A#</td>
<td>458.69</td>
<td>960</td>
</tr>
<tr>
<td>Bb</td>
<td>471.58</td>
<td>1008</td>
</tr>
<tr>
<td>B</td>
<td>491.61</td>
<td>1080</td>
</tr>
<tr>
<td>Cb</td>
<td>507.78</td>
<td>1136</td>
</tr>
<tr>
<td>B#</td>
<td>512.48</td>
<td>1152</td>
</tr>
<tr>
<td>C</td>
<td>526.90</td>
<td>1200</td>
</tr>
</tbody>
</table>

1 Jacob Kirkman. 1710-1792.
3 My thanks to Guy Oldham for his kind efforts.
4 The Italian Institute kindly gave permission to photo-copy the first pages of each sonata.
5 The late Alexa The Countess of Munster was a direct ancestor of William Herschel and did much to popularise his music.
6 Reference to this can also be found in “The celebrated quarrel between Thomas Linley (senior) and William Herschel: an episode in the musical life of 18th Century Bath.” By Ian Woodfield B Mus M Mus. Published by the University of Bath.
7 Two other patents were taken out about the same time, one by David Loeschman fl. 1802-1829, the other by William Hawkes, who also wrote a work entitled “The theory of Musis and the Principal of Temperament applied to the Tuning of Keyed Instruments” published in 1805.
Keyboard instruments building in Abruzzo (Central Italy)

Gianfranco Miscia

Keyboard instrument making of the 19th century in Lanciano (Abruzzo, Italy)

Lanciano is the main town of the Frentana area in southern Abruzzo, which became a bishopric in 1515 and an archbishopric in 1562. The organ building tradition in Lanciano may date back to the 16th century, as the musical traditions of the town were already consolidated at that time. Among the most important musicians of Lanciano we must mention Ippolito Sabino, composer of madrigals in the 16th century, Fedele Fenaroli, teacher and composer in the 18th century, and Francesco Masciangelo in the 19th century. This is the general context in which the keyboard instrument makers worked and about which we have information from reliable sources.

Important data about organ builders born or working in Lanciano were collected by Corrado Marciani. From his studies we know that Andrea and Jacobo Vicentino came to Lanciano from Venice in 1542 and that they probably built the organ of the Annunciata church, which was then the cathedral. It also appears from his work that Francesco Paolo Sabino, an organ builder born in Lanciano, in 1551 signed a contract in Vasto (not far from Lanciano) for the construction of an organ for the San Salvo church. There is no doubt that the most important organ builder was Camillo Sabino, who built the organs of Santa Maria del Ponte and S. Francesco in Lanciano, of the cathedral of Ascoli Piceno in 1561, of the churches of S. Maria Maggiore in Ripatransone (1564-1565), of S. Pietro Martire in Ascoli (1569), of S. Agostino in Offida (1573), of the cathedral of Termoli and of the Chiesa Maggiore of Guglionesi (1574). The characteristics of these last two instruments are known from the contracts written in Lanciano. The organs had 45 keys, 9 stops with "lo tremolante, lo tamburro, lo rosignolo seu l'uccellino" (tremulant, drums, nightingale or bird). A sum of 360 ducats was paid for these organs.

We know that all through the 17th century the activity of the organ builders' family Sabino flourished, but information deriving from the 18th century is scarce, apart from the findings of Marciani. In Marciani's opinion the influence of the Neapolitan school of Felice Cimmino reached Lanciano, in contrast with the influence of the Venetian school to which all of the Sabino organ builders belonged. Owing to the lack of documents it is impossible better to describe what happened in Lanciano during the 18th century. It is evident that somebody took care of the instruments, as the activity of the Cappella Musicale of the Santa Casa del Ponte church in this period was remarkably intense. In the 18th century the Cappella was directed by Francesco Antonio Fenaroli,
father of the teacher and composer Fedele Fenaroli. Reliable information only became available around the end of the century, when the name of Giovanni Gennari first appeared. Giovanni Gennari was born in Rovigo and was the founder of the organ builders' family which became the pivot of the art of organ building in the 19th century in the Lanciano region. In the register of statements of the Lanciano community we read that in 1793 the musician Angelo Gamberale (who worked for the Cappella Musicale of the cathedral since 1777) invited the board of administrators of the Santa Casa del Ponte to accept the proposal made by "Giovanni di Gennaro, veneziano" for the construction of a new organ. The proposal was accepted in 1794 and the organ builder Gennari moved to Lanciano, which we know from the statement that in 1802 Giovanni Gennari was charged "with the maintenance of the clocks and organs of the cathedral for the annual salary of 30 ducats, besides the loan of the house in which he lives". We happen to know the details of the organ built by Giovanni Gennari for the Lanciano cathedral thanks to his son Quirico, who described this organ in his request to receive the commission to build the organ of the Neapolitan church of S. Francesco di Paola. The description of the organ built in Lanciano by him together with his father should attest to the skill of the organ builder and the quality of the organ design.

Moreover, from two written statements of organ builder Camilo Mascia of Agnone and Eusanio Gennari, another son of Giovanni Gennari, dated 1848 and 1849 we also know the characteristics of the second organ of the cathedral of Lanciano. In brief, the great organ consisted of two "ripieni" (the high "mixture" and the low one) with their own keyboard of 47 notes... On the front there are 31 tin pipes, the lowest of which is Cesolfaut (C), corresponding to the first key of the keyboard.

The organ played by the first keyboard, corresponding to the upper "ripieno", has 35 stops:
Principale Basso = Principale Soprano = Secondo principale = Prima Ottava = Seconda Ottava = Prima Quintadecima = Seconda Quintadecima = Primanova = Seconda Primanova = Vigesimaseconda = Seconda Vigesimaseconda = Vigesimasesta = Seconda Vigesimasesta = Vigesimanona = Seconda Vigesimanona = Trigesimaterza = Seconda Trigesimaterza = Trigesimasesta = Seconda Trigesimasesta = Voce Umana = Flauto in Ottava = Flauto in Duodecima = Cornetta = Violone Basso = Violone Soprano = Tromboncini Bassi = Tromboncini Soprani = Tromboni reali = Tromboni mezzi reali = Tromboni mezzi reali armonici = Contrabassi = Ottava de' Contrabassi = Quinta de' Contrabassi = Tamburro = Banda = Piattini e campanelli....

The second keyboard (organ) has 16 stops: Principale Basso = Principale Soprano = Ottava = Quintadecima = Decimanona = Vigesimaseconda = Vigesimasesta = Vigesimanona = Trigesimaseconda = Trigesimasesta = Voce Umana = Flauto in Ottava = Flauto in quinta = Cornetta = Violoncello Basso = Violoncello Soprano...
As regards the second "small" organ it reads in the document: This organ consists of 7 stops: Principale = Ottava = Quintadecima = Decimanona = Vigesimaseconda = Voce Umana = e Flauto in Quinta. The keyboard has 45 notes and the short octave in the bass and it has [on the front] 15 tin pipes, the lowest of which is Elami (E), corresponding to the 13th keyboard note...

From the very detailed report about repairs, materials and costs we know that there were eight bellows for the great organ and two for the small one. From the second report, written one year later by Eusanio Gennari, we find out the name of the builder of the great organ: "Me, organ builder, son of Giovanni Gennari, constructor of the organ of the Holy Casa del Ponte ..."

We know that 15 of the 2266 pipes were made of wood. After moving to the Abruzzi, Giovanni Gennari did important work in other towns apart from Lanciano (for example, in 1809 he built the organ of the cathedral of Città San Angelo), even if it is certain that he and his family were requested to work in the Frentana region. In fact, almost all of the members of Gennari's family remained engaged in their father's activity: Eusanio and Quirico, Giovanni's sons, were organ builders; Gaetano and Lelio, Quirico's sons, also worked as renowned organ builders. Another constructor of musical instruments, Quirino, was the son of one of Giovanni's daughters, Cecilia, who was married to Nicola Vincenzo Cipollone. Luigi Di Diego, together with his brother, followed Quirino Cipollone in the activity of pianoforte maker and tuner.

About all these persons we have information. As early as 1853 Eusanio restored "a regola d'arte" (according to the rules) the great organ and in 1865 he was in charge of its maintenance, after the "maestro di cappella" Francesco Masciangelo had suggested him to become responsible for its care. In a letter of 2 June 1865, Eusanio recalls that he was "the brother of the renowned organ builder Mr Quirico, who cooperated with many others in the restoration of the big organ of the church of S. Francesco di Paola in Naples". In 1853, the period of Eusanio and Quirico Gennari's activity, the above-mentioned Quirino Cipollone also worked in Lanciano. He was responsible for the care of the organ of the cathedral, as appears from his letter of 24 June 1864 in which he demands "the 12 ducats" for the care of the Santa Casa organ. Of the same Cipollone we have an interesting clue: he built the pianoforte which was subsequently in possession of the composer Francesco Masciangelo. The instrument, numbered 56, is preserved by the heirs in Lanciano. When in 1855 Quirino Cipollone was registered as "organista" in the register of Lanciano he must have been 47 years of age, as he was born on 11th January 1810 (he died on 24 July 1864). Formerly he was called "maestro di musica" (composer and director). Quirino Cipollone lived in the Civitanova quarter; he was married and had six children: Mattia, Vincenzo, Teresa, Lucia, Maria Concetta and Maria Bambina. Mattia Cipollone, still a renowned composer of Lanciano, studied in the San Pietro a Maiella Conservatory in Naples and made a brilliant career; he was called "musico" at the age of 21 in 1858. In fact he was accepted
as honorary member of the Santa Cecilia Academy in Rome in 1869. Subsequently he became a friar and concluded his life as "maestro di cappella" of the Santa Maria degli Angeli church in Assisi.

We also have interesting information about Gaetano Gennari, son of the aforesaid Quirico Gennari and Diomira de Giorgio. In 1866 he presented a "project for repairing the organ of the Lanciano cathedral" and in 1876 he declared to have worked at the great organ there. Another name found in the documents of the 19th century is that of a certain Vinceslao (or Venceslao) Mastrangelo working in Lanciano in 1871. In a letter to Filippo Sargiacomo, member of the "Congrega di Carta" (charity board), which had the superintendency over the capella musicale of the Santa Casa del Ponte church, the composer Francesco Masciangelo recalls the organ repairs "carried out by Mastrangelo, a very skilful Roman organ builder, as Gaetano Gennari was not available at the time". In other letters by Sangiacomo of the same period we read that the organ builder Venceslao Mastrangelo repaired the small organ, which "is situated above the sacresty door [...] so as to be playable in every service for the people".

In the 20th century the history of the organs of the Lanciano cathedral is documented by the proposal, dated 21 May 1900, to have the organ restored by Augusto Pizzagalli, organ builder of Ortona. We know that in 1973 the organ had already been electrified.

More interesting is it to know that the sons of the tailor Sebastiano Di Diego, Luigi (born 6 March 1826) and Giuseppe (born 8 March 1836) changed their activity of organ builders to that of pianoforte makers. This activity lasted probably till around the end of the 19th century. Luigi Di Diego worked and was registered as pianofortista, while Giuseppe Di Diego was not registered. Various types of instruments by their hand have been documented, such as "pianoforti da studio a cinque ottave e mezzo a due corde da L. 250, piani a sei ottave da L. 300, a sei ottave e mezzo a tre corde (corde vestite) da L. 450, ed a 7 ottave pure a tre corde da L. 500". About the activity of pianoforte maker and tuner Luigi (died 9 October 1898) and his brother Giuseppe and his son Nicola, we read in an article of an Abruzzi local newspaper:

"Who does not remember the late Giuseppe Di Diego and his skill in tuning pianofortes? His son Nicola has already proved to be at least as capable as his father, and has been invited to work not only in Lanciano but also out of town. As he studied with local and foreign masters and his ingenuity is brilliant, his success could not be less than it is. Actually, there is another gifted craftsman of Lanciano we ought to mention to the readers, Luigi di Diego, uncle of Nicola. He is an aged but skilful pianoforte maker and he is presently finishing a pianino which is a juwel of art and precision, a real token of Luigi's skill."

Owing to the commercial requests of the trade, the organ building tradition in Lanciano continued until after the end of the 19th century.
NOTES

2 Ibid.
6 Ibid.
8 His name is printed as “Maestro di Cappella di Lanciano” in the libretti (preserved in the Biblioteca Comunale di Lanciano) *Le glorie di S.Chiara nella sconfitta de’ mori* (1729); *Le glorie di S. Chiara nella sconfitta de’ saracini* (1730); *Il merito coronato di S. Chiara* (1730); *Per la beatificazione del gran servo di Dio fedele da Sigmaringa* (1730); *La morte gloriosa* (1733) and *Serenata* (1729). In addition two libretti exist, *La verginità trionfante nei cimenti del senso*, performed in Penne in 1732, and *II trionfo adriatico*, performed in Atri in 1713, where Francesco Fenaroli is mentioned both as musician and “maestro di cappella” of Atri.
12 Archivio Storico Diocesano di Lanciano, Fondo della Santa casa del Ponte, Busta V G-10, fascicolo organo, sottofascicolo 1800.
13 The description was first presented in the article of Paolo Peretti quoted previously.
14 The information is derived from an autograph of Francesco Masciangelo (1823-1906), composer of Lanciano, which presents the definition of musical notes as it was in use in this period, based on the medieval system of Guido D’Arezzo: “L’Alfabeto musicale consists of seven letters, A.B.C.D.E.F.G.. A is named alamire and solfeggiando La; B is named Bemi and solfeggiando Si; C is named Cesolfaut and solfeggiando Do; D is named Delasolre and solfeggiando Re; E is named Elami and solfeggiando Mi; F is named Faut and solfeggiando Fa; G is named Gesolreut and solfeggiando Sol.”
17 Paolo Peretti, *op. cit.*
Archivio Storico Diocesano di Lanciano, fondo della Santa Casa del Ponte, Cappella musicale, b. V G-10.

Archivio Storico Diocesano di Lanciano, fondo della Santa Casa del Ponte, Cappella musicale, b. V-G/5 n.1, lettera del 21 dicembre 1865.

Archivio Storico Diocesano di Lanciano, fondo della Santa Casa del Ponte, Cappella musicale, b. V-G/5 n.1, fasc. 1865.

Archivio Storico Diocesano di Lanciano, fondo della Santa Casa del Ponte, Cappella musicale, b. V-G/5 n.1, fasc. 1864.


Edoardo Di Diego, Le arti e le industrie in Lanciano alla fine dell'800, Avezzano, Adelmo Polla, 1982. Ristampa anastatica dell'edizione di Lanciano 1877.

In the 11th volume of the Fogli di Famiglia, c. 977, kept in the historical archives of the city of Lanciano, the following members of the family Di Diego are listed as inhabitants in via Garibaldi:

-Di Diego Luigi, son of Sebastiano and Marciani Angela Maria, head of the family, born in Lanciano on 6 March 1826 (Stato civile, atto n.151 del 1826), living in Lanciano, married with Rachele Valentini, working as pianofortista. Died 9 October 1898.

-Di Diego Giuseppe, brother of the aforesaid, born in Lanciano on 8 March 1836, working as pianofortista. Died 7 April 1881.

-Di Diego Violetta, daughter of Luigi, born in Lanciano on 18 October 1855, working as pianofortista.

-Di Diego Angela Maria, daughter of Luigi, born in Lanciano on 18 February 1862, working as pianofortista.

-Di Diego Francescopaolo, son of Luigi, born in Lanciano on 19 December 1863, working as pianofortista. Died 7 July 1877.

"I 3 Abruzzi", A.II, n.27, Lanciano, 6 July 1889.
The Cipollone fortepiano

The instrument has a label Quirino Cipollone / [mark] / Lanciano; its serial number, 56, is clearly legible on a label inside the instrument. It is unknown how many instruments Quirino Cipollone built. He was born in Lanciano on 11.01.1810, where he stayed in the quartiere di Civitanova till his death on 24.07.1864. Informations about his activity as organist and organ keeper constitutes the historical section of this Comm. The fortepiano was in possession of the composer Francesco Masciangelo, who lived in Lanciano and subsequently was used by pupils of the Lanciano seminary. It is not clear when the instrument passed to the Masciangelo heirs.

Description of the instrument

The fortepiano is 177 cm long, 116 wide and 340 high, has a chromatic compass from FF to g''' (75 keys) with triple choirs from B to g'''', double choirs from FF to A, triple pinning on bridges from AA to g'''. The action is a typical "viennese" of the twenties' (see the drawings) The instrument has the shape a grand-piano and his structure consists of a solid bottom and presumably a number of internal braces which aren't visible. A wrought-iron brace runs parallel to the strings and it is connected to the lower iron spacer.

State of conservation

The case of the instrument is complete, the action lacks the F key and a few hammers; the dampers are totally lost and the mechanism for moving the registers by knee levers isn't complete. Most of the strings are presumably original and others earlier than the end of the 19th Century (when the instrument went out of any use).

It is interesting to point out, that a few key tops (key covers) from F to g'' are worn out much more than other ones. The most intensive use is demonstrated particularly in the key tops (key covers) from G to d', where holes were dig out in the tops (key covers) by player's nails or the top (key covers) corners deeply excavated.

The front frame moved far on the spine side for about 5 millimeter. The lid had three hinges along the spine. Now the lid is broken into some parts and its front part is lost.

The case without mouldings or decorations stands on three turned legs. The external parts of the case are veneered with oak-wood; the soundboard is of fir and the bottom of spruce.
The instrument appears to be carefully worked, like a common "viennese". The fortepiano is still preserved, but in poor conditions, by the heirs in Lanciano.

Organological data according to the schedules of Leipzig University Musical Instrument Museum.

Builder: Quirino Cipollone, Lanciano (1810-1864)

1 - The name and city are legible on the label of paper framed on the nameboard. The serial number, 56, is written on another label of paper glued on the inside of the instrument.

2 - Range from FF to g''', 210 brass strings, 365 iron strings of the following sizes (mm).

Tuning pins, diam. 7 mm., vertical, disposed in groups of two and three. Bridge on the soundboard of nearly constant dimension and cross section (see on the drawings) h 18 mm, b 23-25 mm; nut h 9 mm, b 23 mm.

<table>
<thead>
<tr>
<th>Notes</th>
<th>Length</th>
<th>Diameter</th>
<th>Material</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF</td>
<td>1263 mm</td>
<td>1.41 mm</td>
<td>brass</td>
<td>wound</td>
</tr>
<tr>
<td>CC</td>
<td>1206 mm</td>
<td>1.54 mm</td>
<td>brass</td>
<td>plain</td>
</tr>
<tr>
<td>F</td>
<td>1135 mm</td>
<td>1.18 mm</td>
<td>brass</td>
<td>plain</td>
</tr>
<tr>
<td>c</td>
<td>972 mm</td>
<td>1.18 mm</td>
<td>brass</td>
<td>plain</td>
</tr>
<tr>
<td>f</td>
<td>780 mm</td>
<td>0.84 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>c'</td>
<td>522 mm</td>
<td>0.84 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>f'</td>
<td>370 mm</td>
<td>0.84 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>c''</td>
<td>248 mm</td>
<td>0.78 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>f''</td>
<td>185 mm</td>
<td>0.78 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>c'''</td>
<td>123 mm</td>
<td>0.78 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>f'''</td>
<td>92 mm</td>
<td>0.78 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>c''''</td>
<td>60 mm</td>
<td>0.68 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>f''''</td>
<td>48 mm</td>
<td>0.68 mm</td>
<td>iron</td>
<td>plain</td>
</tr>
<tr>
<td>g''''</td>
<td></td>
<td></td>
<td>iron</td>
<td>plain</td>
</tr>
</tbody>
</table>

Other measurements are listed in the diagram.

3 - "Viennese" action (Zungenprellmechanik). Hammer head covered with brown leather - 6 layers in the bass and 3 (?) in the treble. "Transmission ratio" constant. Minimal weight for moving the action not determinable. Distance between hammers and strings approximately 35 mm. Distance from the point of contact from nut (see the diagram).

Keylevers of spruce with covers of pear wood; octave span 156 mm.; naturals are bone covered, l = 131 mm; no decorations on keylever fronts; chromatic keys of ebony (?), l = 91 mm; key dip not exactly determinable; "forte" stop presumably divided into bass and treble (damper mechanism was lost).
4 - Case (see the drawings) with a bottom without openings; bottom h = 63 mm; soundboard h = 6+8 mm; three legs to be screwed in.

5 - Height of the resonant box = 180 (?) mm; volume 150 (?) dm³.

6 - Sides of spruce veneered with oak-wood; internal sides veneered with cherry-wood; lid of solid cherry-wood; apparent thickness of the short side, spine and bentside = 25 mm.

It is interesting to point out, that a few key tops from F to g'' are worn out much more than other ones. The most intensive use is demonstrated particularly in the key tops from G to d', where holes were dug out in the tops or the top corners deply excavated by player's nails.
CIPOLLONE FORTEPIANO N.56
Ratios of distances of beating point to total length (%)
CIPOLLONE FORTEPIANO N.56
Length of C-equivalents (mm.)

Length of C-equivalents (mm.)

Semitones
CIPOLLINE FORTEPIANO N.56
Transversal section

a - iron spacer
b - remains of knee levers
Longitudinal section

0 10 20 50 cm
Thinnest hammer

Biggest hammer

Details of the action

Nut (mm 18x5.5 H)

Bridge (mm 18x16-18 H)
1998 FoMRHl List of Members — 1st Supplement as at 14 October 1998

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

Ander Arroitajauregi, Ifa-Kale 4-3º, E-020600 Spain; +34-943-202783 (gmba, lute, vln; M, R).

• Volker Beilharz; volker@emis.com.au

• Peter Berg, Aldhungete House, Beaumont Fee, Lincoln LN1 1HB, UK; 01522-527530

• Ture Bergstrom; +46-35 99 25 05; turgun@email.dk

• Christopher Birch: delete fax and email; tel: +352-43 33 73

• Philippe Bolton; philippe_bolton@csi.com

Michael W S Collins, 551 Daws Heath Road, Hadleigh, Essex SS7 2NJ, UK; 01702-556892 (guitar, lute; M).

Douglas DrduL RR#1 Walton, Nova Scotia, BON 2R0 Canada; (902) 528-2610 (most instrs; M, P).

Martin Eastwell, ‘Lanehead’, Keenley, Allendale, Hexham, Northumberland NE47 9ER, UK; 01434-683733; eastwellm@argonet.co.uk (lute, early guitar; M, P, coll).  


• Alessandra Fadel, Piazza Fontana 14, I-22049 Valmadrera (CO), Italy (plucked instrs; M)

• Michael Fleming; mj.fleming@open.ac.uk

• Dick Grindley, 6 Ravelrig Park, Balerno, Midlothian EH14 7DL; 0131-449 3949 (add Scot smallp. P).

• Richad Guy, 46 Henderson Place, Edinburgh EH3 5DJ, UK; 0131-556 7044; richard@guyy.demon.co.uk (hpschd; R).

• Danny Hathaway, 512a Garstang Road, Broughton, Preston, Lancs PR3 5HE, UK.

• Steve Heavens; steveh02@globalnet.co.uk — nb zero two, not letter O.

• Peter Holman; peter@parley.org.uk

• Hubert Keller; keller@ruhr-net.de

• David Klausner, 303 Sumach St, Toronto, Canada M5A 3K4; (416) 964-1405 (ww, gmba; C, P).

• Mona Lemmel, Edelstr 6, D-96047 Bamberg, Germany.

• Jim Lynham, 11 Foster Drive, Hitchin, Herts SG4 9EH, UK; 01462-626044; 100762.2071@compuserve.com (oboe; M).

• Robin Lyon, 6 rue Henriette, Savaeté, F-93360 Neuilly Plaisance, France; 01 4300 65 93 (guitar, gmba, vln, vcl; M).

• Hans Mons, Onsenoort 2, NL-5653 PW Eindhoven, Netherlands; +31-40-2514355; Hans@hansmons.com (recorder, new reed instrs; M, P).

• Valdis Mukupavels, Inzenieru 1-5, Riga LV-1050, Latvia.

• Thomas Murach, 663 Montée des Vraies Richesses, F-04100 Manosque, France; 04 92 87 51 18; (hpschd).

Museo de la Música, Avda.Diagonal 373, E-08008 Barcelona, Spain; 217 11 57.

Museum of Fine Arts, The Library, 405 Huntington Avenue, Boston, MA 02115-5597, USA; (617) 267-9300.

• Peter O’Donnell, 2779 Turkey Creek Lane NE, Iowa City, IA 52240; (319) 351-9133; psoed@avalon.net [delete aol address].

• Jonathan Ranger, 5 Summerfield Road, Ealing, London W5 1ND, UK; 0181-997 1793 (pfte, hpschd fam; C, R, coll, tuner).

• Paul Richardson; prichard@arrakis.es
Ringve Museum, Pb 3064 Lade, N-7002 Trondheim, Norway; +47-7-914 515.
José L Romanillos, Calle Real 3, E-19263 Guijosa, Guadalajara, Spain; t&fx 49-391491 (gtar, vih; M,C,R,coll).
John Shortridge, 725 #1 Tramway La NE, Albuquerque, NM 87122, USA (hpschd, etc, clavechd; M,R, gmha, bows, chamber orgn).

* Shrine to Music Museum; fx: (605) 677-5073; smm@usd.edu
* Robert Spencer – delete entry – apologies for leaving it in.
  Domenico Statuto, Via Giotto 13, I-81100 Caserta, Italy; +39-823-325048; fx +39-823-329299; dstatuto@mbox.vol.it (hpschd; M).
* George Stevens, 11 Ness Road, Lydd, Romney Marsh, Kent TN29 9DR, UK; 0179-320152.
* Charles Stroom; charles@stroom-schreurs.demon.nl
  Kevin Thompson, St Judes, The Hill, Malahide, Co Dublin, Éire; 846 3964 (uilleann pipes; M).
* John Watson; jwatson@cwfo.org
  Peter Wilkinson, 1642 Polonia Park, Windsor, Ontario, Canada N8Y 4V7 (bar fag, crtl; P,coll).
* Francis Wood, 2 Carlton Square, London E1 4EH, UK.
  Peter Zyatkoff, Krasny 12/17, Ekaterinburg, Russia 620027 (vln; M,R).

**Museums:**
Barcelona Música (Romà Escalas)
Boston Fine Arts (Darcy Kuronen)
Trondheim Ringve Museum