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FOMRHI Quarterly

COMMUNICATIONS

FELLOWSHIP OF MAKERS AND RESEARCHERS OF HISTORICAL INSTRUMENTS

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FELLOWSHIP of MAKERS and RESEARCHERS of HISTORICAL INSTRUMENTS

Bulletin 52 **July, 1988**

Keep your fingers crossed; the last Q went out reasonably smartly, and as far as I know without any snags. Let's hope we're over our problems.

See if you like this typeface. There's a whole raft of new fonts appeared for the Amstrad from Locomotive, and this one looks like a good bet. They only arrived today, so it's a bit experimental and you should let me know if you don't like it. I'll then either try one of the others or go back to plain old Standard, ie normal typewriter. This one is called Roman and while it's not Times Roman by quite a long chalk, it's nearer to proper print than any of the others.

LIST OF MEMBERS: An issue late, but here is the 1988 List. Let me know of any errors, please; one member told me a short while ago that his phone number had been wrong for years! Don't leave it as long as that please; for one thing someone you don't already know may want to get in touch with you, and for another it embarrasses me to find out I've been wrong for any length of time. One past error I should draw your attention to: In last year's First Supplement I reversed two of the figures in the McAllisters' zip code; if you noted their new address in your own address book, please correct it from this List herewith.

Please use the List; carry it with you when you travel – you'd be surprised how many members ring me up when they get to this country and ask for a fellow member's address or phone number; I don't know what they do when they're in other countries.

LOST MEMBER: Alessandra Fadel is still missing; doesn't anyone know where she has moved to? We owe her one of last year's Qs.

FURTHER TO: Bull.51, p.3: AIDS: Tim Hobrough writes:

I'm sure the government sent you their leaflet hoping you would do something to increase the members' awareness of the problem. Instead you have spread misinformation. My doctor says that the lifetime of the AIDS virus when exposed to air is seconds. In the workshop there are two potential problems:

1) Cutting yourself with a tool that someone carrying the virus has just cut themselves with.

2) Cleaning up the blood of an injured, infected person and being infected through a cut on your own body. Wear rubber gloves when cleaning up blood, and wash up with bleach.

As for saliva, neither blowing recorders nor lending reeds is worth worrying about as far as AIDS is concerned. No doctor is going to say that it is absolutely <u>impossible</u> to contract the virus from saliva, but would you be prepared to say that it is absolutely impossible for someone to build an all-plastic lute that would play and sound exactly like a real lute? Is it <u>absolutely</u> impossible that the government might cancel income tax?

On the other hand, if an infected reed player with bleeding gums were to try a reed and then give it to another player who used it immediately, there might be some risk of infection. It certainly seems like a good way to get unpaid holiday due to any number of mouth and throat diseases.

JM adds: Tim may be right, but, like Paul Hallperin, I don't want to be a statistic, and still less do I want any of my students or visitors to be a statistic due to my lack of care. It sounds anomalous, but the University comes under the Factories Acts, and we have responsibility for safeguarding the health and safety of everybody who visits or works here.

Bull.51, p.4: Plans and their Prices: Several of you wrote and nobody seems to think the Bate plans are too expensive, including Jan Hermans who said that he had not intended a complaint. Ardal Powell had the most detailed comments, which I'll summarise since they are on brown paper which doesn't photocopy very well: *"I agree with you that the cost of a drawing is a negligible fraction of the selling price of an instrument (less than 2% for flutemakers on average) – in fact it is small even considered as a fraction of its materials cost. ....since the Bate seems to have gone to some trouble to make [information] available in a clear, legible and useful form, I think it only reasonable that the the cost of your drawings should be commensurate with their quality.... It is still possible in some European museums to buy Nth-generation xerox copies that were illegible ... in the first place, at prices higher than yours. For a professional maker whose aim is to produce a faithful copy of a museum instrument, even your drawings would not take the place of at least one visit to experience and play an instrument for him- or herself..."*

There are several comments that I'd like to make to this letter of Ardal's, the first still as FoMRHI Hon.Sec.: Ardal is writing as a professional maker; are our prices fair to the amateur and to the student, and if any of you in those positions feel that they're not, can you suggest any practicable way of running a differential pricing scheme (but also bear in mind Ardal's earlier implication that any museum is as much entitled to a profit as your timber merchant). Continuing, but now as Bate Curator, with the exception of Fred Morgan's Bressan plan, which he asked me to sell as cheaply as possible, I have tried to price partly by quality. I don't think that Alan Mills would object to my opinion that his clarinet plans are not quite as well drawn as Ken Williams's, and they're priced accordingly. We do also have some Nth generation xeroxes, and I don't list them publicly for sale at all; they are available at a bit over the photocopy cost to people who come here to measure instruments to prevent them from measuring something that has already been measured. The less often that tools contact instruments the better for the instruments, but if they can show that these xeroxes are inadequate, then they can measure again, and their new measurements get added to the Nth generation stock (unless they are willing to draw up a saleable plan, in which case we are extremely grateful). Finally, I agree wholeheartedly with Ardal's final point. I know that it's not always practicable for people far away to come and play the things, but it is the only real answer, and it's always been a feature of this Collection that we do welcome it. Where a copy has been made sufficiently accurately, we've sometimes been able to mix joints, combining part of the copy with part of the original, and both I and the maker have learned from this.

Further comments would be welcome, both from makers and from other museums. This is a subject that concerns most of us, one way or another.

LIST OF PLANS: You'll find in this Q a list of plans and other material from the Berlin Musikinstrumenten Museum.

ALSO HEREWITH: You'll also find here the list of the Bate Collection's, mostly ex Morley-Pegge, and Philip Bate's tutors for a variety of instruments, which are all now available on microfilm from research publications (they don't seem to believe in capital initials), POBox 45, Reading, Berks RG1 8HF, tel.0734-

583247 (or for North and South America 12 Lunar Drive/Drawer AB, Woodbridge, CT 06525, tel.(203) 397-2600). There is a Guide to the set of tutors, which is available from them free. The whole set costs $1,100 (in UK convert to sterling at that day's rate), but the customers for whole sets are really only libraries and so forth. When we were setting the scheme up I thought that some of you might well be interested in the tutors for your own instruments, and I therefore asked that as far as possible all the flutes should be on one reel, and so on, and that it should be possible to buy odd reels as well as the set. They have arranged it accordingly, and I have marked what each reel covers in the margin of the list. Each reel costs £55, and if you are ordering, as this is rather an unusual arrangement (normally they do only sell to libraries), it might be sensible to say that you are a FoMRHI member, and then they'll know why you are ordering only one or two reels. Our tutors are the first in this series; the next will be those from the Fétis Collection in the Bibliothèque Royale Albert Ier, Brussels. I'll let you know when they are available.

Perhaps also here there may be an explanation of the data sheets used by the Polish Historical Documentation Centre; I say 'may be' because I'm not sure how well they'll reproduce; I'll send them up to Eph and he'll decide whether to put them in.

HARPS: John Morley says that his brother Clive has moved to Gloucestershire, taking all the harps and harp material with him; his new address is Clive Morley Harps Ltd, Goodfellows Farm, Filkins, nr Lechlade, Glos. GR7 3JG, tel. 0367-86493. Robert Morley & Co is now just keyboards of all sorts, and because all the harps have gone, they've got space to put the whole business under one roof, so they've left Belmont Hill and moved the office down to the works at 34 Engate Street, Lewisham, SE13 7HA, which is in the List of Members under John Morley.

AN HONOUR: The American Musical Instrument Society asks me to say that Philip Bate, who is one of our Fellows as well as being President of the Galpin Society and that Society's first Chairman, will receive their Curt Sachs Award next week. This is their premier award for scholarship and long service to the study of musical instruments.

CHARITY APPEAL: Many of you will probably already have heard of the David Reichenberg Trust, which was set up in memory of the best of the baroque oboists working in this country (if you haven't, and would be interested in helping them, their address is 81 Rectory Grove, London SW4 0DR). They have just made their first awards, one to a student to buy a baroque oboe and the other to another student for further study at the Hochschule in Vienna. The appeal is only a year old, and it is good to hear that it has already done well enough to start helping the next generation.

THE RESULTS OF RATIONALISATION: That was good news; the next is bad. Peter and Ann Mactaggart write:

No More Ruckers Papers from the Mactaggarts

We are extremely sorry to say that we have been obliged to discontinue production of the hand printed Ruckers papers that we have been printing since 1980.

Last spring Barcham Green, who were the largest makers of hand made paper in Europe, and who supplied the hand made paper we used for our Ruckers prints, stopped production of all their hand made papers. At the time we hoped that another paper maker would step in and fill the gap even if it was at a higher price; unfortunately this has not happened.

Even in 1980 it was difficult to find a paper which approximated to a seventeenth-century paper, and which had the strength to stand up to being pasted and stuck onto instruments. During the past year we have contacted a number of hand paper mills both in England and in Europe in an attempt to find a substitute. There are a number of mills, but almost without exception they produce paper which is too thick, and too soft because it is made entirely from cotton linters. As far as we can see paper mills are reluctant to tackle the technical problems of making thin paper that incorporates manila or linen furnish.

As if this was not enough we ran into problems with the ink as well. Originally we had great difficulty in finding a firm who would make the quality of ink we wanted. Then last December, the firm that we eventually found was taken over, and stopped making ink of that type.

We have always tried to make prints that could have been used by the Ruckers family, and as we are not prepared to compromise on quality we have no alternative but to stop production. We would like to thank all those who have supported us by buying our papers, and apologise for any inconvenience we have caused to those who have come to rely on them.

Mac & Me is not closing: we will still be supplying our books and hope to be increasing our range of titles during the coming year.

MUSEUM NEWS: Albert Rice sent the following:

An important "Exhibition of Brasses and Woodwinds, 16th Through 19th Centuries" is now on display at the Kenneth G. Fiske Museum of The Claremont Colleges in Claremont, California. Thirteen instruments owned by an anonymous collector in Los Angeles make up this exhibition which will be on display until October 1st, 1988. The Fiske Museum is located in the lower level of Bridges Auditorium at 450 N. College Way and is open to the public on Monday, Wednesday, Friday, 2:00 to 4:00; Tuesday, Thursday, 10:00 to 12:00 and by appointment at (714) 621-8307. Patrick Rogers is the Museum Director and Albert Rice is the Curator. The instruments on display are briefly listed here:

1) Curved Cornett of Italian origin, 16th century.
2) Curved Cornett of Italian origin, 17th (?) century.
3) Russian Bassoon by Dubois & Couturier, Lyon, 1835-37.
4) Alto Ophicleide probably of French origin, c. 1840.
5) Baritone by Issac Fiske, Worcester, Massachusetts, c. 1855.
6) Euphonium by the Allen Manufacturing Co., Boston, 1857-70.
7) Bugle by Stratton and Foote, New York, c. 1865.
8) Soprano Over-the-Shoulder Saxhorn by John Church Jr., Cincinnati, Ohio, c. 1880.
9) Trumpet with two double piston valves (operated by levers with one leaf spring) by Hirsbrunner, Sumiswald, Switzerland, c. 1830.
10) Keyed Bugle (double coiled) in B-flat probably of English origin, c. 1850-60.
11) Clarinet by Henry Prentiss, Boston, c. 1840.
12) Clarinet by Michel Amlingue, Paris, c. 1790-1800.
13) Bassoon by Willi Hess, Munich, c. 1850-60.

FOMRHI CONFERENCE: It occurred to me yesterday that this year is the Quatercentenary of the publication of **Tholneau Arbeau's *Orchésographie*** in 1588, and I feel that we should not let this go unremarked. So let's have a FoMRHI Conference on Arbeau on Sunday October 30th, gathering here in the Bate Collection at 10.30 for coffee, getting talking by 11.00, finishing when we do. There's quite a lot that I'd like to talk about: tabor rhythms in practical use, side drum usage, etc; I hope that others might also be interested. Lewis Jones wants to talk about (and maybe play, in which case I'll do the drum bit), the fife music. I've not yet had time to talk to anyone else, so please will interested people come without being rung up first. My inclination is to say that dance isn't a very FoMRHI subject, but if that's what you want to talk about, come and do so (I warn you our floor is carpeted throughout). Other than that, there's a fair amount of material in Arbeau for many of us.

COURSES: The next **Bate Collection Weekend** will be **Recorders for Makers and Players** with Alec Loretto and Alan Davis on November 12th and 13th. Emphasis will be on windways and tuning and what you can do about them both while making the instrument and on the instruments you've already got.

As I told you last time, Lewis Jones has the idea of a **Passagi Weekend** the following week, November 19th & 20th. We have decided to run this as a Bate Collection Weekend as well, so it'll be on the usual basis of £20 for the Weekend, £15 for either day. That's really so that there is a little money to pay expenses for a lutenist, viol player and, with luck, a cornettist. The Weekend will be for players of any wind or string instruments, and for singers, so please bring any instruments that you can nip round fairly rapidly. Previous experience at passagi, divisions, cadenze, etc, not essential as long as you're interested in trying them.

Depending on how fast Eph gets this out, there may still be time to remind you of the **Bate Collection Summer School on Renaissance Recorders** from August 12th to 15th, with Alan Davis and Lewis Jones. There are still a few places left at the moment; whether there will be by then I can't promise.

I was asked to tell you about **the 20th International Course of Early Music** in Urbino, but as it's from July 21st to 30th, there's not much point. I'm sorry that so many of these people give us so little notice (I was invited on Friday to attend the opening of an exhibition in Verona on Saturday; fairly typical). As the Urbino course is the 20th, and as it's run by the Società Italiana del Flauto Dolce, if you'd like to go to it another year write to them now (they're in the List of Members under Flauto Dolce) and ask to be put on their mailing list. They've got a strong list of teachers for most early instruments, and it's combined with a Festival of good concerts.

FESIVAL: The **Holland Festival of Early Music in Utrecht** is from 26th August to 4th September. Lots of good concerts; an exhibiton of instruments for which it may be too late to book (try them at Postbus 734, NL-3500 AS Utrecht, or ring them at 030-34 09 21), and bound to be a lot of our Dutch colleagues there. This is their 7th Festival, so if it is too late for this year, again write and ask to be on their mailing list in good time for next year.

OTHER JOURNALS: Steve Barrell writes:

> The Stichting Nederlands Clavichord Genootschap (Foundation of the Dutch Clavichord Society), organized last year, numbers among its activities "Het Clavichord", to our knowledge the only publication regarding the Clavichord. Published ~~biannually~~, the first two issues were almost entirely in Dutch. Due to its singular nature, I believe that interest expressed from without the

Netherlands will result in a more international publication. Articles, advertisements, subscriptions (DFL 25,- annually) and information may be submitted/are available through the Secretariat:

N. van Ree Bernard/ Bennebroekerdreef 20/ 2121 CN Bennebroek/ The Netherlands

If FOMRHI are interested, I will send a copy of our first official issue for review, provided that you suggest a reviewer who reads Dutch.

I'm sure that we would be glad to review it; any Dutch-reading volunteers?

BOUWBRIEF: **We used to have a regular synopsis of what appeared in the Bouwbrief, which is published by our Dutch opposite number, Bouwerskontakt. Paul Gretton used to do it, but he got tired or bored amd has now dropped out of FoMRHI anyway. They send it to me each quarter, and again it needs a Dutch reader. Any volunteer for that? Several of our Dutch members, who also belong to Bouwerskontakt, read and write English well enough to do it (and to review Steve's *Het Clavichord*). These things don't have to be done in England; FoMRHI is international. It is useful to know what appears in Bouwbrief because if you know that there's something that's interesting it can be worth hacking it out with a dictionary.**

MY MOVEMENTS: **I'll be here through the summer except from August 1st to 11th. The Bate will be open then, but no promises of access to instruments other than through the glass between those dates.**

DEADLINE FOR NEXT Q: **October 1st is a Saturday when I won't be here, so let's say October 3rd. Have a good summer (it's been raining like stink here for the last three days; we're thinking of building an ark).**

Jeremy Montagu
Hon.Sec.FoMRHI

BULLETIN SUPPLEMENT

E. Segerman

Conservation standards and accreditation: In Bulletin 51 last issue under "Comm. 849" Jeremy reported that the "uniform reaction" of people involved in conservation who wrote to him was "what business is this of FoMRHI's?". This raised my hackles. As Jeremy pointed out, we have a serious interest in the issues involved. Very many of us who are not professional conservators have conservation responsibilities for the old instruments that we handle (as researchers, repairers or collectors), and we will try to discharge these responsibilities as best we can no matter whether we are accredited or not. The more knowledge one has about the history, materials and construction of an instrument, the more effective its conservation will be, and some of our members who will never formally be accredited have more of this knowledge on specific types of instruments than any who will be accredited. There is a danger in creating an exclusive elite of professionals which tries to exclude others from the field. They will not be able to keep conservation of musical instruments to themselves when so many of the relevent objects are in private hands. Conservation is our business. So is accreditation, since we have every right to monitor its set-up and then how it works. Also is a Register of people having relevant experience, training, knowledge and skills.

Comm. on registration of instruments in Warsaw, Poland: I did not print items 1, 2 and 3 in the "Illustrations" list at the end of this Comm. Anyone interested can get them from me. Also available is a registration form filled in for an oboe da caccia by H. G. Strisce showing details of the name-stamp and keywork as well as some dimensions (in Polish).

Late Q: Both the printer for my word-processor and its backup replacement broke down this time, and the fixers were very slow. Does anyone else want this editor job?

STREICHINSTRUMENTE
mit Ausnahme der Violen da gamba(s.Extraverzeichnis)

Zeichnungen von Instrumenten im Bestand des Staatlichen Instituts für Musikforschung Preußischer Kulturbesitz Berlin
SämtlicheZeichnungen sind im Maßstab 1:1. Die mit einem * versehenenZeichnungen enthalten Stärkemaße.

Kat.Nr. 2565 VIOLINE aus Messingblech, zugeordnet 17J-.
Einzelzeichnung:
Z 15* (Decke,Innenansicht)
Maße46,5x34,5 DM 10,-

Kat. Nr.2609 ORGELLEIER,Cesar Pons zugeschrieben,Grenoble, Ende 18.Jh.
Z 29 (Längenschnitt)
Maße 107x50 DM 28,-

Kat.Nr. 4361 Umgebaute Viola dámore,jetzt Bratsche,zugeordnet Frankreich(?),18.Jh.
Einzelzeichnung:
Z 16* (Decke,Außenaufsicht;Boden,Innenansicht)
Maße 91x53,5 DM 20,-

Kat.Nr. 4381 UMGEBAUTE VIOLA dámore,jetzt Armviole,Fünfsaiter, von Rudolph Höß, München, 1670
Ein Satz Zeichnungen bestehend aus:
Z 92* (Decke, Aufsicht),
Z 93* (Boden,Innenansicht)
Maße 45x32/46x32 DM 20,-

Kat.Nr. 4678 ARPEGGIONE,Anton Mitteis zugeschrieben, Leitmeritz, 2.Viertel 19.Jh.
Enzelziechnung:
Z 79 (Korpusumriß,Hals u. Kopf in Seitenansicht)
Maß2 91x81 DM 20,-

Kat.Nr. 5181 Halbbaß,Fünfsaiter,von einem Mitglied der Familie Weiß, Baseler Umkreis, 1639,1659,o.1689
Ein Satz Zeichnungen bestehend aus:
Z 113 (Gesamtaufsicht),
Z 114* (Decke,Aufsicht),
Z 114a (Schnitt im Stegbereich)
Maße 177x75-113,5x71,5-79x45 DM 70,-

Zu den Instrumenten sind auch Fotos erhältlich. Details hierzu auf Anfrage. Der Katalog der Streichinstrumente von Irmgard Otto u. Olga Adelmann, 336 S. mit 89 Strichzeichnungen, brosch.,ist zum Preis vonDM 24,- erhältlich.
Zu jedem Instrument (mit Ausnahme von Kat.Nr.5181) wird eine kurze Katalogbeschreibung versandt. Die angegebenen Preise verstehen sich ohne Porto und Verpackung. Bitte richten Sie ihre Bestellung an:
Staatliches Institut für Musikforschung
Preußischer Kulturbesitz
Tiergartenstr. 1
1000 BERLIN 30

VIOLA DA GAMBA

Zeichnungen von Instrumenten im Bestand des Staatlichen Instituts für Musikforschung Preußischer Kulturbesitz Berlin

Sämtliche Zeichnungen sind im Maßstab 1:1. Die mit einem * versehenen Zeichnungen enthalten Stärkemaße.

Kat.Nr. 168 VIOLA da GAMBA(Baß)von Barak Norman, London,1697
Ein Satz Zeichnungen bestehend aus:
Z 27a (Schnecke,Hals, Griffbrett),
Z 32 (Decke),
Z 33* (Innendecke nach der Reparatur),
Z 34* (Geschlossener Korpus, rechter Seitenaufriß; geöffneter Korpus,mit Aufsicht auf den Boden)
Maße 73x51-77,5x43,5-78x47-79x78 DM 60,-

Kat. Nr. 229 VIOLA da GAMBA (Kontrabaß) von Ernst Busch, Nürnberg,1.Hälfte 17 Jh.
Ein Satz Zeichnungen bestehend aus:
Z 63* (Decke) Innenansicht),
Z 64* (Boden,Innenansicht)
Maße 109x65-110x68 DM 45,-

Kat.Nr. 2488 VIOLA da GAMBA (Baß) England (?) 1627
Einzelzeichnung:
Z 28 (Boden,linke Deckenhälfte, Rosette)
Maße 78x55 DM 20,

Kat.Nr. 4520 PARDESSUS de viole von Ludovicus Guersan,Paris, 1766
Einzelzeichnung:
Z 83 (Seitenansicht)
Maße 79x45 DM 15,-

Kat.Nr. 4521 VIOLA da Gamba(Alt-Tenor), Gregorius Karpp zugeschrieben,Königsberg, um 1700
Einzelzeichnung:
Z 31* (Innenboden mit Zargenkreuz u. Außendecke)
Maße 68x54 DM 18,-

Kat.Nr. 4653 Viola da Gamba(Baß) von Gregorius Karpp, Königsberg, 1693
Ein Satz Zeichnungen bestehend aus:
Z 58 (Decke,Außenaufsicht),
Z 59* (Boden , Innenansicht)
Z 60* (Decke, Innenansicht)
Maße 73,5x71,5-73,5x72-72x50 DM 45,-

Kat.Nr. 4655 Baryton von Hannes Kögl,Wien, 1679
Einzelzeichnung
Z 88 (Decke,Außenansicht)
Maße 76x60 DM 20,-

Zu den Instrumenten sind auch Fotos erhältlich,Details hierzu auf Anfrage.Der Katalog der Streichinstrumente von Irmgard Otto u. Olga Adelmann,336 S.mit 89 Strichzeichnungen,brosch., ist zum Preis von DM 24,- erhältlich.Zu jedem Instrument wird eine kurze Katalogbeschreibung versandt. Die angegebenen Preise verstehen sich ohne Porto u. Verpackung.Bitte richten Sie ihre Bestellung an:
Staatliches Institut für Musikforschung Preußischer Kulturbesitz
Tiergartenstr. 1 1000 Berlin 30

CEMBALI

Kat.Nr. 5 CEMBALO,der Werkstatt oder Schule Gottfried Silbermanns zugeschrieben,Deutschland, Mitte o. 2. Hälfte 18.Jh.
Ein Satz Zeicnungen bestehend aus:
Z 100 (Aufsicht auf den Resonanzboden u. Schnitt)
Z 101 (Unterboden mit Rast u. Schnitte)
Maßstab 1:2,5
Maße 136x69/135x70 DM 75,-

Kat.Nr. 6 CEMBALO, Jacob Kirckman,London, 1761
Einzelzeichnung:
Z 65 (Aufsicht mit Innenkonstruktion)
Maßstab 1:2
Maße 120x60 DM 30,-

Kat. Nr. 288 Reisecembalo,"clavecin brise", Jean Marius, Paris,zwischen 1700 u. 1704
Ein Satz Zeichnungen bestehend aus:
Z 76a (Baßteil: Aufsicht u. Schnitt),
Z 76b(Mittelteil:Aufsicht u. Schnitt),
Z 76c(Diskantteil:Aufsicht u. Schnitt),
Z 76dResonanzboden u. Unterboden:
Aufsicht u. Schnitt,Baßteil),
Z 76e Baßteil: Einzelteile,
Z 76f(Baßteil: Klaviatur)
Maßstab 1:1
Maße 147,5x74-135x63-103x64-133x75,5-150x8163x42
119x58-124,5x75,5 DM 200,-

Kat.Nr. 320 CEMBALO, Italien, um 1700
Einzelzeichnung:
Z 90 (Aufsicht u. Schnitt)
Maßstab 1:2,5
Maße 124,5x68,5 DM 35,-

Kat. Nr. 2224 CEMBALO, Andreas Ruckers, Antwerpen, 1618
Einzelzeichnung:
Z 1a (Unteransicht)
Maßstab 1:5
Maße 59x42 DM 10,-

Kat.Nr. 2227 CEMBALO,Johannes Ruckers, Antwerpen,1627
EinSatz Zeichnungen bestehend aus:
Z 2a (Skizze,Maßstab 1:10)
Z 84 (Klaviatur,1 Oktave)
Maße 20,8x30-42x25 DM 10,-

Kat,Nr. 2230 CEMBALO,2 Manuale,Andreas Ruckers,Antwerpen,1620
Einzelzeichnung:
Z 2b (Skizze)
Maßstab 1:10
Maße 29X30 DM 3,-

Kat.Nr. 2232 CEMBALO mit eingebautem Oktavvirginal, Johannes Ruckers, Antwerpen,1.Hälfte 17Jh.
Einzelzeichnung:
Z 1b (Seitenansicht,Unteransicht)
Maßstab 1:5
Maße59x42 DM 15,-

Kat.Nr. 5083 CEMBALO; Johann Christoph Fleischer
Hamburg, 1710
Ein Satz Zeichnungen bestehend aus:
Z 89 (Aufsicht u. Schnitt),
Z 89a
Z 89b
Z 130 Schitt durch die Mechanik)
Maßstab 1:2,5
Maße keine vorhanden DM 45,-

Kat.Nr. ..... CEMBALO, 2 Manuale, Johann Christoph
Oesterlein, Berlin 1792
Einzelzeichnung:
Z 78 (Aufsicht u.Schnitt)
Maßstab 1:2,5
Maße 117x66 DM 30,-

Kat. Nr. ----- CEMBALO, 1 Manual Deutschland u.1700
Standort Schloß Charlottenburg
Ein Satz Zeichnungen bestehend aus:
Z 185a(Aufsicht, Schnitt),
Z 185b(Gestell),
Z 185c(Profile),
Z 185d(Profile)
Maßstab 1:1
Maße 245x100,240x100,67x61,48x38 DM 80,-

Kat.Nr. ----- CEMBALO,2 Manuale Deutschland u. 1700
Standort Schloß Charlottenburg
Ein Satz Zeichnungen bestehend aus:
Z 186a(Grundriß,Gestell),
Z 186b(Aufsicht, Schnitte),
Z 186c(Klaviaturbacke),
Z 186d(Profile)
Z 186e(Profile)
Z 186f(Bein)
Maßstab 1:1
Maße 253x105-138x75-49x41-50x45-48x35-89x42
DM 80,-

HACKBRETTER,GITARREN u.LAUTEN

Kat.Nr. 188 HACKBRETT
Einzelzeichnung:
Z 24 (Aufsicht-u.2 Querschnittprojektionen
durch den Corpus)
Maßstab 1:2
Maße 65x43 DM 20,-

Kat. Nr. 234 HACKBRETT,u. 1700
Einzelzeichnung:
Z 21 (Querschnitte durch Stimmstockseite,
Querschnitte von der Mittellinieaus, Innenprojektionen
ohne Bodenplatte von der Bodenseite aus gesehen)
Maßstab 1:2
Maße 78x51 DM 20,-

Kat. Nr. 205 DOPPELZITHER; Boris Botschakow, 1878
Einzelzeichnung:
Z 20 (Zwischenboden nach Abnahme einer Decke)
Maßstab 1:1
Maße 70x65 DM 20,-

Zeichnungen vom Instrumenten im Bestand des Staatlichen Institut für Musikforschung Preußischer Kulturbesitz Berlin

Kat. Nr. 14 ORGELKLAVIER, Samuel Kühlewind, Volkstedt in Sachsen, 1791
Ein Satz Zeichnungen bestehend aus:
Z 77a (Aufsicht u. Schnitte des Klavierteils), Z 77b (Aufsicht u. Schnitte des Orgelteils)
Maßstab 1:2,5
Maße, 118,5x58/124,5x75,5 DM 30,-

Kat. Nr. 299 Positiv als Prozessionsorgel, Gottl. Naeser Deutschland, 1. Hälfte 18. Jahrh.
Einzelzeichnung:
Z 11 (Windlader: Quer-u. Längsschnitt)
Maßstab 1x1
Maße, 105,5x65 DM 20,-

Kat. Nr. 349 Regal, Zungenpfeifenorgel, um 1700
Einzelzeichnung:
Z 107 (Mensuren)
Maßstab 1x1
Maße 65x45,5 DM 10,-

Kat. Nr. 8 Hammerklavier in Form einer liegenden Harfe, Johann Matthäus Schmahl zugeschrieben, Ulm, nach 1770
(s.a. Kat. Nr. 336)
Einzelzeichnung:
Z 125 (Schnitt durch die Mechanik)
Maßstab 1x1
Maße 92x46 DM 15,-

Kat. Nr. 12 HAMMERFLÜGEL, Johann H. Silbermann, Straßburg, 1776
Einzelzeichnung:
Z 124 (Schnitt durch die Mechanik)
Maßstab 1x1
Maße 49x44 DM 15,-

Kat. Nr. 312 HAMMERFLÜGEL, Joseph Brodmann, Wien, um 1810, aus dem Besitz Carl Maria von Webers
Ein Satz Zeichnungen bestehend aus:
Z 135a-c (Aufsicht u. Schnitte)
Maßstab 1x2,5
Maße 109x56 DM 80,-

Kat. Nr. 336 HAMMERKLAVIER in Form einer liegenden Harfe, Johann M. Schmahl zugeschrieben, Ulm, nach 1770
Einzelzeichnung:
Z 126 (Schnitt d. die Mechanik)
Maßstab 1x1
Maße 41x65 DM 15,-

Kat. Nr. 1174 TAFELKLAVIER, J.G. Wagner Dresden, 1788
Ein Satz Zeichnungen bestehend aus:
Z 102 (Aufsicht u. Schnitt v. Resonanzboden)
Z 103 (Aufsicht u. Schnitt v. Unterboden)
Maßstab 1x2,5
Maße 120x72 u. 114x60 DM

Kat. Nr. 2150 HACKBRETT (Mit Umschall-, Stütz- u. Standhilfe
Einzelzeichnung:
Z 22 (Aufsicht-u. Vorderansichtsprojektion)
Maßstab 1:2
Maße 75x59 DM 20,-

Kat. Nr. 2152 HACKBRETT, um 1800
Einzelzeichnung:
Z 23 (Projektionen der Stütze u. Querschnitte von Füßchen u. Steg, Querschnitt durch den Mittelbalken, Aufsichts-u. Querschnittsprojektionen durch den Corpus)
Maße 71x64
Maßstab 1;1 DM 20,-

Kat.Nr. 4152 GITARRE, Johann Georg Stauffer, Wien, 1. Hälfte 19, Jh.
Ein Satz Zeichnungen bestehend aus:
Z 17 (Decke, Innenansicht),
Z 18 (Bogen, Innenansicht mit Stärkemaßen)
Maßstab 1:1
Maße 56x55 42x60 DM 30,-

Kat.Nr. 4400 GITARRE, Augustin Chappuy, Frankreich 18Jh.
Einzelzeichnung:
Z 19 (Aufsicht m. Projektionen v. Decken u. Bodenbelägen u. Querschnitte v. Decke u. Boden)
Maßstab 1:1
Maße 55x53 DM 15,-

Kat. Nr. 4666 Laute (theorbiert)
Einzelzeichnung:
Z 80 (Innenansicht der Decke m. Stärkeangaben, Seitliches Profil des Corpus)
Maßstab 1:1
Maße 89x44 DM 20,-

Kat. Nr. 5259 Baßlaute (Theorbe), Joachim Tielke, Hamburg 1718
Einzelzeichnung:
Z 118 (Vorder-u. Seitenansicht, 4 Querschnitte)
Maßstab 1:1
Maße 150x71, DM 40,-

Kat.Nr. 3725 TAFELKLAVIER, Wilhelm Constantin Schiffer, Köln,1779
Einzelzeichnung:
Z121 (Schnitt d. d. Mechanik)
Maßstab 1:1
Maße 78x38 DM 15,-

Kat. Nr. 3400 TAGENTENFLÜGEL,Spaeth u. Schmal,Regensburg,1793
Einzelzeichnung:
Z 128(Schnitt d.d.Mechanik)
Z 40
Maßstab 1:1
Maße 95x51 u. 80,5 x 53 DM 15,-

Kat. Nr. 4591 TAFELKLAVIER,Adam Beyer,London,1775
Ein Satz Zeichnungen bestehend aus:
Z 37 (Aufsicht auf Resonanzboden nach der Reparatur mit Wirbelstellung u.Steg),
Z127 (Schnitt durch die Mechanik)
Maßstab 1:1
Maße 59,5x82,5 u. 44 x 67 DM 30,-

Kat.Nr. 4952 TAFELKLAVIER,John Broadwood,London, 1815
Einzelzeichnung:
Z 88 (Aufsicht u.Schnitte ohne Mechanik)
Maßstab 1:2,5
Maße 96,5x70 DM 20,-

Kat.Nr. 4347 HAMMERFLÜGEL,JohannFröhlich, Königsberg 1806
Ein Satz Zeichnungen bestehend aus:
Z 68a (Aufsicht),Z 68b(Schnitt)
Maßstab 1:2
Maße 127,5x68 /129,5x65,5 DM 60,-

Kat.Nr. 5013 HAMMERFLÜGEL,J.Andreas Stein,Augsburg,1775
Ein Satz bestehend aus;
Z 116 (Aufsicht u. Querschnitt v. Unterboden und Rast)
Maßstab 1:2,5
Maße 132,5x70,5
Z 129 (Schnitt durch die Mechanik)
Maßstab 1:1
Maße 98x54
Z 116a (Aufsicht auf den Resonanzboden u. Schnitt mit Mechanik)
Maßstab 1:2,5
Maße 132,5x70,5 DM 75,-

Kat,Nr. 2154 Clavichord, Niederlande u. 1700
Einzelzeichnung:
Z123 (Schnitt d.die Mechanik)
Maßstab 1:1
Maße 82X58,5 DM 15,-

Kat.Nr. 812 Glasharmonika, um 1800
Einzelzeichnung:
Z 74 (Aufsicht u. Schnitt v. Antrieb)
Maßstab 1:2,5
Maße 82x58,5 DM 25,-

Zu den Instrumenten sind auch Fotos erhältlich, Details hierzu auf Anfrage.Kurze Beschreibung der Cembali, Clavichorde u. Hammerklaviere, mit Ausnahme v. Kat. Nr.2227 u. 4347, in:
Tasteninstrumente des Museums(Gesine Haase u. Dieter Krickeberg), Berlin 1981,DM 15,-.Dieser Band enthält auch farbige Abbildungen und technische Zeichnungen.Die angegebenenPreise verstehen sich ohne Porto und Verpackung.Bitte richten Sie ihre Bestellung an:

Staatliche Institut für Musikforsch

Liste der vermessenen Blasinstrumente

(Von allen mit einen "*" versehenen Katalog-Nummern sind Maßtabellen vorhanden)

Katalog-Nr.	Instrumente
	Pommern
289	Großbaß
290	Alt-Tenor
642	Baß
643	Tenor
644	Tenor
645	Alt
646	Alt
647	Diskant
	Rauschpfeifen
664	Baß
* 667	Baß
* 665	Tenor
* 666	Tenor
* 74	Diskant
	Krummhörner
668	Baß
669	Alt-Tenor
670	Alt-Tenor
671	Diskant
672	Diskant
673	Exilent
75	Exilent
	Dulziane
649	Alt
652	Tenor
653	Tenor
650	Tenor (mit schalldämpfendem Aufsatz)
651	Tenor
654	Choristfagott
655	Choristfagott (mit schalldämpfendem Aufsatz)

Katalog-Nr.	Instrumente
	Zinken und Serpent
3065	Krummer Zink
54	Krummer Zink
580	Krummer Zink (Elfenbein)
661	Stiller Zink
3066	Stiller Zink
302	Gerader Zink
* 662	Gerader Zink
3597	Gerader Zink
4165	Serpent
* 5282	Krummer Zink (Elfenbein)
	Blockflöten 16./17. Jahrh.
* 2818	Baß
* 2820	Baß
* 656	Baß
* 659	Tenor
* 660	Tenor
2736	Schwegel
	Blockflöten 18. Jahrh.
* 92	Baß, sign. J.C. Denner
* 2824	Baß, sign. T. Boekhout
* 2821	Baß, sign. Lenge
* 2819	Baß
* 2817	Baß
* 2823	Baß, sign. SOVVC
* 2814	Tenor, sign. J.H.J.Rottenburgh
* 2801	Alt, sign. Pui Bressan
* 2799	Alt. sign. J.H.J. Rottenburgh
* 2794	Alt, sign. B.Reich
* 5341	auf f_1 Oberlender Nürnberg, um 1725

Katalog-Nr.	Instrumente
	Schalmeien
65	
2931	sign. L. Walch
67	
2929	
2932	
	Oboen
* 2933	sign. Dupuis
* 5079	sign. J. M. Anciuti
* 5250	sign. J. Schell
* 2937	sign. J. G. Zenker
* 5336	sign. C. Palanka
	Oboe d'amore
* 73	sign. J.H.Eichentopf
	Oboe da caccia
* 516	sign. J. Denner
	Alt-Oboen
* 1071	sign. J.Ch.Denner
3362	unsign.
	Klarinetten
* 223	Sopran, sign.J.Denner
83	sign. H.Grenser
* 5338	sign. Tuerlinckx
	Rackette
64	sign. W.Wyne
	Fagotte
2970	sign. J.C. Dénner
* 2969	sign. J.C.Denner
	Querflöten
* 2670	sign. J. Hotteterre
* 2667	sign. Naust
* 4229	Elfenbein-Flöte a.d. Besitz Friedr. d. Gr.
* 4855	sign. F.G.A. Kirst

Katalog-Nr.	Instrumente
	noch Querflöten
* 5076	unsign. (vermutlich von J.J. Quantz)
* 4986	sign. F.G.A. Kirst
* 473	sign. F.G.A. Kirst
* 2654	sign. J.H.J. Rottenburgh (Oktavflöte)
* 2666	unsign. Torso (ohne Kopfstück)
2663	unsign. (Querpfeife)
* 4940	sign. J.A. Grone
4601	sign. C.Laurent (aus Kristallglas)
* 3273	sign. A. Schütze (große Quartflöte)
4710	sign. Weisse
4181	sign. Godefroy-jeune
4369	sign. H.F. Meyer
4505	sign. Ch. Mathieu
5422	unsign. Deutschland (Renaissance)

Zu den Instrumenten sind auch Fotos erhältlich; Details hierzu auf Anfrage.

Ein set Maßtabellen kostet 10,-- DM + Porto und Verpackung.

Bitte richten Sie Ihre Bestellung an:

Staatlichen Institut für Musikforschung Preußischer Kulturbesitz
Tiergartenstr. 1, D-1000 Berlin 30 Tel.: 030/2 54 81 - 0

Liste der von J.-F. Beaudin im Juni 1983 vermessenen und gezeichneten Quer- und Blockflöten

Kat.-Nr.	Instrumentenbauer	Instrument
102	Heinrich Grenser Dresden, vor 1807	Querflöte
659	Deutschland, 16./17. Jahrh. a.d. Wenzelskirche, Naumburg	Tenor-Blockflöte
660	dito	dito
2654	Marke J.H. Rottenburgh Brüssel vor 1757	Kleine Flöte inC
2663	16./17. Jahrhundert	Querpfeife (Querflöte)
2667	Naust, Paris um 1700	Querflöte
2670	Jean (?) v. Hotteterre Paris vor 1700	Querflöte
2698	Frankreich, 18. Jahrhundert	Querflöte, Baß
2799	J.-H.-J. Rottenburgh Brüssel, 1. Hälfte 18. Jahrh.	Blockflöte, Alt
2801	Pierre Jaillard Bressan, London 1. Viertel 18. Jahrh.	Blockflöte, Alt
2814	J.-H.-J. Rottenburgh Brüssel, 1. Hälfte 18. Jahrh.	Blockflöte, Tenor
3272	A. Schütze Breslau, 2. Hälfte 18. Jahrh.	Querflöte (große Quartflöte)
4229	J. J. Quantz Deutschland, Mitte 18. Jahrh. a.d. Besitz Friedrichs d. Gr.	Querflöte mit altem Köcher- etui (Elfenbein)
4895	Fr. Gabr. A. Kirst Potsdam 2. Hälfte 18. Jahrh.	Querflöte
4940	Joh. Aug. Crone 2. Hälfte 18. Jahrh.	Querflöte mit 2 Wechsel- stücken
4986	Friedr. Gebr. A. Kirst Potsdam Ende 18. Jahrh.	Querflöte
5054	Duno (nt ?) Paris nach 1720	Querflöte
5076	J. J. Quantz Potsdam oder Berlin 2. Hälfte 18. Jahrh. a.d. Besitz Friedr. d. Gr.	Querflöte mit zugehörigem Kasten

Full List of Contents of research publications tutors

Tutors from the Bate Collection, Faculty of Music, University of Oxford.

REEL 1

BASSOON
— Almanraeder, Carl: *Die Kunst des Fagottblasens* (Mainz, 1841 text in French and German)
— Berr, Frédéric: *Méthode Complète de Basson* (Paris, 1832 text in French)
— Eley, Ch. F.: *Compleat Instruction for the Bassoon or Fagotto* (Dublin, n.d.)
— Jancourt, Eugène: *Méthode théorétique et pratique pour le Basson* (Paris 1847, 2/1869) plus supplementary fingering chart.
— Ozi: *Nouvelle Méthode de Basson* (Paris, c.1803)

REEL 2

CLARINET
— Klose, H: *Méthode pour servir l'enseignement de la Clarinette* (Paris, 1843)
— Le Fevre, X.: *Méthode de Clarinette* (Paris, 1802)
— Muller, Iwan: *Méthode pour la Nouvelle Clarinette et Clarinette-Alto* (Paris, c.1825)
— Schneider, X.: *Nouvelle Méthode de Clarinette* (Paris, c.1840)

OBOE
— Anon: *New and Complete Instruction for the Oboe or Hoboy* (London, c.1810)
— Bros, H.: *Grande Méthode de Hautbois* (in two parts, Paris, c.1830-35)
— Sellner, Joseph: *Méthode pour le Hautbois* (Transl. into French from German, Paris, c.1830)

REEL 3

FLUTE
— Anon: *The Newest Method for Learners on the German Flute* (London, c.1730)
— Camus: *Méthode pour la Nouvelle Flûte-Boehm* (Paris, c.1840)
— Carte, Richard: *Complete Course for Instructions for the Boehm fingering Flute* (Boehm and Carte Systems, London, post-1867)
— Carte, Richard: *Complete course of Instructions for the Boehm fingering Flute* (London, 1847)
— Hugot, M. M. and Wunderlich, J. G.: *Méthode de Flûte* (Paris, 1804)
— Nicholson, Charles: *Nicholson's School for the Flute* with additional scales for the Boehm, Carte and Boehm and Radcliffe Flutes ed. J. Harrington Young (London, c.1890: an amalgam of *Nicholson's Preceptive Lessons* (1821) and *A School for the Flute* (1836) with new scales.
— Radcliffe, John: *School for the Flute* (London, 1894)
— Tulou: *Méthode de Flûte* (Paris, 1835/1845)

REEL 4 PART 6

FLAGEOLET
— Collinet: *Handbook for the Flageolet* (London, n.d.)

RECORDER
— Anon: *The Compleat Tutor for the Flute* (London, c.1760)

TIMPANI
— Kastner, Georges: *Méthode complète et raisonée de Timbales* (Paris, ?1840)

REEL 4

HORN
— Bremond, F.: *Exercises journaliers pour Cor à Pistons* (Paris, n.d.)
— Bremond, F.: *Exercises et Études tirés de la methodé de Cor Simple de J. Mohr sur le Cor à Pistons* (Paris, n.d.)
— Cugnot: *30 Exercises Mélodiques et Progressives pour le Cor Chromatique* (Paris, n.d.)
— Dauprat: *Methodé de Cor-Alto et de Cor-Basse* (Parts I and II, Paris, n.d.)
— Domnich, H.: *Méthode de Premier et de Second Cor* (Paris, n.d.)
— Duvernoy, F.: *Méthode pour le Cor* (Paris, 1803)
— Franz, Oscar: *Grosse theoretisch-praktische Waldhorn-Schule* (Dresden, post-1881)
— Gallay: *Études pour la Cor*, Op.27 (Paris, n.d.)
— Gallay: *Trente Études pour le Cor* (Paris, c.1840)
— Gallay: *Méthode pour le Cor* (Paris, c.1845)
— Hofman, (b.1840): *Praktische Horn-Schule* Op.17 (Ed. Leipzig, n.d.)
— Kopprasch, C.: *60 Ausgewahlte Etuden Für Waldhorn* (2 volumes bound together, Leipzig, ?1935)
— Lagard, A.: *Extrait de la Méthode pour Cor à Pistons* (Paris, n.d.)
— Lambert, Emile: *Complete and Progressive Method for the French Horn* (transl. R. Morley-Pegge)
— Meifred, J.: *De l'Etendue, de l'Emploi et des Ressources du Cor* (Paris, 1841)
— Merck, L. H.: *20 Études récréatives pour le Cor Sax à six Pistons et Cor à trois Pistons* (Paris, n.d.)
— Prée, August: *Theoretische-Praktische Waldhornschule* (Leipzig, 1911)
— Punto: *Étude ou Exercice Journalier Ouvrage Périodique pour le Cor* (Paris, c.1796)

REEL 5

OPHICLEIDE
— Berr, F. and Caussinus: *Méthode Complète d'Ophicléide* (Paris, c.1837)
bound with
— Heral: *Méthode d'Ophicléide* (Lyons, n.d.)

REEL 6

CORNET
— Arban, J. B.: *Grande Méthode Complete de Cornet à Pistons et de Saxhorn* (Paris, 1864)
— Blight, S.: *Blight's Cornpean Tutor* (London, c.1845)
— Carnaud, fils aîné: *Méthode de Cornet à Pistons et de Trompette à Pistons* (Paris, c.1830)
— Clodomir, P.: *Méthode Elementaire pour Neocor* (Paris, n.d.)
— Fauthoux, G.: *Extrait de la Méthode de Cornet à Pistons et Saxhorns* (Paris, n.d.)
— Lagard, A.: *Méthode de Cornet à Pistons* (Paris, 1876)
— Macfarlane, G.: *The Cornopean Instructor* (London, c.1845)
— Shiltz: *Petite Méthode pour le Cornet à Trois Pistons*
— Simpson, J.: *Simpson's Book of Instructions for the Cornet à Pistons or Cornopean* (London, c.1850)

REEL 6

TRUMPET
— Dauverné, F. G. A.: *Méthode pour la Trompette* (Paris, 1857)
— Harper, Thomas jnr.: *Harper's School for the Trumpet* (London, c.1875)
— Lagard, A.: *Méthode de Trompe ou Cor de Chasse* (Paris, n.d.)

TROMBONE
— Beljeule: *Extrait de la Méthode de Trombone à Coulisses* (Paris, n.d.)
— Lagard, A.: *Extrait de la Méthode de Trombone à trois et quatre pistons* (Paris, n.d.)
— Vobarom, Felix: *Grande Méthode de Trombone* (Paris, 1857)

GENERAL
— Chaussier, H.: *Notice Explicative pour les Nouveaux Instruments en Ut: Trompette et Cor omnitoniques et chromatiques* (Paris, n.d.)

Instrumental Tutors from the Private Library of Philip Bate.

REEL 7

CLARINET
— Berr, F.: *Méthode Complète de Clarinette* (Paris, n.d.)
— Lazarus, H.: *Standard Clarinet Tutor* (London, n.d.)
— Anon: *Clarinet tutor, cover and title page missing. Diagrams in ms. 18th century?*
— Anon: *New instruction for the Clarinet* (n.d.)

OBOE
— Bas, Louis: *Méthode Nouvelle de Hautbois* (Paris, c.1890?)
— Barrett, A. R. M.: *A Complete Method for the Oboe* (London, n.d.)
— Niemann: *Tutor for the Oboe*. Text in English, German and Russian. (London, n.d.)

REEL 8

FLUTE
— Bates: *Complete Preceptor for the German Flute* (London, n.d.)
— Bainbridge, William: *Preceptor for the Patent Double Flute* (c.1880?)
— Berbiguier, Benoit Tranquille: *Flute Preceptor* (n.d.)
— Berbiguier, Benoit Tranquille: *Berbiguier's Method of Instruction for the Flute* edited by W. N. James (London, post-1826)
— Clinton, J.: *A School or Practical Instruction for the Boehm Flute* (London, n.d.)
— Clinton, J.: *The Universal Instruction Book for the Flute* (London, pre-1804)
— Cocks and Co.: *New and Complete Instruction for the Flute* (pre-1854)
— Cocks and Co.: *New Flute Tutor . . .* by an eminent professor (London, n.d.)
— Devienne, Francois (?): *Méthode complète de Flûte* (Paris, 1794)

REEL 9

— Drouet, Louis: *Méthode pour la Flûte*, ou Traité complet et Raisonné pour apprendre à jouer de cet instrument (Paris, c.1827)
— Gunn, John: *The Art of Playing the German flute* (London, c.1793)
— Kuffner, F.: *Complete Preceptor for the German Flute* (London, n.d.)
— Nicholson, Charles: *A School for the Flute, being a new Practical Instruction Book for the Flute* (London, c.1875)
— Nicholson, Charles: *A Course of Preceptive Lessons for the Flute* (London, n.d.)
— Nicholson, Charles: *A selection of Beauties for the Flute* (London, n.d.)
— Rockstro: *School for the Flute* (London, n.d.)
— Tillmetz: *Method for learning to play the Theobald Boehm Flute* (London, n.d.)
— Walckiers, Eugène: *Méthode de Flûte* (c.1829)
— Wragg, J.: *Wragg's Improved Flute Preceptor:* or, the whole art of playing the German Flute, etc. (London, 1806)
— Anon. *The Flute Preceptor, or Pocket guide to the art of playing the Flute* (Glasgow, Wm. Hamilton, c.1850)
— Anon. *The Flutist's Budget, a Selection of airs, arranged expressly for the Flute* (London, n.d.)

REEL 10

FLAGEOLET
— Carnaud, Jnr.: *Nouvelle Méthode pour le Flageolet*, bound with Bousquet: *36 Etudes pour le Flageolet* (Paris, n.d.)
— Franceschi: *Méthode pour le Flageolet Ordinaire, et à clefs* (Paris, c.1790s?)
— Anon: *The English & French Flageolet Preceptor*, or the Whole art of playing the Flageolet, etc. (London, c.1808)
— Anon: *Instructions for the Quadrille Flageolet* (London, n.d.)

BRASS
— Macfarlane, George: *The Cornopean: A Complete Reader and course of Exercises.* (London, n.d.)
— Clodmir, P.: *Méthode Complète de Saxhorn Alto, Saxotromba et Saxhorn-Baryton* (Paris, n.d.)
— Beekman: *Méthode du Saxophone Alto* (Paris, n.d.)
— Lagard, A.: *Saxhorn Alto Tutor* (London, n.d.)

PIANO
— Hamilton: *Hamilton's Modern Instructions for the Piano forte*, revised Czerny (b.1791 s.1857)
— Hemy: *Hemy's Royal Modern Tutor for the Piano Forte* (London, post-1878)
— Anon: *Tutor for the Harmonium* (London, n.d.)

VIOLIN
— Farmer, Henry: *Instruction for the Violin*, with 'ballads' (London, c.1870-80)
— Hamilton, J. A.: *The Universal Violin Tutor* (London, c.1840-50)
— Anon: *The Young Violinist's Tutor and Duet Book*, by a professional player (London, n.d.)
— Pratten, Madame: *Instruction Book for the Guitar* (London, n.d.)

FoMRHI Comm. 868 **Jeremy Montagu**

Review of: Alan Lumsden, *The Sound of the Sackbut*, Edinburgh University Collection of Historic Musical Instruments, 1988, 13pp, £1.00 incl. postage (£1.50 overseas).

A brief history, informative throughout and often entertaining in its quotations, of the use of the trombone from its earliest days, and before, for Alan Lumsden also refers to draw trumpets, to the early 19th century. This is a printed version of a lecture which, combined with a concert, was given to celebrate the acquisition by the Collection of an Anton Schnitzer sackbut dated 1594, on which one most heartily congratulates Arnold Myers, the Curator of the Collection. There is little on the technology of the instrument (for which see Henry Fischer's *The Renaissance Sackbut*, which was clearly the source for what little there is), but there are a number of useful quotations describing the instrument's use.

FoMRHI Comm. 869 **Jeremy Montagu**

Review of: Two periodicals: *Harpsichord and Fortepiano*, 4:5, April 1988 and ***Journal of the Australian Association of Musical Instrument Makers*, VII:1, March 1988.**

There's an interesting article in *Harpsichord & Fortepiano* by Colin Booth on the pedal harpsichord, which he has reconstructed. I can remember hearing, a number of years ago now, the instrument which John Feldberg made just before his death which followed so quickly and so tragically on his first major show, and which had a very impressive sound. As Mr. Booth says, there is a fair amount of repertoire for the instrument, as well as a good deal which was played on it (it was a practice instrument for the wealthier organist who could afford a pedal harpsichord in preference to a pedal clavichord). Mr. Booth does not go into great detail on his design, though he does discuss a number of problems which had to be solved or overcome.

The most interesting article in *JAAMIM* (like us, they are better known by their acronym than by the full title) is by Lutz Bungart and also a keyboard one, on the problem of the closing gap and resulting freezing of the registers on harpsichords and the rôle of the soundboard in preventing this. Mr. Bungart discusses a number of causes of this problem, and it is worth reading by any harpsichord maker and particularly by any harpsichord repairer who has encountered the problem. Copies of JAAMIM should be obtainable through our members Ray Holliday or Geoff Wills (or come and read it here). If you want to subscribe, and there's always at least something interesting, the Secretary is Frances Davis, 2 McKillop Street, Dundas, NSW 2117, Australia and it costs $15 or $20 Australian a year (they don't say what the essential difference is between the Associate Member ($15) and the Full Member ($20), nor whether you can buy odd copies).

FoMRHI Comm. 870 **Jeremy Montagu**

Review of: Two recordings: Peter Widensky, *Das Claviorganum*, Harmonia Mundi HM 823A 067, and Christiane Jaccottet, *Johann Sebastian Bach Kompositionen für Lauteninstrumente*, Intercord Klassische Diskothek INT 130.850 (CD INT 830.850).

Uta Henning very kindly sent me these recordings because both feature unusual instruments. There aren't many claviorgana in working order, and the theorbo-harpsichord by Rudolf Richter on which Christiane Jaccottet plays the Bach is said to be an unique reconstruction.

The record sleeve and inserts with the Bach record are excellently detailed, with fairly full descriptions of the instrument, including photographs of the inside, which seems to incorporate several lute bodies within its harpsichord case. It has two manuals, one with 1 × 16′ + 1 × 8′, the other 2 × 8′ + 1 × 4′, all gut except the 4′ which is brass. The 4′ is tuned with normal harpsichord pins and the other ranks with lute pegs. There is historical evidence for such an instrument as well as for the lute-harpsichord which Richter has already built and which Uta has described in *Early Music* 10:4, 1982. I am not wholly convinced that it has a great deal of advantage over a normal lute, and certainly it seems to me that the player has less control over the nuances of the instrument than he or she would have if playing on the lute. For that matter, let me be wholly heretical and say that I'd really sooner hear the two Bach *Suites* (BWV 1006a in E major and 995 in g minor) on the violin and cello respectively.

However, this reaction is not relevant to FoMRHI nor to this review. What is important is that here we have the opportunity to hear a rare instrument well played, and for that reason I would commend the record to you. How accessible it's going to be outside Germany, I don't know, but if you have access to an importer, it would be worth asking him to track it down, or failing that maybe Uta would be willing to act for you.

You may have trouble with the other record too, since it's firmly marked Deutsche Harmonia Mundi, but again it's well worth trying. The instrument is an oddity, and clearly nothing like the Theeuwes in the V&A or the Bertolotti in Brussels, which are both full-size harpsichords sitting on a large rectangular box which contains the organ. This instrument, in the Salzburg Cathedral Museum, was built by Josua Pockh in 1591 and seems, the description is unclear and there is no photograph of the instrument, to be a writing-table virginals with a regals and a stopped-4′ flute built in. There is also something called a *Klappe* listed among the registrations (the list of the music played very commendably gives the detailed registration for each piece) which is nowhere referred to in the description of the instrument on the sleeve.

The instrument has clearly been heavily restored, and judging from the description on the sleeve not much more than the case

is original. While I am, as you know, in favour of instruments being used, I'm not at all sure that I'm in favour of restoration when it's as complete as this appears to be. Replacing a missing key on woodwind, knocking out the dents on brass, replacing missing ivories on a keyboard may be fair enough, but rebuilding an instrument to this extent seems to me to be rather silly; better to make a copy, as they did to the Royal College of Music's clavicytherium and record that. That is really what they've done, except that they have built the copy into the original case, probably (one would think inevitably) destroying all evidence of the original while they were at it.

The music chosen is that appropriate to the instrument's date and place: side A entirely from the *Linzer Orgeltabulatur* and side B various sources. Peter Widensky plays with great éclat and clearly with great enjoyment, with lots of divisions and embellishments on the repeats. The record is enormous fun as well as being of great organological interest despite what I've said above about the extent of the restoration, and it is worth going to considerable trouble to get hold of a copy. I am very grateful to Uta for sending them to us.

FoMRHI Comm. 871 **Jeremy Montagu**

Review of: *Convegno di Studi «Organaria veneta: patrimonio e salvaguardia»*, Centro Studi di Arte Organaria Veneta, 1987, 87pp, illus, no price stated.

There are a number of important papers in this report of a conference held in Vicenza in October 1986, and we must be grateful to the Cassa di Risparmio di Verona, Vicenza e Belluno for sponsoring it. Giuseppe Piazza discusses the present state of organs in the Vicenza diocese, and Valentino Donella does the same for those in the Verona diocese. Both give lists of the organs in each diocese, with makers and dates, and some description, which seems slightly more complete for Verona than for Vicenza, and also photographs of some of the more interesting examples (am I right in suspecting that a photo of an organ with a short pedal board to the right of the manual is likely to be a reversed photo? It looks very odd).

Giuseppe Radole discusses three of the organ builders in the Veneta in the 17th and early 18th centuries, Vincenzo Colonna, Eugenio Casparini, and Pietro Nacchini and their work.

Patrizio Barbieri has an interesting paper on the effect of unequal tuning on 18th century instruments in the Veneto, with reference to some of the organs in the area and to music known to have been performed there, with temperaments varying from quarter comma to those which eliminate the wolf fifth.

The final paper is by Franz Zanin on restoration that he has performed on organs of the Veneto school, and this contrasts very interestingly with the penultimate paper, an important one by Marco Tiella on the theory and practice of restoring historical organs. The two are not wholly in agreement, as so often with an instrument restorer and a conservationist such as Marco Tiella, and he makes the point in the ensuing discussion that however magnificently the restored organ may sound, what we are hearing is an Antegnati-Zanin, a Callido-Zanin, and so forth, rather than the original.

There is no address given for the publishers. If you want a copy of the book, the best bet is probably to write to Marco Tiella (in the List of Members) and ask if he can help. You can always come and read it here if you're within reach of Oxford.

FoMRHI Comm 872

Ephraim Segerman

New Grove DoMI: E.S. no. 10: J and K entries

Jaye, Henry by M. Lefkowitz

The statement that Jaye made viols, "of small dimensions" is based on false assumptions about what size names were associated with each instrument, and what normal sizes were.

Just intonation by M. Lindley.

Lindley reports an argument that Vincenzo Galilei used against Zarlino (in their famous dispute) which involved Galilei's discovery by experiment that "for any interval the ratio of thickness between two strings of equal length is the square root of the ratio of lengths between the strings of equal thickness." This is nonsence as it stands because the factor of relative string tensions seems to be ignored. I do not know Galilei's report of his experiment, but can imagine that the second ratio mentioned involved a unison pair of strings on a lute (with equal diameter implying equal tension) and one of the strings of the pair is fingered to the required interval above the other to give the different lengths mentioned. If that interval was a fourth (so the ratio of lengths was 3 to 4) and the first ratio mentioned was comparing the diameter of the strings on this course with that on the next highest (tuned a fourth higher), the ratio of diameters would then be /3/4 or .866. This could then be a very interesting piece of evidence on lute stringing practices. Mersenne (1636) advocated equal tension, in which case the ratio of diameters would be 3/4 or .750. If this surmise (that Galilei's experiment was just an observation of normal lute stringing) is correct, his report implies that the ratio of tensions of lute strings was proportional to the ratio of frequencies. It would be very useful to have more details on Galilei's experiment in spite of its irrelevance as an argument against Zarlino.

Kit by M. Remnant

The assumption (which I do not argue against) is that the name 'kit' was the English equivalent of Continental names for 'pocket' (poche, Taschengeige) or 'quiet' (sordino), and that the instrument was much thinner for its length than normal fiddles. The violino piccolo had normal fiddle proportions, and is in this way distinguished, whatever the body shape detail of the kit. There has been a long-standing dispute as to whether the 'violini piccolo alla francese' specified by Monteverdi in Orfeo (1607) were kits or true violini piccolo. Grove 6 chose the latter. New Grove DoMI in this entry and H.M. Brown's entry on 'Violino piccolo' chose the former. I suspect that the latter is correct since in the iconography, French 16th century treble fiddles seem to be rather smaller than Italian ones. So it is quite possible that the violino piccolo in 1607 Italy was the normal French 16th century French treble fiddle made for export in north Italy, but also occasionally played there.

FoMRHI Comm 873 Ephraim Segerman

A Reminder on the Principles of Scholarly Choice

I am currently involved in several controversies on the pages of other publications. (Things are remarkably quiet on these pages recently – come on guys, let's not get boring like the others!) Central to my arguments in each case is that my conclusion is preferred according to the principles of scholarship. There are many besides my adversaries in these disputes who are not clear about some of these principles. So here is a reminder on the principles of choice between two models for understanding a situation in light of the evidence. When evidence is in abundance, the obvious choice is for the one with the more weight of evidence in its favour and/or with less weight of evidence against it. How one chooses when evidence is sparse is perhaps less obvious. The objective then is to make the most of the evidence that is available, while keeping the influence of bias of researchers to a minimum.

The cornerstone principle of scholarship to accomplish this is known as 'Occam's Razor' (William of Occam was an early 14th century English scholastic philosopher). His principle states that when we compare two competing models (call them conclusions, hypotheses, theories or whatever), equally supported by the evidence, one chooses the simpler. This is interpreted as favouring the model that makes the fewer assumptions (which, of course, are not supported by evidence).

The most important application of Occam's Razor in historical research leads to maximum respect for evidence. When a piece of evidence is neither supported or contradicted by other evidence, it is simplest to accept that is a true representative of whatever it is supposed to be. It is quite possible that it is wrong, being the result of incompetence, bias or misunderstanding, or it could be atypical, not what it seems to be, an error in recording, or a deliberate falsification. We should be suspicious of these, but if there is no evidence supporting such suspicion in the specific case, it is simpler and therefore appropriate to accept the validity of the evidence at face value. If we allowed ourselves the freedom to accept or reject evidence at will, then there will be no objective history, but just each person's subjective version of it. This could be fine for musicians or instrument makers, but it will not do for scholars.

Another important application of Occam's Razor in historical research allow us to generalize on the basis of the evidence, and to develop a continuous historical picture, rather than just presenting a catalogue of the evidence. It states that when we consider two similar related historcal phenomena, a model postulating further similarity is simpler than, and therefore preferred to, a model postulating differences.

Anyone postulating a model needs to offer, within that model, reasonable explanations for the existence of whatever evidence there is that is contradictory to the model. When two equally supported competing models are equally encumbered by such contradictory evidence, Occam's Razor would lead us to choose the one that offers the simplest explanation for the contradictory evidence. Concerning contradictory evidence, an obvious rule of scholarship not directly related to Occam's Razor is that no evidence for a model (or component of it) is not evidence against it unless we have good reason for expecting such evidence to be available.

Many non-scholars like to clearly differentiate between historical fact, which is unassailable, and historical speculation, which they consider is either worthless or a free-for-all where any guess is as good as any other. Proper scholars prefer to consider that no model is unassailable (with even the ones heavily supported by evidence worth regular critical reexamination), and that accepted models fall on a continuous spectrum of degree of support. There is no cut-off point in degree of support below which models, appropriately chosen according to the rules, are invalid. The ones with less support are more prone to change as new evidence emerges, but they are given the

respect of being the best that historical research can offer until new evidence displaces them. Speculation is not a dirty word, and it applies mostly to conclusions for which no relevant evidence exists, but it can also apply to models that are accepted on the basis of indirect evidence, especially if the relevance is not particularly clear.

All too often, researchers take the position of advocacy in reporting their models, focussing on evidence that they interpret as favouring their cherished causes, and either ignoring or attempting to devalue the contrary evidence. This is not the scholarly way and is to be deplored. Also to be deplored is that they often get away with it because scholars have better things to do than disciplining their colleagues. The scholars also cannot trust that the readership will fully appreciate the principles of scholarship behind the refutation, and they could end up with an undeserved reputation of being controversial. If the principles of scholarship were more widely known, this could become less of a problem.

Not as serious a problem, but a problem nevertheless, is those researchers who only respect historical conclusions that are strongly supported by evidence and continually caution their readers against conclusions based in weaker evidence, even when there is no contrary evidence. They think that this reticence is admirable, but actually it does the cause of scholarship a disservice. Besides unneccesarily restricting our body of historical knowledge, they promulgate the false doctrine of dichotomy between unassailable fact and assailable speculation. Perhaps if they thought seriously about the implications of Occam's Razor, they would have more courage to present hypotheses that might be vulnerable.

In conclusion, the principles of scholarship, mainly based on Occam's Razor, should be more widely known and applied. More aspects of history, which otherwise seem to be hopelessly controversial, would be clearly resolved to models that are recognized as the best that historical research can offer with the evidence currently available. Condemnation of models as being 'speculative' will be recognized as inadequate, with the expectation that models which better fit the data according to the rules need to be offered.

THE CONSERVATION UNIT

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PRESS RELEASE

CONSERVATION UNIT PLUGS INTO INTERNATIONAL DATABASE ON CONSERVATION TECHNIQUES

The Conservation Information Network, an international project funded by the Getty Trust, has launched a new service which provides comprehensive information on conservation and restoration techniques. The Conservation Unit of the Museums & Galleries Commission has been appointed to represent the service in the UK, backed up by the Museum Documentation Association.

"This service will save conservators' time and improve standards internationally," said Dr David Leigh, Head of The Conservation Unit. "It couples the technical know-how of computer science with The Conservation Unit's expertise. Conservation activity is a race against time, and this new network will provide conservators with fast, state-of-the-art information on technical aspects of their work."

The conservation and restoration of museum objects, architecture, historic sites - indeed all forms of cultural property - are encompassed within the database. The information is housed on a computer system based in Ottawa. UK conservators may access the system using their own on-line facilities, or via The Conservation Unit.

For further information please speak to Peter Winsor, Information Officer.

ISSUED JULY 1988

John Barnes

FoMRHI Comm 875

UK Conservation Standards and Accreditation

I am glad to see this subject raised and discussed since it is important to raise standards as quickly as possible. Standards are better than they used to be, but instruments are by no means safe in the hands of many present practitioners.

No one has so far mentioned something that I feel is most important, although Brian Ackerman gave a lead with Comm 865 as far as woodwind is concerned. In my opinion it is the duty of conservators to share their experience, with some urgency, and write systematically about the best methods which they have discovered or developed for dealing with recurring problems.

Many of my own methods (some of which I think are quite good ones) are written-up in detail in my own restoration reports, deposited with various museums and instrument collections. There are about 25 reports, some fairly elementary, some very detailed with histories of several successive states of alteration of the instruments.

When I wrote a Comm. about this subject 10 years ago (Comm 116) offering to list them and the Museums holding them there was absolutely no interest! Consequently their content is almost unknown.

However, the circulation of restoration reports is not the complete answer. What should happen is that various people should write manuals of methods for the conservation or restoration of various classes of musical instrument. Such manuals would begin to build up systematically a series of accepted methods for dealing with recurring problems. People could then say things like 'Barnes' method of tightening worn keys is the best I have come across, but I prefer Tom Wolf's method of straightening keys because . . . . .'

I have plans for writing a manual on stringed-keyboard conservation and restoration when certain present commitments are finished. Does anyone think this is a good idea, and will anyone tackle the problems presented by other classes of instrument?

nstruments Conducted by the Historical Monuments Documentation Centre / ul, Brzozowa 35, 00-258 Warszawa, Poland/

The Historical Monuments Dokumentation Centre was founded in 1962 Registration of old organs has been in effect since 1969, whereas a similar operation in relation to old pianos and other historic instruments commenced in 1978. Old organs are registered on a special envelope /ex.no 1/. Other instruments share the standard register form /ex.on 2/ for all movable ojects. These forms are filled out according to a set of "Instructions for filling-out old instruments registration form" prepared jointly by Boleslaw Bielawski, Jerzy Golos, and Beniamin Vogel. The latter two are, besides, the Centre s chief co-workers and consultants in the sphere of old musical instruments in Poland.

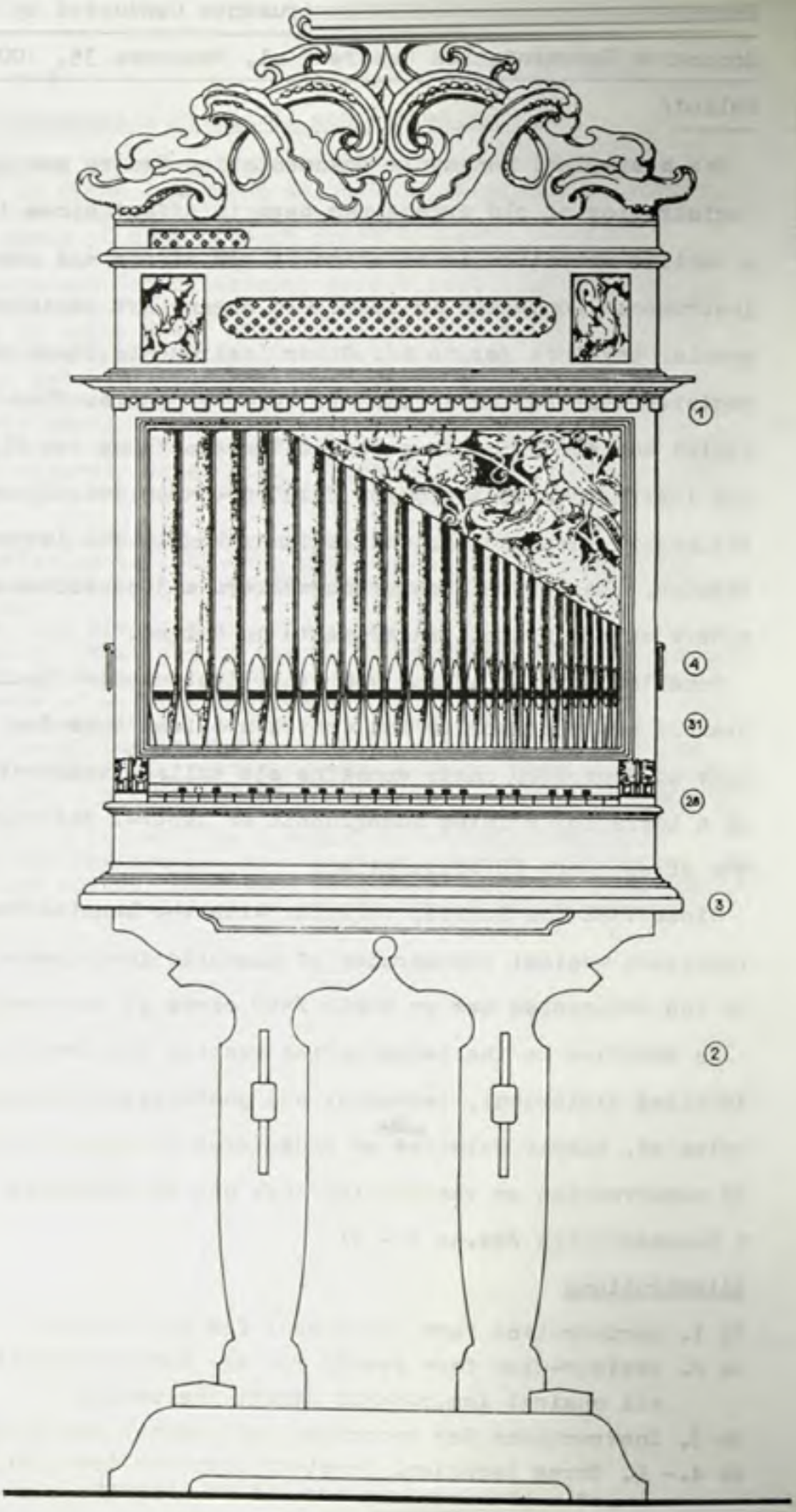
Some 1800 organs and ca 950 other instruments /including 500 pianos/ are recorded in the Centre's files, thus far. A separate body of some 1400 cards concerns old bells. Registration files serve as a basis for printed monographic or general district cataloques, two of such are in preparation.

Since 1986 the Centre, together with the Legnica Music Society, registers musical iconography of historic instruments according to the principles set by RIdIM /550 cards at the moment/.

In addition to the registration records the Centre collects detailed historical, technical and photographic documentation for selected, highly valuated or endangered objects /50 items this far/ No conserwation or restoration wark can be conducted without such a documentation /ex.no 4 - 6/

Illustrations

No 1. Registration form /envelope/ for old organs
No 2. Registration form /card/ for all movable ojects, including all musical instruments except the organs
No 3. Instructions for recording old musical instruments
No 4.- 6. Three technical drawings from the detailed documentation of a 17th century positif in Szklary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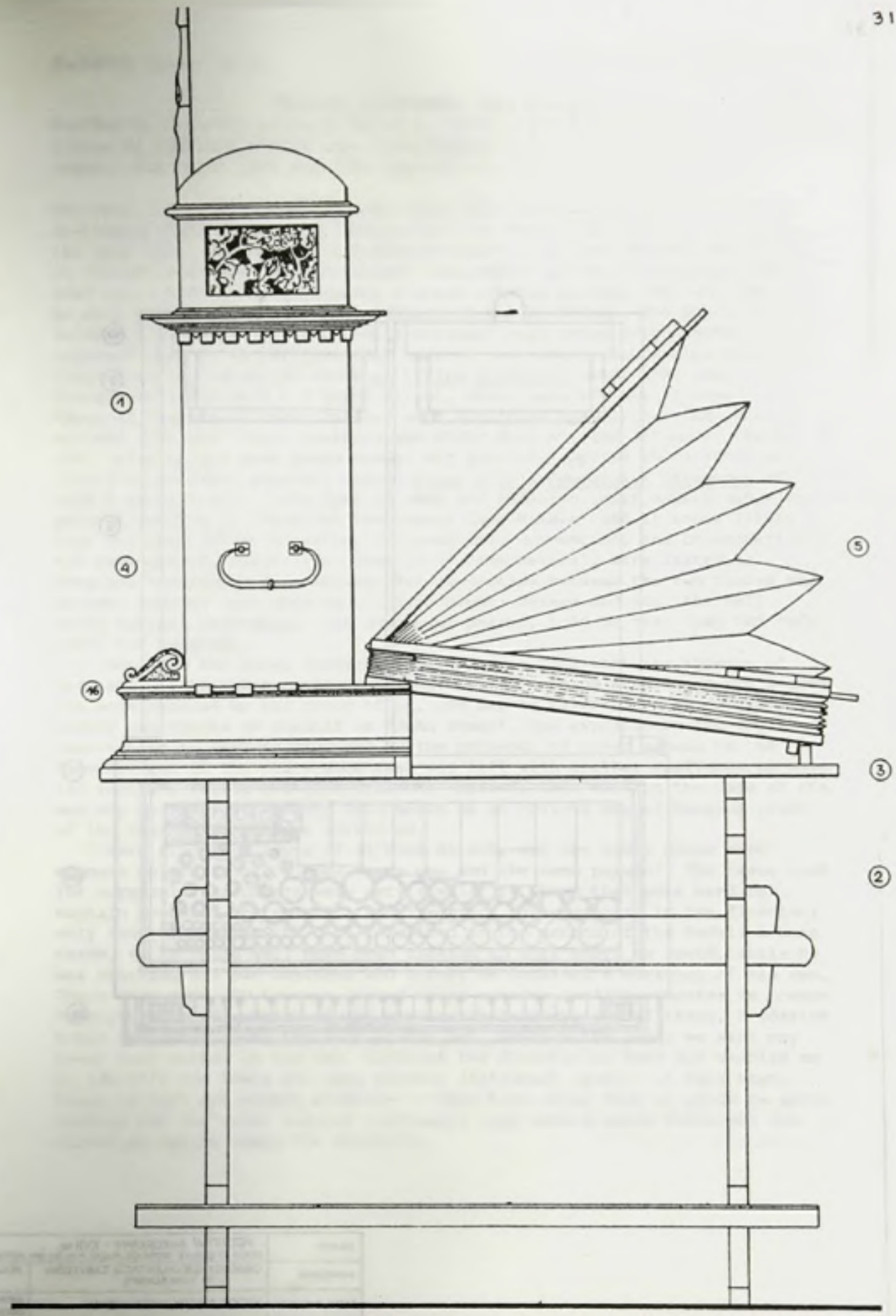
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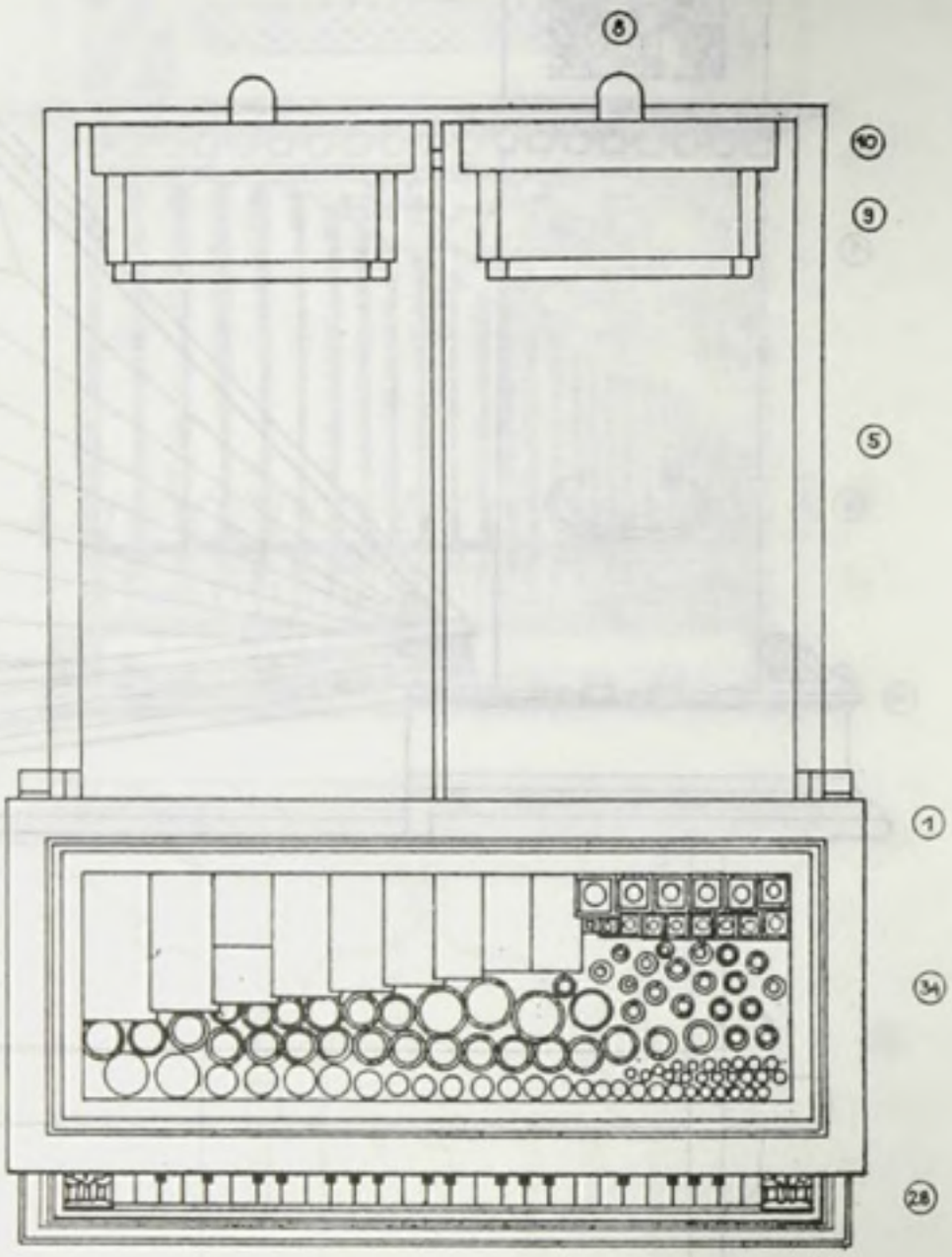

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FoMRHI Comm. 877

Peter and Ann MacTaggart

Musical Instrument Case Makers

Further to Comm 827 in which David L. Smith reported the discovery that two flutes by Rudall and Rose were contained in cases that were inscribed 'Lewis' and dated 1864 and 1865 beneath the velvet linings.

The Post Office Directory of 1865 only lists case makers under 'Surgical Instrument Case Maker' and 'Jewellers' Case Maker'. In neither list does the name Lewis appear, but a Frederick Lewis of 11 Duke Street Adelphi WC is listed as a 'Surgical Instrument Case Maker' in the Directories from 1867 until 1885 -- he presumably stopped working between 1885 and 1889 as he does not appear in the 1889 edition of the Directory. The possible relevance of Lewis as a surgical instrument case maker only becomes apparent when it is realised that musical instrument case makers were not classified separately in the Post Office Directory until 1887 when Schweitzer & Son of 6 & 7 Brand Street, Drury Lane WC. were listed. 'Musical Instrument Cover Makers' were mentioned earlier but they were classed with the 'Table Leathers and Cover Makers', and it seems likely that these people made piano covers and possibly applied the leather and tooled it on other people's cases. Pigot & Co's Commercial Directory of 1828-9 specifically lists optical case and medicine chest makers under the general heading of 'Surgical Instrument Case Makers' and it seems likely that the Post Office Directory followed this convention, and consequently all case makers, apart from 'Jewellers' Case Makers', were listed as Surgical Instrument Case Makers. The connection between the two trades may be more logical than appears at first sight: Savage and Hoy, the well known musical instrument case and cover makers, told me that they had made cases for surgeons.

Why were the cases inscribed and dated? I feel that the absence of even an initial makes it unlikely that we are looking at someone who signed his work because he was proud of it. One may be referred to as 'Jones', but surely one thinks of oneself as 'John Jones'. One explanation for the inscription is perhaps provided by the presence of cover makers in the directories. If the plain wood case was left with another craftsman to have its leather, fabric and gilt ornament applied, then writing the name of the man who had left it and the date would be an obvious way of keeping track of the case before it was worked on.

Were Frederick Lewis of 11 Duke Street, and the Lewis whose name appears on the Rudall & Rose cases one and the same person? The cases used for surgical instruments were very similar to those that were used to contain woodwind instruments; and Frederick Lewis appears in the directory only two years after the date inscribed in the second of the Rudall & Rose cases, so he could well have been picking up work where he could, while he was starting his own business and before he obtained a workshop of his own. There were some 200 Lewises listed as as running small businesses in London during the third quarter of the nineteenth century, and of these, Frederick Lewis certainly looks the most likely bet. However the Lewis we want may never have worked on his own. Although the directories have not enabled me to identify the Lewis who made musical instrument cases -- I feel that there is just not enough evidence -- they have shown that it would be worth looking for any other musical instrument case makers among those who are listed as making cases for surgeons.

FoMRHI Comm. 878 Tim Hobrough

ANCIENT CLARSACH	compared with	MODERN CLARSACH
Period		
Medieval: 12th-15th centuries		19th - 20th centuries
Renaissance: 15th - 16th centuries		
Baroque: 16th - 18th centuries		
20th century revival		
Strings		
Wire:		gut or nylon:
- brass or bronze		- bass strings usually wire-wound over silk or steel core.
- sometimes iron trebles		
- sometimes silver?		- bass strings sometimes nylon wound on nylon core
- tuning sensitive to temperature		- tuning not sensitive to temperature.
String tension		
low		moderately high
Tone		
- long resonance		- short resonance
- full, "bell-like", warm		- clear, pure, sweet
- some think it too noisy		- some think it too hard and often dull.
Compass		
5 octave (Renaissance & Baroque)		5 octave
4 octave (entire period)		4 octave
3 octave (early medieval)		3 octave ("knee harp")
2 octave ("ceirnin")		2 octave ("lap harp")

Ancient clarsach	Modern clarsach
Playing	
- narrow string spacing, low tension	- wide string spacing, moderate tension
- fingertip ends or nails	- fingertip pads
- "stroking" motion	- "plucking" motion
- fingernails traditional but later harpists did not use nails - nails give more incisive tone - flesh gives cleaner tone	- force required would break nails.
- fingers straight, thumbs under	- fingers curled, thumbs up for more force.
- little force required	- moderate force required
- very rapid repetition easy	- very rapid repetition impossible.
- ornamentation easy	- ornamentation may require both hands on alternate notes.
- resonance makes damping essential	- damping optional
- strings can easily rattle against fingernails if player is not careful	- string rattling not usually a problem.
Tuning & Chromatics	
- smaller clarsachs usually diatonic	- levers or blades used to sharpen each string.
- special tunings allow some chromatics	
- can be tuned and retuned to any key or mode.	- levers allow many keys without changing string tension.
- can be tuned in any temperament	- must be tuned in equal temperament to take full advantage of levers.
- baroque clarsachs have chromatic strings amongst the diatonic strings (Praetorius) so:	
- "accidental" chromatics always available.	- "accidental" chromatics only available if left hand is free to operate lever.

Ancient clarsach	Modern clarsach
Construction	
- soundbox hewn from a single piece of wood, leaving back open to be filled with a separate plank.	- soundbox built-up using several pieces.
-"soundboard" (face) integral with sides and ends	- soundboard glued on
- no joints in tension	- soundboard joint in tension, possibly others
- structure almost immune to changes in temperature or humidity.	- structure at risk from sudden or extreme change. in temperature or humidity
- no glue	- glue must be chosen and used carefully if harp is to stay together.
- arm and pillar central, strings rise to one side.	- arm offset, strings rise in vertical plane.
- strings go straight to tuning pins, "nuts" not needed.	- "nuts" (posts) needed to keep strings at equal distance from arm.
Cost	
- uses expensive materials (especially soundbox).	- economical of materials, except semitone levers.
- simple construction	- complex construction
- "fool-proof"	- skill required if harp is to stay together.
- very little hardware.	- complex hardware.
Size	
narrow string spacing	wide string spacing
5 octave - 1.2M (48") high	5 octave - 1.5M (59") high
4 octave - 0.9M (35") high	4 octave - 1.0M (39") high

FoMRHI Comm 879 Suboni Cornel

Studies on the Physical and Technical Construction Bases of Great Italian Violin.

Doctor thesis,1987,I.P.Timişoara,Romania.

Summary.

The object of my research concerns the physical and the technical bases of the perfect Italian violin,an instrument that,due to the knowledge possessed only by the constructors of the golden group represented by ANTONIO STRADIVARI,CREMONENSIS,differs in the sonorous quality from everything produced by other constructors in all times.

The violin models are studied by the violin constructors, by physicists and by musical experts,each of them studying his field of research;constructive elements,the physics of the violin and documents in the history of science.The studies were partial and did not succeed to re-establish the theory issued already in Cinquecento by the first constructors of the group. I have unified the three fields of science into a single study with the aim of achieving a sufficient theory where: 1./ the truth of the intuitions and realities of the past of this science should be aknowleged as well as its eludation by means of the power and the actuality of the used rasearch methods; 2./ these models should be rebuided with their acoustic performances; 3./ the violin out of order should be correctly rebuilded or constructively modified; 4./ their authenticity should be certified by objective scientific criteria.

The research is a part of a phenomenological scientific theory and constitutes a rediscovery a priori,based on an observation of a fundamental truth of the resonance box functions; -the structure anisotropy of the spruce fir is ideal for the resonance plate of the upper part.From this observation it derives connectedly the seven sentences in the system,obtained from the testing of the falsificability of the initial research theory,with the true sentences of the laboratory and workshop experience,by applying strictly Newton's Rule nr.2 and Popper's theory.Due to the achieved model,this theory starts a real beginning in the history of this science,after five centuries of its establishing by titans as Leonardo da Vinci,Michelangelo,Andrea Amati,Gasparo da Salo perhaps many other unknown to us.

In this theory,the A sentence specifies the resistence conditions and the structure anisotropy of the front plate as ideal for the transversal pretensioning,while the B sentence conditions the cutting of tree during the dep hibernation period,and even only by night,that is only when they have a „frozen and sleeping "memory,in order to reduce to minimum the heat variations and the umidity after processing. The C sentence conditions the construction of a generation of instruments out of a tree,in order to posses physical and mechanical qualities with constant limits and the D sentence defines the constant mantaining of the interior volume of the resonance box,as dependent on the innerline of the ribs and on the inner arching of the plates.The E sentence underlines the necessity of the transversal pretensioning in the zone of the bridge,for the improvment of the interdependency of vi-

bration relations between string,bridge and resonance box. The F sentence conditions a warnish soft and preferably cracky (craquelé).The grounding should be an independent film and also insoluble in the solvents of the warnish.The G sentence correlates structure,form and dimentions of the bridge to the elastic qualities of the resonance box.The rediscovery of the technological process and the testing of the presence of the Italian charm in the model sonority with an advanced musical hearing are only necessary conditions,even through the system was thus achieved already in Cinquecento.The whole system theory was not capable to demonstrate convincingly its affiliation in the science of the group without the great inspiration chance of the field due to the original deciphering of some Stradivari's documents and information,still unknown so far: a./ the three outlines of which one is dated October, 4,1690; b./ the wood carving from the Toscan bridge representing its function in Stradivari's conception and c./ the interpretation of the years 1693,1700,1711,1716 and 1722 as the beginning years of an instrument generation of a tree.These documents are here deciphred for the first time publicly,contributing excelently at the solid argumentation of the sufficiency of my theory on Stradivari's technology.

Extending the new data of the field,we may note:

d./ The musical sound of the violin is nonstationary and pseudoperiodical,a fact that represents an important scientific result,and which modifies the possibilities of mathematical calculation,thus being possible a scientific consideration,physically and mathematically,of the violin sound timbre. This sound timbre was and still is defined only by linguistical epithets.The supposition that there may exist a fine modulation in time also of the emitted signal spectrum was confirmed by means of a Hewlett Packard computer,the spectrum was tridimensional both for the modulus $M_k(T)$,the „amplitude" spectrum,as well as for the phase $\varphi_k(t)$.The results of the analysis may be synthetised in some very important observation, which could represent a beginning of some more complex problems concerning the vibration of string rubbed by the bow. These observation are: - the fundamental frequency is not constant during one period to another; - some armonical components are stable in amplitude while other have a time varying amplitude (or even a time varying phase); - the less the modulus of a spectral component,the greater the phase variations in time is; - as concerning certain spectral components,of a significant amplitude and even less time variable, theis phases modify in time in a way which seems not to be randomly,but is in accordance to a certain variation law.

e./ Among the multiple functions of the sound post,the most subtile importance consists in the rigidising of the little foot belonging to the bridge and which has the aim of transmitting the received vibration (that are variable in time and phase),directly to the back plate,which is susceptible to the two pretentions-transversal and to the sound post.

The accomplished amplifications in this system represent in the signal the energy which is necessary to certain spectral components for a suitable modulation,thus obtaining the specific timbres of an Italian violin.

In the case of human ear,the bone system,as well as the relation between the surphaces of the two little windows,all of them pretensioned,achieve an amplification probably with the same reasons as in the violin system.We notice the similitude,because in the field of attending the music,the available theory are still insufficient,especially those concerning the deciphrable sensors of phase $\varphi_{ik}(t)$. The observations obtained by our study on the computer,may be thus underlined also in this field.

f./ The structure anisotropy of the spruce fir is ideal for the functions of the front plate and as a vibration transmitter.The back plate and the side plate with the supporting ribs have essentially the functions of resistence and elastic rigidising of the box.

g./ The expert attestation of a Stradivari instrument as belonging to a certain period,generation of the production of a tree,by comparing macroscopic and microscopic structure which also belongs to dendrochronology.

These are the most important results of my research which bring remarkable new data in this field.These results concern the whole field of the violin study,that is physics of musical sound,history of science,construction,restoration and expert appraisement of the Italian performance violins. They are linked togheter and thus are verified reciprocally, are scientifical,consistent and effective,in other words, they constitute a scientific theory of the violin.

The efficiency of the study is largely presented,underling its chance to penetrate in the field by restoration, the so obtained model being an answer to certain exigences, which are determined also by the state of things in the ambiguous realities of the existence of Italian instruments belonging to the international patrimony.The authenticity attestation of an instrument of the violin family is a complex problem and the essence of the qualitative interest which it possesses in the world of arts,under the sign of the value criterion.This appraisement cannot be reduced to a simple act that should comprise only the denomination of the instrument and some phrases,weakly linked to the actual construction.It must be a typified record card,only as an identity card or a passport,accompanied by an actual dossier with a lot of scientific documentary information,an which has its original in the expert's archives.

The experience obtained by my team formed during these studies,organised into an administrative state form,is suitable also for the achievement of relations stipulated by contracts or collaborations,which may solve,due to the reached competence,many aspects of the well-known international deadlock concerning the appraisement,restoration,construction, recycling or formation of new expert stuff.

C. Rubin

Keeping Geometrical Analysis in Proportion

In FoMRHI Quarterly January 1988, Michael Fleming has some important comments and questions about the geometrical analysis of musical instruments. Those of his comments about Kevin Coates' book are perhaps best answered by Kevin Coates. About his more general comments and his brief reference to my Comm. 841, however, I will comment.

a) "- That it will always be possible to analyse these sorts of shapes in the way that has been attempted because of the amount of inaccuracy allowed for -". I admit that this is a danger; it is possible to have a self-generating geometry which seems to be related to the shape of the instrument, but is not. A remedy is to try many different geometries. I find that each geometry varies as to how closely it fits the shape; one selects the geometry that fits the closest (provided that it is logical). It is possible also to have complimentary geometries forming the same shape, e.g. a geometry exterior to the body complimenting one that is interior. Despite the inevitable slight asymmetry and other irregularities, some violins and cellos (these are all that I have studied) are so near to proposed measurements, proportions and geometry, that it must be considered possible that the maker used a similar method in designing the instrument. This is not to deny, of course, that probably there were many makers who did not use geometry, just as today there are fine makers who can produce a well-proportioned violin guided entirely by the judgement of their eyes.

b) Stainer's possible interest in numerology: One would expect that the society that Stainer lived in had a range of knowledge and beliefs different from ours. Gothic cathedrals have been shown to contain symbolic geometry and measurements, and many studies have found religious number-symbolism in various Baroque musical compositions, notably those of J.S.Bach. That Stainer could have had a similar interest to architects and composers in this subject should be considered, even though it might seem irrelevant to a present-day violin-maker.

c) That " geometrical analysis of instrument outlines is of no help in attaining musical ends". Geometry may not have much to do with the sound of the musical instrument, but makers and restorers are concerned not only with the sound, but also with the appearance; geometry certainly affects the appearance. Proportion was important to Renaissance artists and architects, and to Baroque composers, as well as makers of musical instruments. Geometry was a precise way of working out proportions. An extensive use of geometry was essential to the designing of many early religious buildings. Rémy Gug, in Comm. 704 (FoMRHI Q. April 1986), quoted early writings showing that geometry was important to craftsmen in general, and to some extent kept secret. Perhaps secrecy is a major reason why so little geometry is known from early musical-instrument makers.

For us, geometrical analysis could aid the understanding of the

historical development of shapes such as that of the violin, and it could be useful in two other ways. One is as an aid to the reconstruction of the original form of altered instruments, the other is as an aid in comparing one instrument to another. For example, geometrical analysis may help decide the authenticity of instruments such as Stainer's.

So that the interested reader may assess properly the validity and reliability of a geometrical analysis (and be encouraged to do their own), I will give here an outline of my method, and I will show how I applied it to a violin, the outline of which should be available to most people. The violin is Antonio Stradivari's 1694 violin, the "Maria ex-Muir Mackenzie". Drawings of this instrument, by Roger Hargrave, appear in "The Strad" of December 1985. My geometry is intended to be experimental rather than finished, and I acknowledge my indebtness to Kevin Coates' book, some geometry from which I have adapted to this violin.

Geometrical Analysis of the Front of the Body

1) Draw a centre-line. 2) Mark the possibly important points, e.g. either end (B and D on my drawing), centre (C), the two greatest widths (M and P), the minimum width (I), the four corners (SSTT), and the bridge (V). 3) Determine the centres of the seven main curves (Q,U,L,P-H,M-G,G-G and H-H). This can be done quickly by underlaying a sheet of concentric circles, then done more accurately with a compass. 4) Link any three or more points which occur in a straight line (or very nearly so), or which can be joined by a circle. Consistently I have found (following Coates' geometries) that the M-G and P-H curves are centred in line (or nearly so) with the two greatest widths, and that the L curve is centred in line with the narrowest width. I have also found that an equilateral triangle can be constructed in the lower part of the body, to link the upper part in a diamond-shape through the four corners. Coates bases the sound-holes on a large circle, which passes through near the centre of the circles at either end of the f's. One can try different sizes of circle, to see which fits the best. 5) Measure between all points along the lines, and measure the radii of the circles. Note any whole or half numbers in any of the likely systems of measurement (e.g. Brunswick inch or Cremonese inch), and note any perfect or near-perfect proportions. For easy (if rough) measurements, make your own measuring-rules. On this violin I found the following measures were valid: Brunswick inch (1= 23.78mm); Cremonese inch (called "a" by me, 1=36.1mm), which is 1/12 of the Cremonese yard of 43.33cm given by Stradivari on a design for a lute (see Sacconi English-language edition p.X); and the Cremonese inch (called "b" by me, 1=39.25mm), which is the shortest form of Cremonese inch given by Coates. 6) Consider the logic of the geometry, and compare it with the geometries of other instruments. 7) On a fresh sheet of paper, draw the geometry without the outline of the body as accurately as possible. Recalculate each measurement from Brunswick or Cremonese inch into mm, and measure with an accurate mm measuring-rule. Superimpose the outline, and consider how well it fits.

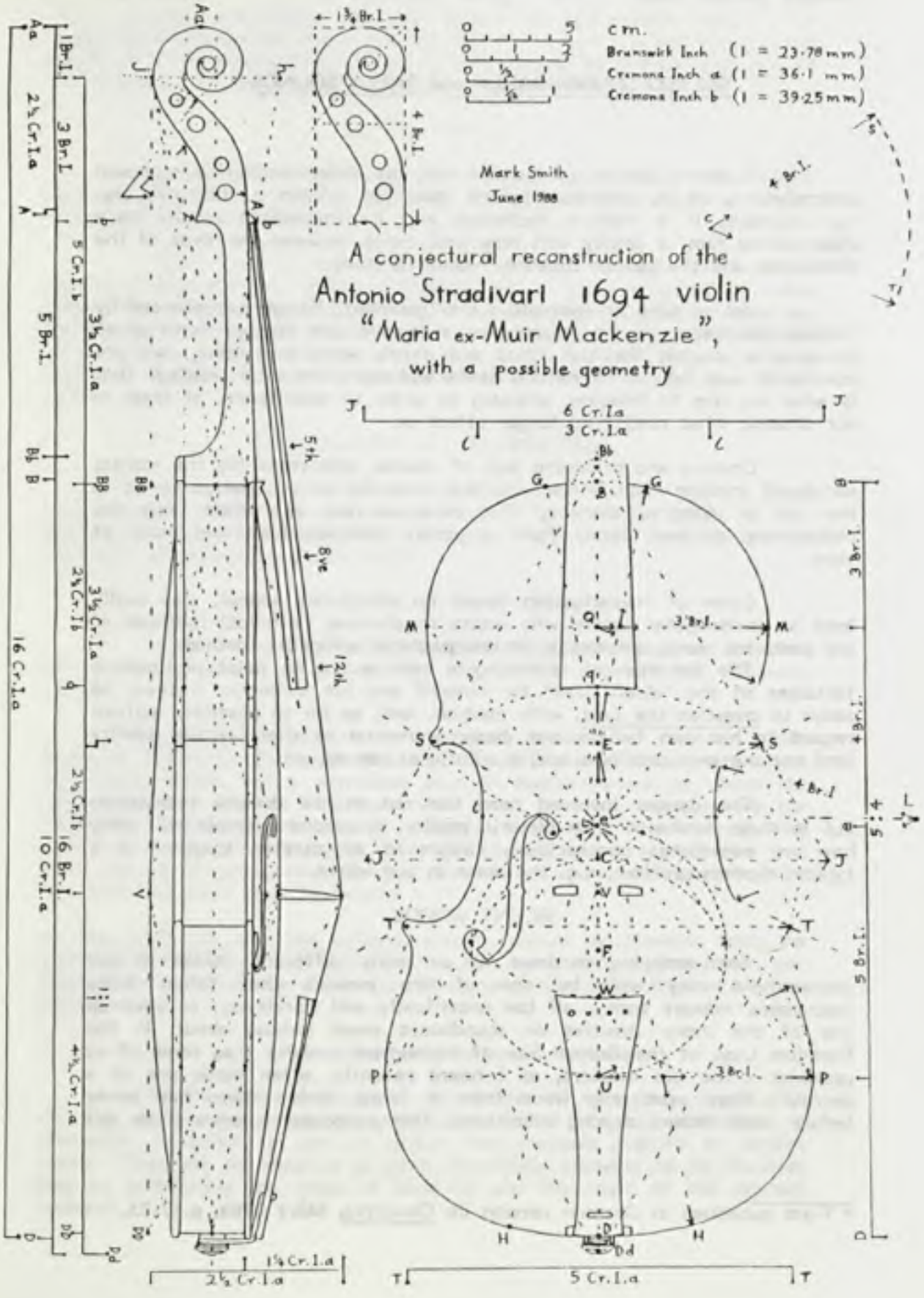
Analysis of the Whole of the Side

This is not only an analysis, but also a reconstruction to one possible original form. 1) Have the outlines of the body and pegbox on separate sheets, so that different lengths and angles of the neck can be tried. In this particular violin, an approximate length and angle of neck was determined by studying the information given in Sacconi about the surviving original drawings of violin-parts, by studying the measurements and photos of the surviving Stradivari tenor-viola which is largely unaltered, and by studying the illustration of a violin neck and fingerboard "as left by Stradivari" opposite page 202 of the Hill book on Stradivari. 2) Draw lines (parallel as far as possible) from the inner edges of the front and back plates, from the apex of the back, and from the middle of the ribs, for the full-length of the violin. Note any possible alignments of the pegbox with these parallel lines. (In this particular violin, if the back of the scroll is in line with the apex of the back, two segments of the scroll will co-incide with other lines.) 3) Try possible diagonals between corners of all the joints of the ribs, and various mid-points (i.e. half-way between important points such as ends of ribs, and the bridge), and other points such as the top and bottom of the bridge. Such diagonals may not be neccessary, but they are a convenient way of relating depth to length. 4) Measure between points transfered to a base-line (I have found by trial and error, that this is the way to obtain significant measurements,) and measure the depth (and its divisions) at the bridge. Note whole and half numbers, and note perfect and near--perfect proportions. Decide on a possible form of reconstruction by noting the proportions, and noting how they relate to different lengths of neck. 5) On a fresh sheet, draw the geometry and measurements as accurately as possible, then super-impose the outline of the violin. Also, B-L:L-D = 4:5.

The Maria ex-Muir Mackenzie Violin in Particular

Some of the measurements and proportions of this violin are quite striking and indisputable, even if you believe in a different geometry or no geometry at all, and without refence to the altered parts. The length of the body (B-D) is about 361.5mm (one has to estimate B by extending the top curve), which is very near 10 Cremonese "a" inches (361.09mm). If one adds together the two greatest widths (about 160.5mm and 201mm) this is exactly the estimated length, and it is also easy to see that these two greatest widths very nearly have the ratio 4:5. Furthermore, one finds that the two lines marking the greatest widths are near to 214mm apart (= 9 Brunswick inches). If one draws diagonals to link these greatest widths, the point of intersection (naturally) divides the 9 Brunswick inches into 4 and 5.

The narrowest width (c. 109mm) is just over 3 Cremonese "a" inches. The length of the pegbox is 4 Brunswick inches Aa-b, or 2½ Cr."a" inches Aa-a, which is 1/4 the length of the body. The radii of the curves are: G-M and P-H = 3 Br. inches, and L=4 Br. inches. The upper and lower corners are the same distance from the centre (C), and in my geometry this distance is 4 Br. inches. For the remaining measurements and proportions, please refer to my drawing.


cm.
Brunswick Inch (1 = 23·78 mm)
Cremona Inch a (1 = 36·1 mm)
Cremona Inch b (1 = 39·25 mm)
Mark Smith
June 1988
A conjectural reconstruction of the
Antonio Stradivari 1694 violin
"Maria ex-Muir Mackenzie",
with a possible geometry
6 Cr.I.a
3 Cr.I.a
5 Cr.I.a
1¼ Cr.I.a
2½ Cr.I.a
16 Cr.I.a
10 Cr.I.a
16 Br.I.
5 Br.I.
3 Br.I.
4 Br.I.
5:4

FoMRHI Comm. 881 Rémy GUG

SALTED SOUNDBOARDS and SWEET SOUNDS •

A man's opinion of another era, his understanding or supposed understanding of it, probably depend upon his opinion of his own era. For example, if a modern technique and its immediate results have disappointed him, a smoky veil may well come between the eyes of the researcher and the earlier times he wants to study.

Let us give an example : the (genuine) danger represented by modern chemistry in its present-day extensive and applied form often provokes a longing for the "good old days", when everything, we are convinced, was left in its natural state and not chemically treated. That is what we like to imagine, probably in order to experience, at least in our dreams, what reality no longer offers us.

Dreams and dreaming are, of course, important for the mental sanity of modern man. After all, the Ancients were superior to us in the art of magical thinking! But here we are concerned with the rediscovery of past times from a purely technical-historical point of view.

Lines of investigation based on emotional appeal, can easily lead an investigator astray who wants to discover technical methods of the past. He needs, instead, a historiographical scientific method.

The historian of technology's task is not to paint picturesque fantasies of the "olden days" for himself and his audience. Instead, he seeks to question the past, with caution, and, as far as possible, without regard to his own beliefs and disappointments: so that historic reality (and not our own problems and/or solutions) can appear.

The danger involved here lies not in the dreams themselves but in their confusion with historic reality. A second example will show how we sometimes unconsciously dream of an utopian solution to a typical modern problem, e.g. the noise in our world.

SILENT WOODS

The annoying increase of so many different noises in our environment may well be one of the reasons that tempt some instrument makers today, all too uncritically and carelessly, to take up one of the many theories on soundboard wood lurking about. In the Paradise Lost of the Golden Era of instrument making - as some of us presume - the old masters, as I heard recently, often made use of a secret : they used only wood from a forest where there had never before been noises causing vibrations. This paradisian silence (I do not

• First published in German version in: Concerto, März 1988, p.17-23.

know what they thought of the birds' songs - though that would be less of a problem nowadays) can no longer be guaranteed today, with airplanes breaking the sound barrier ever so often! In this dream, the sound of a Stradivarius or a Ruckers is no longer accessible...! Ought we then abandon all our studies?

TO THE POINT...

In this paper old documents will introduce us to a procedure still unfamiliar to us : to historical facts from directions we would never have... dreamed of.

Some of you may have difficulty in reading the various following excerpts on "chemical treatments" of past centuries, in areas where we were least prepared to encounter them: namely concerning soundboards. Although the story of the great-grandfather who selects wood for his great-grandchild and stores it (in silence?) for decades is not only legend, we must assume that the old masters also chose other paths.

THE HISTORY OF TECHNOLOGY

These stories, although beautiful, have to be put in their proper place, which lies beyond the scope of a scientific study. In this paper we prefer to examine the historical facts with the help of the following so-called "threefold trial".

THE "THREEFOLD TRIAL"

In technical-historical studies an hypothesis will be accepted as an historical fact only when it has passed each of the following trials:

1. The laboratory analysis of the historical material, if posible, is the point of departure for a given study. If we want to know more about old metal alloys, about varnishes used in earlier times, or about the historical wood we are concerned with here, then we must provide the laboratory with samples of our material that can be examined with chemical and physical methods. The results will appear as formulas that have yet to be interpreted, a step that always remains dangerous. Here the following point may be helpful :

2. The study of the old written sources makes us familiar with the technical methods of the past, on the one hand, and, on the other, can help us to interpret the laboratory data correctly or at least a bit less adventurously.

3. The concrete test of a rediscovered historical technique.

The methods of the past are almost all extremely simple. We do not necessarily need to understand higher physics, acoustics or chemistry in order to test or utilize the methods popular in former times. What we do need is a great flexibility allowing us to discover and to understand the ways of thinking and the logic of the ancient masters.

The studies that enable us to rediscover techniques of past centuries will sometimes appear circuitious and complicated. The many data to be found in the sources, its interpretation and our (always insufficient) scholarship - all three seemingly contradicting the simplicity mentioned above - are necessary, if we wish to leave our civilisation behind and enter for a moment the mentality of another era as innocents. Several quite complicated studies will be necessary in order to recover the old methods from the dust of time. Once discovered, however, these are often brilliantly simple : here the paths and goals differ, since it is always difficult to leave one's own habitual path, stumble across an unknown field and finally reach another path.

The "threefold trial" presented above shall be our point of orientation.

1. ANALYSIS

The interesting work reported by Karl Schnur (1) and Professor Nagyvary (2) gave rise to my own papers (3) and (4). There I tried to confirm, from a technical-historical point of view and using historical and written sources, statements made on the impregnation of old woods with saline solutions.

The analysis of several samples of wood had shown that ancient masters had treated their wood with substances that were then - and partly still are - defined as salts. We will concentrate mainly on three of the various substances thus found : on alum, vitriol and sea salt. All three were found in old musical instruments in quantities that leave no doubt as to their deliberate application.

SALTS - TODAY AND YESTERDAY

When we mention salt, we think at once of sea salt and kitchen salt. A definition in a modern dictionary tells us that "salts (and water) develop when acids and bases react together. Thus HCl and NaOH give kitchen salt or sodium chloride (and water)". (5) Bases, acids and salts are the most important classes of chemical compounds. Yet a systematic nomenclature dates only from the end of the 18th century and has only since been developed into the highly complicated present - day system.

Modern theoretic chemistry has introduced us to an innumerable quantity of salts, many of which are employed in various handicrafts. The salts used earlier were not as numerous, as we will see later on.

In past centuries - preceding the turning of the 19th century - historical chemistry (not to be confused with Alchemy) was similar to modern cooking. Chemistry, like cooking today, was then but a collection of recipes that could be used commercially, which were sometimes handed on for centuries. The craftsmen knew exactly how to obtain their goal, without asking or understanding why it was obtained.

This latter was the task undertaken by scholars. Here lies the crucial difference between a "technical" and a "scientific" knowledge, between an art and a science. Let us note in passing that Art sped ahead of Science in many historical fields.

Until the 18th century, scholars were often of little help for practical commerce. There were, of course, exceptions. The learned elite and the persevering craftsman were not always in contact with each other, but where there was such contact, exceptional practical and theoretical work resulted. Later on we will encounter such an extraordinary personality of the 16th century.

HISTORICAL THEORETICAL CHEMISTRY

Scholars have always tried to give chemistry a theoretical foundation, but this had almost nothing to do with the daily affairs of crafstmen, who were interested only in the concrete success of their methods. Their knowledge was an immediate result of their practical experience, drawn, as we will see later, from their technical environment.

The learned scholars, on the other hand, restricted by the scientific means of their time, were interested in theoretical questions. Until the emergence of modern chemistry laboratories, with their highly exact instruments of analysis, and of complex theories, enabling us to understand ever better matter and its phenomena, the chemists of earlier times had only their five senses and their sometimes very lively fantasy to aid them (if we exclude precision balances).

For a long time they used these senses in order to understand what happened in the workshops or physical scholars' studies, in daily work or experiments.

We can thus appreciate that the definitions of the chemical elements known at the time depended strongly on the means of observation. Keeping this in mind, we can better classify the following definition of salts from the middle of the 18th century : "Bodies that, when totally dissolved in water, swim invisibly therein, combine to sharp needles or permanent shapes, melt on the tongue with a biting taste, become fluid or volatile in fire, are called salts". (6)

Johann Samuel Halle did not yet have the chemical concepts at his disposal that were discovered later : "molecular formulas", "polar compounds" and many other terms were unknown to him. Thus, his definition is based exclusively on that which the human eye, tongue and nose can perceive. He uses the same means to define the other five "main families that can be encountered in the essence of the world: metals, half metals, flammable essences, petrifications and earth/stones". (7)

At this time the group of salts consisted of sea, stone and kitchen salt, vitriol, alum, potash, saltpeter, borax, tartar and several other names, whose exact meaning is not (yet) known today.

Let us stress that, whenever we shall speak of "salts" in the following pages, we mean these substances.

SALTED WOOD IN INSTRUMENT MAKING

Several recent papers are concerned with the presence of these substances, discovered by modern analysis, in various century-old woods designated for intrument making. We have already cited these authors and sources above.

So laboratory analysis has shown that there are salts in old violin wood. For us the question remains : Why were these woods treated with salts ? Here the second point of the "threefold trial" will be helpful.

2. THE DOCUMENTS

I will give a short summary of the present-day studies concerning the impregnation of woods with saline solutions in earlier times. The papers mentioned above (see 3 and 4) have clearly shown that the early craftsmen had a least four reasons to paint their wood with, or to boil it in saline solutions:

a. This was done to avoid the rotting of the wood, since wood treated with vitriol, alum or sea salt rots far less easily than untreated wood.

b. Wood painted or impregnated with these salts does not attract common wood-worms.

c. The salts decrease the inflammability of the woods. Several sources mention alum as being especially effective here.

d. Woods thus treated, also according to old sources, react less to weather changes.

Some of these reasons are also plausible in connection with musical instruments. The treatment of soundboards against worms, or to make it settle faster, seems justified. But, since we are interested in musical instruments, and not in furniture or ships, we must, of course, ask a very important question :

How do these treatments effect the sound ?

What kind of experience did the ancients have in this respect ?

Until now, no reliable source has been available to inform us of the old masters' knowledge of the positive influence of these treatments on the sound of an instrument. This gap can now be filled with the following paper :

TREATISE ON SALTS... 1580

During my most recent researches I discovered a paper that I will now present in detail.

Before arriving at the contents of interest for our topic, let us introduce the author. He lived in the 16th century and is well-

known to all French citizens, whose history books describe him as one of the most adventurous personnalities of the French Renaissance : he is known as the rediscoverer of the secret white and later the coloured enamel, for which he had stubbornly searched for 15 years. He is usually introduced to the young students of our country (France) as the archetype of the untiring experimentalist, who, driven by his urge for scholarly enquiry, finally fired his oven with his floorboards and furniture, because he had no money for other heating material. His name is Bernard Palissy (Fig.1).

Many of his works can now be seen in great museums all over the world. So much as to the legend.

More recent studies by some historians of science on this extraordinary personality of the 16th century demonstrate that he was a versatile scholar, an all-rounder, at the same time a practicial man and a theorist, at home in the workshop as well as in the study, as befit the spirit of his tumultuous time. Very well-read, he was knowledgeable about the official as well as the less official sciences of his era.

Endowed with a practical and keen perception and always experimenting, he heavily criticized and fought against old, outdated concepts of natural philosophy. As a contemporary of Nikolaus Kopernikus, Kaspar Tieffenbrück, Hans Ruckers and others, he demonstrated throughout his life that the direct observation of nature is far more important than slavish studies of the works of classical antiquity, so worshipped at the time, or sterile commentaries, repeated over and over again. Because of his great experience, acquired during his long years of travel as a glass painter, and his talent as a surveyor, the Royal authorities appointed him as a geometer and supervisor of the sea salterns of his home region, the Saintonge (near Bordeaux).

There he was able to make observations in many different areas of nature, which he handed on, first in his private lectures on natural philosophy in Paris and later in his written works. His work, still obtainable only in the original quaint French language of the 16th century, is a mine of information for the historian of technology. Here we are interested, above all, in Palissy's explanations of salts.

THE IMPORTANT TECHNICAL-HISTORICAL DOCUMENT

His treatise on salt, first printed in Paris in 1580 (fig.2), is not the work of a theorist handing on knowledge acquired by reading, but is based instead on the practical experiences that he himself had made, or had heard of from workmen, and then examined

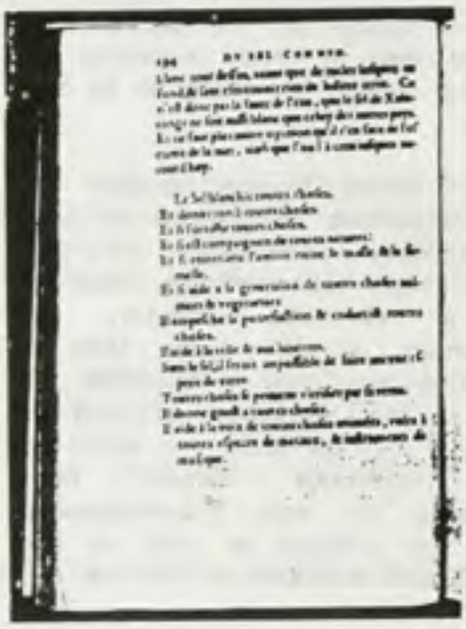
"scientifically". For example, he lists several examples for the use of salts in various areas of human activity. The list ends with a summary of the different uses of salt, including the uses already mentioned in this paper.

But among all the authors I could study, Bernard Palissy is the only one who makes at the end of his chapter on salts the clear and for us, 400 years later very important remark: "Salt improves the voice of all sorts of musical instruments", Fig.2.


DISCOVRS AD-
SIRABLES, DE LA NA-

A PARIS,

AVEC PRIVILEGE DV ROY.



This then is the document we were looking for, the technical-historical source that might enable us to find an answer to our most important question, assuming that the instruments made of wood belong to "all sorts of musical instruments". The early masters preferred salted wood for instrument making, because they were aware that wood soaked in salt sounded better !

This technical-historical source, written by a man who was in contact, throughout his life, with the 16th century world of crafts as well as that of scholars, together with modern laboratory analysis cover two thirds of the circle of our "threefold trial".

HISTORICAL-TECHNICAL ENVIRONMENT

Bernard Palissy mentions musical instruments only on this one occasion. We do not know whether he himself experimented in this field (the diversity of his interests makes this quite possible) or whether instrument makers in his acquaintance told him about the use of salts in instrument making. In the latter case we would assume that it was not or not yet a workshop secret.

Bernard Palissy's work also fails to tell us if this was an ancient technique or when it was first used. We cannot know from his writing if this technique was a widespread one.

But this missing data should not keep us from continuing our search for the origins of this idea.

Every technique is based on a "technical" or (today, increasingly) "scientific" knowledge. As an author of the 18th century describes it for his time, "all human knowledge and cognition is founded on reason, or on experience, or on immediate divine revelation". (8) We can exclude the latter means here, since the Holy Scripture does mention salt, but not, to my knowledge, its good effects on sound...

As to the first, namely reason, which is so important in modern experimental physics, let us resist the temptation of projecting our own methods on the old masters. There were no research programmes during the life-times of Palissy or before, no scholars were instructed to find a means to make instruments sound better.

What remains is experience, consisting of the conclusions preserved in the memory of a civilisation, drawn over generations, from many, often quite coincidental observations: the great teaching of centuries slowly cristallized.

As so often in technical history, our point of view must include as many areas as possible - if we want to find a plausible origin for the process described above.

Where did the old masters make such discoveries ?

It must have been somewhere, where wood, water and salts interacted.

a. THE SALTERNS

There were the salterns, for example, the boileries and the salt manufactures. Here observations could be made over centuries and conclusions drawn concerning both the tools used daily by the workers and the installations, most of which were made of wood.

A report from the 18th century clearly shows that not only the general influence of the salts, but even that of specific concentrations of brine was well known for firs and oak wood. E.g. with respect to the question of whether oak or fir wood was better suited for building the evapouration-house of a salt-boilery, we read : "If the brine is very salty, then fir wood is excellent, because the salty vapours make it harder and more lasting. But if the brine is weak, then its phlegm will make the wood rot fast. I have seen this in several salterns in Franconia, where the wood of the graduation-houses suffered because of the quarterounce concentration of the brine. In such cases it is better or even necessary to use oak wood". (9)

Installations like these had existed in Europe at least since the 11th century. So there were certainly many occasions to learn something about the sound qualities of wood that stood in contact with saline solutions.

b. BOILING WOOD FOR MEDICINE

Pharmacists also brought wood, salt and water together. In a work that appeared in Strasbourg in 1630, we hear of a procedure to extract oil from wood.

We are interested in this description, however, because of the notes Thomas KeBler made in the margin. "Take whatever wood you will", he writes, "saw it into small pieces/ or rasp it, the smaller, the better/ pour water over it/ season it with a little salted or vitriolic oil, let it soak a while/ then boil it one whole day. When it has boiled long enough/ pour off the water : let it stand a while" etc... (10) Several methods describing how to make medicine out of this brew follow.

As to our subject, this description from the 17th century reminds us of the report by Julius Salberg in the paper I have already published. There we are told how and why the wood of the cartwright and the turner was cooked in vitriolic water (11).

KeBler report goes on. He says : "There is something else I have to tell. I have heard several chemists/ saying/ that they wonder that boiled wood gives little or no salt and is yet very heavy and compact". (12) In order to understand this sentence, we must call to mind a characteristic of salt emphasized by Palissy and confirmed by the above-mentioned visitor to the Franconian salterns : "Salt fortifies and hardens each creature", a persisting notion of that time. Yet it did not fit to the observation of several chemists. If there are no salts in the combustion product of this boiled wood, then why is wood treated thus still so hard and compact ? A discussion that interests us only insofar as KeBler's note offers us a second proof for the fact that there were simple methods, not kept secret, in order to notice how wood changed when it was treated with salt. We cannot yet tell who first made use of this for instrument making or when this happened.

c. FLOATED TIMBER

One of the explanations for the presence of salt in old woods that we often find among instrument makers today is the habit of the old masters of floating timber. Of course, we must distinguish between sweet and sea water.

Before citing old sources, let me call your attention to the following point: here two different causes lead to the same effect. If we compare both of the excerpts cited later, we will notice that, according to the authors of the 18th century, a valued property was found in the timber floated in sweet water as well as in that floated in salt water. The absence of a smaller or greater part of the water-soluble elements of wood seems to have a similar effect to a high salt concentration. But only modern studies, that, to my knowledge, do not yet exist, could show how this effects other characteristics, such as sound.

First let us hear the anonymus remark published in the "Hannoverische Gelehrten Anzeigen" (13) : "Who doesn't know, of those who handle it, that this floating wood that comes down the Leine year

after year is much lighter, harder, less changed by air and therefore more lasting than other wood that did not lie in water? Must not the reason be that the water dissolves a great part of its salt? The lightness of the wood, when it is dry, gives us evidence that what is dissolved is really salty and not only watery juice, consequently the other characteristics must be a result of this solution". (14)

Let us add that floated heating-wood was cheaper on the market of that time than non-floated timber, because it burned faster. So much as to the influence of sweet water.

Now to the influence of salt water. Here we also have written sources, of which that of the Swedish scholar Carl Härtleman is the most interesting. In 1746 he noted the following incident : "Daily experience teaches us that wood that is permanently soaked in water and thus freed of air is less prone to rot and spoil. There is enough evidence for this in sweet and salty water everywhere in our home country. But the oldest proof I have seen outside our country in salt water was in 1727 in the Kingdom of Naples, several miles on the other side of the capital, in a pilework of a bridge or an harbour that Emperor Caligula had ordered to build over a corner of the sea between Pozzuolo and Baya. When I had a chip of a fir pile cut under water, I found that it was as fresh as would have been expected even if the tree had been felled only a few years ago". (15) We can of course doubt whether this wood really dated from the time of the emperor mentioned. Härtleman continues with the theoretical question whether salts or exclusion of air were the real reason for its durability.

In his paper Härtleman further mentions a method well-known in Venice : "In Venice in the so-called armoury or arsenal a great amount of the wood for ships and galleys is permanently stored under water that comes from the surrounding bay, but cannot be as salty as that of Pozzuolo, because of the huge rivers entering it..." (16)

What interest us especially is that the soaking of woods for ship-building in sea-water was no new fashion in Härtleman's time. This we can conclude from a work by Otto Tachenius that appeared in Venice itself in 1666 : "ligna, ex quibus componunt naves bellicas Veneti (...) aquis submergere, in ornatissimo, ac instructissimo Armamentario, jubeant recentia, per multos annos, nec scilicet an illa penetrat (...)" (17). So the wood had to stay in pools near the seaside for several years, according to the prescriptions of the arsenal authorities, until it was used for ship building.

Other technical papers of the 18th century on ship building also tell us that young fir poles were turned into masts of high elasticity by being soaked in sea pools.

We cannot exclude the possibility that an instrument maker one day had the idea of using such dry wood, after he had tested its superior sound. He may also have used wooden parts of old ships, quite probable for the "non-disposable" society of early times.

THE END

This paper had two aims:

- to make the interested public familiar with the work of Bernard Palissy and his important remark,

- and to show that the instrument makers of former times had several opportunities in their technical environment to make discoveries concerning the influence of salt impregnation on wood and its sound properties.

We have not yet been able to clarify out of which technical area they actually did draw their ideas. Here, as so often in technical historical studies, we must suppose that there were several possible paths leading to the same goal. The analysis described in the papers cited above shows, however, that this goal was finally reached.

I certainly do not want to claim that the ancient masters followed all of the paths that I have presented here as not impossible. We do not yet know who took this step or why, when and how it was taken. Was this method known everywhere or only in a few regions ? How did it spread, and when did it get lost again ? We do not know if we will ever discover the whole story of this procedure.

But we can nevertheless assume, before we close, that Bernard Palissy's remark that "salt improves the voice of all sorts of musical instruments", so important for us, is the spark of a lost tradition that reaches us today and invites us to rediscover forgotten techniques by experimenting (point 3 of our trial) with our own present-day methods. This we can do quite simply either in our workshop or by following a more scientific programme. Empirical experiments of modern instrument makers can show whether this treatment improves the sound. Since musical instruments are designed for human ears, these ought to be able to register possible differences. In the laboratory, then, we could examine the how and the why. What kinds of influence of such treatments on sound did the old masters notice? How does the behaviour of salted wood and that which was stored long (and silently ?) differ, when oscillated ?

These and numerous other questions might enable us to pass the "threefold trial" mentioned above.

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1. Karl Schnur, "Klangholz-Analysen", in : Das Musikinstrument, vol.**8**, August 1985, p.61.

2. Prof. Nagyvary - A. Dorozynski, "Les Secrets de Stradivarius", in : Science et Vie, mai 1984, p.72.

3. R. Gug, "Des bois de lutherie anciens", in: Musique Ancienne, 22, mars 1987, p.114. Englisch: "Salts of Wisdom", The Strad, July 1987, p.525-529, or FoMRHI-Q., N°47, April 1987, P.22-31.

4. R. Gug, "Holzbehandlung, in der Wissenschaftlichen Literatur des 18. Jahrhunderts", in : Das Musikinstrument, vol. 2/3, Februar/März 1986, p.134.

5. Fromherz, Hans, "Englische und deutsche chemische Fachausdrücke", Verlag Chemie Gmbh, Weinheim, 1963, p.23

6. Halle, Johann Samuel, "Werkstätte der heutigen Künste", Brandenburg und Leipzig, 1765, vol.3, p.214

7. note 6.

8. Möller, George Friedrich, "Zweyen Asylis ignorantiae bey der Gärtnerey un dem Ackerbau", in : Zinkii Leipziger Sammlungen, vol.4, p.530

9. Langsdorff, Johann Wilhelm, "Kurze und gründliche Einleitung zur Kenntniss in Salzwerks-Sachen", Frankfurt, 1771, §50

10. Keßler, Thomas, "Dreyhundert außerlesene Chymische Proceß und Stücken / Theils zur Wund / und äußerlichen Artzney..., Straßburg, 1630, p.100.

11. note 3.

12. note 10, p.101

13. "Zufällige Gedanken von Verbesserung des Holzes...", in : Hannoverische Gelehrte Anzeigen vom Jahre 1753, 83tes Stück, p.1229

14. You may understand these notes better if you recall that until the end of the 18th century it was a popular idea that wood was an "alloy" of two of the "main families" mentioned by Halle, Salt and Earth, with a third essence, the watery part or "phlegm" mentioned also by Langsdorff (see above). According to this notion, the difference between the various kinds of wood depended on the dominance of one or the other of these three main parts.

15. Härtleman, Carl, "Gedanken von Verwahrung des Holzwerkes", in : Abhandlungen der königlich-schwedischen Akademie der Wissenschaften in Stockholm, aus dem Jahre 1746, Hamburg 1753, vol.IX, p.313

16. Ibid.

17. Tachenius, Otto, "Hippocrates chimicus", Venetis, 1666, p.153

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10 All material for the Bulletin must be sent to Jeremy Montagu (c/o Faculty of Music, St.Aldate's, Oxford OX1 1DB, UK) to reach him by the date specified in the previous Quarterly (normally about the first of the month of January, April, July and October; posts are terrible at the end of December, so aim a bit early for January).

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