Comité International des Musées et Collections d'Instruments de Musique

CIMCIM PUBLICATIONS

International Committee of Musical Instrument Museums & Collections

No.2: 1994 ISSN 1019-9977

TRAINING IN MUSICAL INSTRUMENT CONSERVATION

Part 1: A Survey on Training for Musical Instrument Conservators

1. INTRODUCTION

A proposal to survey institutions that take an active role in the training of musical instrument conservators was made at the CIMCIM meeting in Berlin in April 1988. It was shaped into a Working Group with the following participants: Bob Barclay, Ottawa, Canada; Friedemann Hellwig, Cologne, Germany; Cary Karp, Stockholm, Sweden; and, as coordinator, Peter Andreas Kjeldsberg, Trondheim, Norway. During the ICOM General Conference in Québec, September 1992, Friedemann Hellwig took over the coordination.

The purpose of undertaking this survey was CIMCIM's general interest in conservation problems and up-to-date knowledge about training courses in the special field of musical instrument conservation. It was also seen as a way of focusing on the need for training as well as of raising questions about the content and academic level of a study course on musical instrument conservation.

An application for financial support of the survey was made to the UNESCO Programme of Participation in the Activities of Member States for the 1988-89 Biennium (Doc.24 C/15.8) - Training of Personnel, and the sum of US$ 5,500 was granted.

A questionnaire of four pages in English and French was written by Peter A. Kjeldsberg and Bob Barclay and distributed to 274 conservation training institutions around the world. A reminder was sent out when the first deadline to respond expired. Addresses were kindly supplied by the International Centre for Conservation in Rome (ICCROM).

Two sociologists of Trondheim University, Birgitte Kalseth and Heidi Engesbakk, helped to process the replies which in many cases went beyond simple responses to the questions, thus enriching the material to be evaluated, but rendering it more difficult to systematize in the original context of the questionnaire. Because it was impossible to draw a clear picture of the responses by means of statistics, the results are presented here in the form of continuous text.

2. THE QUESTIONNAIRE

The following is a condensed reprint of the English version of the questionnaire (spaces to be filled on the form have been deleted).

Questionnaire on Training in Musical Instrument Conservation
In order to foster the universal adoption of museum standards for the conservation of musical instruments in public collections, and to assess the requirements for trained personnel in the discipline, the Comité International des Musées et Collections d'Instruments de Musique (CIMCIM) of ICOM is conducting a survey of conservation training centres. We would be obliged if you could respond in as much detail as possible to the questionnaire on the following pages.

Section One

1. Do you have a course unit in your curriculum on musical instrument conservation? If yes, please answer the following questions:
   a) What type of institution is the course held in? (technical college, university, art school, etc.)
   b) Is there a collection attached to the training institution?
   c) If the course is held in a museum, what type of museum? (musical instrument, anthropological, general, etc.)
   d) How long has the course been offered?
   e) What type of certificate is awarded?
   f) What qualifications do students require to participate in the course?
   g) What is the duration of the course?
   h) Is a course description available?
   i) Who are the instructors for the musical instrument unit?
   j) What technical facilities are there for the examination of objects?
   k) Please include any other revelant information on the course:

Section Two

If the answer to Question 1 is no, please continue:

2. Do units of your curriculum deal specifically with decorative arts objects?
3. Do units of your curriculum deal specifically with technical and scientific artifacts?
4. Does your curriculum include material on handling, use, and restoration of functional artifacts?
5. Would you consider including a section in your curriculum on musical instrument conservation?
6. If you were to include musical instrument conservation in your curriculum:
   a) At what level would the course unit be taught?
   b) What length would the course unit be?

c) Would the course unit be taught by your own lecturers, or by guests?
d) What facilities and expertise would you be able to draw upon from your own institution?

7. Any other observations?

Section Three

1. Have you had requests in the past for training in musical instrument conservation?
2. In your experience, do you consider training in musical instrument conservation to be desirable and/or necessary for the region/country you serve?
3. In your opinion, how many musical instrument conservators are needed in your region/country?
   a) As specialists in musical instruments?
   b) As generalists with some training in musical instruments?
4. Any other comments about training for musical instrument conservators:

3. RESPONSES

Of the 274 institutions contacted, 64 (or 23%) responded to the questionnaire. Of these, 29 gave negative replies to all questions. The report is therefore prepared on the basis of responses from the 35 institutions which provided positive input.

Since the return of the completed questionnaires some time has elapsed; therefore, information in the replies has been updated where necessary.

3.1 INSTITUTIONS OFFERING TRAINING IN THE CONSERVATION OF MUSICAL INSTRUMENTS (Section 1 of the questionnaire)

There were three positive replies:

- Fachhochschule Köln, Fachbereich Restaurierung und Konservierung von Kunst- und Kulturgut, Cologne, Germany
- Germanisches Nationalmuseum, Institut für Kunsttechnik und Konservierung, Nuremberg, Germany
- Akademie der Bildenden Künste in Wien, Meisterschule für Restaurierung und Konservierung, Vienna, Austria

Fachhochschule Köln

This is an institution offering training in the restoration and conservation of various specialties. After four years of successful study the academic degree of a Diplom-Restaurator is awarded by the state. The training is divided in two phases: a ground (basic) study and a head (main) study. The ground study runs for three semesters, followed by a practical semester spent in conservation labs of museums, monument offices or in private workshops; the main study includes four semesters also comprising the writing of the diploma thesis.

Three years of practical work in a conservation atelier is required in order to be accepted at Fachhochschule Köln, in addition to successfully passing an entry test.

One of the present five courses deals with wooden objects, taught among others by Professor Friedemann Hellwig. Within this structure, learning the basics of musical instrument conservation is possible.

The main goal of this course is to give the students a sound knowledge in general conservation theoretical and practical questions and to provide them with adequate practical experience in conservation techniques together with a basic introduction into conservation analytical techniques.

There is no course dedicated wholly to musical instrument conservation. However, students showing special interest in musical instruments will be given extra attention and will be encouraged to write their diploma thesis on a subject from this field.

The conservation courses have been running since 1986; well equipped conservation and analytical labs are at the students' disposal. There is no collection attached to the school.

Germanisches Nationalmuseum - Institut für Kunsttechnik und Konservierung, Nuremberg

This is one of Europe's major museums of cultural history, which also includes one of the largest collections of Western musical instruments in Europe. The museum has several conservation workshops, among them one for musical instruments.

The training takes eight terms (four years). Instructors include the institute's chief conservator, a chemist and two musical instrument conservators. Well equipped workshops are available. No specialized initial qualifications are required; applicants with a certificate in some related field (also crafts) are invited to participate in an entry test. In addition, basic musical knowledge is expected. A course description is available.

There is no certificate awarded after completing the training other than a written statement and description of the content of the training.

[A note on the situation in Germany: in a recent meeting at the Leipzig University Museum of Musical Instruments specialists from the fields of large church organs, museum collections of the smaller instruments, state monument offices, and conservation training institutes discussed the current situtation of training in Germany. Special regard was given to the formal training courses in other fields of conservation presently offered at Hochschule für bildende Künste (Dresden), Akademie der Bildenden Künste (Stuttgart), Fachhochschule Köln, Fachhochschule Hildesheim, and soon also at Fachhochschule für Technik und Wirtschaft (Berlin) as well as at Fachhochschule Erfurt. It was noted that the conservation of musical instruments is not included in any of these courses (except for the fact that some consideration is given to instruments at Fachhochschule Köln, *see above*). A document was drafted asking the Arbeitsgemeinschaft der Restauratoren (the largest German association of conservators) to support a plea to training institutions to include musical instruments in their curricula.]

Akademie der Bildenden Künste - Meisterschule für Konservierung, Vienna
Training for conservation of musical instruments is not part of the regular curriculum. However, an occasional course was given in 1986/87, and it is possible for students to focus their diploma within this field.

[The situation in June of 1993 differs: there is no course for musical instrument conservation anywhere in Austria. However, conservators and their associations hope that a third training institution besides the Akademie der Bildenden Künste and the Hochschule für Angewandte Kunst will be established taking care of all conservation fields currently not covered, including musical instruments. Communication from Alfons Huber, Kunsthistorisches Museum, Vienna.]

3.2 INSTITUTIONS NOT OFFERING SPECIAL TRAINING IN THE CONSERVATION OF MUSICAL INSTRUMENTS (Section 2 in the questionnaire)

This section lists those institutions that would consider introducing musical instruments into their training scheme and also those who have no plans for this.

3.2.1 Institutions with Units of Curricula Dealing with Decorative Arts, and Willing to Consider Including a Section on Musical Instrument Conservation

These institutions are:
- Victoria & Albert Museum, The National Museum of Art and Design, London, U.K.
- University of Oxford, Department of Ethnology and Prehistory, Pitt Rivers Museum, Oxford, U.K.
- Opleiding Restauratoren, Amsterdam, Netherlands
- Departement de Pintura, Seccion Restauration, Facultad de bellas artes, Madrid, Spain
- Instituto per l'arte e il restauro, Firenze, Italy
- The Getty Conservation Institute, Marina del Rey, California, USA
- Buffalo State College, Art Conservation Department, Buffalo, New York, USA
- New York University, Institute of Fine Arts - Conservation Centre, New York, USA
- Queen's University, Art Conservation Programme, Kingston, Canada
- Canadian Conservation Institute, Ottawa, Canada
- Material Culture Unit, James Cook University of North Queensland, Australia

Evaluation

a) Europe
- There are four institutions. All include in their curricula the handling, use and conservation of functional objects.
- They all agreed that it is neccesary and desirable to establish training for conservation of musical instruments even if there has been little demand for such training.
- There are various answers on how long such training should be; three or four years either on undergraduate level or with a master's degree.

- All institutions indicated their dependence upon external resources when realizing such training. They found it difficult to estimate how many general conservators and conservators specifically trained for musical instruments are needed within their country or region. Many institutions stated that specialists would be preferred.

b) USA

- There are three institutions in this group of which only one does not include handling, use and conservation in its curriculum.
- They were not as convinced as the Europeans of the need for special training, arguing that in any case it is not a popular field and that the question has not been looked into. However, they were all willing to include special musical instrument training if the interest was strong enough. They put such a course on a high level, i.e., Master's degree or equivalent.
- The length of course units would vary, and the institutions would be generally dependent upon external expertise for teaching.

c) Canada

- Two institutions replied and both had handling, use and restoration in their curricula.
- The two confirmed that competence within musical instrument conservation had been in demand in previous years, but one institution did not know whether the need was great enough.
- The training would perhaps be either on the level of a Master's degree or on that of an apprenticeship arrangement.
- For teaching, both external and internal expertise would be used. One institution expressed the need for five general conservators and three specialists, and the other felt that ten general conservators would be required.

d) Australia

- The need for musical instrument conservation is primarily at the larger museums.
- It was proposed that training should take place on a high (i.e., graduate) level.
- It was indicated that there is more need for general conservators than for conservators trained specifically in the field of musical instruments. Some twenty conservators would be needed.

3.2.2 Institutions without Units of Curricula Dealing with Decorative Arts, but Which Had Interest in Including a Section on Musical Instrument Conservation

Two institutions are included here:

- Conservatoire National Supérieur de Musique de Paris, Paris, France
- Direction des artes et culture, Ministère de la communication, Bangui, République Centrafricaine

Evaluation

a) France

- Training for conservation of musical instruments has been advertised and is considered very necessary. Ways of including training on a high level would be considered; the length of such training should be one year. Both external and internal teaching facilities and expertise would be needed. It is difficult to estimate the number of conservators needed in France.

b) République Centrafricaine

- A strong need for expertise in this area was expressed. At this institution only one out of six conservators has some elementary knowledge of musical instruments. Two specifically trained and four generally trained conservators are considered necessary. The training should take place on an intermediate to high level.

3.3 INSTITUTIONS WITHOUT PLANS TO INCLUDE TRAINING FOR CONSERVATION OF MUSICAL INSTRUMENTS IN THEIR CURRICULA

General evaluation

The remaining 16 institutions responded that they would not at this moment consider taking up training in the conservation of musical instruments in their curricula. This is partly because they already deal with other types of artifacts, partly because the expressed need is not strong enough to modify the priorities in their curricula. In spite of this there is a serious and strong interest among the institutions in the questions related to training for conservation of musical instruments. Nearly all specifically answered *yes*, that it is desirable and/or neccesary to have the option of this type of training in the country/region.

The number of conservators needed varies between two to six and ten to twenty. Whether this should be a specific training or part of a general conservation training is not quite clear; it cannot be read precisely from the answers. The level on which training should be done varies considerably. It was stated that musical instrument conservation is often learned through an apprenticeship and that an accreditation system is needed.

Other answers touch upon the dilemmas encountered when conserving functional artifacts. Respondents stated that training in this field must involve consideration of ethics.

3.4 MUSICAL INSTRUMENT COLLECTION SURVEY IN THE UNITED KINGDOM

Since the compilation of this survey, the Museums and Galleries Commission (MGC) of the United Kingdom has supported an independent survey of musical instrument collections. The work of Kate Arnold Forster and Hélène La Rue has been published by the MGC under the title *Museums of Music*. This is an in-depth survey of collections with 14 recommendations under the following headings: Acquisitions and Collecting, Conservation and Care of Collections, Staff and Training, and Interpretation and Documentation. The recommendations for conservation and care include the publication of *Standards of Care*

for Musical Instruments, wider dissemination of information, establishment of a scheme for providing training, and the creation of an advisory panel of experts.

4. CONCLUSION

Although the survey gives only a limited picture of the situation of training for musical instrument conservation at the time of its production, it is apparent there is a decidedly positive attitude towards the need for such training. We hope this survey will serve as a basis to work from when discussing the content of training, the initial qualification required, and the length and level of future courses. It is hoped that this survey will be a tool for continued discussions within CIMCIM and between CIMCIM and the ICOM Conservation Committee.

APPENDIX: ADDRESSES OF RESPONDING INSTITUTIONS

Akademie der Bildenden Künste in Wien
Meisterschule für Restaurierung und Konservierung
Schillerplatz 3
1010 Vienna
Austria

Bibliothèque Nationale
Centre de Conservation
Chateau de Sablé
72300 Sablé-sur-Sarthe
France

British Museum
Department of Conservation
Great Russell Street
London WC1
UK

Canadian Conservation Institute
1030 Innes Road
Ottawa, Ontario K1A 0C8
Canada

Cleveland Museum of Art
Conservation Department
11150 East Boulevard
Cleveland, Ohio 44106
USA

Colonial Williamsburg Foundation
P.O. Box C
Williamsburg, Virginia 23187
USA

Conservatoire National Supérieur de Musique de Paris
14, rue de Madrid
75008 Paris
France

Department of Archaeology
46, Saddler Street
Durham DH1 3NU
UK

Fachhochschule Köln
Fachbereich Restaurierung und Konservierung von Kunst- und Kulturgut
Claudiusstrasse 1
50678 Cologne
Germany

Gateshead Technical College
Durham Road
Gateshead Tyne & Wear NE9 5BN
UK

Germanisches Nationalmuseum
Institut für Kunsttechnik und Konservierung
Kornmarkt 1
90402 Nuremberg
Germany

Getty Conservation Institute
4503 Glencoe Avenue
Marina del Rey, CA 90292-6537
USA

Harvard University Art Museums
32 Quincy Street
Cambridge, MA 02138
USA

Horniman Museum and Library
London Road, Forest Hill
London SE2 3PQ
UK

Instituto per l'arte e il restauro
Vie dei Fossi 12
50123 Florence
Italy

James Cook University of North Queensland
Material Culture Unit
Townsville 4811
Australia

Kunitachi College of Music
Gakkigaku Shiryokan (Collection for Organology)
Tashikawa, Tokyo
Japan

Ministère de la Communication des Arts et de la Culture
Direction des Arts & Culture
Bangui
République Centrafricaine

Musée National Suisse
Artisanat et habitation
Casse postale 6789
8023 Zürich
Switzerland

Newark Technical College
Chauntry Park
Newark on Trent
Nottinghamshire NG24 1PB
UK

New York University
Institute of Fine Arts
Conservation Center
14 East 78th Street
New York, New York 10021
USA

Oppleiding Restauratoren
Gabriel Metsustraat 8
1071 EA Amsterdam
Netherlands

Queen's University
Art Conservation Programme
Kingston, Ontario K7L 3N6
Canada

Science Museum,
South Kensington,
London SW7 2DD
UK

State University College at Buffalo
Art Conservation Department RH 230,
1300 Elmwood Avenue
Buffalo, New York 14222-1095
USA

Textile Conservation Centre
Apartment 22,
Hampton Court Palace
East Molesey, Surrey KT8 9AU
UK

United States Department of the Interior
National Park Service,
Harper's Ferry Center
Harper's Ferry, West Virginia 25425
USA

Universidad Complutense de Madrid
Facultad de Bellas Artes, Seccion Restauración
Ciudad Universitaria
28040 Madrid
Spain

University of Delaware
Art Conservation Program
Newark, Delaware 19716
USA

University of Oxford
Department of Ethnology and Pitt Rivers Museum
South Parks Road
Oxford OX1 3PP
UK

University of Pennsylvania
Graduate Program in Historic Preservation
The Graduate School of Fine Arts
214 Meyerson Hall
Philadelphia, Pennsylvania
USA

Victoria & Albert Museum
South Kensington
London SW7 2RL
UK

Virginia Commonwealth University
Department of Art History
922 West Franklin Street
Richmond, Virginia 23284-2519
USA

Wayne State University
Purdy/Kresge Library Complex
5265 Cass Avenue
Detroit, Michigan 48202
USA

AUTHORS AND COMPILERS

F. Hellwig (text)
Fachhochschule Köln
Cologne, Germany

P.A. Kjeldsberg (questionnaire and survey)
Ringve Museum
Trondheim, Norway

R.L. Barclay (questionnaire)
Canadian Conservation Institute
Ottawa, Canada

C. Karp
Swedish Museum of Natural History
Stockholm, Sweden

Part 2: The Conservator of Musical Instruments: A Critical Analysis of the Position and Tasks in the Museum

Friedemann Hellwig, *Fachhochschule Köln, Cologne, Germany*

Friedemann Hellwig trained as a violin maker and worked, among others, with J.A. Beare of London. He won his master diploma in 1963. He gained a Chemical Lab Technician Diploma in 1972. In 1963 he joined the Germanisches Nationalmuseum, Nürnberg, as restorer/conservator of musical instruments. He did emergency conservation work in Florence in 1967 and 1968 after the floods of November 1966. In the summer of 1986 he became Head of the Conservation Department of the Rheinisches Museumsamt, and in 1987 he took up the post of Professor of Wooden Object Conservation at the Fachhochschule in Köln. He was Chairman of CIMCIM from 1977 to 1983. His many publications include studies on the history and structure of the lute, radiography of instruments, profiles of wood mouldings, and diverse topics in conservation and restoration of musical instruments, with studies in ethics and philosophy.

INTRODUCTION

In the following text a number of crucial points having to do with the relation between curator and conservator will be discussed. This relation presents the conservator's tasks and actual work in a very special light, helping one to recognize his or her own position not only in the microcosm of an institution like a museum but also within the larger world of conservation in general. Questions of this kind may be discussed in a particularly rewarding manner within the framework of CIMCIM, since it is one of the very few international committees of ICOM where curators and conservators have come together regularly and continue to do so. In the author's opinion this forum of exchange has greatly contributed to a better understanding of other colleague's backgrounds and occupations, but such understanding has occasioned more detailed criticism of the actions of both parties.

The fact that four musical instrument conservators, CIMCIM members for many years, have left the musical instrument world is also worth studying because it sheds light on the development and the recognition of this special field of conservation. The author has often discussed the questions raised below with Klaus Martius, Germanisches Nationalmuseum, Nürnberg, Germany; Alfons Huber, Kunsthistorisches Museum, Vienna, Austria; and of course with many CIMCIM colleagues. To all of them much is owed by way of inspiration, stimulation, and clarification.

It is true that some of the observations and points here will appear highly debatable and controversial, especially to curators, but in order to make the view clearer it has been necessary to simplify and exaggerate so as to foster fruitful discussion.

Above all, the author's professional career as a musical instrument conservator and a subsequent position as a conservation educator have led to a critical review of this occupation. Finally, much of what is said here about musical instruments equally concerns other fields of cultural objects.

THE ROOTS OF CURATORS AND CONSERVATORS OF MUSICAL INSTRUMENTS

Simply stated, both the conservator and the curator of musical instruments have been influenced in their choice of professional work by the love of music and an attachment to objects or phenomena of cultural history. In the case of the curator, he or she has as a rule

taken up the academic discipline of musicology while the conservator traditionally has studied instrument making and eventually entered the field of musical instrument conservation.

In almost every case, neither received any training in general museology or the particular questions of preserving musical instruments. Being a member of a museum's staff, both curator and conservator started as dilettantes in the word's best and worst sense. Learning was often guided by trial and error, leading to the gradual compilation of professional experience. Thus museum experience was something everybody gained for himself or herself rather than a treasure of knowledge passed on and continually augmented.

This rather sad picture may have become a little brighter in recent years, but it still seems to hold true among the staff of a number of museums. The difficulties of fund raising, the often-encountered unwillingness to popularize musicology or organology for the average museum visitor, and the agonies of dealing with bureaucracy are all evidence of a lack of museological training and a deficit of self-identification as a museum worker. Also, the restorer (in this context he or she cannot rightly be called a conservator) concentrates on the construction and functioning of musical instruments rather than their preservation and conservation. By stressing the need for function, authenticity has often been neglected. As a result, the number of instruments with replacement components is very high. The restorer thus contributes to reducing the historical, musical, and monetary value of musical instrument collections on a large scale. Strangely enough, this has taken place under the curators' eyes, often even under their guidance. We may certainly call this type of restorer a musical instrument specialist, but he or she is by no means a musical instrument conservator in today's sense.

A few interesting ocurrencess of this early attitude still persisted in the mid 80s. For example, in one museum, there were plans to make a 17th century virginal playable. There was no clear idea of the instrument's physical health with respect to an eventual stringing, so a replica of the instrument was made in order to test the effect of string tension on the case. The replica instrument stood up to this very well so the original was then strung with strings of similar material and diameter. Thus, even though a functioning replica had been made, the original was still used, under the assumption that it and the replica were in the same robust physical condition.

The training that both curator and restorer received as musicologist and craftsman respectively, defined the hierarchic relationship between the two: i.e., the restorer's subordination to the curator, the craftsman's subordination to the educated scholar. This subordination was not only administrative but also concerned measures taken during restoration treatment. Under fortunate circumstances this offered the restorer the chance of learning the basics of the history and construction of early instruments, and sometimes even led to the compilation of treatment notes.

THE CURRENT SITUATION OF CURATORS AND RESTORERS/CONSERVATORS

Today the situation is becoming more and more varied. In some museums the conservator's emancipation has been largely completed - an emancipation from the curator, but more significantly from the traditional concepts of restoration. This emancipation is often a result of private studies and continuing education and has led the musical instrument restorer to a deepened understanding of conservation needs and the role instruments play as a part of our cultural heritage. Under these conditions the restorer becomes a conservator.

The conservator also understands that the execution of merely technical work on the instruments will not give him or her a recognized position in the museum world, even if the work were of the finest quality guided by the best possible insight into the objects' conditions and conservation needs. Nowhere will the conservator's name be known and hardly anywhere will be found some acknowledgement. To some degree this feeling has made some musical instrument conservators and long-time members of CIMCIM leave the exclusive world of instruments and take over a widened range of responsibility.

In order to become a respectable member of the profession the conservator must publish. It has always been more rewarding to write or lecture about a subject than to actually do it. The conservator may therefore feel flattered if asked to take over responsibility for the publication of a collection catalogue. The conservator may also take up research into the historical aspects of early instruments, which will then be published in journals like those of AMIS or the Galpin Society, or in *Early Music* or some other scholarly periodical. Publication makes the conservator an acknowledged member of the museum staff; a recognized colleague now looked upon as somebody of equal rank.

This may appear satisfactory, but in many cases the conservator's writings are devoted to historical research. There is no doubt that he or she is well capable of doing such research in a learned manner. What is unfortunate is the fact that the conservator feels obliged to publish in a field outside his primary occupation (which should be conservation) in order to find recognition. This statement can be verified easily by looking through the extensive bibliography on musical instrument conservation and technology recently published.[1] The attentive reader will recognize the small number of texts dealing with aspects of preservation and conservation. The author certainly cannot exculpate himself from having contributed to this fact and it is regretful that much time was spent in this way, instead of approaching more directly the true and pressing problems in the preservation of early instruments.

In view of such background information, the careers of the four eldest conservators in CIMCIM appear interesting. Two musical instrument specialists left their specialisation in order to accept wider responsibilities which only partly included musical instruments (at the time of writing Scott Odell is Head of the Conservation Department of the National Museum of American History, Smithsonian Institution, Washington D.C.; Friedemann Hellwig has been appointed professor for wooden artifacts conservation at Fachhochschule Köln). The third (Cary Karp) has completely left the world of musical instrument conservation, now serving as a documentation specialist (Head of the Documentation Centre of the Swedish Musum of Natural History, Stockholm). The fourth has never worked full time in the conservation of musical instruments, but is a specialist in ethnographic objects

conservation (Robert Barclay, Canadian Conservation Institute, Ottawa) besides being an eminent practising specialist on the technology of early brass musical instruments. Musical instrument conservation - no future?

A look into the realm of organology will explain certain deficits a little better. Organological research, at least that into Western instruments, is mostly written on the basis of the classification system by Curt Sachs and Erich von Hornbostel earlier this century.[2] Their system is based almost exclusively on morphological features and has led to the art of a sort of petal counting. Organology has thus become a simplified technology. A true and detailed technological examination of musical instruments in a manner using today's technical means has not yet appeared anywhere. To illustrate the kind of published examination report that the organologist might aspire to one has only to examine *The Freer Chinese Bronzes, Vol. II, Technical Studies* by Rutherford J. Gettens.[3] This book offers exactly what the field of musical instruments needs: a detailed study of technology; an explanation of its application within the object in question; a determination of the materials used; a correlation between technology, materials and the object's origin; and a description of the factors contributing to its present state of preservation. Have musical qualities of instruments ever been described in a catalogue? It is true that "music described is like a meal painted", yet today there are ample possibilities for quantifying and describing acoustic properties even for the layman.

A well trained musical instrument conservator should be able to provide this data and be encouraged to do so. In addition, it will be the curator's natural task to add the historical, musicological and sociological aspects. The two together, conservator and curator, should be able to produce something showing the full width of knowledge that can be assembled.

One further remark: in many museums there has been and probably still is an unfortunate tradition of restoring the most interesting and valuable instruments first. The restorer/conservator thus gains a lot of experience that is applied only to the treatment of the less valuable pieces of a collection.

THE TRAINING OF THE MUSICAL INSTRUMENT CONSERVATOR

The conservator should not be content unless he or she has received training that is similar to that of the curator - similar in its academic level. With a number of conservation training institutions there should no real problem in realising this demand. However, there is no training course dealing exclusively with musical instruments. This fact could be seen as a lack of understanding of the necessity for training specialists for this field. However, it has more to do with the limited number of conservators needed (see the results of the survey presented in Part 1 of this publication).

So what has to be done? Certainly, resting content with the situation as it has been in the past cannot be the answer. One way of dealing with the problem would be to immediately start a training course on the appropriate level. But who is going to do this? Would there be a sufficient number of students? Will the students be capable of supporting themselves for an adequate period of time? Who are the instructors? Who is going to pay

them? Can all types of musical instruments (Western, Eastern, Asian, African, Latin American, ethnographic, traditional, mechanical, electronic, etc.) made of all kinds of materials (wood, other natural materials, metal, synthetics etc.) be dealt with in one single course? How long should this course take? Will the participants really be capable of executing an examination and eventual treatment under their own responsibility towards the end of the course? Who is going to award them an academic degree?

Even briefly considering the contents of such a course makes one realize that its greater part is common to a number of other fields of conservation. The following topics can all be found in other conservation courses: wood science; the properties of metals; metal corrosion; binding media and colourants or pigments in varnishes and other kinds of surface decoration; proper handling and storage conditions; examination and documentation techniques; deteriorating factors such as light, inadequate moisture levels or biological attack; consolidation techniques; conservation ethics, etc. These subjects are taught in training courses for wooden artifacts, furniture, objects of applied art, archaeological objects, metal objects, etc. In a specialized course, subjects directly dealing with musical instruments should by no means be neglected, yet they form a smaller portion of the overall amount of knowledge and skills necessary for the specialised conservator. In fact, it is the combination of widely applied conservation methods and the reaction towards the special requirements of musical instruments that mark out the profession of the musical instrument conservator.

This must lead to a rethinking of the training requirements of the musical instrument conservator as well. A sound training in general conservation topped by a period of learning from an experienced specialist in musical instrument conservation would combine to provide an acceptable, and above all feasible, scheme for the future conservator. Of course, there must be a few prerequisites at the trainee conservator's side: some basic knowledge of music and music theory, skills in playing at least one instrument, and perhaps a few more. These prerequisites, however, are often fullfilled on a voluntary basis by many young music lovers long before a formal training in conservation is ever considered.

The author has come more and more to reject the path which he himself followed: the path from the learned instrument maker who acquires restoration and conservation knowledge and skills step-by-step. The reason for this rejection is easily explained: it is the large number of instruments that have been reduced in their value in one way or another through following this path. In many of the world's most valuable collections some of the very best and rare instruments have been damaged in this way. For example, think of the many harpsichords and pianofortes that have replacement soundboards. Or consider following the advice that can be drawn from CIMCIM publications of *Provisional Recommendations* from 1967[4] and then look at *Restauration des Instruments de Musique* published in 1981.[5] At the dates of their publication these books may have represented certain advances, yet they have also contributed to an unfortunate development. It is the missing appreciation of the complex nature of an instrument as an entity of historical, musical, aesthetic, technological, physical, sociological, and other values that is so disturbing to the reader of today. As far back as 1963 "the respect of the physical, historical and aesthetical integrity" of a cultural property was postulated.[6] There is no

alternative any longer to the academically educated conservator who should also be taught to understand this kind of complexity. (Of course, there is no objection to a young instrument maker's application for a professional training course in conservation, but it would be this course to which he or she owed training and eventual reputation as a professional conservator, not the previous career as a producer of instruments.)[7]

Throughout the world a number of institutions offer courses that may well provide the kind of training which is discussed above. They can be found in a list prepared jointly by the International Centre for the Study of Preservation and the Restoration of Cultural Property in Rome (ICCROM) and The Getty Conservation Institute in Marina del Rey (U.S.A.).[8] The number of training courses is still growing, especially in Germany. The Furniture Conservation Training Program offered by the Conservation Analytical Laboratory of the Smithsonian Institution in Washington, D.C., also seems of great interest in this context.

THE COOPERATION BETWEEN CURATOR AND CONSERVATOR

Certainly, just apportioning the total amount of work that has to be done in a musical instrument museum collections between curator and conservator is not the right answer. Cooperation does not mean drawing a borderline. The *sine qua non* is the above-mentioned equal ranking of the two, based upon their training at equal levels. Their level of cooperation should therefore be that of equal positions in the work hierarchy even if payment differs between the two (for which there is no reason in many cases).

In such cooperation the curator takes the role of the scholar and historian, the conservator that of the technologist and scientist. In the German language there is a common word for the two, describing the similar approach of their work: *Wissenschaftler*. The word refers to *Wissenschaft*, Latin *sciencia*. It is the techniques of *sciencia* which both apply to their work: a systematic approach, a clear methodology, a constant striving for verification, and a quantification of empirical data.

Martin Kirnbauer and Dieter Krickeberg[9] gave an example of such cooperation in the context of the examination of early wind instruments. This kind of cooperation should go much further; i.e., beyond dividing everything into two different fields, but rather towards the call upon each other to contribute to the common task the best each has to offer. It is the author's opinion that in this sense many curators will have to offer more than has become manifest in many of their publications in the past. And the same is even more true for the conservator. Imagine what the two could achieve in a joint effort!

This kind of balance is not introduced automatically with the improved training of the conservator. Many a curator will find difficulties in dealing with this new type of emancipated colleague, and a productive cooperation will always have to be based on the individual balance of two different personalities. It will work well as long as it is based upon mutual respect and recognition of each other's level of expertise.

NOTES

1. Karp, C. (Ed.), *The Conservation and Technology of Musical Instruments*: Bibliographic Supplement to *Art and Archaeology Technical Abstracts*, Volume 28. [AATA, The Getty Conservation Institute, Marina del Rey] 1992.

2. Hornbostel, E. M. und Curt Sachs, "Systematik der Musikinstrumente. Ein Versuch." *Zeitschrift für Ethnologie*, 46/1914. (Translation into English by A. Baines and K. P. Wachsmann. *Galpin Society Journal*, 14/1961.)

3. Gettens, R.J., *The Freer Chinese Bronzes, Vol. II, Technical Studies*, Smithsonian Institution, Freer Gallery of Art, Oriental Studies, no. 7. Washington 1969.

4. Berner, A., J. H. van der Meer and G. Thibaut, *Preservation and Restoration of Musical Instruments: Provisional Recommendations*, ICOM 1967, pp. 8-13. One of the major reproaches to make is the general call for restoration to playing condition together with the total neglect of an object's extra-musical qualities.

5. Abondance, F., *Restauration des Instruments de Musique*, Fribourg (Office du Livre) 1981. See in particular the illustrations pp. 67, 76.

6. *Code of Ethics and Standards of Practice*, formulated by the then American Group of the International Institute for Conservation, under the guidance of Murray Pease. See also other codes of ethics, in particular those of Canada and Australia (*Code of Ethics and Guidance for the Practice of Conservation of Cultural Propery in Canada*, International Institute of Conservation - Canadian Group and the Canadian Association of Professional Conservators; and *Code of Ethics and Guidance for Conservation Practice for Those Involved in the Conservation of Cultural Material in Australia*, Institute for the Conservation of Cultural Material, Inc.)

7. Some training institutions, including the Fachhochschule Köln where the author teaches, do not acknowledge formally previous apprenticeships with, say, a harpsichord maker. However, the manual skills developed during such an apprenticeship are welcomed.

8. *International Index on Training in Conservation of Cultural Property*. Available from ICCROM, Via di San Michele 13, 00153 Rome, Italy, and from The Getty Conservation Institute, 4503 Glencoe Avenue, Marina del Rey, CA 90292-6537, USA.

9. Kirnbauer, M. and Dieter Krickeberg, "Zusammenarbeit zwischen Restaurator und Wissenschaftler im Museum - Neue Aspekte, erläutert an einer Untersuchung von Musikinstrumenten," *Zeitschrift für Kunsttechnologie und Konservierung*, 3/1989, no. 1, pp. 221-230.

Part 3: The Role of the Musical Instrument Conservator

John Koster, *Shrine to Music Museum, Vermillion, U.S.A.*

John Koster is Conservator and Associate Professor of Museum Science at the University of South Dakota's Shrine to Music Museum. Formerly, as a professional harpsichord maker, he produced a wide variety of instruments modeled closely on historical examples. In 1990-1 he held an Andrew W. Mellon fellowship at the Metropolitan Museum of Art in New York. A frequent lecturer at professional meetings in the U.S.A. and abroad, Koster has published numerous scholarly articles and reviews. Among his current research interests are the identification of woods in historical instruments and the measurement of the modulus of elasticity of old music wire. His recent book, *Keyboard Musical Instruments in the Museum of Fine Arts, Boston*, is the first comprehensive catalogue of its kind in English and the first to include extensive scientifically based material identifications.

INTRODUCTION

In emphasizing that the formerly recommended practice of routinely restoring historical musical instruments to playing condition whenever possible[1] is ill advised, most recent discussions of the role of musical instrument conservators have centered on what they should *not* do.[2] In the past, and often in the present, museums have usually employed instrument makers to function as restorers, either as regular staff members or as temporarily contracted consultants. Some of these individuals, transcending their backgrounds as craftspersons, have, through further study and experience, become highly respected conservators.[3] Nevertheless, because of the shift in emphasis from restoration to conservation (that is, essentially, from regarding the musical instrument as a functioning mechanism to regarding it as a delicate artifact composed of unstable materials not significantly different from those in other artifacts) one might question whether there is now any need for specialists in the conservation of musical instruments.

The following observations about what musical instrument conservators actually do, based primarily on the author's experiences as a staff member at several of the major museum musical instrument collections in the United States, supplemented by visits to many of the principal collections in northern Europe, are intended to promote discussion of this subject on the basis of reality rather than theory.[4] Moreover, no proposal for the training of musical instrument conservators should be entertained that is not based upon consideration of what duties they are expected to perform.

If there is any role at all for the musical instrument conservator, it will largely be defined within the context of the museum. Economic conditions will usually force persons working independently, or for a commercial establishment, to act as *restorers* - private owners will insist that their instruments be made playable, as will, for example, the small historic-house museum that has already secured funds to restore its ancient square piano for use at Sunday afternoon "musicales."[5] As for regional non-commercial conservation laboratories, it is unlikely that musical instruments will ever constitute a significant proportion of the objects sent to them for treatment. Further, the perpetual assurance of optimal conditions for preservation that is the ultimate goal of conservation is the direct institutional responsibility of the museum itself, not that of the outside consultant.

The number of musical instrument conservators employed by museums as permanent staff members is exceedingly small, both in the United States and elsewhere.[6] The

circumstances under which they work vary widely. In the USA, for example, one works in a small laboratory that is part of a department of musical instruments within a large general art museum which also has several large conservation departments for various classes of objects; the author works in the laboratory of a large museum solely devoted to musical instruments that is itself a department of a medium-size university; a third works within the furniture conservation laboratory of a living-history museum complex. Nevertheless, some generalizations as to what these museum professionals do are possible.

R.M. Organ has identified five major functions of a museum department for the conservation of antiquities: 1) documentation and examination of objects "accepted for treatment"; 2) treatment; 3) making of reproductions; 4) preparation of mounts, etc., for displays; and 5) overseeing of storage and display conditions.[7] Organ was envisaging the setup of a large laboratory in which these responsibilities would presumably be divided among several persons. In the case of musical instrument collections, however, all such duties are usually the responsibility of the solitary conservator (if any) on the staff. Further, both because the museological approach to instruments is often different from that involving archaeological or art-historical material and because instrument collections typically have quite small staffs, each member of which must perform a wide variety of duties,[8] the instrument conservator is expected to perform duties that are rarely the responsibilities of conservators of other artifacts. The musical instrument conservator's chief duties, many of which can plausibly be included somewhere within Organ's five general categories, are, with the addition of a sixth category (research), as follows.

DOCUMENTATION AND EXAMINATION

The state of an instrument before treatment must be documented on the basis of appropriate methods of examination, and the process of documentation must continue throughout the treatment process. Permanent written and photographic records should be maintained. Although the services of professional photographers are available to most collections for the production of formal "portraits", these are invariably too difficult to arrange at short notice and too expensive for routine documentation. The conservator, therefore, should at least have the ability to use, with a variety of lighting sources, a 35 mm. camera provided with several interchangeable lenses, including equipment suitable for close-up ("macro") work.

The conservator is called on to examine objects not only as a part of the treatment process but also for curatorial and research purposes. Curators, for example, frequently ask for identification of the materials from which were made instruments that they are cataloguing or studying. Examination can be divided into three categories: low-tech, middle-tech, and high-tech. The last category, including, for example, such methods as x-ray fluorescence, requires equipment and specialist operators that would be economically unfeasible for almost any musical instrument collection to maintain. High-tech services are sometimes available, at least in theory, at universities or in large museums with separate conservation-research departments, but the institutional priorities of these laboratories are

usually such that they cannot deal with any large number of inquiries from the musical instrument department.

Fortunately, experience shows that the musical instrument conservator can, by the low- and middle-tech means, often achieve results that are just as effective and just as valid scientifically as results achieved through high-tech means. In the low-tech mode, the author, for example, used a 10x magnifier to observe the green stains left on the bridge of a mid 18th century piano by the copper of its presumably original brass strings; a cheap magnet was used to discover that the pipes of an early 19th century Swedish organ were not of tin, as had been thought, but of tinned sheet iron.

The middle-tech area, involving equipment or supplies in the $100 to $5000 range, is also within reach of most musical instrument collections and their conservators. Ultraviolet lamps, for example, can be used to examine faded inscriptions, retouched varnish, or traces of glue from missing pieces. With suitable filters, ultraviolet reflectance or fluorescence as well as images in the infra-red part of the spectrum can be photographed. Perhaps the most useful middle-tech tool is the light microscope, with which, for example, one can identify woods, fibers, and pigments or perform microchemical tests. Needless to say, conservators should have some familiarity with the existence of high-tech means that might be available when low- and middle-tech means are inadequate; they should seek to maintain good relations with laboratories in which highly sophisticated testing or imaging could, upon occasion, be done.

TREATMENT

Treatment can be divided into three subcategories: 1) stabilization of deteriorating instruments; 2) cosmetic treatment of instruments that are to be displayed or photographed; and 3) restoration of instruments to playing condition. One should note that only the first subcategory is concerned purely with conservation. Nevertheless, when there are compelling museological or curatorial reasons to engage in treatments of the second and third subcategories (both of which have their analogies with treatments that conservators accord other types of objects[9]) the overall goals of conservation must be observed to the greatest extent possible.

Typical examples of stabilization treatments of musical instruments are: the removal of spots of corrosion-causing solder flux carelessly left on a brass instrument during previous repairs; the neutralization of an ebonite flute becoming acidic as it decomposes; and the killing of "woodworm." Obviously, some awareness of the nature of the object is desirable. The central conservation department of one great American museum once routinely applied a permanently active insecticide, now banned, to musical instruments, even to keyboard action parts that were not themselves infested, and also to a recorder mouthpiece. Needless to say, a musical instrument specialist might have chosen other means of eradication that would not have risked the health of later investigators, whose legitimate reasons to handle the instruments should have been anticipated.

Typical examples of cosmetic treatment are: polishing brass instruments; cleaning raw or varnished wooden surfaces; and regluing loose veneer. Upon occasion the conservator

makes new pieces to fill the unsightly absence of missing original parts such as harpsichord key fronts, hinges, sections of molding, or even entire stands.

This is not the forum to discuss whether, in theory, it is ever permissible to make old instruments playable. Most collections do, at least, have a few instruments (usually keyboards) that have already been restored to playability, and it might be reasonable for them occasionally to be used, under carefully controlled conditions, for public performances or for recordings. While conservators are expected to maintain instruments for such purposes (for example, by tuning them and replacing broken strings, or even by upgrading earlier restorations in the light of current knowledge about historical instruments), they strive to command the respect among their museum colleagues that will ensure the heeding of their views concerning inappropriate restoration or use of instruments.

It hardly need be stated that the conservator is responsible for the safe and environmentally sound storage, handling, and disposal of chemicals and materials used in the laboratory. Further, the conservator will take care not to attempt anything that is beyond his or her competence and will refer any unusual technical problems to specialist consultants.

MAKING REPRODUCTIONS

In this category Organ had in mind such processes as the making of casts of ancient sculpture for study or for sale. For musical instruments, one of the few directly comparable processes is making impressions of moldings.[10] More frequently, however, musical instrument conservators make reproductions by other means; for example, fabricating copies of parts of instruments, either, as mentioned above, for cosmetic purposes or for use in instruments restored to playing condition. In some collections, restored keyboard instruments are provided with entire reproduction actions in order to protect the original parts from wear.[11] In other collections, whole reproduction instruments are made for use, sometimes displayed next to the mute original.[12] In order to ensure that these reproductions of parts or wholes accurately reflect their models, they are usually made by or under the direct supervision of the conservator, who is closely familiar with the materials and processes that were used in making the originals.

In a still broader sense, conservators participate in the copying of instruments in their museum's collections by providing technical information that is requested by instrument makers. When instruments undergo conservation treatment, observations, measurements, drawings, and photographs of potential use to instrument makers or scholars should be gathered as part of the documentation, even though such data might not be directly related to the treatment itself.[13]

PREPARATION OF DISPLAY, STORAGE, AND SHIPPING UNITS

Conservators are closely involved in the design and fabrication of mounts and cases for displayed instruments and of storage and shipping units. Detailed knowledge of the structure of instruments is necessary to design display mounts, storage units, and shipping

crates that will securely hold and protect these often delicate objects. To ensure that materials used in such hardware will not harm instruments, the conservator must also be able to choose and to test them.

OVERSEEING THE MUSEUM ENVIRONMENT

Conservators constantly monitor the museum environment (for example, with hygrothermographs, which must be regularly calibrated and maintained) and make sure that any problems, such as failure of climate-control equipment, are corrected immediately. Further, they make recommendations for long-term improvements in environmental control, lighting, and security. Conservators should not wait for the curatorial staff to send them artifacts in need of stabilization; they should themselves always look for potential problems both in specific instruments and in general areas of the collections. The conservator should also be aware of the preservation requirements of photographs and other archival materials that are invariably among the important holdings of musical instrument collections.

Many types of museum artifacts, for example, art-historical objects, can be studied adequately merely by viewing them. Musical instruments are different. The curatorial staff and visiting researchers frequently have compelling reasons to handle these objects or even to disassemble them in order to measure them or study their construction. It is the conservator's responsibility, by advising other staff members and by directly or indirectly supervising visiting researchers, to ensure that instruments are handled only in ways consistent with their preservation. The conservator also provides advice about the suitability of lending instruments for display elsewhere.

RESEARCH

Most musical instrument conservators, like many of their colleagues at other conservation laboratories,[14] engage extensively in research and are given considerable latitude to do so as part of their professional duties. At the very least, they must have the ability to search the general conservation literature to ensure that stabilization and cosmetic treatment conform to currently accepted methods. Similarly, it would be especially ill-founded to restore instruments to playing condition unless the work were to be done according to the most current information available in the musical instrument literature (for example, concerning historical string materials and pitch levels).

Most musical instrument conservators work in this field because they are devoted to musical instruments. Usually they have one or more particular interests that have led to proficiency in certain areas of organology (i.e., musical instrument scholarship). The conservator's areas of special organological knowledge frequently complement those of the curatorial staff and are therefore a valuable asset to the institution.

Conservators (or, previously, restorers) have long made important contributions to organology, often as a direct result of information gathered during the treatment of instruments.[15] Organology as a whole has benefited enormously in generally adopting the technological approach present in the work of conservators (for example, close attention to details of construction and measurement). Future scholarship will depend on the preservation of the historical musical instruments that are still extant. Conservators must

therefore continue to preach the importance of safeguarding irreplaceable cultural property. By continuing to do organological research and, even more, by extending the limits of technical research to the scrutiny of the tiniest scraps of evidence, conservators can demonstrate the continued utility of instruments that are not restored to be played - demonstrate, that is, the practical importance of preservation. Further, by applying information discovered in musical instruments to its more general implications in conservation science or in the study of historical technology, instrument conservators can produce work of significance outside their own limited field.[16]

CONCLUSIONS

It is clear, from this summary of professional responsibilities, that the ideal musical instrument conservator should know much about a great many things. It is also clear that, although this ideal can never be attained by any human being, musical instrument conservators nevertheless perform a vital role in museum instrument collections. It should, moreover, be understood that the musical instrument conservator's responsibilities could not efficiently be divided among the curatorial staff and outside consultants such as instrument makers or artifact conservators.

Because the number of musical instrument collections that are fortunate or foresighted enough to have conservators on their staffs is small and, lamentably, can be expected to remain so, it is questionable whether any formal long-term program solely to train musical instrument conservators for museum work (rather than instrument restorers for commercial work) would be economically viable.[17] Thus, other approaches must be considered, without categorical insistences that the "ideal" conservator should have one particular type of background or training. The emphasis should be more on what the individual conservator must know and must be able to do in order to function productively.

Obviously, the widest possible background of training and experience is essential. Because conservation, in the preventive sense, is largely cerebral, a baccalaureate degree of the American liberal arts (B.A.) type, or its equivalent, is almost essential. This will help to ensure that the conservator will have at least some familiarity with a variety of disciplines in the arts, humanities, and sciences. It is imperative that the conservator have a reading knowledge of English, German, and French and be able to write clearly in one of these languages. Because, however, conservation treatment requires great manual dexterity, an additional background in the crafts, preferably in musical instrument making, is also highly desirable. While many traditional techniques of instrument fabrication and repair are inappropriate for use in conservation,[18] some of them do remain appropriate.[19] Familiarity with traditional techniques is also of immense help in discovering and evaluating evidence in historic instruments. Moreover, the very fact that a person has had the patience to perform the many repetitive tasks involved in making a good musical instrument should suggest that he or she might well have the patience to perform the tedious operations that are often required in conservation treatment. Beyond this basic readiness in the intellectual and manual arts, the conservator, in order to function in the varied capacities outlined

above, should, needless to say, be competent in the disciplines of artifact conservation and organology.

It seems possible that various scenarios could lead to the making of qualified musical instrument conservators. One hopes, for example, that some graduates of master's level programs in artifact conservation would wish to become musical instrument specialists. Their training could be completed by an internship in the conservation laboratory of a large museum instrument collection.[20] Similarly, some instrument makers[21] might be able to become conservators by an analogous long-term museum internship.

Whatever their backgrounds, not only those who aspire to be musical instrument conservators but also those who are already professionals in this field must look forward to a lifetime of training. This will be necessary to deal with problems in unfamiliar areas: the person originally trained, for example, as a metal conservator will eventually, if he or she is the only staff conservator at a comprehensive musical instrument collection, have to deal with wooden objects; the person who has started out as a keyboard specialist will eventually have to deal with trombones. Further study will also be necessary to keep abreast of advances in organology and conservation science. Many universities, conservation centers, and other organizations offer shorter courses, workshops, and seminars that could assume an important role in the continuing education of conservators.[22] Perhaps most important, however, is that conservators should strive ceaselessly to educate themselves through research and by maintaining both an energetic curiosity and a healthy skepticism.

NOTES

1. See, for example, the CIMCIM-sponsored booklet by A. Berner, J.H. van der Meer, and G. Thibault, *Preservation and Restoration of Musical Instruments: Provisional Recommendations*, ICOM, 1967, p. 8.

2. See, for example, Cary Karp, "Technological Research and the Conservation of Musical Instruments," and Grant O'Brien, "The Conservation of Historical Keyboard Instruments: to Play or to Preserve," in Elena Ferrari Barassi and Marinella Laini (Eds.), *Per una carte europea del restauro: conservazione, restauro e riuso degli strumenti musicali antichi* - Atti del convegno internazionale (Venice, October 1985) Florence (Leo S. Olschki Editore) 1987, pp. 283-289 and 291-297, respectively.

3. For example, several of the authors of articles abstracted in *Recommendations for the Conservation of Musical Instruments: An Annotated Bibliography*, CIMCIM Publications 1/1993, are instrument makers. The careers of the three permanent staff musical instrument conservators at museums in the USA commenced with instrument-making.

4. A parallel view of musical instrument conservation at a major museum collection is provided by Stewart Pollens of the Metropolitan Museum of Art, New York, in an interview with Matthew James Redsell. *Continuo* (Toronto) 13/1989, no. 2 (April), pp. 8-11.

5. Unfortunately, the true sense of the words "conservation" and "conservator" is being diluted by instrument technicians. The author recently saw, for example, a letterhead reading "A**** B**** & Associates, Conservators & Restorers of Steinway grands." It should, however, be noted that the movement for conservation rather than restoration has been given much of its impetus from makers, some of whom have refused to restore to playing condition instruments that have been entrusted to their care: see, for example, Christopher Challen, "The Unverdorben lute at Fenton House," *Early Music* 7/1979, no. 2 (April), pp. 166-173.

6. In the United States, for example, there are, to my knowledge, only three (one of them in a part-time position), to which might be added one or two others who, having been musical instrument conservators, are now general object conservators.

7. R.M. Organ, *Design for Scientific Conservation of Antiquities*, Washington, D.C. (Smithsonian Institution Press) 1968, p. 5.

8. The Shrine to Music Museum, Vermillion, South Dakota, has an exceptionally large staff of seven. Nevertheless, the Curator, for example, acts not only as a curator but also as registrar, collections manager, archivist, reference librarian, and university faculty member.

9. Paintings, for example, are frequently treated primarily to improve their appearance. Many historical ships float and historical clocks tick.

10. See Friedemann Hellwig, *Atlas der Profile an Tasteninstrumente vom 16. bis zum frühen 19. Jahrhundert*, Frankfurt am Main (Erwin Bochinsky) 1985. Although, as part of a traditional technique of repairing violins and similar instruments, plaster casts are made of their arched bellies and backs (see, for example, Hans Weisshaar and Margaret Shipman, *Violin Restoration: A Manual for Violin Makers*, Los Angeles [the authors] 1988, pp. 14-17), this process is so fraught with danger that few, if any, conservators would consider using it.

11. This practice is recommended, in certain cases, by O'Brien in "The Conservation of Historical Keyboard Instruments," p. 295; and by John R. Watson in "Historical Musical Instruments: A Claim to Use, an Obligation to Preserve," *Journal of the American Musical Instrument Society* 17/1991, pp. 69-81.

12. See, for example, Cary Karp, "An Approach to the Conservation and Display of Ethno-Organological Material," in Musikmuseet (Stockholm), Report 1987:1 (reprinted from *Contributions to the Study of Traditional Musical Instruments in Museums*, Bratislava, 1987).

13. This point was emphasized by John R. Watson in "Overhearing History: the Conservator as Technological Historian," a paper presented to the Wooden Artifacts Group at the annual meeting of the American Institute of Conservation, Buffalo, New York, June 1992.

14. For example, the official name of the object conservation department at the Museum of Fine Arts, Boston, is "Research Laboratory."

15. Outstanding examples of this are Friedrich Ernst, "Four Ruckers Harpsichords in Berlin," *Galpin Society Journal* 20/1967, pp. 63-75; and Friedmann Hellwig, "On the Construction of the Lute Belly," *Galpin Society Journal* 21/1968, pp. 129-145.

16. For example, Watson, in "Overhearing History," has discovered, in a Jacob Kirckman harpsichord of 1758, evidence of the early use of advanced woodworking machinery.

17. If one were to make utopian schemes on paper, such a program would involve three institutional entities: a fully equipped modern conservation laboratory, a university, and a comprehensive collection of musical instruments. The obstacles to arranging cooperation among these several entities would, quite possibly, not be overcome by the likelihood of a large number of applicants. One should note that an admirable curriculum for training musical instrument restorers (as they were then called) was outlined by Freidemann Hellwig in the *Galpin Society Journal* 29/1976, pp. 146-147.

18. See, for example, note 10 above. Another traditional but conservationally ill-advised technique is the cutting of holes in the bottom of a keyboard instrument for access to the interior for repairs and study, as described, for example, by Luigi Ferdinando Tagliavini in "Giovanni Ferrini and his harpsichord 'a penne e a martelletti'," *Early Music* 19/1991 no. 3 (August), pp. 398-408. Far less destructive techniques are described by Friedemann Hellwig in *Ein Cembalo des 17. Jahrhunderts klingt wieder*, Informationsschrift zur Ausstellung, Nürnberg (Germanisches Nationalmuseum) 1976; and by John Barnes in "Does Restoration Destroy Evidence?," *Early Music* 8/1980, no. 2 (April), pp. 213-218.

19. Hide glue, for example, has qualities of strength, adhesion, and reversibility that subsequent experience has shown to be more appropriate for many purposes in the conservation of musical instruments than the synthetic adhesives mentioned by

Norman Brommelle in the CIMCIM/ICOM *Provisional Recommendations* of 1967, pp. 30-33.

20. The Master of Music degree with a concentration in the History of Musical Instruments offered by the University of South Dakota's Department of Music in cooperation with The Shrine to Music Museum & Center for Study of the History of Musical Instruments could serve this function. So could the fellowships in conservation that are offered by the Metropolitan Museum of Art, New York; these can be associated with their Department of Musical Instruments. It is essential that some phase of the musical instrument conservator's training be realized in conjunction with a comprehensive collection of instruments. That is, at some point the conservator-in-training should have day-to-day contact with the full range of relevant objects.

21. It should be noted that, especially in the English-speaking countries, many makers of historical-revival types of instruments (for example harpsichords, baroque woodwinds, and viols) have an advanced academic background, rather than one solely of apprenticeship in their craft.

22. For example, the University of Massachusetts, Amherst, offers an annual workshop in wood identification; the McCrone Research Institute, Chicago, offers a variety of courses in microscopy.

Any questions relating to training in conservation or restoration of musical instruments may be referred to the Coordinator of the Conservation Working Group of CIMCIM.

Also in this series: *Recommendations for the Conservation of Musical Instruments: an Annotated Bibliography*, CIMCIM Publications, No.1, 1993.

CIMCIM publications may be ordered from the following address:

CIMCIM,
Collection of Historic Musical Instruments,
Reid Concert Hall,
University of Edinburgh,
Bristo Square,
Edinburgh EH8 9AG,
Scotland

CIMCIM is the International Committee of Musical Instrument Museums and Collections of ICOM, the International Council of Museums

CIMCIM encourages, promotes, and organizes professional activities relating to collections and museums of musical instruments of all kinds from all countries. Members receive the *CIMCIM Bulletin*, participate in regular meetings, and contribute to the discussions and publications of the Working Groups, which currently deal with Conservation, Training, Documentation, Education and Presentation, and the *International Directory of Musical Instrument Collections*.