GUILD OF BookWorkers

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(Editor of this issue: Maggy Fisher,
substituting for Carolyn Horton)

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PETER WATERS / Laura S. Young

A Briton captures America; and I might add single-handedly sans a gun! The British Empire could not win either of its wars, the Revolution in the 1770s nor the War of 1812 against the incorrigible American colonists. Peter Waters, however, on his first visit to the U.S.A. swept the country from coast to coast and left in his wake nothing but admiration and respect.

Mr. Waters arrived in New York in mid-February, and in the course of a month he delivered some twelve talks, in a number of cities, on the restoration work being done on the books that were damaged as a result of the Florence floods of Nov. 1966.

In New York he was wined and dined by a number of people; and it is expectable to believe that the same kind of hospitality was shown him in Chicago, Los Angeles, San Francisco and Washington.

I do not have at hand factual information as to the actual time he spent in Florence, nor his official title while there. It is my understanding, however, that Mr. Waters went to Florence immediately after the floods first to assist in the rescue of the more valuable items from the water damaged buildings; and returned later for a much longer stay to help in organizing a program of restoration work in the National Library of Florence.

This was an assignment, the magnitude of which few hand bookbinders have been confronted with. He succeeded in putting together an organization composed of professional binders and volunteers from many parts of the world whose work has ensured the successful salvaging of a large percentage of the more valuable items in the National Library.

He could have come away a pompous, "know-it-all," and no one in the field would have questioned his authority. Instead he came away grateful for the experience, humbled by the magnitude of the project, and keenly aware of the desirability, perhaps necessity, for a more serious approach both in the area of the history of techniques, and the scientific developments that are currently taking place.

Aside from his personal charm which we all enjoyed, and his vast knowledge which we all respected, it was, I believe, his mod-

esty that endeared him to his American audiences; the mark of a worthwhile man.

He visited us all with interest and an open mind. Hopefully, we gave him a true picture of hand binding activities in this country. He may or may not have been impressed with what he saw, but he surely must have been impressed with the enthusiasm and dedication with which we pursue our efforts and the camaraderie which we enjoy.

We all look forward to an early return visit by Mr. Waters.

PETER WATERS' VISIT TO CHICAGO / Paul Banks

Peter Waters' visit to Chicago was a further demonstration of his boundless energy and his enthusiasm for all bookish things and people. In fact, he seemed to be thriving on the great quantities of talk, food and booze which almost did in some of the rest of us.

Harold Tribolet and the undersigned met Peter at the airport on Tuesday, February 18, then proceeded to a nearby restaurant for dinner and a long catching-up conversation. Peter spent Wednesday with Harold at Donnelley's, then Wednesday evening showed his film and talked to a record turn-out of the Caxton Club. Caxtonians responded with greater than usual attention to his visual and verbal description of the disaster in Florence and the subsequent and highly significant efforts to repair the damage to books and manuscripts.

Thursday was spent largely touring the Newberry Library, with time out for a meeting at American Library Association headquarters to discuss Peter's book which is to be published as part of ALA's conservation of library resources series. At four o'clock, Peter gave a slide lecture on "The Ethics of Book Restoration" to about fifty conservators, bookbinders, rare-book curators and the like at the Newberry, following which speaker and audience adjourned to the residence of the director of the library for a lively cocktail party. Harold Tribolet joined a group of Newberry people to take Peter to dinner at one of our building-top restaurants to enjoy a view of Chicago as well as food and conviviality.

Peter spent Friday as a consultant to the Newberry, with a lunch-time excursion to Aiko's to admire and acquire some Japanese papers and a beautiful decorated ink-stick for Sheila. The Tribolets gave a dinner party for Peter on Friday evening where some of the local conservation fraternity could continue their discussions informally. This event capped Peter's stay as a house guest of the Tribolets.

On Saturday, Peter flew off to San Francisco to continue his American pilgrimage, with his Chicago friends regretting all of the things that there hadn't been time to talk about, and that Sheila had not been able to be in on the festivities.

PETER WATERS' VISIT TO LOS ANGELES, FEBRUARY 25–26 / Margaret Lecky

When Stella Patri called me in January to tell me Peter Waters was coming to New York and Chicago, and asked if I thought she and I could raise funds to get him to the West Coast, I was very happy to try to arrange lectures here.

Inasmuch as I didn't know Mr. Waters' exact schedule for Los Angeles, I stopped after securing three lectures. This was a good thing for he was here only two days.

The first lecture was at the University of California, Los Angeles, Graduate School of Library Service, at 12:30 Tuesday, February 25. There were about 50 students and a few faculty members present. His lecture, film, and slides were excellent, as you who were present in other cities know. The audience was obviously very much interested, and glad to hear and see.

The second lecture was Tuesday night at 8 p.m., at Dawson's Book Shop. The shop occupies a new building just completed last summer, and is so arranged that the cases and shelves in the center of the first floor can be moved aside, and chairs provided for people attending films, lectures, meetings, etc. Dawson's had sent notices to its regular mailing list, had given me about 50 for my students, and had invited almost all of the binders in this area,

many of whom were present. There were about 200 people there, and the lecture was received with great interest and enthusiasm.

On Wednesday Peter lectured at the University of Southern California's Graduate School of Library Science, at 11:30 a.m. There were approximately 50 people there, including a few faculty, and again, interest was strong. At all three lectures there was opportunity for questions and answers.

After lunch Wednesday I took Peter to the Huntington Library (by arrangement), and we had a tour of the bindery, the manuscript restoration laboratory, and various parts of the rare book rooms.

Early Thursday morning I had to take Peter to the airport for Washington—and I hated to see him go. He is an excellent speaker and a delightful new friend.

PETER WATERS' VISIT TO WASHINGTON / Fraser Poole

The noted English bookbinder and restoration expert, Peter Waters, served as a visiting consultant to the Library of Congress during the period March 3–12, 1969, meeting principally with members of the Preservation Office on matters relating to the Library's preservation program. Several members of the Library staff joined Librarian L. Quincy Mumford at a luncheon in Mr. Waters' honor in the Whittall Pavilion of the Library of Congress on Wednesday, March 5, where Verner W. Clapp of the Council on Library Resources, Inc., was also a guest.

During his stay Mr. Waters visited the U.S. National Archives and the Smithsonian Institution, where he discussed preservation problems with Dr. Robert L. Organ, Director of the Research and Analytical Laboratory.

Mrs. Waters, a calligrapher of some note, accompanied her husband on many of his visits and meetings in the Washington area. Among other places of interest, they spent a day at the W. J. Barrow Research Laboratory in Richmond, Virginia.

LIBRARY / Mary E. Greenfield

Mrs. Margaret Lecky has given the Library the following magazines and catalogues:

Allgemeiner Anzeiger fur Buchbindereien, Stuttgart
1957 Nos. 9, 10, 11, 12
1958 Nos. 1, 2, 3, 7, 8, 9, 10, 12
1959 Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9
1960 Nos. 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12
1961 Nos. 1, 2, 3

Collector's Choice. An exhibit of representative examples from the collections of members of the Roxburghe Club of San Francisco held in the Palace of the Legion of Honor on the occasion of the joint meeting of the Zamorano Club of Los Angeles & Roxburghe Club of San Francisco, September 17–18, 1960. Printed by the Grabhorn Press. 48 pp.

An Exhibition of Modern English and French Bindings from the Collection of J. R. Abbey, The Arts Council, 1949, 30 pp. 16 plates.

Bibliopegy. Association bindings and others of artistic beauty from the Sixteenth to Twentieth Centures. Sale catalogue of Charles J. Sawyer, Ltd., London, 1949, 68 pp. Numerous illus.

Fine Bindings, 1500–1700, from Oxford Libraries. Oxford, Bodleian Library, 1968. 144 pp. 52 plates.

From Jean Burnham we have received:

A Collection's Progress. Two Retrospective Exhibitions by the John Carter Brown Library, Brown University. Providence: The Associates of the John Carter Brown Library, 1968. 79 pp. 35 illus.

From Polly Lada-Mocarski:

Bookbindings by T. J. Cobden-Sanderson. An Exhibition at the Pierpont Morgan Library, September 3–November 4, 1968. New York, The Pierpont Morgan Library, 1969. Printed by the Spiral Press. 31 pp. 36 plates.

From Mrs. Lotte Burg, a boxed collection of Brochures of the Klingspor Museum.

From Dr. Stephen Farnum:

Petrova-Zavgorodnyaya *et al. New Methods for the Restoration and Preservation of Books.* Jerusalem: Israel Program for Scientific Translations, 1964. 258 pp.

Yabrova, R. R. *et al. Collection of Materials on the Preservation of Library Resources.* Nos. 2 and 3. Jerusalem: Israel Program for Scientific Translations, 1964. 130 pp.

MEMBERSHIP / Jerilyn G. Davis

Membership changes since the publication of the last *Journal* and as of June 30, 1969 are as follows.

The following additions and corrections should be made on the Membership List:

Mr. Gérard Charrière (B,D,DesA,RC,T-P;Coll)

Miss H. Drew Crosby (not Drew H.)

*Mrs. Denyse Pierre-Pierre should have a star by her name

New Members:

Mr. John Alden (C-A;L-P)
2 Hawthorne Place, 8-J
Boston, Mass. 02114

Mrs. Marilyn H. Arnold (B,RC-A; L-P)
3700 Wallingford Ave. N.
Seattle, Wash. 98103

Mrs. Brian Dixon (B,D.RC-A; Coll)
80 Dunedin Drive.
Toronto 18, Ontario, Canada

Mr. V. G. Estick (B,RC,T-P)
School of Library & Information Science
University of Western Ontario
London, Ontario, Canada

Miss Ruth Anne Evans (L-P)
742 DeCamp Ave.
Schenectady, N.Y. 12309

Mr. Herbert L. Frankel (B-A; Coll)
5 Surrey Road, Melrose Park
Philadelphia, Pa. 19126

Sister Loyola Mary Harnan
Marylhurst College
Marylhurst, Oregon 97036

Dr. Shattuck W. Hartwell, Jr. (B-A)
2876 Attleboro Rd.
Shaker Heights, Ohio 44120

Mr. Theo Jung
432 College Ave.
Palo Alto, Calif. 94306

Mrs. Marcetta R. Lutz
3864 Hoyt
Wheat Ridge, Colo. 80033

Mr. Jim. N. McWhirter
2215 Edwin St.
Ft. Worth, Texas 76110

Mrs. George R. Minkoff (B-sP)
756 Middle Neck Road
Great Neck, N.Y. 11024

Mr. Jules Petit (B,RC-sP)
5501 Tenth St. North
Arlington, Va. 22205

Mr. Jacques Ploschek (B-A)
37 Valhalla Road
Montville, N.J. 07045

Mrs. Henry L. Saltonstall
1001 Park Ave.
New York, N.Y. 10028

Mr. Robert Martin Slover (B,RC-A;Coll)
2420 Crawford St.
N. Las Vegas, Nevada 89030

*Mr. Reginald P. Walker (B,RC-P)
Newberry Library
60 W. Walton
Chicago, Ill. 60610

Address changes:

Mrs. Herbert Fahey
2859 Sacramento St.
San Francisco, Calif. 94115

Miss Catharine Fournier
Kraftco Corp.
260 Madison Ave.
New York, N.Y. 10016

Mr. Harold Goodwin
5 Carlton Gardens
London S.W. 1, England

Mrs. Gerald L. Kaufman
80 Central Park West
New York, N.Y. 10023

Mrs. Frederick F. Lamont, Jr.
3428 N. 45th Place
Phoenix, Arizona 85018

Mr. William M. Murray, Jr.
2250 Highland Ave.
Birmingham, Alabama 35205

Resignations: Miss Edith A. Dew, Mrs. Michael Fitzmaurice, Mrs. Freda Gray, Mr. Anton Lucas, Mr. Jon Edgar Webb

Total Membership: 204

PROGRAM COMMITTEE / Mary C. Schlosser

One of the interesting events for binders in the United States during the winter of 1969 was the visit of Peter Waters to this country. Mr. Waters, who works in partnership with Mr. Roger Powell in Hampshire, England, is one of the world's leading practitioners of fine hand binding and restoration. He is a tutor in bookbinding at the Royal College of Science and Technology, and his trip to this country was made as a consultant to the Library of Congress.

The Guild of Book Workers was happy to present a talk by Mr. Waters on Monday afternoon, February 27th, which, through the gracious hospitality of the Morgan Library, was held in its handsome meeting room. Through a cooperative exchange of invitations, made possible by Mr. Lawrence Majewski, Director of the Conservation Center of the New York University Institute of Fine Arts, members were able to attend a subsequent talk by Mr. Waters on Saturday morning, March 1st, at the Institute.

This cooperative arrangement made it possible for Mr. Waters to deal with his subject more completely and with very little repetition as well as to show a most interesting film of the work in progress at the newly established restoration center at the Biblioteca Nazionale Centrale di Firenze.

Due to the great pressures of work, Mr. Waters was unable to provide us with any definitive texts of his talks for publication in the *Journal.* He was, however, most kind in allowing us to tape-record these two talks. It would be most presumptuous of me to edit Mr. Waters' talks into a formal presentation of his ideas, so in editing these tapes, I have endeavored to retain the enthusiastic and personal flavor of Mr. Waters' remarks, substantially as delivered, though taking some liberties in re-arranging word orders, etc. for greater readability. In the Institute of Fine Arts talk, it was occasionally necessary to omit material where the absence of the slide illustration made the text unintelligible.

At the Morgan Library: In Search of a New Philosopy of Conservation and Restoration

After the disastrous flood waters raced through Florence's museums and libraries in November of 1966, the British Museum sent three experts to see what help could be given. Mr. Waters was in this first small group and ended up as the leader for the next year of the team of binders and restorers who were in charge of setting up the system for the restoration center at the Biblioteca Nazionale Centrale di Firenze (B.N.C.F.). This center was made possible through funds contributed in Europe, England, and here through The Committee to Rescue Italian Art (CRIA). But now the Italian government, realizing the great importance of this work, has taken over the financial support. Here are Mr. Waters' remarks about the philosophy behind the restoration work which is being carried on in the center and his hopes that it may become a truly international work and study center for restorers from all parts of the world.

Mr. Waters:

Madam Chairman, ladies and gentlemen, I feel very privileged to be here at all, not only because it is my first talk in America to anyone, any group of people, but because I think possibly there are many book collectors in the audience who are still waiting for books from our bindery and I probably should be back in England doing them.

I thought that when I left Florence, which is now about eighteen months ago, this would be the end of my activities there. Yet I'm here in America, really to try to help project the image—the idea—of what is going on in Florence at the moment and how it can help us all, because I think that the result of what has happened so far is very encouraging except that there are signs now that the restoration center that has been set up at the B.N.C.F. could be just another restoration center.

As many of you know, the idea of the director of the library at the Biblioteca Nazionale, Professor Emanuele Casamassima, right from the beginning of the flood was to create in it an inter-

national restoration center, and, of course, that is a rather grand idea. But it has been realized in many ways. You heard Mrs. Schlosser say that it is the result of monies from CRIA, as well as many other funds that have made this possible. It is not the extent of the financial aid, it's the way in which the money has been used in order to get things moving that I think is very important. Many foreign governments, for instance, withheld money in order that the money could be used to send restorers over at the right time. So at the moment you have a situation where there are about six or seven foreign binders or restorers in the library in a sort of relay system, and this will go on for about another 18 months. We have reached a situation—I don't mean to over-dramatize it—where we feel we've got about 18 months left before CRIA money ends, and before all the other restoration money finishes, in order to try and encourage this idea of an international center rather than another local facility; and it is possible, I think, not just to raise more money—this is not the idea—but to raise the enthusiasm needed to translate this idea into a fact. There will be a conference, we hope, in Rome, followed by one in Florence, to try and get these ideas over.

I know that you've had other talks on restoration in Florence and it's been a little bit difficult for me to split this talk up from the one at the University of New York Conservation Center on Saturday, the first of March, because I can't really distinguish between what I mean by binding and the restoration or treatment of paper. It's all one to me [ed. note: Mr. Waters was requested by the Conservation Center to talk specifically on paper restoration.], so the talk on Saturday morning will be somewhat more technical than the one tonight, partly because there will be more time, and partly because I've brought a film over whose purpose is to encourage enthusiasm for an international conservation center, so I hope you won't mind if I don't speak at great length tonight.

The other thing is, I think, that we've reached a stage—and when I saw we, I think the whole world has reached a stage, in book conservation when we really need to rethink what we're doing. If you can imagine, it was a great privilege even to see these flood-damaged books. When the emotion was taken away, one was left with a great sense of excitement because there, about 500

years of book structure were laid out before our eyes. Now normally, one can't record or notice book structure in great numbers. Those of you who have your own workshops will know what I mean by that. But on this occasion we had an opportunity to see hundreds and hundreds of books in certain conditions and the most noticeable feature that came over was the damage that was already done before the flood happened. It is on this basis that I think we should rethink some of the things that we do in our work. It seems to me that the policies of the restoration center are based on 18th and 19th century binding techniques. The fact that we shape a book, round and back it, is based on those two centuries. I think one now needs to analyze why we do each thing to a book—why we even sew it—and if the principal intent is to conserve materials, I think one ought even to consider whether or not it is necessary to rebind a book at all. Let us take, for example, the idea that adhesives used on bindings from the 15th century onwards gradually degenerated book structure. From the evidence of the flood, we see this happening. When animal glue was used, we see that it damaged the spine folds. It was acid in some cases; it was brittle, and whether you remove it by water or whether you remove it by dry methods, you will still damage the sections. What do we do? Do we still use animal glue or do we replace it with polyvinyl acetates—more flexible adhesives? Well, I hope to show you that it may be damaging even to do that.

What I think we have to do is to try and find what I would like to call a conservation binding. And I don't think, really, I would be able to give you a solution to that tonight, but I hope there will be some discussions afterwards. I'm perplexed sometimes at the little knowledge that seems to exist in the world about the technology of binding. I think that distinguished librarians and book scholars have tended to concentrate far too much on the outward decoration—the cover decoration—of bindings. And for this reason I think very little knowledge is available to us of the conditions of some of these structures that we see. So that when Florence happened we saw for ourselves.

Now the difficulty here was that many of us who were working single-mindedly to get the books back onto the shelves again were not able to spend a great deal of time noticing and

recording what we saw, and it still is a very difficult thing to do this. What is really needed is a method of encouraging scholars to go and record this information. We have got really a rather large number of photographs and recorded information of damaged books there. Binding is a complex subject, I think, and one that the decorative book hasn't really helped us to understand. I don't mean to be insulting over this because I enjoy doing decorative bindings, but it does encourage a kind of slickness and neatness which is probably out of place in conservation work.

In a moment we'll have some slides and I'll show you what I mean by that. Those of you who know the Tuscan countryside will probably also know that in libraries throughout Tuscany there are large collections of very interesting limp vellum bindings. It was a great feature of the Magliabechi Collection (one of the outstanding treasures of the B.N.C.F.). Now I show this [slide] shelf of volumes bound in limp vellum only because I don't suppose you've seen slides of the books undamanged in the library. And I get very excited about these limp vellum bindings because they do, in fact, have great interest for the structure behind the vellum—because they seem to take over the greatest heritage of book structure that preceded the 15th century.

Here we see a few—there's one damaged book and many are in that condition, but they were of course the books that were lent out a great deal and used. But because they are limp, in spite of the humidity and changing climate, they do last very well. In this type of limp vellum binding, unrounded and unbacked, behind the covers are sections which are unglued. This is a very important feature.

Now when the flood happened, we saw a lot of these books where the covers had disappeared completely, but on the whole they were in very good condition inside. There was no damage to the spine folds and that is a very important thing to consider.

I'm showing this [slide] badly damaged books with covers warped, torn and mutilated by mud and water with no apologies although I know you've already seen enough flood damaged books, but here they are almost sculptural forms and although they show great damage, the books inside are in beautiful condition and most of them are on paper made in Venice and printed in Venice. This is a particularly interesting feature of the library so far. We

find that the pH values of these papers are very high indeed—when I say very high—it is not unusual to find a pH reading of over 8. I wonder, if it were possible to find similar copies in the Library of Congress and the British Museum, whether we would, in fact, get the same reading. The paper in them is almost pure cellulose. Quite to the contrary, books of about this time which had paper made in Germany quite often show an odd feature in that the paper is very, very short fibered, very absorbent, and a book like that that was affected with mud is still the most difficult problem to deal with. We cannot get rid of the mud stains. They penetrate right into the fibers. If one thinks of a fiber as having a hollow tube, the mud seems to get into the tube and you can't shoot it out with anything.

Now in the Archivio di Stato which was the other main library in Florence which CRIA supported apart from the small libraries, they have a wonderful collection of unglued bindings [slide], and here they are. Those leather straps across the spine which are tacketed in three places just hold the cover on the book —not very strong, you may think, but they last a fair amount of time. These are 15th century, more or less. Now look what modern man is doing to these books, which were damaged [slide of rebound books all identical in style and technique]. I think that is a kind of criminality. These books are bound in a kind of traditional 19th century Italian style without consideration of their original binding structure. Regardless of the size, most of those have been sewn on three very thin sawn-in cords; they have tight joints and would be very difficult to open, and if they are opened they may fall to pieces. I think that's a kind of an insensitive binding which we've tried to avoid at the B.N.C.F.

Now when we're talking about book structure, we have to be very careful to divide what happened as a result of the flood and what happened before. This [slide of book with spine exposed and cords broken] is obviously a case where the book was too large, the cords too thin and made of the wrong material—in this instance, vegetable tanned leather—and none of the damage due to the flood.

This [slide of book without cover] was a case of a book which had its cover torn from it. Many hundreds were treated like this in an effort to speed the drying of the inside pages, and that

will probably mean another 25 to 30 hours mending, just because of one action at the time of the flood. Notice the tremendous thickness of gelatin on the spine. Many of the books, particularly those of the 17th century, had very large quantities of glue on the spines and it wasn't the custom to clean the glue off with paste until very much later, as you all know. The glue damage is a very, very serious thing. I must repeat it again, because in the mending section of the library they have about 30 menders out of 100 personnel, and out of 30 menders they can only produce about 6 books per day, and if you multiply that by 80,000 you're in the region of 25 years, I think, in mending. This is mainly due not to the flood, but to gelatin.

Now alum treated leather is usually the best leather for sewing books on. In this particular case [slide of books with broken leather cords] we were able to prove that this leather had been washed. We cound't find any traces of alum and it wouldn't have been unnatural, I think, in the process of binding, for a rolled core to be formed by dipping the leather into water, and in those cases the alum-tawed thong breaks. But often these books are quite sound and one can reuse the original thongs.

It was another feature of that library to have book worm damage in nearly every book. You see it's happening there [slide showing worm damage].

Now here's a fascinating one, for me, anyway [slide of spine with undamaged signatures]. This is a piece of evidence where paste was used, and in all the cases we've found where paste was used on the spine, the books are in very, very good condition. You see there's a very interesting feature—the kettle stitch, where they've used a chain or herringbone form, and in this case we did not have to wash the book. We didn't have to treat it in any way. We just rebound that. But there are very few—it must be 1% of the books—that could be rebound without washing.

Now I can't judge, and I'd like comments afterwards, whether you find this kind of thing exciting or not. But I think it's a right principle to rely on sound structure rather than glue or adhesives. Where vellum was used, although it may appear to be stiff, it was an extremely good idea because the backs of the sections did not need to be mended.

Still another problem is seen in this slide [slide of heavily

tooled pigskin binding]. This is a pigskin binding where the leather has shrunk about 2-½ inches over the whole width. We haven't yet discovered a method to get the leather back without losing the impression. The nearest we've been able to come is to humidify the leather over a period of 3 weeks, very slowly, hold it under vacuum, and replace the water with oil. The only trouble is it still doesn't hold its position, we have much more work to do. We think that the leather was either damped a great deal when the book was covered or it was oiled afterwards, but it is quite brittle, unfortunately.

Still another very typical problem involves earlier restorations with a very nice binding [slide of Medici arms], I dare say this binding has been well written up. When we look inside we see quite a mess, which is due to an earlier restoration. The last restoration left paper in the middle of the spine which had been put on with paste. The rest of it is glue. That's before washing and that's after. [Slide of signatures eaten away in areas where glue was used] You can see the section where the paper was. That's what they're having to put up with. That, you can imagine, will take many, many hours mending. And there's no answer to it. The only answer, which is inconceivable, is to overcast, which I don't think one can allow these days, on books that are quite valuable.

A lot has been talked about the merits of raised cords and sawn-in cords and various other methods of binding, but I was rather perplexed, or dismayed, to find that among material bound after the 18th century, many of the books that had lasted well were the ones with sawn-in cords. It may damage the section to the extent of the sawing-in, but it did not cause further damage in the flood and although this structure may be weak in one sense, I think it's perfectly sound—quite obviously sound—if the book is small enough and if the cord is well laid in. Of course it is considered a weak structure normally, but on the evidence of Florence it did not do a great deal of damage.

Now we have a mixture of sewings there [slide showing books sewn by various methods]. This is what we're doing to the books in restoration. It doesn't show very consistent philosophy, but we're trying to treat every book on its own merits. This involves the economics of the whole thing, but we're trying to establish a system for treatment related to the number of hours it takes

to mend a particular book. Then we want to make a test program, which I think would be quite a valid thing to do, involving something like a thousand book structures, in order to test once and for all one method against another. I think there's far too much opinion talked about one structure, and what it does in one particular workshop as opposed to what is done with it in another workshop.

This is a micrograph of the sort of thing I mean [same slide of spines with various sewings]. The top one you see is a sawn-in cord and I think the important feature is what happens immediately after the book is opened—no glue is used, and of course you can see that the support of the spine is not very good at the top; nor is it with the one sewn on the tapes. The example with the cording, double cords, shows a little more support and it goes right down there (the stack of books). The one before the bottom is an arched sewing, and this gives still greater support, as you can see. But all these structures will support the book in the same way, as you see in the next slide, because of the lining and because of the glue on the spine. And this is what I think makes it so difficult for one to differentiate.

I would not have known, I think, before going to Florence, how difficult it was to decide on how a book should be bound. We had our own fixed ideas in our bindery, which is a very bad thing to have, perhaps, but I think by analyzing structures in this way, one might be able to arrive at a specification or a set of guidelines that one could advise libraries to follow. But I expect you'll have comments later about that.

Now we're making a great study of limp vellum binding because we think this is important to the Magliabechi library. We're carrying out a lot of experiments, one of which is using alum-treated leather on the headband, which forms part of the kettle stitch as well. With limp vellum binding, the thonging at the top—the headband thonging—is often laced into the board. It is a weakness, in a sense, because it has to twist in two directions when the board is opened. This [slide of headband] is going to avoid that and I can't show you the end product because we've only got started on it, but that book will have no adhesives at all. We have some books on test in Florence at the moment—we're giving them to children to take to school to drop, and to drip ink on and spill

coffee on. They've been out for about a month now and so far they haven't fallen to pieces nor have they lost shape—we're just rather interested to see how long they will last. I don't know how one equates that with the time scale, whether this is an accelerating book structure destruction test, but I hope we can arrive at something from it.

What we seem to have found too, is that when a book is over-rounded, it destroys itself in the end. And it seems to me that if you can arrive at a book which is fairly flat on the spine—this may be one of the best ways of storing it. But of course, it so depends on how much work you have to do on the spine folds, how much swelling you have, and so forth.

Well, on the Saturday following this, I want to talk about the problem that is really the most fascinating for me, and that is how one relates all the treatments of the parts of the book to one another, and how it affects the final structure. There are paper problems: we've had a lot of trouble with sizing; what sizing material to use, and how to use it, not only politically, because in Italy gelatin is frowned upon because they have so much trouble with mold, but when you try to find an alternative there are difficulties encountered. We have, for instance, used methyl cellulose, and the first time we tried it with one percent, we tried a full immersion technique—putting the whole book into the solution—and we then squeezed it, and the book popped out like a piece of soap on a wet hand, and that wasn't very funny. But we don't want to discard gelatin in favor of other things if it means that one has to put the size on each book, leaf by leaf. It's a very time consuming operation.

There's also a great philosophy, I think, that lies behind mending adhesives. We've designed something like 10 different mending adhesives to treat the various conditions of the paper and I hope to go into that in full detail and give recipes and I hope some of you will be able to try them.

And now I think, perhaps we ought to see the film so that it leaves enough time for questions afterwards.

* * * *

The movie shown at this point was a beautifully filmed color

account of the newly created restoration center, beginning with the flood damage which made it necessary and showing the books being treated—the washing, mending and binding work being done there—with probably the most up-to-date and scientific equipment available for such work anywhere.

One of the most fascinating parts of the film for a binder showed a limp vellum binding being constructed; a demonstration in a few moments of film that would take several hours in the workshop, yet giving a very clear idea of exactly what needed to be done.

One could not help agreeing with Mr. Waters that this unusual center, born through international response to disaster, would be of great value for training and research in binding techniques, and conservation problems, and materials for binders throughout the world.

* * * *

At the Conservation Center of the Institute of Fine Arts of New York University: Some Technical Problems of Book Conservation

We were welcomed by Mr. Lawrence Majewski, director of the Conservation Center, who invited us all to visit their laboratories after Mr. Waters' talk. He then turned us over to Mr. Waters.

Mr. Waters: This is to be a lecture or talk following up the one I gave for the Guild of Book Workers a fortnight ago, and I must apologize to those people who were not there because I'm not going to cover the ground showing some of the work actually being done at the B.N.C.F. because this was covered by a film. I want to concentrate on what I call the more technical problems, although I will be repeating some of the slides.

I don't want to make the subject of repairing books complicated, though, in fact, it is, and the reason it is, to follow the idea to its proper conclusion, is because the whole subject, I think, is a little bit misunderstood. Most of the experimental work that has been done on paper, without too much quarreling about it, has been done in small workshops and small print restoration lab-

oratories, and for this reason one tends to get a cut-off on how paper behaves or how you should treat it as a single sheet in contrast to the way paper behaves within a book. This can make one's decisions about restoration and treatment vary quite a good deal because the problems of print restoration are, in my opinion, totally different from those of book restoration and therefore the problems of the book must raise new problems. I think the Florence episode and later Lisbon, which perhaps some of you haven't heard about, have posed new problems in restoration of books and also posed a lot of ethical questions. I got into trouble at the Newberry Library the other day because I gave a talk on ethics and apparently I may have used the wrong word, but I still mean ethics, and perhaps you'll call me on that afterwards. I want to try and show the whole situation in an historical background and I'm going to dwell quite a bit on the structure of the book again, because I think this will tie in with the rest of the subject.

We talk about binding—at least some people talk about binding—and the great emphasis in the past has been on the surface decoration and much scholarship has gone into this side of it, which has tended to make people think of bindings too superficially. There's a great gap in history about this early structural development, and it's important, I think, because when we're considering a conservation binding—and I emphasize that—not a modern binding, not a modern French binding or a 19th or 20th century binding, we must focus on conservation. Sometimes it's necessary to protect books from humans and certainly from disgusting techniques.

This [slide] is where I think the understanding of binding in the western world ought to begin, because this is one of the earliest Coptic bindings in existence. It happens to be in England at Stony Hills College, and it's interesting because it still retains the original structure of the sewing. For this reason it should be studied and also protected from being restored (of course, if one goes around saying things like this a great deal, one runs oneself out of business). My partner, Roger Powell, made a great study of this book and what interests me is that the structure of the book relies entirely on the sewing without the use of any adhesives. It is also what we call a two-needle sewing which means that the board of the book was attached to the cords before the book was sewn, and

this technique preceded the use of the sewing frame. This [slide] is a book seventy years old, an Ethiopian book, still retaining the same sewing structure.

We pass on to a manuscript [slide] we had in our workshop at Froxfield where we were very excited to see these indentations here, because it was the first time that we'd seen evidence that the sections of the book had been ruled, having the pricking for the ruling made as the section was sewn—in other words, the sections were sewn as sections before the writing was done. This has always been a bone of contention. And this [slide] is the kind of evidence one sees; here is the pricking going through.

The scribe had a mistake here and cut the single leaf out and attached a new one by means of thonging. Now vellum, or parchment as some people prefer to call it, is very difficult to work, particularly when one is repairing the leaves, and the interesting thing about the early technique of mending is that the original mends are made without adhesives. Here [slide showing vellum patch attached by thonging or sewing] they ran out of vellum—I suppose because of a shortage of animals—and this was an original attachment, again without adhesives. And when that leaf is flexed, it has a tremendous freedom because I think you could imagine that as the leaf opens up or bends over, the leaves help it; in other words, they move within the thonging or stitching.

Now if one is restoring a vellum manuscript like this, what does one do? Do we take a patch and stick it on, and what do we use to stick it on with? I don't think anyone would disagree that polyvinyl acetate is probably the best adhesive to stick vellum, but so often in a mend of this kind it can produce a transparency within the mend, and we're not too sure about how it will behave and quite often it can produce a hardening. Also, the shape of the mend in this particular leaf, being the original, is so designed that in movement, the leaf flexes nicely—again, no adhesive and that is about 1,000 years old.

Now we move to the Biblioteca Nazionale, because I must explain the situation there. The restoration going on is in a workshop which now has a hundred workers in paper mending. They were all trained from scratch; in other words, they hadn't worked in paper before. From the beginning among the most difficult tasks has been and still remains the training of these people. Now

you can train skills up to a point if there is some dexterity in the hands, but the mind is a different thing, and when one is to be responsible for books of this early age, one has to know something of what is being handled—what the library is about—how important the books are—and where and how the structure, the technology of the book developed through the ages. This is the reason I show this slide, because again we're continuing the history without adhesives. These are tackets which are attached to a back lining of the spine, the material being alum-treated skin, which is the best leather that you can use for a book. It will last as long as anything else apart from vellum and it gives great support.

Here are a few variations. This [slide] is getting a bit later now—about 1480—and here we see the development of these straps across the back. And here's one [slide] that's been in the flood; it had a pulp board cover, and just the straps are holding it on. The sewing, you see, is still fairly strong and the sections are completely clean and need no mending. This is very important.

This [slide] was a Portuguese Archivio di Stato binding where the volume is quite large—about 15 inches tall—and the structure is maintained or supported by wooden pegs. A piece of wood supports the arching of the book, or prevents it rather, so that when the book is completely opened, the spine remains almost flat, depending on the weight of the paper to make the leaves lie open—in this particular case, without any difficulty. Just one more slide to emphasize this point—this book has been in the flood. It was thrown into a terribly muddy state, but still, because of good materials, the structure is holding up.

This [slide] is about 1540 or a little bit earlier, perhaps, where we continue to find developments of 12th century technique; we call this a herringbone sewing and the book is sewn on alum-cured thongs which are so strong it doesn't need to be resewn. That has been through the flood. You notice the condition of the backs of the sections again is very good. In this case it had adhesives on it. We're fairly confident it was wheat starch paste.

To illustrate just one more development [slide], in this instance adhesives began to get a little more important, but vellum was beginning to be used a great deal for book binding (presumably because with the introduction of printing which commonly utilized paper, there was a large amount of vellum available that

was not being written on) and at this stage the vellum was quite often used with the flesh side outwards. Today we're used to having the hair side outwards. In the medieval vellums that we're so interested in, the difference between the hair and the flesh was minimal, and the flexibility and the strength of the skin is beyond anything that we see today. About 1560 the skins began to get rather bad and they've fallen off since. We hope though, eventually to track the source of such medieval vellum by going right through the whole process of vellum making, even considering such things as reconstituted collagen, because it appears that sausages, which have to undergo a fair amount of strain when you cook them, if cased in animal skin stand up to a fair amount of bombardment, and if you compare this with the inside of an ox's stomach, which is the source of very thin vellum, we can't tell any difference. Now if you can make sausage skins, presumably you could make sheets.

When we talk about limp vellum, of course a lot of the limp vellums were completely destroyed in the flood because water and vellum tend to form glue and in this particular case [slide] you see this oval patch—that book rested at the end of one of the library shelves which have oval holes in them. I couldn't understand it for a long time until I eventually got into the library and saw the ends of the book shelves, so the cover was destroyed, but the book within it, because of the way it had been constructed, because of its limpness and lightness, withstood the test very well.

These problems of materials and structure are things which may seem rather odd today because most of the problems are with brittle books or with methods of binding, and of course the biggest number of books at the Biblioteca Nazionale are the 340,000 of the post-1840 period, which will eventually be library bound. The methods that we've developed for the early books is one thing, but you can't use them for the later books because they're too slow, and of course they're not appropriate. We are hoping to be able to find a way of de-acidifying the later books, washing and strengthening them, perhaps using high frequency drying so that we can do something like 400 books a day. But we're talking today of early books that sometimes take a week to mend.

In contrast to the work being done at the B.N.C.F., here is a slide of restored volumes from the Archivio di Stato, all bound in

exactly the same 19th century style, and I think that is terrible. I'm sorry if there are some Italian friends here. There's a kind of revolution going on in the book world over there and I think this is why the director of the B.N.C.F. and all the librarians there are so excited about this. But the type of binding shown here may have resulted from tourism, because most of the binders in Florence do bind books for the tourists and they tend to bind them all in the same way. This means that the binding, no matter what the size or period of the book, would have only three sawn-in cords, which when you have a heavy book is not strong enough to stand the opening. This shows you a vellum book [slide] where it is obvious that the book is too strong for the cords and the breakage is dramatic. This was only bound 80 years ago and is already gone. It's been used very little and the adhesives that were applied there are combined with the porous cord to break the structure.

This was a later book [slide] which had a leather cover and many books were sent from the flooded library in pretty good condition, but since the leather cover was stuck to a stiff board, it meant a different drying rate than the rest of the book, so it was decided unfortunately at this particular place, to tear the covers off, and I mean tear them, and you can see what's happened to the structure. It's interesting, too, that between that point and that point there are something like fifteen sections and yet there are only two sewing positions.

Shrinkage [slide] is one of the problems that I think we can eventually solve, and I'd be very grateful if anyone could help afterwards, because there are many pigskin bindings in the library and they are quite valuable from an historical point of view, although the book inside isn't so valuable, and in this particular case the skin has shrunk four inches from the total width. The problem is trying to stretch that without breaking the leather and without losing the impression. Unfortunately this is not a real leather; it's tawed with alum, so you're almost back to raw hide. And the latest idea that we've been trying is to induce more alum salts into the skin with water very slowly over a period of about 10 days, and then trying to replace this with oil, but we've got to keep the alum within the skin or the stuff will perish. When the leather has gone so hard, it's quite a difficult problem, but it must be possible to solve it.

There was another flood about twenty miles from Lisbon at the Gulbenkian Museum near the coast of Portugal. These little shapes [slide] were punched out of leather, having been gilt first, and they floated off many of the bindings there. This is a close-up [slide]. The mud was a different color from the Florence mud, as we'll discuss later, and we come to ethics again here, because to repair this is almost a case of reconstruction rather than restoration and I don't quite know where the line needs to be divided. I don't know what one does at this point and I'd be interested to know what you think about this. It seems to me that at this point you certainly would not put the cover back on the book, particularly because the oriental structure of binding is extremely weak. It may interest you that the modern way of binding, which apparently relies on the same techniques that have been used from the early times, involves soaking your leather in water before you use it, leaving it a rather unsuitable substance for binding, according to western theory. Of course, if you've protected it with things like potassium lactate, though I think the Turkish people don't, it might hold up.

Now the problem of shrinkage arose in Lisbon too, and in the slide the leather is in pieces, not just a solid cover. It is all cut out in lozenge shapes, and that's a more difficult problem to stretch back. You haven't go much to go on, but I think that is still a little bit easier than the pigskin.

Back to the Biblioteca Nazionale: in the library they used sawdust for sweeping the corridors, and as it was available, they tried it for drying books, not of course after they swept the corridors, but using new sawdust, and the use of sawdust has had a lot of criticism, but it did make a very good substance for absorbing the moisture before the books could be sent from the library for drying.

When the books were sent from the library, they were sent to large drying houses, one of which was a tobacco dryer, but this book [slide] was sent to a grain dryer where the books were rested on their fore edges on wooden battens and then the water and the gelatin in the paper drained in the middle. Hot air at about 30 to 40 degrees centigrade was used for drying and it drew the moisture and the gelatin out of the book, making the edges very hard.

Here is another slide to show you the devastation caused by

gelatin in paper, and that is not from the spine; it is purely from the bulk of the book. That particular part of the book, you see, was rested on a V-shape on its fore edge so that part of the book had a lot of air and the gelatin was drawn out all over the leaf and that's very, very stiff. But a great improvement can be made just by washing it in lukewarm water. Many people thought this brown stain to be oil, but those who went to Florence—particularly those involved with the restoration—knew that the oil tended to float on top of the water and the extent of the mud in the library was a very good thing because it kept the oil away, although those books, especially the large ones, that were on the first floor did suffer with some oil, but not a great deal.

Some people got over enthusiastic about drying. It's a human reaction to try and dry the books as soon as possible, but this [slide] was a case of blue blotting paper. I hope the people who sold the blotting paper didn't guarantee the dye!

After the books were dried, there were many cases where the leaves were really stuck together and the paper fragile. The technique we devised for this problem was to use just ordinary alcohol —that means ethyl alcohol—with 5 to 10 per cent water in it, depending on the condition, and soak the book in this, which tended to remove some of the gelatin as well. It also made it possible to open the book very carefully with spatulas without damage. This wouldn't have been possible with water, obviously, because the paper would have become too soft and unmanageable, while the alcohol makes the paper stiff.

In the library there are 40 washing sinks, and I want to talk a little about the difficulties we've encountered in taking mud off paper. We used brushes from the start, very gently brushing the leaves immersed in a solution which contained the trade name, Topane, which is a fungicide, orthophenyl Phenol, and I think this is going to be an interesting story to tell later on. This was used as an emergency fungicide and in a saturated solution of .005 per cent in water, but we found difficulties obviously, although it was recommended as the safest known fungicide at that particular time. Still the workers did have some trouble with irritation to the hands and this became psychological sometimes, too, because they wanted more money (I think rightly so; it's rather a nasty job), but this was very difficult because of the whole situation there where

all of the workers are organized into a *cooperativa* and they tend to believe that all people are equal, but some are more equal than others. There was a dramatic case—I won't tell you who did this, but it wasn't me—where the only way to convince the workers that the solution wouldn't harm them was to drink the water.

One interesting side effect was that the flood waters very definitely helped the alkalinity of the paper—in fact, mud seems to be a very good de-acidification agent—there's quite a bit of alkaline in mud. We found some very exciting Venetian papers made of almost pure cellulose where we were getting readings of pH 8 to 9 after washing, and we ran a test with about four to five hundred other similar Venetian books that were in the library but were unaffected by the flood (this testing is going to be extended) and found that the average pH was 7. Now I think that this is a little bit unusual, and we want to try and see if this tallies with the conditions of identical copies if we can find them in the Library of Congress and the British Museum. I don't think, really, we know enough about the conditions of the paper and what makes it good and I hope we may learn a little bit more about this.

Another very difficult problem which we still don't really know how to handle is this kind of a mud stain [slide]. We can get rid of most of that mud, except within the fibers. This paper is of German origin; the fibers are very short indeed and the mud gets right in, so that it's impossible to really remove it by an method we know of now. We know that acetic acid could help, but I think one can't really start using that on paper. We've tried detergents without very much success because unfortunately this tends to soften the ink, particularly when one is washing, not sheet by sheet, but whole books at a time.

One of the dangers in washing and stain removal is that you can go so far—beyond that you begin taking the type away, so there's a limit. In this case [slide] I think one doesn't use any concoctions or experiment in any way to try and remove any more. We just have to wait until there is a better method for that book. In the meantime, I think the book is quite safe.

This [slide] was a different problem. This is a picture taken in water with paper that was printed in Bologna, probably. And it had a very, very soft surface (we'll speak a little bit more about

that when we consider the impression of sizing or re-sizing) and we can see that it is not possible to remove very much. That patch there got to a point where to go further we should have had the whole type right off the page, but by putting it under water you can agitate it very, very gently, hardly touching the surface at all with a brush, and for those papers, that is the technique. For a stronger paper you can go a little bit more quickly.

This [slide] is just to show you another one which is an impossible case—a before and after. I want you to notice this part because I don't think there's any point in standing here and saying that we do everything perfectly, so I want to show you what happened to this leaf. We've lost a little bit here, and that's how dangerous it is to go too far. There's still an awful lot of mud left in the leaf.

Now to go to Lisbon again, this [slide of a manuscript] is another cleaning problem, but more severe because the mud and the pigment belong to the same family and to remove mud over pigment is a more tricky problem. First it had to be flattened by immersing it in methyl alcohol with only .02 per cent water present, without any cleaning, or very little cleaning, and while it was under tension being flattened, these areas that have mud could be scraped away quite well, but the rest of it has to be got out with another solution. To show you another one [slide], these are very, very hard areas. The mud in this particular case came off in these areas with scraping, but over the other part we did a cleaning. We obviously had to get permission to do this, because there are 67 books in this condition, 19 of them on vellum, and there were no flyleaves—in fact, nothing—to experiment on. For this cleaning we used a solution of Lissapol-N—neat (Lissapol-N) in surgical spirits—and we find that this gives great promise as a technique. This is the only leaf that's been done like this; the whole leaf was then washed in acetone. I don't know anyone that's done any testing on this or any writing on the subject, and we are going to test this at the Imperial College in London to see whether it is a possible thing to do. Again, I'd be interested if someone has a better idea that is safe to use.

This [slide] is to show you a close-up of a vellum leaf—it's still rather like the paper. In this case, it's the hair side and quite often the mud goes right into the hair follicles and you almost

need a blow pipe to blow it out. We haven't got an answer for this manuscript yet [slide], because it's offsetting—it's very difficult to read—and parts of the skin hair have gelatinized, which may or may not be reversible. Under a microscope, the fibrulation of the vellum is still present so it gives one hope, I think, that one can do something.

Here is another of the paper manuscripts proving again that you should not put things in basements. These books are a great embarassment to the Gulbenkian Museum because it was only for one night that these books were in a safe in the basement, having finished an exhibition the day before. The tributary of the Tagus which overflowed was only about 6 to 7 feet wide, and they'd never had a flood there before, so it was all the more incredible that this happened. It's very, very sad. I've made an estimation that if there were to be a total restoration—and again, how far do you restore, what do you put back?—one could end up spending something like six million man hours for 67 books. The only point, I suppose, apart from the fact that these books belong to the personal collection of Calouste Gulbenkian, is that the custodians have to preserve them as far as possible. They can't replace them; there's no possibility to do this. So that they are, I think, being very good and most sensible about it and using this instance to try and make the techniques that may come out of this available to the world of conservation. In the same museum they had paintings damaged—they've got a lovely collection of pottery and oriental art of all descriptions. Now they are going to move into Lisbon, and I think they are going to set up a restoration center based on these books, which we hope will be one of the finest centers for that particular kind of problem, which is a unique one, I think.

Once more, we return to Florence. The great worry at the time of the flood was mold, but in washing and cleaning we didn't find much sign of this problem. At the moment, I'm very interested in finding out what are the conditions in the small libraries of Florence—they number something like 32—where they had very little help except from a group that CRIA sent in the early days of the flood, and the group there contained your best restorers. They did a great deal of work and helped by taking blotting paper and advising libraries on how to use the blotting paper, how to use a

protection like thymol against mold, and generally calming the situation down. Although many of them feel they didn't do very much, I think actually when the story is told, thymol will have proved to be a pretty good substance to have used. Now that the B.N.C.F. and also the Archivio di Stato have had a great deal of expertise and a great deal of money poured into them and mold is being protected against there by such things as ethylene oxide, I would be interested to compare that with the conditions of the small libraries, which I would guess to be approximately parallel, but we'll have to wait and see.

The question of mold in paper presents still another interesting cleaning problem. I'm not a chemist, so excuse me if I use the wrong terms. But when paper is put under water, it is a very common experience to have opaque spots like these appear [slide] which is usually an indication that there is mold present, either dead or alive, and if one considers the mold as a sort of waxy substance in the paper, it's not difficult to see that the water will not go through it except if you use a wetting agent, so we've always tended to treat such cases by using thymol, 2 to 3 per cent in ethyl alcohol, to pass through the document and dry it off afterwards and having done that the water goes straight through. Now if one is using a fungicide which is more powerful but won't go through, is it more effective than using a less powerful one and making the water pass through the mold? I leave that question with you.

Now we go on to iron gall ink, which is a problem in paper and certainly in vellum. This [slide] is the flesh side of the skin. Just notice that the ink doesn't spread very much. You have a little more spread on the hair side, and if we hold this vellum up to the light [slide], you can see these holes here. Those areas were damaged by the ink before the flood, so when the water came along it just washed the rest away. We couldn't use water for cleaning these vellums, we felt, because we were going to increase the danger of the action of the ink on the vellum so this seemed a place to use methyl alcohol.

Now we're getting into the realms of bleaching. This [slide] is obviously a mixture of the ink and gelatin. Now you can remove this, but the difficulty is protecting those areas that you don't want to clean, and one might think of using a photographic tech-

nique, which is not yet devised for this purpose, but where one might screen the original out and work pantographically.(?) I shouldn't probably talk about something that hasn't happened, but I think there is a method that might be developed towards this direction. But I think there isn't really any hurry for this—we may have to wait 5 or 6 years or even longer before techniques come along. I think there is a great danger in any restoration; one must be very conscientious and very honest in what one does, and if a safe and proper job can't be done, leave it.

Now these areas [slide] which are very much like tannin stains in vellum can be removed, leaving the writing. It does, in fact, bleach very well with peroxide. I suppose peroxide is the first chemical that one might choose for bleaching vellum. But again we don't really know much about it—I don't think anyone has written on the subject and if someone in the audience has, please tell me afterwards. So we have to go through the whole process of testing the pH, the strength and the flexibility, the staining, the lasting quality, whether it is in fact a very safe method or not, before we can go ahead with it.

Here [slide] are some more tannin stains, from red leather, in particular. Unfortunately, this leather is next to the best leather to use after white vellum skin, but inside the book you'll notice what's happened. I don't think there's any question about leaving that stain because it's on a title page there.

Now this [slide] is not a good job of bleaching at all, but it's the result of using chloramine-T, and those who have used chloramine-T at various strengths with heat will be aware that you can increase the bleaching action the hotter you go. These particular areas here are quite unmovable, and if one uses a stronger bleach like sodium hypochlorite, of course, one can get at it, but for book papers, particularly at the beginning of a book where the paper tends to be very weak and thin and well used, it's a very difficult thing to do. On the whole one tries to avoid such bleaches.

It seems to me that in the area of bleaching, there's a great deal more work that's got to be done, because control of the bleaching action is still, I think, far from being satisfactory. Here we compare the three types of bleach: [slide] this is the original; this was bleached with sodium hypochlorite; this was bleached with chloramine-T—it doesn't tell you very much really because

it's a matter of percentages and time, but one assumes that this is in fact the maximum of each method in time and strength. There is a difference in result. Whether that is worth it or not I wouldn't say except that I think we may have left it in its original state. [slide] Now I think there's a danger with bleaching that one can overdo it, in other words, get the book too white. Where that happens quite often it's necessary to stain the paper back again, which I often think is a pity—that's an understatement. But of course the problem is when you've got hundreds of books to do like this you can's start fiddling about with spots, you see, except by putting a bleach solution in say 22 per cent solution of methyl cellulose, which can stop the flow if you're spot bleaching, if there's no trouble in one area, you could use it after the leaf is damped to bleach that out without spreading too much. It's quite a nice technique, but obviously very expensive and very time consuming; this is again a 3 per cent solution of chloramine-T for 15 minutes at a temperature of about 70° Centigrade. [slide] Now if we go back to ethics, and again, wrong word, but never mind. This is the kind of stain which appears, which was there before the flood. Now does one remove it or not. I'll leave you with that question. But you see these marks, the danger with restorers who are not familiar, or perhaps are not conscientious or don't feel that it's necessary to observe some of the previous history of the book might remove such things as that. These marks show that this book once had clasps; that is obviously part of its history and I think should not be removed.

[slide] Now we had some fun with some of these limp vellum bindings again because we noticed that where they were resting against red leather we had the tannin offsetting onto the book. And we got very used to seeing this on one cover only. [slide of book with unusual staining] This one puzzled us, but the binder had obviously been waiting for the flood to catch us out because he stained the cover himself up to that point.

Having discussed the problems of washing and cleaning, and the methods we attempted to use in solving them, we now come to a somewhat new problem—that of re-sizing the treated pages. Many of the books were quite fat, quite chunky, and sometimes quite soft. In other words, the surface of the paper was quite woolly. Now when one is considering re-sizing, I don't think it's

a matter of whether you're adding strength, because I think that's highly questionable anyway, but I think it's more a question of increasing resistance to handling. You may get a piece of paper which is quite soft and treat it flat, as you might a print to strengthen it; in other words you may relate your strength, or your choice of sizing to the substance without relating it to how it works in a binding. So that if you over-size a book like this, you could, in fact, destroy your binding. So sometimes it's not wise to put, or think of putting, strength in your paper by the single leaf which produces an over-elaborate breakdown in the binding.

Here are two examples of paper [slide]. This paper was sized with a 3 per cent solution of polyvinyl alcohol—this other one was not sized, but the humidity present in this particular area was 55, which in England and certainly in Europe, is fairly dry. But by lowering the humidity—and this is where you have to believe me, I'm afraid—by lowering or raising the relative humidity to 85 or 90, that leaf on the left makes the same shape as the leaf on the right. So, with the decision of when to size and the choice of sizing also comes the factor of personal experience, which perhaps in these days is not good enough and one needs perhaps to try and provide the right conditions in which it is possible to choose or decide when to size paper related to the way it will behave in a book.

[slide] This is to show you a book that wasn't damaged in the flood, which was not too thick, the binding was not wrong for it, but the size was absolutely enormous; it was almost dripping wet with size, and if that book were washed, it would lie quite flat and flexible.

We found that about 6 to 7 per cent of the books in Florence have needed re-sizing. But those books that were printed in Venice quite often seem to be much sounder, much stiffer and sterner propositions without sizing afterwards, so I think we really must look into those Venetian papers.

We have to decide, you see, when we're sizing—again related to the structure of the binding—what is going to happen related to the thickness, the size of the paper, the weight, the size of the binding and so on and the personal factor remains. I may consider that this is the wrong opening for a book [slide] or you might feel that this is the right opening. It may even be your opinion that

that will break down eventually. How heavy is the book related to what you sew it on? Is the paper too thin? Should it have been sized a bit more heavily? Is it your opinion, as I feel, that if one can open the spine flat, that this is what one ought to try to achieve for a good binding.

[slide] This is always a regrettable thing to have to do to a book, but it's the result of too stiff a paper related to the size of the book. But even so, when one is making what we call a hollow back, for those who are not technically binding minded, you will notice that this happens to be very thick. It works almost like a spring and if you are very careful with it you can make your hollow back work. In any way you choose you can make it, in fact, not work at all, but it also—shows the appearance of 19th century binding techniques.

[slide] Now we come on to mending, with the oriental manuscripts where you have the frames held or originally ruled with verdigris color which often rots paper and vellum. The problem of mending that, and with what, is quite an interesting and difficult one to solve. Now I think we would all agree that any form of lamination must be out in such work, but on the other hand, if one is going to strengthen it, what does one do? Do you put a tissue which is impregnated with an adhesive? This would probably mean that there would be a build-up in those particular areas which would eventually help to absorb some of the humidity in the air and you would get a great deal of cockling. Also it probably wouldn't be very easy to get it strong, being so thin across that gap, so we are looking for a solution that has got enough strength. I hope that Dr. Robert Feller might have some suggestions here because we need something which has enough residual strength such as a film that can pass between the thickness of the leaf.

[slide] This is just a photograph to show you how much damage is caused to the majority of the books on the edges. Now these pinking shear edges have been mended with heat set tissue which is very thin and it is a very quick method and quite suitable for the mending of tears. [slide] This shows you the technique—here's the tissue at this point, which has been cut in a strip. It's just been laid down on the edge with a heating iron. [slide] Now it's always nice to show befores and afters but the trouble is if you take a picture of "before" in the morning and then the "after" at night

you get a funny color and I'm afraid this is what's happened. [slide] The color isn't very good, but this has been mended with a long-fibered Japanese tissue and it does, of course, vary a little bit but it doesn't match very well. In mending these pages one could not possibly always use matching paper because of the problems of control, or even having enough variety of material. In this work the Italians were, quite naturally, dubious of the use of animal substances, but we didn't feel that using plastic adhesives, even methyl cellulose or polyvinyl alcohol, were far enough advanced to put into operation on the whole mess of books. So it was something which had to be worked out, but while this was being worked out and discussed the books had to be got on with. So we had to develop a technique of mending where the mend itself had an adhesive which spread not only through the mending paper but into the leaf so there was support round the mend. [slide] This is just showing the technique which I think many of you are familiar with of tracing the mend out with a ruling pen. We use [slide]—I don't know whether this is interesting or not—but we used terralyn for pasting on because we found that it didn't come off the bench; we could wipe it down; it's better than paper for pasting on, and it gives you a nice clean job. [slide] Now, this particular technique—it's made up of three thicknesses of paper, the first one, Japanese tissue, is being pasted, the leaf will then be laid on there. [slide] And then after that another sheet of tissue is pasted out and put onto the leaf. The paste which is being used is a mixture of rice starch and a 5 or 10 per cent solution of polyvinyl alcohol. This depends on what flexibility is needed for the particular job, and there are something like 7 different pastes in operation for all the different problems. You obviously need a much stickier and heavier paste for print restoration. [slide] In Florence, those who saw the film, will have noticed that the leaf was damped with a sponge, having been pasted out with a brush. This is a more recent development of that technique, where the whole leaf is sprayed, and we find that there is no contraction at all, after it has been very lightly pressed. The important thing, I think, about mending of book papers, is that the mend itself should contain as little possible adhesive as you can get into the paper, and it should, of course, be able to breathe at the same rate as the paper it is mending, and this is rather dif-

ficult, particularly if the paper hasn't been re-sized. But it seems to be quite successful. [slide] This is another question for you because we're always a little bit unhappy about the texture of Japanese paper. It tends to go a little bit transparent—it hasn't got the look of old paper. There isn't any suggestion that one should match the thing exactly, but of course there is the problem of looks. [slide] This has been exaggerated for this purpose. This is not from Florence, this is just a test sheet where the paper has been pressed onto a very thick, textured piece of handmade paper and I believe this is probably a good idea, but many of you perhaps may think not. It looks quite good I think—but this particular kind of area here which is very textured, has been mended you see up here with this technique and we tried to fade it in.

[slide] Now we come on to the last stage, that is binding. I hope I've been able to relate the whole thing together. Having made your treatments of the leaves, you of course have got to bind them. [Several slides illustrating different types of sewing were shown] These examples symbolize at the library in Florence, the philosophy behind the whole operation, that of trying to choose a binding suitable for the period of a book. And so we're not really using only one type sewing.

Now what I can't show you and what there isn't time to show you are the results of our testing, or trying to test, objectively, some of these book structures. There is probably a need for something like 900 test samples of books before we will be able to come to some kind of judgment about how you should sew a particular kind of book, and we're far from this at the moment. I think this needs to be done because the re-binding of books is based far too much on personal opinion, and I believe we need to get away from that in this age of conservation. [slide] This book was done recently. It had no adhesive directly on the spine but it had a zigzag or concertina of paper in which the sewing was passed through the sections through to the zigzag so that the adhesive that was applied was directly away from the original fold, and this is quite a good method, particularly for vellum leaf books and it could be used for paper quite well. [slide] I'll leave you with that one because I think this shows what we have been trying to do all along, have a book which opens very well without holding it down with a couple of G-clamps. [slide] These are some of the vellum books which

are being produced in the library at the moment. They haven't quite got the attractiveness of the early ones because it's still in a development process and as yet the director of the library, not unnaturally because he's a paleographer, is not yet certain about whether he wants the books titled. I can understand this because the 19th century certainly did produce some pretty nasty looking spines and I think you want very much to avoid this. This skin is the best we can find—it comes from Ireland—and we'll have to see whether we can improve it over the next two or three years. [slide] This is just one picture of the main reading room of the library to show the extent—this particular area which is out of your picture, is the main mending section which holds about 30 different workers—and they're producing at the rate of about 7 books a day. This is a pilot scheme which was started for the 340,000 books and this is the rare book binding section over here. Usually there are about 4 people there, about 15 to 16 in the other department. [slide—a picture of the bridge over the Arno River] I leave you with this picture because we hope that the waters will stay at that level, and we hope that books will always be able to arch a little bit—in opening, because if they do they'll be all right.

PUBLICITY AND NEWS NOTES / Grady E. Jensen

GBW member Norma Rubovits and her husband, Dr. Frank E. Rubovits, had a joint exhibition in the Art Department of the Chicago Public Library in April. Dr. Rubovits showed some of the fine hand bookbindings he does as an avocation and Mrs. Rubovits showed marbled book papers and unique marbled mono-prints she has created.

Norma Rubovits is a student of Elizabeth Kner, the well-known binder. She first became aware of marbled papers when she began to study bookbinding. It is now her major interest. Dr. Rubovits is a practicing physician whose great grandfather was a bookbinder and printer in the early days of Chicago. His interest in bookbinding was in part provoked by a wish to repair and restore elements

of the family library which had been passed from one generation to another. He, too, is a student of Elizabeth Kner.

Mrs. Rubovits is one of a relatively few people interested in keeping this art alive. In the past, marbling was applied almost exclusively to book papers, but she believes that the varied types of design could have a wide application in commercial, advertising and applied arts. With this in mind she created her unusual marbled mono-prints.

Dr. Rubovits' portion of the joint exhibition included books bound in half leather, marbled paper, and combinations of half cloth and paste paper, full leather, as well as slip cases and restorations. Mrs. Rubovits showed 16 untitled marbled mono-prints, full sheets of marbled paper, and some marbled "doodles."

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Once again, GBW members are urged to send in information about themselves which can be included in this column. We have no way of knowing about things that happen to you unless you tell us!

DETERIORATION AND PRESERVATION OF LIBRARY MATERIALS / Thirty-fourth Annual Conference of the Graduate Library School, University of Chicago, August 4–6, 1969

The objectives of the Conference are to explore the range and magnitude of the threat of deterioration, its origin in the physical components of materials and in the conditions of their storage and handling, the prospects for improvement of materials in future and for restoration of those at hand, and the role the librarian can play in lengthening the life of his collections. The contributors to the Conference include people in positions to de-

termine what kinds of materials we have and how they shall be treated. The specific topics and speakers are:

I. Deterioration of Library Collections Today. Edwin E. Williams, Associate University Librarian, Harvard University.

II. The Nature of Paper. Bertie L. Browning, Senior Research Associate, The Institute of Paper Chemistry, Appleton, Wisconsin.

III. Environmental Factors Affecting the Permanence of Library Materials. Carl J. Wessel, Senior Vice President, John I. Thomspon & Co., Washington, D.C.

IV. Problems in Preserving Photographs and Photographic Films, including Microforms. George T. Eaton, Assistant Division Head, Photographic Research Division, Research Laboratories, Eastman Kodak Company.

V. Alkaline Printing Papers: Promise and Performance. Joseph J. Thomas, Vice President-Research, S. D. Warren Company, Westbrook, Maine. Discussant: Greer Allen, Manager, Printing Dept., University of Chicago.

VI. Publishing on Permanent Papers. Leonard Shatzkin, Vice President for Manufacturing, Research, and Development, McGraw-Hill Book Company. Discussant: Forrest F. Carhart, Jr. Director, Office for Research and Development, Director, Library Technology Program, American Library Assn.

VII. Binding Practice as Related to the Preservation of Books. Harold W. Tribolet, Manager, Dept. of Extra Binding, R. R. Donnelley and Sons Co., Chicago. Discussant: Kenneth W. Soderland, Associate Director for Preparations, University of Chicago Library.

VIII. New Approaches to Preservation. Richard Daniel Smith, Fellow, Graduate Library School, University of Chicago. Discussant: William K. Wilson, Chief, Paper Evaluation Section, U.S. National Bureau of Standards.

IX. The Librarian as Conservator. James W. Henderson, Chief of The Research Libraries and Robert G. Krupp, Chief, Science and Technology Division of The Research Librar-

ies, The New York Public Library. Discussant: Paul N. Banks, Conservator, The Newberry Library.

X. Summary: Verner W. Clapp, Consultant, Council on Library Resources, Inc.

The Director and Assistant Director of the Conference are Howard W. Winger, Professor, and Richard Daniel Smith, Fellow, of the Graduate Library School. The Conference is open to the public and will be held at the Center for Continuing Education on the University campus. For a printed program and information about registration and lodging, write Conference Director, Graduate Library School, University of Chicago, 1116 East 59th Street, Chicago, Ill. 60637

LETTER TO THE EDITOR

A NEW "TOOL" FOR THE BOOKBINDER /

Polly Lada-Mocarski

There are chemicals called SURFACTANTS that increase the wetting action of water. In correct proportions (see formula below) they facilitate appreciably the removal of paper, cloth and leather glued or pasted to almost anything such as end sheets, spines lined with paper, cloth bound books, etc.

A surfactant has been found which is neutral—neither acid nor alkaline—and, as such, is safe to use—even on rare material.

The basic chemical for making the solution can easily be bought from many chemical companies and is called: Sodium Dioctyl Sulfosucciorate. Aerosol O T® made by the American Cyanamid Co. is the best one I have found among several surfactants tested, and the one I have done the experiments with. If any other brand is used it should be tested to ensure that it is neutral.

After considerable experimentations on many types of paper, cloth and leather my experiences, so far, are:

1. It is possible to remove without damage practically any

end sheets. The better the paper the easier the job. The end sheet is moistened by applying with cotton soaked in the solution for only two or three inches at a time. The paper is carefully pushed up with a bone folder. Let solution soak in for two or three minutes before starting to remove paper. Keep adding solution progressively and keep paper wet.

2. When using the solution on paper the entire surface must be moistened otherwise a stain, from dirt in the paper, will appear. The solution will also clean the paper. After removing end sheet let it dry, then rinse in clear water. Do not rinse immediately after removal as the paper may be too soft for further immersion. This applies mostly to inferior papers. Good old solid paper may be rinsed immediately.

3. The solution will remove leather as well as paper but old calf becomes dark and brittle, the same as when plain water is used—therefore use only if calf is not to be re-used. However, I found that goat skins are not damaged by the solution. One should always try the solution on a tiny place before using on any leathers as each skin is different!

4. Wheat paste mixed with the solution, instead of water, will remove paper and glue from spines immediately and miraculously. On books tested so far no moisture penetrated through to the inside pages to stain the paper on the inside pages. This experiment was made with Jane Greenfield and Wayne Eley.

5. The solution removes bookplates, stamps, etc., as it seems particularly effective on glue.

There are undoubtedly many other uses for this new "tool," and any information from experiments by binders or under the direction of librarians would be greatly appreciated. Please send any information and questions to the Guild of Book Workers, AIGA, 1059 Third Ave., New York, N.Y. 10021, and they will be published for the enlightenment of ALL.

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Formula

1% by weight of Aerosol O T® in distilled water. It takes a while to dissolve. This can be purchased from the Fisher Chemical Co. (see Supply List for address). Minimum quantity one pound; price approximately $5.00 per pound.