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A Survey of Current Leather Conservation Practices

ABSTRACT

In fall 2008, a survey of leather conservation practices was sent out to fellow conservators as well as allied professionals via various listervs. The goal of this survey was to ascertain what types of treatments and repairs were being practiced on leather bindings in a variety of professional settings. The authors have presented the results of this survey and analyzed them to show the continuum of leather treatment within and without of the conservation community; highlighting not only emerging trends, and established treatments, but also when, why and by whom more traditional treatments, such as leather dressing, are still being practiced.

The survey results gathered detailed data from 57 national and international respondents, many of whom are conservation professionals and support staff, but also with significant responses from our allied professions. The results show that newer leather treatments, such as solvent set tissue hinge repair, consolidation via application of cocktails of microcrystalline waxes and cellulose ethers, and the use of molded cave paper as a substitute for leather appear to be accepted and utilized in the conservation field, but that traditional treatments such as the application of leather dressings and cleaning with saddle soap are also still used.

INTRODUCTION

Since Kristen St. John published her own "Survey of Current Methods and Materials Used for Conservation of Leather Bookbindings" in the Book and Paper Group Annual in 2000, very little has been reported on how conservators and others deal with the treatment of leather bindings. The primary goal of this survey was to take a snapshot of what is currently being done with leather bindings in cultural heritage institutions, private collections, and the wholesale trade.

Paper delivered at the Book and Paper Session, AIC's 38th Annual Meeting, May 11–14, 2010, Milwaukee, Wisconsin.

This survey originally began as research for the Book Conservation Catalog chapter on leather in order to achieve an overview of what treatments are being used on leather bindings within and without of the field of conservation.

The authors wished to determine what types of repairs and treatments are currently being used on leather bindings in a variety of professional settings. The authors were curious if certain traditional treatments, such as leather dressing, were still being used and if emerging trends, such as solvent set tissue hinge repair are widely practiced. Since the decisions that conservators make on treating items of cultural heritage is generally linked to the type of training (apprenticeship, self-taught, graduate school or professional development) received, the authors were really curious if certain trends would merge after analyzing the data.

SURVEY DESIGN

The survey tool was designed with Kristen St. John's previously mentioned leather survey as a starting point. Once a prototype of the survey was developed, numerous conservation staff tested it before it was ready for use. The authors also received suggestions and feedback from St. John during the survey design and testing process.

The survey tool was available online through a survey tool available through the University of Illinois at Urbana-Champaign for a two week period in September and October 2008. Email requests for voluntary participants were sent out to various listservs within and without of the conservation community to achieve as diverse a range of potential respondents as possible. The listservs included the Conservation Distribution List (ConsDistList), Preservation Administration Discussion Group (PADG), the Book Arts Listserv, and the rare book and manuscript listserv, Ex Libris.

The survey was divided into nine questions with three of those questions having multiple response sections. The first five questions on the survey asked basic demographic questions: job title, type of institution, size of general and special collections as an aggregate number, hours per week

spent on preservation/conservation and how the bulk of the respondent's knowledge of conservation practices/leather treatment and principles was achieved. The next three questions asked what type of treatments and materials the survey respondents use for repair of leather bindings and how often. The responses used a five point scale gauging frequency of use of certain types of repair methodologies. This scale included frequent, occasional, rarely, never and not sure as the answer set.

The first treatment-related question covered what type of treatment the respondent currently uses on repair of leather bindings and the frequency of use. These treatments included board reattachment, hinge repair, rebacks, and full rebinding. The next two treatment questions asked questions regarding frequency of use of adhesives, dyes, consolidants, lubrication and cosmetic treatment on original leather as well as on new leather.

The final question was an open-ended text field requesting any additional information or comments the respondent would like to contribute that wasn't covered in the survey tool. No personal identifying data from the survey respondents was requested or recorded.

Please see Appendix 1 for a copy of the survey.

DEMOGRAPHIC DATA

A total of 57 individuals responded to the survey. Almost 70% of the respondents self-identified as institutional conservators, institutional conservation staff, or conservators in private practice. Preservation administrators or staff totaled 18%, and special collections curators and staff comprised 5% of our sample. The authors had hoped to capture more non conservation/preservation staff but a reply from one book dealer was received at approximately 2% of the total sample size (table 1).

As expected, most of the respondents, 71%, are based in US ARL or non-ARL institutions and 67% have collections, including both circulating and special collections, of one million volumes or more. This percentage makes sense given that institutions with larger collections are more likely to have a conservation or preservation unit than smaller institutions (tables 2–3).

A vast majority of respondents, 75%, spend at least 20 hours per week on book conservation or preservation. Out of those 75%, 50% devote at least 40 hours per week to our conservation/preservation (table 4).

The most meaningful demographic question for the survey asked respondents how they acquired the bulk of their knowledge pertaining to leather treatment and repair practices. While the question states to choose the one best answer for this question, our online survey tool inadvertently allowed multiple answers from survey respondents. Therefore, the total number of answers for this question is

Institutional Conservator	25
Institutional Conservation Staff	5
Preservation Administrator	6
Preservation Staff	4
Special Collections Curator	2
Special Collections Staff	1
Other Library/Archives Staff	0
Conservator in private practice	9
Book Dealer	1
Other	2

Table 1. Job Title

US ARL institution	31
US non-ARL institution	8
Non-US research library	3
Non-US non-research library	0
Other	4

Table 2. Institution Type

Under 1 million	8
1-3 million	12
3-5 million	9
Over 5 million	16
Not applicable	1

Table 3. Collection Size

40 or 40+	27
30 – 39	11
20 – 29	9
10 – 19	4
5 – 9	1
Less than 5	3
Not applicable	2

Table 4. Preservation/Conservation Hours per Week

86 from the 57 respondents. Approximately one-quarter of the respondents, 24%, reported that their main source of training in leather treatment practices was through a graduate program in either conservation or preservation, 12% report knowledge acquisition through a conservation apprenticeship while 43% said their knowledge was acquired through on the job training and workshops. The remainder of the respondents reported that they were either self-taught or learned through attending professional association meetings (table 5).

Conservation apprenticeship	10
Graduate degree in conservation	19
Graduate work in preservation	2
Other graduate training	3
On the job training/experience	21
Workshops/training sessions	16
Professional association meetings	4
Self study (books, on-line, articles, etc.)	10
Other	1

Table 5. Knowledge Acquisition

SURVEY RESULTS

Overview

The authors graphically represented the treatment data in two different forms. The first form looked at all the possible responses and identified the most popular (fig. 1). While this initial data analysis was a necessary step to derive the most popular responses, it was visually cluttered and difficult to analyze. From this, popularity of practice or materials choice was gauged by the number of respondents who selected either "frequently" or "occasionally" as a response for a particular question, implying that it is used with some regularity. Further analysis of the discounted "rarely" and "never" responses is still necessary, and will be the focus of the authors future research on the topic.

The second view of the data is a vertical bar graph that summarizes the number of "frequent" and "occasional" responses for all of those responding, as well as breaking out those responses by the practicing field of the respondent. The authors divided the fields of the respondents into three broad categories for comparison: Conservators; Preservation Administrators; Book Dealers & Curators (fig. 2). By presenting the data in this fashion, the authors felt that it more clearly illustrated when one particular field of respondents is heavily using a specific method or material compared to other fields.

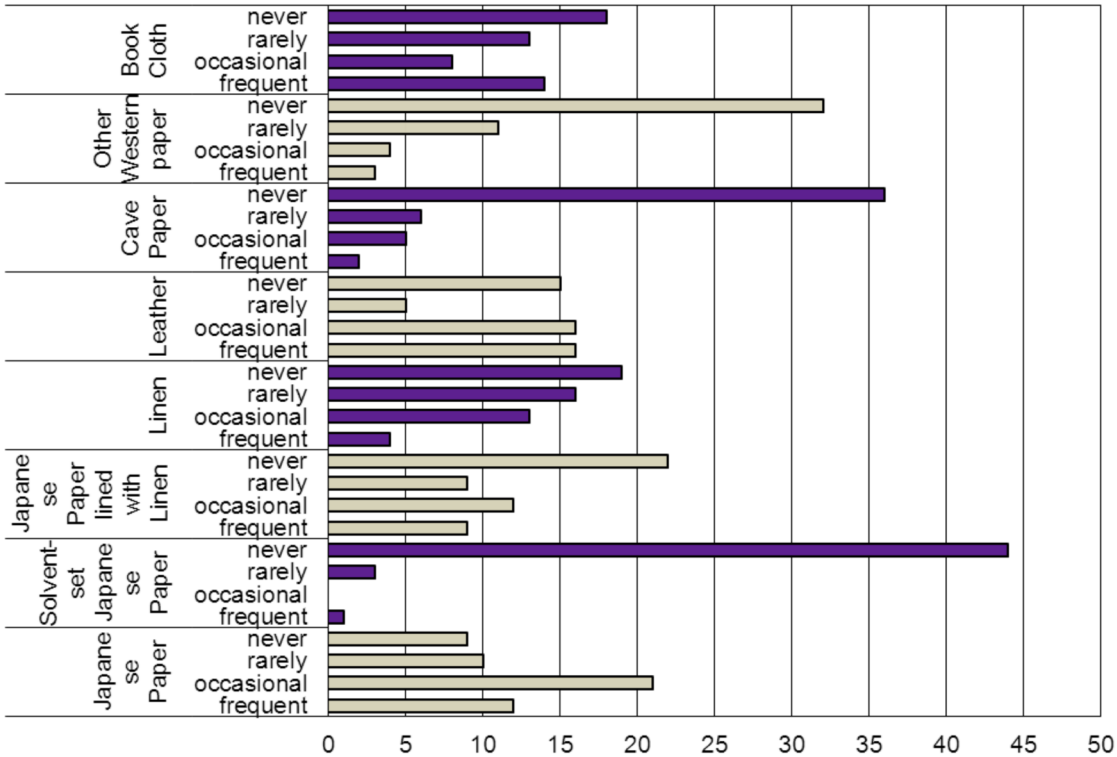

Fig. 1. Materials Used for Rebacking: Total Responses. This view shows full graphical representation of all the data collected

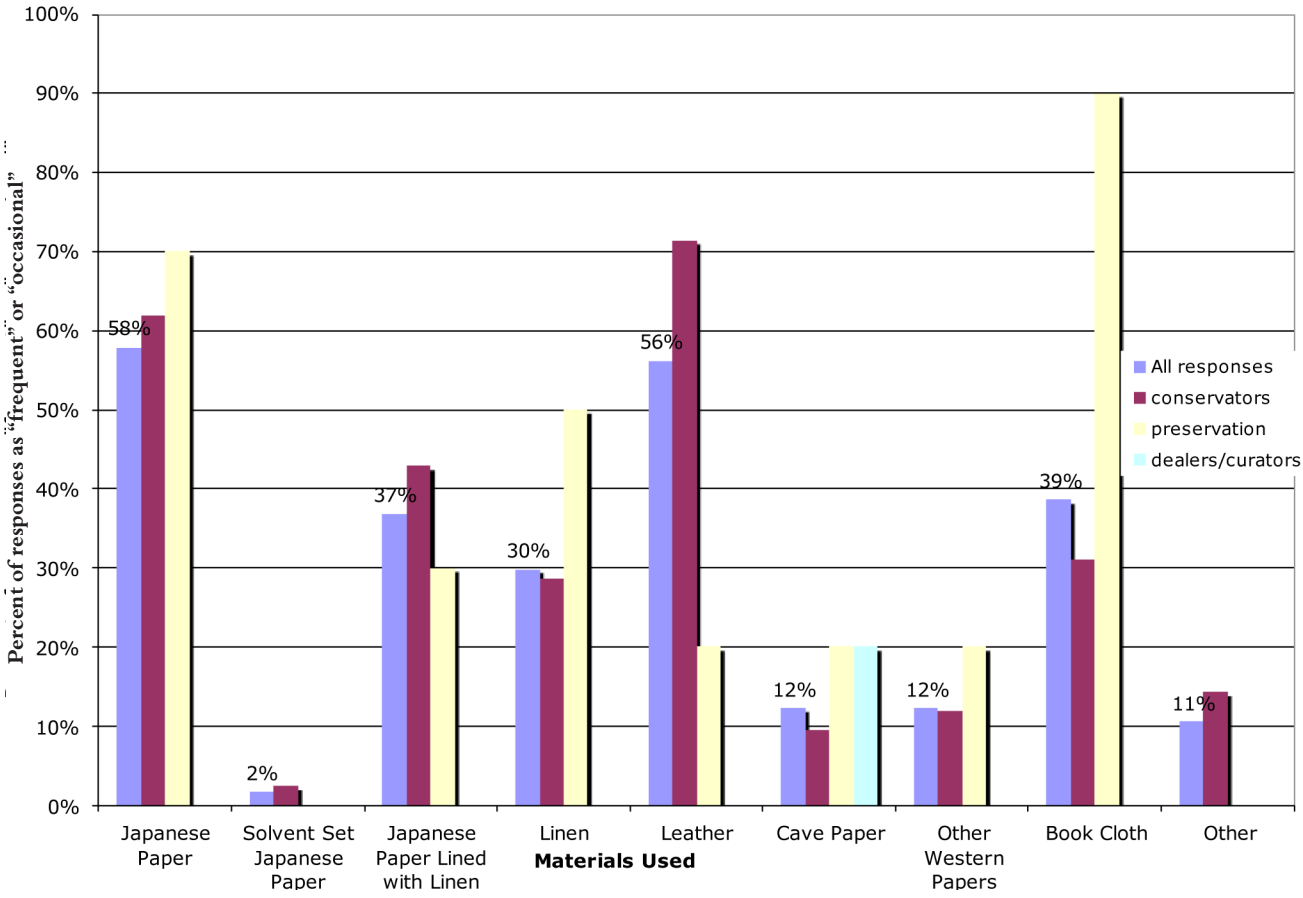

Fig. 2. Materials Used for Rebacking: Responses by Field. This view distills the responses to those most popular and then divides them by professional field of the respondent

Board Reattachment Methods for Leather Bindings

For board attachment, the most popular method used by the respondents was the construction of tissue hinges, followed closely by linen hinges (see Figure 3: Board Reattachment Methods). A proportionally higher percent of preservation administrators preferred board tacketing and board slotting than conservators, which the authors found a bit surprising, while conservators offered many "other" options that were not anticipated by the survey. This heavy use of "other" by conservators is consistent throughout the survey, and was anticipated by the authors, as they were certain that there were many treatment methodologies and materials that they would not predict on the survey tool. The responses in these "other" fields will be summarized for each section as it is reviewed. The most common "other" responses for board reattachment methods included: rebacking (which was a section of its own later in the survey, so these were disregarded), extension or replacement of original sewing supports; and lacing in slips.

Materials Used for Repairs on Leather Bindings: Hinge Repair, Rebacks and Rebinding

Although data was collected for these three types of repairs as separate questions in the survey, the authors found that it was useful to compare these three repair types side by side in their data analysis.

The most common hinge repair materials noted by respondents, overall, were Japanese tissue/papers[1], Japanese tissue/paper lined on linen, or plain linen, with only moderate use of book cloth and leather (table 6). Lower use of solvent set tissues, cave paper and other western papers were also reported, showing a slow but notable uptake of more recent repair techniques. There were less "other" options presented for hinge repair materials, but there was repeated mention of Tyvek as a hinge repair materials (2 entries), and well as other textiles than linen, including aerocotton, cambric, and cotton muslin.

By far the most popular material currently used for rebacking is Japanese paper or leather, but book cloth and linen also both reasonably popular. It should be noted that book cloth was shown to be strongly preferred by preservation

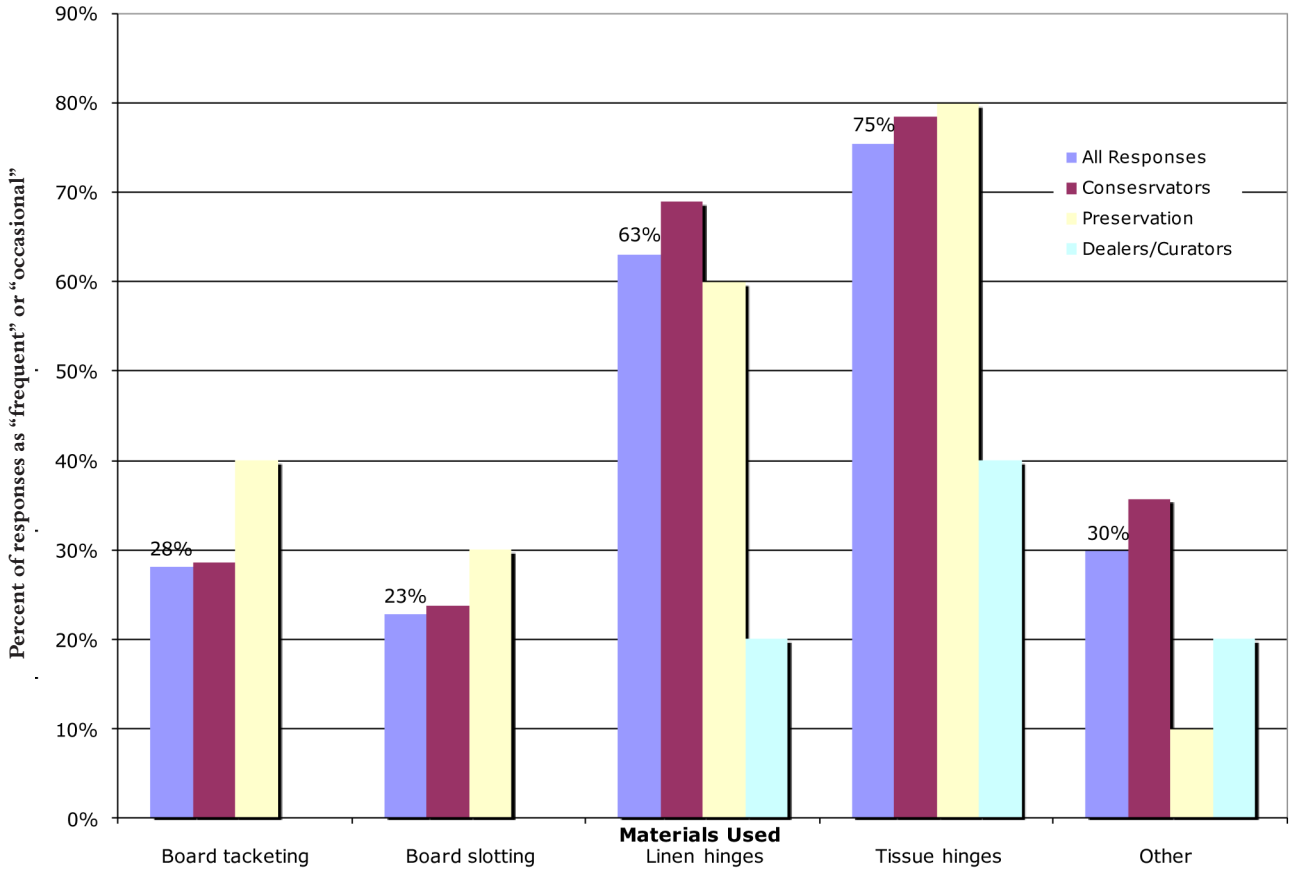

Fig. 3. Board Reattachment Methods

Materials used	Reback	New Case	Hinge Repair
Japanese Paper	58%	11%	88%
Solvent Set Japanese Paper	2%	0%	16%
Japanese Paper Lined with Linen	37%	7%	35%
Linen	30%	14%	39%
Leather	56%	56%	28%
Cave Paper	12%	9%	7%
Other Western Papers	12%	23%	11%
Book Cloth	39%	56%	25%
Other	11%	7%	18%

Table 6. Materials Used for Hinge Repair, Rebacking, and Rebinding. Shaded fields indicate those with higher popularity in responses

professionals and leather was equally strongly preferred by conservators. Common "other" materials used echoed those used for hinge repair, and included aerocotton and muslin.

The responses for materials used in rebinding, or the creation of a new case, were about what the authors expected, with book cloth and leather as the two most popular responses, favored by 56% of the respondents each. While leather was used commonly by 71% of conservators, however, only 20% of preservation professionals used it with any regularity, while conversely book cloth was used commonly by 70% of preservation professionals, but shared as a close second in preference by 60% of conservators. Not surprisingly, nobody was regularly performing full rebinding with materials such as solvent set tissues. There were only a few options not covered by the predetermined answers that were offered as "others" by the respondents, including limp vellum and alum tawed skins. One other response, from a self-identified 'lecturer in library and archives conservation', was for "rubberized io-enhanced stuff". This is an unknown material by either of the authors, and some of the responses by this respondent are to be called into question throughout the rest of the survey summary.

Adhesives

The data gathered in this section of the survey split questions and responses between those materials used on old or original leather and those used on new leather, to see if materials chosen differed and, if so, for which techniques and applications. Respondents showed strong preference for a PVA/paste mixture as an adhesive when working with original leather, with preferences also for straight methycellulose and PVA/methylcellulose mix (table 7). In the "other" categories, the authors were surprised to find how many respondents listed a preference for straight PVA (7 responses, or 13%) on original leather[2].

The responses for adhesives used on new leather for repair echoed those materials used for original or older leather, but also displayed some additional preferences, and certainly presented different usage rates. The most common adhesive used on new leather is straight paste, followed by PVA/paste mix, straight PVA, and PVA/methylcellulose mix. Some popularity was shown for paste/methylcellulose mix, and an "other" submission was noted for common use of a mixture of PVA/paste and methylcellulose. Other "others" of note included the use of Isopropyl myristate (a synthetic emollient oil used commonly in cosmetics), and a mixture of Lascaux 498 with either paste or gelatin.

Dyes

From the data collected, the authors found that the most common dye used on original leather was actually their lack of use, for obvious reasons. However, when dyes were used, acrylics were selected most commonly followed by aniline dyes, and then watercolors (table 8). Very few "other" additions were presented, other than comments on how conservators should not use dyes on original leather. However, one material that the authors were not familiar with was references as "Barrilics". No information about such a dyestuff was readily available and the authors will continue to research the validity of this response.

When asked about their use of dyes on new leather, respondent indicated an increase of approximately 10% in overall use, and the noted preference to NOT dye leather dropped a proportionate 10%. Of those dyes indicated as commonly used, aniline dyes were the most common,

	Leather Type	
Adhesives Used	**Original**	**New**
PVA	11%	42%
Paste	0%	77%
Methylcellulose	37%	25%
Gelatin	12%	90%
PVA/Paste Mixture	54%	44%
PVA/Methylcellulose Mix	33%	30%
Lascaux 360HV	4%	0%
Lascaux 498	16%	11%
PVA/Klucel G	12%	50%
Paste/Methycellulose mix	19%	23%
Animal Hide Glue	5%	7%
Beva	4%	2%
Other	11%	5%

Table 7. Adhesives used on Leather. Shaded fields indicate those with higher popularity in responses

	Leather Type	
Dye/Colorant	**Original**	**New**
Aniline	21%	32%
Mineral Spirit	12%	14%
Metal Complex	2%	14%
Acrylics	26%	28%
Watercolors	18%	18%
None	51%	39%
Other	2%	9%

Table 8. Dyes used on Leather. Shaded fields indicate those with higher popularity in responses

followed by acrylics. While watercolors were not the most popular over all (only about 17% of respondents) their use was reasonably strong for use on both new and old leather. Dyes mentioned in "other" for dying new leather included Tocopheryl acetate (vitamin E acetate), unspecified BASF dyes, unspecified Fiebings brand leather dye, and Meltonian Cream (a tinted shoe polish).

Surface Treatments used on Leather

The authors chose to present the questions relating to the use of various surface treatments in three distinct categories (consolidation, lubrication and cosmetic), following Kristen St. John's survey model referenced earlier, to better determine not only what materials were being used but also for what purpose.

Table 9 represents the combined data collected for all types of surface preparations used on new and used leathers for the three different purposes. Overall, looking at this compilation, the data shows that consolidation of old leather is the most common instance where a surface treatment will be used. However, this occasion is also the most commonly noted for NO treatment—a disparity that illustrates a division still present in the conservation treatment of leather.

A large percentage of respondents also noted that they often used Klucel G (or in the cases of non-conservators, the prepackaged version of the same cellulose ether, Cellugel) for the consolidation and cosmetic treatment of old leather, as well as some respondents noting the use of cellulose ethers for lubrication, which was an unexpected response. Additionally, the authors were a bit surprised by the seeming popularity of the use of SC6000 microcrystalline wax on original leathers, but not so surprised by the reasonable acceptance of the 'CCAHA red rot cocktail'—a combination of Klucel G in alcohol and SC6000 wax—being used, more predominantly on original leathers than new repair leathers.

To focus on the materials used for each individual category and for each type of leather, the authors found that in responses for the the consolidation of original leather, cellulose ethers were by far the most popular (predominantly the use of Klucel G, but also the prepackaged Cellugel), followed by no treatment, then the use of CCAHA red rot cocktail, followed by straight SC6000. Common responses to "other" included a light paste wash, Lascaux thinned with isopropynol, and Dow Methocel (a medium viscosity methyl cellulose). Surface preparations for the lubrication of original leather overall mirrored the responses for those used as consolidations with the most common answer being "none"; then marginal responses for cellulose ethers, red rot cocktail, and SC6000. Just under 15% of respondents referenced using a leather dressing formula for lubrication, but these were heavily represented by non conservators, with only 9% of conservators responding with their frequent use. "Other" responses were almost nonexistent with the exception of a questionable response of "Canada perforated salad dressing and cheese mix", which the authors can only assume was written in jest. The authors' last focus of the use of surface preparation for original leather was for cosmetic treatment. Again, "none" was the most popular response, closely followed by cellulose ethers, red rot cocktail, and SC6000. Although the response for SC6000 was approximately the same percentage as for use in consolidation, it represents a higher percentage of those materials used for consolidation. Renaissance wax, although still only 23% of responses, saw more than double an increase from 11% of responses for consolidation and lubrication use. Few "others" were submitted, but again included Dow Methocel, straight ethyl

	Consolidation		Lubrication		Cosmetic	
Material Type	**Original**	**New**	**Original**	**New**	**Original**	**New**
(Waxes) SC6000	37%	12%	16%	16%	35%	30%
(Waxes) Renaissance Wax	11%	7%	11%	12%	23%	14%
(Oils)British Museum Formula	7%	5%	4%	7%	5%	7%
(Oils) NYPL Formula	7%	4%	11%	11%	16%	7%
(Cellulose ethers) Cellugel	28%	7%	14%	2%	12%	11%
(Cellulose ethers) Klucel G	63%	7%	18%	4%	37%	11%
(Combination) CCAHA Red Rot Cocktail	40%	11%	18%	9%	30%	16%
(Cleaners) Saddle Soap	4%	2%	4%	0%	2%	2%
None	42%	37%	33%	33%	37%	35%
Other	7%	2%	2%	0%	4%	4%

Table 9. Surface Treatment used on Leather. Shaded fields indicate those with higher popularity in responses

alcohol, and an unidentified mild soap that was specifically noted not to be saddle soap.

For responses on the common usage of surface preparations for new leather, starting with those responses related to consolidation, all were low except for the answer of "none", which is not surprising since new leather should, theoretically, not require any consolidation. However there were a reasonable number of respondents (12%) who noted using SC6000 wax for consolidation. The only "other" submission of note was for "Edward's Formula", again, a material unknown to the authors at present. Surface preparations commonly used for the lubrication of new leather were also all low except for "none" and small preference for SC6000 and Renaissance Wax. The small number of "others" mentioned included "procedural aluminum hydroxides"; oil from hands in working with the new leather, and Marney's leather dressing a modern commercially produced dressing made of lanolin, neatsfoot oil and beeswax. Lastly, for the surface preparation used for the cosmetic treatment of new leather, "no treatment" was again the most common response, but a strong preference for SC6000, and some preference for CCAHA red rot cocktail and Renaissance Wax was also shown. Many "others" were submitted, though none for more than one reference, including cinnamon oil, Meltonian Cream shoe polish, Dow Methocel, and a leather dressing of neatsfoot oil and anhydrous lanolin to different proportions than the NYPL formula.

One of the main questions the authors sought to answer through this survey was "how often are more traditional treatments, such as leather dressing, still practiced?" From the results of the survey, the authors can conclusively say that leather dressing is still practiced, and for a variety of reasons, by a variety of professionals and that multiple formulas are still used (table 10). The most common reason the respondents reported using leather dressing is for the cosmetic treatment of original leather (21%), followed closely by the lubrication of new leather (18%). While the authors had supposed that the conservation field would be less representative as a regular user of leather dressing, this did not turn out to be the case, and use was spread over all three professional areas.

CONCLUSIONS AND NEXT STEPS

The authors found the data collected through this survey useful in several ways—not only has it helped to outline the current trends in leather treatments in conservation and its allied fields, but it has also illuminated several directions for further research. The most obvious next step for the authors is to take this information and integrate it into the leather treatment section of the Book Conservation Catalogue, as was the primary purpose of this survey. However, as usual, what was developed to provide the authors with answers actually served mostly to produce more questions.

Throughout this research, the authors were faced (and continue to face) leather preservation materials that they are unfamiliar with. Not only were some of the answers provided in the survey unfamiliar (even if some of them, like the salad dressing are perhaps not worth too much investigation), but research on some of these unfamiliar materials turned up yet more leather treatment options. For instance, in researching one of the modern leather dressings noted by a respondent, the authors found another commercially produced material for leather treatment, CIRE 213—a wax emulsion with neatsfoot oil which is marketed under license from CNRS (French National Center for Scientific Research) and claims to not only to "nourish and rehydrate leather, [but also] provides essential elements that allow dry and cracked leather to recover some of its suppleness…." as well as purporting to be insecticidal. Clearly, there are endless research possibilities for variety in leather treatment approaches.

Perhaps the biggest area of future research to come from this project is the overwhelming use of cellulose ethers, particularly in the treatment of original leathers, but at the same time there are multiple comments from conservators about their dubiousness of their effectiveness and long-term

	Consolidation			Lubrication			Cosmetic		
	Cons	Pres	Deal/Cur	Cons	Pres	Deal/Cur	Cons	Pres	Deal/Cur
ORIGINAL LEATHER									
British Museum Formula	7%	0%	0%	0%	10%	20%	2%	10%	20%
NYPL Formula	10%	0%	20%	10%	10%	20%	19%	10%	0%
NEW LEATHER									
British Museum Formula	5%	0%	20%	2%	0%	0%	2%	10%	40%
NYPL Formula	5%	0%	0%	10%	0%	0%	7%	10%	0%

Table 10. Use of Leather Dressing as a Surface Treatment for Leather. Shaded fields indicate those with higher popularity in responses

effectiveness. Further research into effective consolidation of powdery leathers by different viscosity and different formulas of cellulose ethers is an avenue of further research the authors hope to pursue and perhaps present again to the Book and Paper Group in the coming years.

ACKNOWLEDGEMENTS

The authors wish to thank The AIC and Book and Paper Group for allowing them to present this information at the AIC Annual Conference, as well as Kristen St John, Laura Larkin, Whitney Baker, and all the staff at the University of Illinois Library's Conservation Lab for helping them to review the survey.

NOTES

1. Although in the survey the terms "paper" was meant to include tissue weights, there were some respondents who did not respond that they used Japanese papers, insisting that they only used tissue and the two were not the same. These responses were collected as "other" responses, but then rolled in to the totals for paper, as was initially planned.
2. Straight PVA should have been included as an option in the survey and not relegated to "other" status, and was only omitted as an oversight in the preparation of the survey tool.

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Survey of Current Leather Treatment Practices

Summary and Purpose of Research Project:
This survey is being conducted to investigate the practices currently being utilized in library and other book-related fields for treating and preserving leather bindings. The authors hope to establish how widely spread new treatment methodologies are beyond the conservation field, as well as what types of more traditional leather treatments are being used and under what circumstances.

Description of Survey:
This is a multiple choice and short answer electronic survey that should take no longer than 30 minutes to complete. Data will be gathered on basic demographics such as training level in book conservation/preservation, type and size of institution, position held by survey participant and current leather treatment practices.

Confidentiality:
This survey is completely anonymous and no individually identifying information will be collected.

Consent:
Clicking below indicates that you have read the description of the study and that you agree to participate. By participating in this survey, you are giving your voluntary consent of participation. You are free to stop participating in this survey at any time. If you choose not to volunteer to take this survey, this will have no effect on any other institutional benefits to which you are entitled.

- ☐ I have read the description and agree to participate in this study.
- ☐ I have read the description and do not wish to participate in this study.

GENERAL INFORMATION

1) What position do you currently hold? (select one answer that best describes your position)

- ○ Institutional Conservator
- ○ Institutional Conservation Staff
- ○ Preservation Administrator
- ○ Preservation Staff
- ○ Special Collections Curator
- ○ Special Collections Staff
- ○ Other Library/Archives Staff
- ○ Conservator in private practice (skip to question 4)
- ○ Book Dealer (skip to question 4)
- ○ Other

Appendix 1.1.

2) What type of institution do you currently work in?

- ○ US ARL institution
- ○ US non-ARL institution
- ○ Non-US research library
- ○ Non-US non-research library
- ○ Other

3) What is the total collection size (both general and special collections) in your institution?

- ○ Under 1 million
- ○ 1-3 million
- ○ 3-5 million
- ○ Over 5 million
- ○ Not applicable

4) How many hours per week do you work in book conservation or preservation?

- ○ 40 or 40+
- ○ 30-39
- ○ 20-29
- ○ 10-19
- ○ 5-9
- ○ Less than 5
- ○ Not applicable

5) How did you acquire the bulk of your knowledge of leather treatment and/or repair? (select one answer that best describes your training)

- ☐ Conservation apprenticeship
- ☐ Graduate degree in conservation
- ☐ Graduate work in preservation
- ☐ Other graduate training
- ☐ On the job training/experience
- ☐ Workshops/training sessions
- ☐ Professional association meetings
- ☐ Self study (books, on-line, articles, etc.)
- ☐ Other

Appendix 1.2.

REPAIR QUESTIONS

Please answer four questions relating to various treatment categories (board reattachment, hinge repair, rebacking, rebinding) for leather bindings.

6) What sort of treatment options do you currently use for repair of leather bindings, and how often do you use them?

	frequent	occasional	rarely	never	not sure
6a) Board reattachment through which means?	○	○	○	○	○
i. Board tacketing	○	○	○	○	○
ii. Board slotting	○	○	○	○	○
iii. Linen hinges	○	○	○	○	○
iv. Tissue hinges	○	○	○	○	○

Other board reattaching method(s) used:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
6b) Hinge repair using which materials?	○	○	○	○	○
i. Japanese Paper	○	○	○	○	○
ii. Solvent-set Japanese Paper	○	○	○	○	○
iii. Japanese Paper lined with Linen	○	○	○	○	○
iv. Linen	○	○	○	○	○
v. Leather	○	○	○	○	○
vi. Cave Paper	○	○	○	○	○
vii. Other Western paper	○	○	○	○	○
viii. Book Cloth	○	○	○	○	○

Appendix 1.3.

Other hinge repair material(s) used:

If other, frequency of use:

- frequent
- occasional
- rarely
- never
- not sure

	frequent	occasional	rarely	never	not sure
6c) Rebacks using which materials?					
i. Japanese Paper					
ii. Solvent-set Japanese Paper					
iii. Japanese Paper lined with Linen					
iv. Linen					
v. Leather					
vi. Cave Paper					
vii. Other Western paper					
viii. Book Cloth					

Other rebacking material(s) used:

If other, frequency of use:

- frequent
- occasional
- rarely
- never
- not sure

	frequent	occasional	rarely	never	not sure
6d) Full rebinding (replacement of cover regardless of treatment of textblock) using which materials?					
i. Japanese Paper					

Appendix 1.4.

ii. Solvent-set Japanese Paper	○	○	○	○	○
iii. Japanese Paper lined with Linen	○	○	○	○	○
iv. Linen	○	○	○	○	○
v. Leather	○	○	○	○	○
vi. Cave Paper	○	○	○	○	○
vii. Other Western paper	○	○	○	○	○
viii. Book Cloth	○	○	○	○	○

Other full rebinding material(s) used:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

LEATHER TREATMENT OPTIONS The remaining portion of this survey will ask questions regarding adhesives, dyes, consolidants, lubrication, and cosmetic treatment of original leather (questions 7 a-e) and then these same questions will be repeated in regards to treatment of new leather (questions 8 a-e).

7) What type(s) of treatment of original/old leather do you use during repair and how often?

	frequent	occasional	rarely	never	not sure
7a) Adhesives used:	○	○	○	○	○
ii. Paste	○	○	○	○	○
iii. Methylcellulose	○	○	○	○	○
iv. Gelatin	○	○	○	○	○
v. PVA/Paste mix	○	○	○	○	○
vi. PVA/Methylcellulose mix	○	○	○	○	○
vii. Lascaux 360HV	○	○	○	○	○
viii. Lascaux 498	○	○	○	○	○
ix. PVA/Klucel G	○	○	○	○	○
x. Paste/Methylcellulose mix	○	○	○	○	○

Appendix 1.5.

xi. Animal Hide Glue	○	○	○	○	○
xii. Beva	○	○	○	○	○

Other adhesive(s) used on original/old leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
7b) When treating original/old leather what dyes are used:	○	○	○	○	○
i. Aniline	○	○	○	○	○
ii. Mineral spirit dyes	○	○	○	○	○
iii. Metal complex dyes	○	○	○	○	○
iv. Acrylics	○	○	○	○	○
v. Watercolors	○	○	○	○	○
vi. None	○	○	○	○	○

Other dye(s) used on original/old leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
7c) Surface preparations used for consolidation of original/old leather:	○	○	○	○	○
i. (waxes) SC6000	○	○	○	○	○

Appendix 1.6.

ii. (waxes) Renaissance Wax	○	○	○	○	○
iii. (oils) British Museum Formula (Anhydrous lanolin, cedarwood oil, beeswax (optional), diethyl ether (or) hexane)	○	○	○	○	○
iv. (oils) NYPL Formula (Neat's foot oil and anhydrous lanolin)	○	○	○	○	○
v. (cellulose ethers) Cellugel	○	○	○	○	○
vi. (cellulose ethers) Klucel G	○	○	○	○	○
vii. (combination) CCAHA Red Rot Cocktail (SC6000, Klucel G, ethanol/isopropynol)	○	○	○	○	○
viii. (cleaners) Saddle soap	○	○	○	○	○
ix. None	○	○	○	○	○

Other surface preparation(s) used for consolidation of original/old leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
7d) Surface preparations used for lubrication of original/old leather:	○	○	○	○	○
i. (waxes) SC6000	○	○	○	○	○
ii. (waxes) Renaissance Wax	○	○	○	○	○
iii. (oils) British Museum Formula (Anhydrous lanolin, cedarwood oil, beeswax (optional), diethyl ether (or) hexane.)	○	○	○	○	○
iv. (oils) NYPL Formula (Neat's foot oil and anhydrous lanolin)	○	○	○	○	○
v. (cellulose ethers) Cellugel	○	○	○	○	○
vi. (cellulose ethers) Klucel G	○	○	○	○	○

Appendix 1.7.

vii. (combination) CCAHA Red Rot Cocktail (SC6000, Klucel G, ethanol/isopropynol)	○	○	○	○	○
viii. (cleaners) Saddle soap	○	○	○	○	○
ix. None	○	○	○	○	○

Other surface preparation(s) used for lubrication of original/old leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
7e) Surface preparations used for cosmetic treatment of original/old leather:	○	○	○	○	○
i. (waxes) SC6000	○	○	○	○	○
ii. (waxes) Renaissance Wax	○	○	○	○	○
iii. (oils) British Museum Formula (Anhydrous lanolin, cedarwood oil, beeswax (optional), diethyl ether (or) hexane)	○	○	○	○	○
iv. (oils) NYPL Formula (Neat's foot oil and anhydrous lanolin)	○	○	○	○	○
v. (cellulose ethers) Cellugel	○	○	○	○	○
vi. (cellulose ethers) Klucel G	○	○	○	○	○
vii. (combination) CCAHA Red Rot Cocktail (SC6000, Klucel G, ethanol/isopropynol)	○	○	○	○	○
viii. (cleaners) Saddle soap	○	○	○	○	○
ix. None	○	○	○	○	○

Other surface preparation(s) used for cosmetic treatment of original/old leather:

Appendix 1.8.

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

8) What type(s) of treatment of new/repair leather do you use during repair and how often?

	frequent	occasional	rarely	never	not sure
8a) Adhesives used:	○	○	○	○	○
i. PVA	○	○	○	○	○
ii. Paste	○	○	○	○	○
iii. Methylcellulose	○	○	○	○	○
iv. Gelatin	○	○	○	○	○
v. PVA/Paste mix	○	○	○	○	○
vi. PVA/Methylcellulose mix	○	○	○	○	○
vii. Lascaux 360HV	○	○	○	○	○
viii. Lascaux 498	○	○	○	○	○
ix. PVA/Klucel G	○	○	○	○	○
x. Paste/Methylcellulose mix	○	○	○	○	○
xi. Animal Hide Glue	○	○	○	○	○
xii. Beva	○	○	○	○	○

Other adhesive(s) used for treatment of new/repair leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
8b) When treating new/repair leather what dyes are used:	○	○	○	○	○

Appendix 1.9.

i. Aniline	○	○	○	○	○
ii. Mineral spirit dyes	○	○	○	○	○
iii. Metal complex dyes	○	○	○	○	○
iv. Acrylics	○	○	○	○	○
v. Watercolors	○	○	○	○	○
vi. None	○	○	○	○	○

Other dye(s) used for treatment of new/repair leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

	frequent	occasional	rarely	never	not sure
8c) Surface preparations used for consolidation of new/repair leather:	○	○	○	○	○
i. (waxes) SC6000	○	○	○	○	○
ii. (waxes) Renaissance Wax	○	○	○	○	○
iii. (oils) British Museum Formula (Anhydrous lanolin, cedarwood oil, beeswax (optional), diethyl ether (or) hexane)	○	○	○	○	○
iv. (oils) NYPL Formula (Neat's foot oil and anhydrous lanolin)	○	○	○	○	○
v. (cellulose ethers) Cellugel	○	○	○	○	○
vi. (cellulose ethers) Klucel G	○	○	○	○	○
vii. (combination) CCAHA Red Rot Cocktail (SC6000, Klucel G, ethanol/isopropynol)	○	○	○	○	○
viii. (cleaners) Saddle soap	○	○	○	○	○
ix. None	○	○	○	○	○

Other surface preparation(s) used for consolidation of new/repair leather:

Appendix 1.10.

If other, frequency of use:

- frequent
- occasional
- rarely
- never
- not sure

	frequent	occasional	rarely	never	not sure
8d) Surface preparations used for lubrication of new/repair leather:					
i. (waxes) SC6000					
ii. (waxes) Renaissance Wax					
iii. (oils) British Museum Formula (Anhydrous lanolin, cedarwood oil, beeswax (optional), diethyl ether (or) hexane)					
iv. (oils) NYPL Formula (Neat's foot oil and anhydrous lanolin)					
v. (cellulose ethers) Cellugel					
vi. (cellulose ethers) Klucel G					
vii. (combination) CCAHA Red Rot Cocktail (SC6000, Klucel G, ethanol/isopropynol)					
viii. (cleaners) Saddle soap					
ix. None					

Other surface preparation(s) used for lubrication of new/repair leather:

If other, frequency of use:

- frequent
- occasional
- rarely
- never
- not sure

Appendix 1.11.

	frequent	occasional	rarely	never	not sure
8e) Surface preparations used for cosmetic treatment of new/repair leather:	○	○	○	○	○
i. (waxes) SC6000	○	○	○	○	○
ii. (waxes) Renaissance Wax	○	○	○	○	○
iii. (oils) British Museum Formula (Anhydrous lanolin, cedarwood oil, beeswax (optional), diethyl ether (or) hexane)	○	○	○	○	○
iv. (oils) NYPL Formula (Neat's foot oil and anhydrous lanolin)	○	○	○	○	○
v. (cellulose ethers) Cellugel	○	○	○	○	○
vi. (cellulose ethers) Klucel G	○	○	○	○	○
vii. (combination) CCAHA Red Rot Cocktail (SC6000, Klucel G, ethanol/isopropynol)	○	○	○	○	○
viii. (cleaners) Saddle soap	○	○	○	○	○
ix. None	○	○	○	○	○

Other surface preparation(s) used for cosmetic treatment of new/repair leather:

If other, frequency of use:

- ○ frequent
- ○ occasional
- ○ rarely
- ○ never
- ○ not sure

9) Any additional comments you would like to add about your treatment of leather?

Appendix 1.12.