

THE UNIVERSITY OF KANSAS LIBRARIES

**FINDINGS FROM THE
COLLECTION CONDITION SURVEYS
CONDUCTED BY THE
PRESERVATION TASK FORCE,
1995–1996**

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EXECUTIVE SUMMARY

Dean William Crowe established the Preservation Task Force in August, 1995, with the following membership: Brian Baird (Chair), Milissa Boyer, Judith Emde, Nancy Jaeger, Jana Krentz, and Brad Schaffner. He charged the task force to plan and conduct multiple surveys of the physical condition of the collections in the libraries on the Lawrence campus (except the Law Library and the Spencer Research Library).

The condition surveys were conducted in two segments. One segment focused on materials returning from circulation, in which a random sample of 495 volumes was surveyed from returns to Watson and the branch libraries. The second segment focused on general collections materials from the stacks, in which 3,679 volumes, selected randomly, were surveyed in Watson and the branch libraries. All survey information was entered directly into a computer database.

Following is a brief summary of findings from the condition surveys. Unless specified otherwise, percentages represent conditions for the Libraries' general collections stacks survey:

- 65.8 percent of the volumes in the KU Libraries are printed on acidic paper.
- 6 percent of KU's volumes contain paper too severely embrittled to survive even a two "double-fold test" (nearly 7,000 such severely embrittled volumes circulate each year).
- 81 percent of all volumes at KU that were printed in the U.S. and Northern Europe in the 1990s are printed on acid-free paper.
- 19.8 percent of volumes in the KU collections have been defaced or mutilated (rising to 31.1 percent of the volumes returning from circulation).
- 4.24 percent (over 20,000 volumes) of items returning from circulation need commercial binding. Currently, the Libraries bind about 12,000 circulation returns a year – 60 percent of actual need.
- 4.09 percent (an *additional* 20,000-plus volumes) of items returning from circulation, need in-house repair or conservation treatment. Currently, the Libraries repair over 8,000 circulation returns a year – 40 percent of actual need.

The task force recommends the following actions:

- Because nearly two-thirds of the volumes in the collections have acidic paper, it is imperative that the Libraries redouble efforts to work with Facilities Operations to improve environmental conditions in each library. Improving environmental conditions is the most cost-effective way to preserve such materials. For example, lowering the temperature just a few degrees and stabilizing it, *and* more closely regulating humidity levels can literally add decades of life to acidic paper by slowing down the acid degradation process.
- The Preservation Department should continue to focus its treatment efforts on materials that are returning from circulation because these materials are in demonstrably worse condition than volumes in the collections overall and have a higher probability of being borrowed again for use outside the Libraries.
- The Libraries should increase funding for “brittle books reformatting,” i.e., microfilming, preservation quality photocopying, or digitization. At the current level of funding, only 250 volumes of the ca. 7,000 embrittled volumes that circulate each year can be reformatted.
- Increase substantially the number of volumes commercially bound each year.
- Because defacement and mutilation of library materials is a very serious problem at KU, the Preservation Department must aggressively take the lead, with the cooperation of others in the Libraries, in improving staff and user education about the consequences of this problem.
- Overall, the task force recommends an increase in preservation funding to \$530,000 annually – to come closer to meeting the preservation needs of the collections by achieving the goal of the 1993 Strategic Planning Steering Committee Report, section I, subsection C, strategy 5c, which states, “... increase the Library’s preservation expenditures to at least 5% of the overall Library budget.” (The estimated FY96 level of funding for preservation was \$318,000, or 3 percent of the overall Library budget (Lawrence Campus, excluding the Law Library).)
- Schedule periodic (between 5 and 10 years) condition surveys of this kind to monitor problems and provide information essential to target limited resources to areas of greatest need.

CONCLUSION

Although there are clear causes for serious concern about the condition of KU’s library collections, the task force is pleased to report that the Libraries’ collections are in relatively good condition when compared to those of many

other research libraries in the United States. The Library staff, and staff in allied units such as Facilities Operations, and many library users should be proud of the care that has been taken to preserve these valuable collections. Vigilance has resulted in relatively well preserved holdings – something most university research libraries in the United States cannot boast.

The Preservation Department is now charged to provide leadership to focus and accelerate the Libraries' preservation efforts based on the findings of this survey, lest the collections not be available to future generations of students and scholars.

FINDINGS FROM THE CONDITION SURVEYS CONDUCTED BY THE PRESERVATION TASK FORCE

Dean William Crowe established the Preservation Task Force in August, 1995, following the recommendation of the Libraries' Strategic Planning Steering Committee Report, section I, subsection C, strategy 2: "Under the guidance of the Preservation Officer, conduct a Library-wide preservation needs assessment Familiarize Library staff with the plan, and solicit their input." The task force was made up of the following members: Brian Baird (Chair), Milissa Boyer, Judith Emde, Nancy Jaeger, Jana Krentz, and Brad Schaffner.

PROCEDURES FOR CONDUCTING THE SURVEYS

The condition surveys were conducted in two segments. The first segment focused on materials returning from circulation and the second focused on general collections materials found in the stacks. All survey data were input directly into a computer database using custom-made forms designed using Microsoft Access software.

Materials in the Kansas Collection, the University Archives, and Special Collections were excluded from this survey both for security and preservation reasons. After a Conservator is appointed, the Preservation Librarian will work with Spencer Library staff to conduct Spencer Library-specific condition surveys.

For the circulation survey, a sample was selected sufficient in size to provide data to predict the condition of circulating materials for the Libraries as a whole, not for any one library on campus. This enabled the task force to limit the survey to 495 items – 281 total items from the Art, Science, Engineering, Music, and Government Documents libraries, and 214 from Watson Library. A stratified sample was collected from circulation returns based on the total number of recorded circulations each library has per year. To make specific predictions about circulating materials from each individual library, the task force would have had to survey over 2,100 items – an expense that could not be justified.

The stacks survey was, by far, the largest segment of the task force's work, with over 3,600 volumes surveyed. A detailed report on the number of volumes surveyed in each library can be found in Table 1.

Location	Number of Volumes Surveyed
Watson	1,204
Science	672
Government Documents	351
Engineering	350
Art	352
Music	358
East Asian	356
JRP (storage)	36
TOTAL	3,679

Table 1

A stratified sampling technique was used to guarantee that for each library (storage excluded) at least 350 volumes were sampled. A minimum sample size of 350 volumes was required to predict with reliability collection conditions in each individual library.

Much larger samples were taken from the collections of the Science and Watson libraries. This stratification technique ensured that data from the larger libraries held the same weight and ability to predict the condition of those collections as did data from the smaller libraries.

SURVEY INSTRUMENT

The task force created a survey instrument based on information the Preservation Department needed about the collections, questions the Libraries' staff had about the collections, and other preservation surveys published in library literature. The result was a 20 question survey instrument composed of 18 required questions and two optional questions. The 18 required questions each had menus with scripted answers from which the task force members could choose the most appropriate answer. These scripted responses made the data easy to analyze. One question—about "shelving condition"—was used only in the stacks survey.

The two optional questions were free text fields. The first allowed the surveyor to enter call numbers into the database for items needing immediate preservation treatment or further analysis. The second was a note field into which additional information could be typed.

For the 18 required questions, there were 145 scripted answers from which to choose. The result was a complex questionnaire which yielded a great deal of

information about each volume. A complete copy of the survey instrument and related instructions is located in Appendix A.

All survey information was input directly into a database created on Microsoft Access using a specially designed form.¹ A copy of the form as it appeared on the computer screen is located in Appendix B. For the first 11 questions, the surveyor selected answers from pull-down menus. The form was designed such that each of these questions had to be answered before the record would be accepted into the database. This ensured that questions were not accidentally missed in the surveying process.

A small dialog box appeared at the bottom of the computer screen that gave specific, brief, explanatory text for each question and answer. The text appeared when a question or answer was selected. This explanatory text helped task force members answer questions in a consistent manner.

Besides making the surveying process easier, entering data directly into the database eliminated the additional step of converting data recorded on paper to machine-readable form. This also facilitated analysis of the data since no significant restructuring of the data was required. For detailed information about collecting the data, see Appendix C.

ANALYSIS OF THE SURVEYS DATA

The following pages contain tables and text that report the results of the surveys. One should note that most of the variation in results among the various libraries is not statistically significant for most of the questions. It is equally important to remember that information from this survey was collected and analyzed for preservation purposes only.

Table 2 shows the results for each question from the survey instrument for each individual library, the combined information for all of the Libraries' holdings, and the findings from the circulation survey. This table is intended to give an overall view of the condition and make-up of the various libraries' collections, and may prove useful to the Libraries' staff in determining what additional, site-specific, analysis may be needed.

¹ The survey was conducted using two laptop, 486 computers rented from Microtech Computers, Inc. at a rate of \$200.00 a month. Brad Schaffner generously supplied his personal laptop computer to conduct his portion of the survey. This proved helpful since the task force needed, but could not afford, additional laptop computers. Because the survey form was Windows™ based, Marianne Reed, Automation Department, arranged to outfit each rented computer with an external mouse. This made data entry quick and accurate.

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	Watson	Science	Gov. Docs.	Engineer.	Art	Music	E. Asian	Combined Stacks	Circulation
SAMPLE SIZE	1,240	672	351	350	352	358	356	3,679	495
Size of Volume									
Regular	96.9%	98.4%	97.2%	100%	67.3%	84.1%	98.9%	93.6%	94.3%
Folio	2.74%	1.49%	4.71%	0%	25%	15.6%	1.12%	5.38%	5.66%
Oversized	0.4%	0.15%	1.14%	0%	7.67%	0.28%	0%	1.03%	0%
Type of Volume									
Monograph	55.7%	26.9%	56.4%	44.6%	59.7%	39.1%	28.7%	45.6%	73.1%
Part of Multi-volume Set	17.3%	11.9%	15.7%	8%	18.8%	24%	45.5%	18.8%	9.7%
Serial	27.1%	61.6%	27.9%	47.4%	21.6%	11.5%	25.8%	33.2%	15.6%
Scores	0%	0%	0%	0%	0%	25.4%	0%	2.47%	1.62%
Leaf Attachment									
Sewn Through the Fold	55.7%	62.3%	63%	4.29%	61.4%	50.8%	55.1%	47.2%	43.6%
Oversewn	15.7%	35.6%	22.2%	9.43%	2.84%	7.54%	2.81%	16.1%	7.68%
Adhesive Bound	22.1%	27.4%	10.3%	80.3%	27.3%	22.4%	39.9%	29.7%	44.2%
Stapled Through the Fold	2.34%	2.08%	4.56%	2%	3.13%	15.4%	1.12%	3.7%	3.64%
Side Sewn or Stapled	3.79%	1.19%	0%	4%	1.42%	2.79%	1.12%	2.39%	0.4%
Spiral or Other Loose Sheet Binding	0.48%	1.49%	0%	0%	3.98%	1.12%	0%	0.92%	0.4%
Condition of Text Block (Mark all that apply)									
In Good Condition	97.7%	92.1%	100%	85.4%	80.4%	91.3%	88.2%	90.8%	88.5%
Remain in Stacks	3.23%	5.21%	0%	12.3%	3.69%	4.19%	2.25%	3.59%	7.47%
Broken or Loose Sewing or Adhesive	3.47%	2.68%	0%	1.71%	12.2%	4.19%	0%	3.4%	2.83%
Broken Text Block	1.21%	1.34%	0%	6.86%	1.99%	0.56%	0%	1.55%	1.62%
Loose Pages	2.34%	1.64%	0%	2%	3.13%	2.79%	0%	1.9%	5.05%
Damaged Pages (not mutilation)	3.39%	1.49%	0%	5.71%	4.55%	2.79%	2.25%	2.88%	3.23%
Missing Pages (not mutilation)	0.08%	0%	0%	0%	0.57%	0%	0%	0.08%	0%
Pages Damaged or Curled from Lack of Support (paper backs)	0.97%	0.74%	0%	0%	1.42%	0.28%	1.25%	0.73%	0.81%
Gutter Margin Width									
Less than 1/2 inch	34.4%	43.8%	2.56%	69.1%	60.1%	27.1%	31.5%	37.8%	37.6%
More than 1/2 inch, but less than 3/4 inch	47.7%	42.3%	8.26%	22%	20.2%	50.3%	59.5%	39.3%	43.8%
More than 3/4 inch, but less than 1 inch	13.8%	10.6%	45.3%	5.43%	7.12%	15.9%	8.43%	14.5%	14.3%
1 inch or more	4.03%	3.42%	43.9%	3.43%	12.5%	6.7%	0.56%	8.43%	4.24%
Paper pH (Abbey Pen)									
Yellow or Clear (Acidic)	73.9%	75.9%	27.9%	64.6%	35.2%	69.6%	83.2%	65.8%	50.3%
Tan (Slightly Acidic)	6.85%	9.97%	21.4%	7.14%	23.9%	11.2%	4.49%	10.7%	6.57%
Purple (Alkaline)	19.2%	14.1%	50.7%	28.3%	40.9%	19.3%	12.4%	23.6%	47.8%
Paper Fold Test (Paper breaks After)									
Less Than 1 Fold	2.34%	0.74%	0.28%	0.29%	9.09%	0%	0%	1.85%	0.2%
Less Than 1 Double-Fold	4.44%	2.98%	0%	1.43%	2.84%	1.12%	0%	2.56%	1.21%
Less Than 2 Double-Folds	2.18%	2.08%	0%	1.14%	2.56%	0.56%	0.56%	1.58%	0%
Less Than 3 Double-Folds	2.66%	4.02%	6.27%	2.86%	3.69%	2.23%	6.74%	3.72%	3.43%
More Than 3 Double-Folds	88.4%	90.2%	93.5%	94.3%	81.8%	96.1%	92.7%	90.3%	95.2%

Table 2 (Cont.)

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	Gov.						Combined		
	Watson	Science	Docs.	Engineer.	Art	Music	E. Asian	Stacks	Circulation
Paper Condition (Mark all that apply)									
White and Strong	59.7%	48.4%	84.3%	62%	63.1%	65.4%	69.7%	62.1%	77%
Yellowish or Tan	34.8%	43.3%	12%	33.1%	29.6%	32.7%	27%	32.7%	20.2%
Brown	54.8%	7.89%	3.7%	4.57%	7.95%	1.96%	2.25%	5.05%	2.63%
Glossy or Coated	6.85%	20.8%	0%	28.9%	15.1%	6.14%	6.18%	13.9%	19.8%
Calendered	3.63%	0.74%	0%	3.71%	10.8%	0%	0%	2.77%	0.4%
Ground Wood Paper	9.27%	2.38%	0.28%	0.86%	2.84%	0.56%	2.81%	4.27%	3.03%
Pest Damaged	0%	0%	0%	0%	0%	0%	0%	0%	0%
Volume Indicates it is Printed on Acid-Free Paper	3.31%	2.98%	0.28%	3.14%	1.14%	3.91%	0.56%	2.53%	10.1%
Mutilation and Patron Damage (Mark all that apply)									
Total Percentage of Volumes Mutilated	26.5%	11.9%	20.8%	15.1%	27.8%	17.9%	8.43%	19.8%	31.1%
Pencil	10%	4.76%	13.4%	2.86%	6.82%	14.5%	4.49%	9.98%	16.4%
Ink	7.34%	2.53%	2.85%	2%	4.26%	3.63%	0.56%	4.92%	9.49%
High-lighter	1.29%	0.6%	1.14%	0%	0.85%	0%	0.56%	0.79%	3.64%
Paper Clips	0.24%	0%	0.57%	0%	0%	0.28%	0%	0.16%	1.41%
Dog-ears	6.53%	2.08%	2.28%	7.71%	3.98%	2.79%	1.68%	4.29%	10.1%
Post-it notes	0.4%	0.15%	0.28%	0.28%	0.28%	0%	0%	0.24%	0.61%
Book Marks left in the Volume	4.03%	1.93%	2.85%	2.28%	1.99%	2.23%	1.12%	2.72%	3.43%
Pages Torn or Cut Out	0.89%	0.74%	0%	0%	1.14%	0.28%	0%	0.57%	0.4%
Animal Damage	0.08%	0%	0%	0%	0%	0%	0%	0.02%	0%
Pages or Cover Stained with Food, Drink, or Water	7.58%	3.12%	0%	4%	19.3%	2.51%	1.12%	5.71%	9.29%
Type of Binding									
Publisher Binding	49.4%	34.5%	57.8%	37.7%	52.6%	44.4%	54.5%	46.7%	50.3%
Publisher Paper Binding	15.7%	6.25%	11.4%	12.3%	19.3%	8.38%	14%	12.7%	18.8%
Pamphlet	2.66%	3.57%	6.84%	2%	1.7%	17.6%	2.81%	4.54%	3.64%
Commercial Case Binding	28.6%	54.8%	18.8%	45.1%	25%	18.7%	24.2%	32.3%	23.8%
Commercial Mylar Binding	3.79%	0.89%	5.13%	2.86%	1.42%	10.9%	4.49%	3.83%	3.43%
Condition of Binding (Mark all that apply)									
In Good Condition	83.1%	86.3%	97.7%	86.6%	68.2%	85.8%	98.3%	85.7%	84.9%
Remain in Stacks	12%	10.1%	0.57%	12.9%	10.8%	6.98%	0.06%	8.94%	9.49%
Damaged Spine	6.69%	4.17%	0.28%	5.43%	13.4%	7.54%	0.06%	5.68%	6.26%
Loose Joints	3.87%	3.72%	0%	6.86%	15.3%	3.63%	0.06%	4.48%	6.67%
Damaged Inner Joints	5.32%	5.36%	0%	4%	15.1%	5.31%	0%	4.4%	3.84%
Damaged Paper Cover	0.48%	1.19%	1.99%	2.28%	5.11%	0%	0%	1.28%	3.84%
Cover off Volume	1.61%	0.45%	0%	0%	0.85%	1.12%	0%	0.76%	1.82%
Red-rot leather	1.53%	2.53%	0%	0%	1.42%	0%	0%	1.11%	0.2%
Title Worn off	1.77%	0.15%	0%	0%	3.12%	0%	0%	0.9%	1.01%
Title Label Missing	0.48%	0.45%	0%	0%	0.85%	0%	0%	0.33%	0%
Call Number Worn off	0.24%	0.15%	0%	0%	0.57%	0%	0%	0.16%	0%
Call Number Missing	0.08%	0.3%	0%	0%	0%	0%	0%	0.08%	0%
Volume Damaged From Lack of Support	0.72%	0.74%	0%	1.43%	0.85%	0%	0%	0.54%	1.82%
Insect Damage	0.4%	0.3%	0%	0%	0%	0%	0%	0.19%	0%

Table 2 (Cont.)

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	Watson	Science	Gov. Docs.	Engineer.	Art	Music	E. Asian	Combined Stacks	Circulation
Last Circulation									
Previous Year	11.3%	13.2%	39%	15.7%	19%	19.6%	2.81%	15.4%	67.9%
Previous 5 Years	13.5%	10.7%	20.2%	34%	15.1%	13.7%	10.1%	15.4%	13.7%
Previous 10 Years	9.6%	11.9%	15.7%	9.71%	2.39%	7.82%	5.62%	9.84%	2.42%
Previous 25 Years	15.1%	14.9%	2.85%	7.14%	5.68%	6.98%	6.18%	10.6%	2.83%
None in the Last 25 Years	4.35%	3.42%	2.28%	2.57%	2.27%	2.23%	0%	2.49%	0.4%
No Circulation History	42.1%	40.8%	18.8%	30.6%	26.1%	37.2%	68%	39%	9.9%
Restricted Use Collection	4.11%	5.06%	1.14%	0.29%	24.4%	12.6%	7.3%	6.71%	2.83%
Number of Circulations in Last 10 Years									
0-5	91.9%	93.9%	96%	84.3%	79.3%	91.9%	98.9%	91.4%	54.6%
6-10	6.21%	4.17%	3.99%	11.1%	9.38%	5.03%	1.12%	5.79%	20%
11-15	0.97%	0.89%	0%	2.57%	4.55%	1.68%	0%	1.33%	9.49%
16-20	0.48%	0.74%	0%	0%	2.27%	0.84%	0%	0.6%	5.05%
21-25	0.08%	0.15%	0%	0%	0.85%	0.56%	0%	0.16%	1.21%
26 or More	0.32%	0.15%	0%	2%	3.69%	0%	0%	0.71%	9.7%
Imprint Date									
1990s	9.19%	10.4%	15.7%	18%	9.66%	9.78%	16.3%	11.7%	37.4%
1980s	20%	22.7%	36.8%	30.9%	26.4%	27.7%	36.5%	26.1%	34.3%
1970s	22.3%	22.5%	31.6%	22.6%	20.7%	22.6%	25.8%	23.5%	15%
1960s	14.1%	13.8%	10.8%	20.6%	3.92%	15.6%	11.8%	14.3%	6.87%
1950s	9.52%	10.1%	3.7%	4.86%	3.67%	10.6%	4.49%	8.07%	2.02%
1930-49	9.44%	6.99%	1.14%	0.86%	6.53%	6.98%	2.25%	6.17%	2.22%
1910-1929	6.53%	6.1%	0.28%	1.71%	8.52%	5.03%	1.12%	4.92%	0.61%
1890-1909	4.19%	4.02%	0%	0.29%	5.11%	1.4%	1.69%	2.96%	0.81%
1870-1889	1.61%	1.19%	0%	0%	0.57%	0%	0%	0.82%	0.61%
1850-1869	1.45%	0.89%	0%	0.29%	0.28%	0.28%	0%	0.73%	0%
1830-1849	1.21%	0.74%	0%	0%	0%	0%	0%	0.6%	0.2%
1800-1829	0.48%	0.45%	0%	0%	0%	0%	0%	0.24%	0%
1750-1799	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pre 1750	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 2 (Cont.)

	Gov.							Combined	
	Watson	Science	Docs.	Engineer.	Art	Music	E. Asian	Stacks	Circulation
Place of Printing									
U.S.	41.5%	44.9%	100%	68.9%	26.4%	46.9%	1.12%	45.5%	60.6%
Canada	1.37%	1.64%	0%	1.14%	1.42%	1.12%	0%	1.11%	2.02%
Latin America & Caribbean	7.34%	1.19%	0%	0.86%	1.99%	1.12%	0%	3.07%	1.41%
Northern Europe	31.5%	39.9%	0%	25.4%	41.2%	41.9%	0%	28.4%	26.5%
Southern Europe	4.29%	1.64%	0%	1.14%	11.1%	4.19%	0%	3.32%	2.02%
Eastern Europe (Former Soviet Bloc)	3.95%	3.13%	0%	0.57%	1.7%	2.23%	0%	2.34%	0.81%
Former USSR	7.1%	2.08%	0%	0.29%	4.26%	1.96%	0%	3.4%	0.2%
Central Africa	0%	0%	0%	0%	0%	0%	0%	0%	0.4%
South Africa	0.08%	0.3%	0%	0%	0%	0%	0%	0.08%	0.61%
Northern Africa (Arabic States)	0.24%	0.3%	0%	0%	0%	0%	0%	0.14%	0%
Middle East	0.32%	0.3%	0%	0%	0%	0%	0%	0.16%	0%
India	0.81%	0.74%	0%	0.57%	0.28%	0%	0%	0.49%	0.2%
Central Asia	0.16%	0%	0%	0%	0%	0%	0.56%	0.11%	0%
China and Far East (Not Japan)	0.65%	1.34%	0%	0.57%	3.69%	0.28%	65.2%	7.2%	2.63%
Japan	0.32%	2.08%	0%	0.86%	7.1%	0%	33.2%	4.46%	2.63%
Australia/New Zealand	0.32%	0.45%	0%	0%	0.85%	0.28%	0%	0.3%	0%
Previous Preservation Treatments (Mark all that apply)									
Total Volumes Treated	10.8%	5.5%	2.28%	5.71%	14.8%	22.6%	0.56%	9.08%	4.65%
Damaged or Missing Pages Replaced	0.56%	0.6%	0.28%	0%	0.28%	0.28%	0%	0.38%	0%
Been Repaired In-house	5.4%	3.12%	1.42%	4%	10.2%	19.8%	0.56%	5.87%	2.83%
In Acidic Box	0%	0.15%	0%	0%	2.56%	0%	0%	0.27%	0%
In Acidic Pamphlet Binder	4.35%	3.42%	0.28%	0.57%	1.14%	14.5%	0%	3.7%	1.01%
In Acidic Paper Envelope	0%	0%	0%	0%	0%	0%	0%	0%	0%
Volume Tied Together with String	0%	0.15%	0%	0%	0%	0%	0%	0.03%	0%
In Acid-free Box	0.08%	0%	0.57%	0.57%	0.85%	0%	0%	0.22%	0.2%
In Acid-free Pamphlet Binder	0.56%	0.15%	0%	0.86%	0%	5.31%	0%	0.82%	0.61%
In Acid-free Envelope	0.24%	0%	0%	0%	0%	0%	0%	0.08%	0%
Been Reformatted	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shelving Condition (Mark all that apply)									
Shelved Correctly	83.3%	87.7%	95.7%	91.7%	81.5%	83.2%	87%	86.3%	N/A
Shelved too Tightly	12.2%	0.3%	1.71%	4.28%	0.57%	0.56%	3.93%	5.22%	N/A
Not Shelved Straight	2.1%	9.08%	0.57%	0.28%	3.12%	8.38%	0%	3.56%	N/A
Shelved on Fore-edge	1.45%	0%	0.57%	0%	6.82%	1.96%	1.12%	1.49%	N/A
Shelved on Spine	0.16%	0%	0%	0%	0.28%	0%	1.12%	0.19%	N/A
Shelved in Wrong Location	2.58%	2.83%	0.28%	2.57%	6.82%	7.82%	4.49%	3.51%	N/A
Treatment Decision for Volume (Mark all that apply)									
In Good Condition	76.1%	85%	98.3%	86%	76.7%	83.5%	93.8%	83.3%	78.8%
Send to Stacks as is	14.8%	10.1%	1.71%	11.1%	11.9%	6.7%	2.25%	10.1%	12.1%
Needs Commercial Binding	3.71%	1.49%	0%	0%	0.85%	4.75%	0%	2.06%	4.24%
Needs In-house Repair	2.9%	2.23%	0%	1.71%	4.26%	4.19%	1.12%	0.71%	3.69%
Needs Conservation Treatment	0.97%	0.45%	0%	0%	1.7%	0.28%	0%	0.6%	0.4%
Send to Brittle Book Processing	1.05%	0.3%	0%	0.28%	1.99%	0%	0%	0.62%	1.01%
Place in Enclosure	0.56%	0.45%	0%	0%	0.85%	0%	0%	0.35%	0%

Table 2

One comparison from Table 2 of general interest is the contrast between data from the circulation survey and the data from the combined stacks surveys. The vast majority of the data gathered in these surveys are nominal data which limits the kind of statistical analysis that can be performed. The chi-square test² for significance was used to compare the results from the combined stacks and circulation surveys to determine which differences were significant at the two-tailed, .05 significance level. The results of the chi-square test are given in Table 3.

	Combined Stacks	Circulation	χ^2 Test	
SAMPLE SIZE	3,679	495		
Size of Volume				
Regular	93.59%	94.34%	0.01	
Folio	5.38%	5.66%	0.01	
Oversized	1.03%	0%	1.03	
Type of Volume				
Monograph	45.58%	73.13%	16.65	P = or < .05 (two-tailed test)
Part of Multi-volume Set	18.78%	9.7%	4.39	P = or < .05 (two-tailed test)
Serial	33.16%	15.56%	9.34	P = or < .05 (two-tailed test)
Scores	2.47%	1.62%	0.29	
Leaf Attachment				
Sewn Through the Fold	47.21%	43.64%	0.27	
Oversewn	16.06%	7.68%	4.37	P = or < .05 (two-tailed test)
Adhesive Bound	29.71%	44.24%	7.11	P = or < .05 (two-tailed test)
Stapled Through the Fold	3.7%	3.64%	0.00	
Side Sewn or Stapled	2.39%	0.4%	1.66	
Spiral or Other Loose Sheet Binding	0.92%	0.4%	0.29	
Condition of Text Block (Mark all that apply)				
In Good Condition	90.84%	88.48%	0.06	
Remain in Stacks	3.59%	7.47%	4.19	P = or < .05 (two-tailed test)
Broken or Loose Sewing or Adhesive	3.4%	2.83%	0.10	
Broken Text Block	1.55%	1.62%	0.00	
Loose Pages	1.9%	5.05%	5.22	P = or < .05 (two-tailed test)
Damaged Pages (not mutilation)	2.88%	3.23%	0.04	
Missing Pages (not mutilation)	0.08%	0%	0.08	
Pages Damaged or Curled from Lack of Support (paper backs)	0.73%	0.81%	0.01	

Table 3 (Cont.)

² The chi-square test compares observed results to expected results with the null hypothesis being that there is no difference between the observed and expected results. In other words, the null hypothesis would state that the results from the combined stacks survey and the results from the circulation returns survey should be the same. Table 3 identifies, at a 95 percent level of confidence, where the results from the circulation returns survey are significantly different than the results from the combined stacks survey.

	Combined Stacks	Circulation	χ^2 Test	
Gutter Margin Width				
Less than 1/2 inch	37.84%	37.58%	0.00	
More than 1/2 inch, but less than 3/4 inch	39.28%	43.84%	0.53	
More than 3/4 inch, but less than 1 inch	14.46%	14.34%	0.00	
1 inch or more	8.43%	4.24%	2.08	
Paper pH (Abbey Pen)				
Yellow or Clear (Acidic)	65.78%	50.3%	3.64	P = or < .05 (two-tailed test)
Tan (Slightly Acidic)	10.66%	6.57%	1.57	
Purple (Alkaline)	23.57%	47.83%	24.97	P = or < .05 (two-tailed test)
Paper Fold Test (Paper breaks After)				
Less Than 1 Fold	1.85%	0.2%	1.47	
Less Than 1 Double-Fold	2.56%	1.21%	0.71	
Less Than 2 Double-Folds	1.58%	0%	1.58	
Less Than 3 Double-Folds	3.72%	3.43%	0.02	
More Than 3 Double-Folds	90.3%	95.15%	0.26	
Paper Condition (Mark all that apply)				
White and Strong	62.11%	76.97%	3.56	
Yellowish or Tan	32.7%	20.2%	4.78	P = or < .05 (two-tailed test)
Brown	5.05%	2.63%	1.16	
Glossy or Coated	13.92%	19.8%	2.48	
Calendered	2.77%	0.4%	2.03	
Ground Wood Paper	4.27%	3.03%	0.36	
Pest Damaged	0%	0%		
Volume Indicates it is Printed on Acid-Free Paper	2.53%	10.1%	22.65	P = or < .05 (two-tailed test)
Mutilation and Patron Damage (Mark all that apply)				
Total Volumes Mutilated	19.76%	31.11%	6.52	P = or < .05 (two-tailed test)
Pencil	9.98%	16.36%	4.08	P = or < .05 (two-tailed test)
Ink	4.92%	9.49%	4.24	P = or < .05 (two-tailed test)
High-lighter	0.79%	3.64%	10.28	P = or < .05 (two-tailed test)
Paper Clips	0.16%	1.41%	9.77	P = or < .05 (two-tailed test)
Dog-ears	4.29%	10.1%	7.87	P = or < .05 (two-tailed test)
Post-it notes	0.24%	0.61%	0.57	
Book Marks left in the Volume	2.72%	3.43%	0.19	
Pages Torn or Cut Out	0.57%	0.4%	0.05	
Animal Damage	0.02%	0%	0.02	
Pages or Cover Stained with Food, Drink, or Water	5.71%	9.29%	2.24	
Type of Binding				
Publisher Binding	46.67%	50.3%	0.28	
Publisher Paper Binding	12.69%	18.79%	2.93	
Pamphlet	4.54%	3.64%	0.18	
Commercial Case Binding	32.26%	23.84%	2.20	
Commercial Mylar Binding	3.83%	3.43%	0.04	

Table 3 (Cont.)

	Combined Stacks	Circulation	χ^2 Test	
Condition of Binding (Mark all that apply)				
In Good Condition	85.7%	84.85%	0.01	
Remain in Stacks	8.94%	9.49%	0.03	
Damaged Spine	5.68%	6.26%	0.06	
Loose Joints	4.48%	6.67%	1.07	
Damaged Inner Joints	4.4%	3.84%	0.07	
Damaged Paper Cover	1.28%	3.84%	5.12	P = or < .05 (two-tailed test)
Cover off Volume	0.76%	1.82%	1.48	
Red-rot leather	1.11%	0.2%	0.75	
Title Worn off	0.9%	1.01%	0.01	
Title Label Missing	0.33%	0%	0.33	
Call Number Worn off	0.16%	0%	0.16	
Call Number Missing	0.08%	0%	0.08	
Volume Damaged From Lack of Support	0.54%	1.82%	3.03	
Insect Damage	0.19%	0%	0.19	
Last Circulation				
Previous Year	15.44%	67.88%	178.11	P = or < .05 (two-tailed test)
Previous 5 Years	15.41%	13.74%	0.18	
Previous 10 Years	9.84%	2.42%	5.60	P = or < .05 (two-tailed test)
Previous 25 Years	10.57%	2.83%	5.67	P = or < .05 (two-tailed test)
None in the Last 25 Years	2.49%	0.4%	1.75	
No Circulation History	39.03%	9.9%	21.74	P = or < .05 (two-tailed test)
Restricted Use Collection	6.71%	2.83%	2.24	
Number of Circulations in Last 10 Years				
0-5	91.41%	54.55%	14.86	P = or < .05 (two-tailed test)
6-10	5.79%	20%	34.87	P = or < .05 (two-tailed test)
11-15	1.33%	9.49%	50.06	P = or < .05 (two-tailed test)
16-20	0.6%	5.05%	33.00	P = or < .05 (two-tailed test)
21-25	0.16%	1.21%	6.89	P = or < .05 (two-tailed test)
26 or More	0.71%	9.7%	113.83	P = or < .05 (two-tailed test)
Imprint Date				
1990s	11.66%	37.37%	56.69	P = or < .05 (two-tailed test)
1980s	26.09%	34.34%	2.61	
1970s	23.46%	14.95%	3.09	
1960s	14.27%	6.87%	3.84	P = or < .05 (two-tailed test)
1950s	8.07%	2.02%	4.54	P = or < .05 (two-tailed test)
1930-49	6.17%	2.22%	2.53	
1910-1929	4.92%	0.61%	3.78	P = or < .05 (two-tailed test)
1890-1909	2.96%	0.81%	1.56	
1870-1889	0.82%	0.61%	0.05	
1850-1869	0.73%	0%	0.73	
1830-1849	0.6%	0.2%	0.27	
1800-1829	0.24%	0%	0.24	
1750-1799	0%	0%		
Pre 1750	0%	0%		

Table 3 (Cont.)

	Combined Stacks	Circulation	χ^2 Test
Place of Printing			
U.S.	45.47%	60.61%	5.04
Canada	1.11%	2.02%	0.75
Latin America & Caribbean	3.07%	1.41%	0.90
Northern Europe	28.35%	26.46%	0.13
Southern Europe	3.32%	2.02%	0.51
Eastern Europe (Former Soviet Bloc)	2.34%	0.81%	1.00
Former USSR	3.4%	0.2%	3.01
Central Africa	0%	0.4%	
South Africa	0.08%	0.61%	3.51
Northern Africa (Arabic States)	0.14%	0%	0.14
Middle East	0.16%	0%	0.16
India	0.49%	0.2%	0.17
Central Asia	0.11%	0%	0.11
China and Far East (Not Japan)	7.2%	2.63%	2.90
Japan	4.46%	2.63%	0.75
Australia/New Zealand	0.3%	0%	0.30
Previous Preservation Treatments (Mark all that apply)			
Total Volumes Treated	9.08%	4.65%	2.16
Damaged or Missing Pages Replaced	0.38%	0%	0.38
Been Repaired In-house	5.87%	2.83%	1.57
In Acidic Box	0.27%	0%	0.27
In Acidic Pamphlet Binder	3.7%	1.01%	1.96
In Acidic Paper Envelope	0%	0%	
Volume Tied Together with String	0.03%	0%	0.03
In Acid-free Box	0.22%	0.2%	0.00
In Acid-free Pamphlet Binder	0.82%	0.61%	0.05
In Acid-free Envelope	0.08%	0%	0.08
Been Reformatted	0%	0%	
Shelving Condition (Mark all that apply)			
Shelved Correctly	86.27%	N/A	
Shelved too Tightly	5.22%	N/A	
Not Shelved Straight	3.56%	N/A	
Shelved on Fore-edge	1.49%	N/A	
Shelved on Spine	0.19%	N/A	
Shelved in Wrong Location	3.51%	N/A	
Treatment Decision for Volume (Mark all that apply)			
In Good Condition	83.28%	78.79%	0.24
Send to Stacks as is	10.06%	12.12%	0.42
Needs Commercial Binding	2.06%	4.24%	2.31
Needs In-house Repair	0.71%	3.69%	12.51
Needs Conservation Treatment	0.6%	0.4%	0.07
Send to Brittle Book Processing	0.62%	1.01%	0.25
Place in Enclosure	0.35%	0%	0.35

P = or < .05 (two-tailed test)

P = or < .05 (two-tailed test)

Table 3

The results of Table 3 lend credence to the general rule of thumb that 20 percent of a research library's collections receive 80 percent of the use. The data show that the volumes from the circulation survey circulated more often and had higher total numbers of circulations than the items from the combined condition survey.

Analysis also shows that newer materials circulate much more often than do older materials, with nearly 72 percent of all circulating items having been printed in the 1980s or 1990s.

PAPER CONDITION

A large majority of the Libraries' collections are paper-based materials. The importance of the condition of paper cannot be understated since paper condition is the primary factor in determining what kind of preservation treatment can be performed on a volume. Between the skills of a commercial bindery and the soon-to-be-hired conservator, most bound volumes can be successfully, and often economically, rebound – regardless of the condition of the original binding. However, if the paper in the volume is brittle, it will not have the strength to withstand rebinding or future use, and, thus, must be reformatted if the information contained in the volume is to be preserved – an expensive and labor-intensive process.

Brittle paper is caused by residual acids in the paper left during the manufacturing process. Over time, these acids react with oxygen and water in the air to break down the paper fibers, causing the paper to become weak and brittle. This chemical reaction is greatly accelerated by high temperature and high relative humidity and by rapid fluctuations in temperature and relative humidity.

Giving attention to brittle paper has become a national preservation issue. Many programs have been established in research libraries in an effort, as the charge for the Commission on Preservation and Access states, to “develop and encourage collaborative strategies for preserving and providing access to the accumulated human record.” These programs were begun as libraries and archives became aware that up to 25 percent of their collections had embrittled paper. The libraries at Yale University³ and the University of Illinois at Urbana-Champaign⁴ found that over 25% of their collections had embrittled paper.

³ Gay Walker and others, “The Yale Survey: A Large-Scale Study of the Book Deterioration in the Yale University Library,” *College & Research Libraries* 46:111-32 (1985).

⁴ Tina Chrzastowski and others, “Library Collection Deterioration: A Study at the University of Illinois at Urbana-Champaign,” *College & Research Libraries* 50:577-83 (1989).

Syracuse University⁵ discovered that over 12 percent of their collections are brittle. Other conditions surveys in large research libraries have revealed similar findings. These collections often reside in buildings without air conditioning and often are over-heated in the winter. Such conditions are extremely damaging to paper.

A stable environment for books can make a major difference. A recently published condition survey showed that less than two percent of the collections at Brigham Young University⁶ had embrittled paper. Other unpublished surveys conducted in libraries from the intermountain west show similar results. These results can be attributed to cooler summer temperatures with much lower humidity, cleaner air, and modern buildings with better climate controls.

It is encouraging to report that the condition surveys indicated that only 6 percent of the University of Kansas Libraries' holdings have embrittled paper — meaning the paper will not pass a two double-fold test.⁷ However, over 65 percent of the Libraries' collections are printed on acidic paper, paper that will, in time, become brittle. Under proper environmental conditions, the acid degradation process which causes embrittlement *can* be greatly retarded.

Turning again to the KU collections' embrittled materials, Watson Library, as expected, houses a higher than average percentage of embrittled materials at just under 9 percent. The Art and Architecture Library has the biggest brittle paper problem with nearly 14.5 percent of the collection being brittle (9 percent is on paper that is so brittle it breaks in less than *one* fold). Paper that has reached this state is unusable and must be reformatted as soon as possible if the information is to be retained. Fortunately, over 47 percent of all brittle materials in the Libraries' general collections have either never circulated, or have not circulated in the last 25 years.

Most preservation treatments in the KU Libraries are "use" driven, meaning that damaged materials are pulled from circulation returns and sent to the Preservation Department. For this reason it was important to survey the circulation returns as a separate project. From the circulation survey it is estimated that 7,000 brittle volumes circulate a year.⁸ 5,000 of these embrittled

⁵ Randall Bond and others, "Preservation Study at the Syracuse University Library," *College & Research Libraries* 48:132-47 (1987).

⁶ Matthew Nickerson, "pH: Only a Piece of the Preservation Puzzle: A Comparison of the Preservation Studies at Brigham Young, Yale, and Syracuse Universities," *Library Resources and Technical Services* 36:105-12 (1992).

⁷ This is a test for paper brittleness made by folding a corner of a page over on top of itself, and the crease of the fold is pressed between the finger and thumb. The corner is then folded back the other direction along the same crease and pressed again. This is one double-fold.

⁸ Annually, about 495,000 volumes circulate per year. The task force surveyed 495 items from circulation returns. Thus, each item surveyed represents 1,000 items. In the survey, 7 items from

materials are in such poor condition that they require either some kind of preservation reformatting or must be withdrawn. Reformatting is expensive, costing approximately \$80.00 per volume. The Libraries budget \$20,000 per year for preservation quality photocopying – enough to reformat about 250 volumes per year, or 5 percent of the total number of brittle volumes returning from circulation each year.

The bright spot on the horizon of the brittle books problem is that most books printed in the United States and Northern Europe are now printed on alkaline, or acid-free paper. Acid-free paper, made in accordance to the ANSI Z39.48-1992 standard for “Permanency of Paper for Printed Library Materials,” will last several hundred years. Table 4 shows the percentage of brittle materials and the percentage of materials printed on acid-free paper for each library.

	Watson	Science	Gov. Docs.	Engineer.	Art	Music	E. Asian	Combined Stacks	Circulation
Paper pH									
Acidic	73.85%	75.89%	27.92%	64.57%	35.23%	69.55%	83.15%	65.78%	50.3%
Slightly Acidic	6.85%	9.97%	21.37%	7.14%	23.86%	11.17%	4.49%	10.66%	6.57%
Acid-free	19.19%	14.14%	50.71%	28.29%	40.91%	19.27%	12.36%	23.57%	47.83%
Paper Fold Test (Paper breaks After)									
Less Than 1 Fold	2.34%	0.74%	0.28%	0.29%	9.09%	0%	0%	1.85%	0.2%
Less Than 1 Double-Fold	4.44%	2.98%	0%	1.43%	2.84%	1.12%	0%	2.56%	1.21%
Less Than 2 Double-Folds	2.18%	2.08%	0%	1.14%	2.56%	0.56%	0.56%	1.58%	0%
Less Than 3 Double-Folds	2.66%	4.02%	6.27%	2.86%	3.69%	2.23%	6.74%	3.72%	3.43%
More That 3 Double-Folds	88.39%	90.18%	93.45%	94.29%	81.82%	96.09%	92.7%	90.3%	95.15%

Table 4

The publishing industry did not begin printing materials on acid-free paper until the late 1970s and early 1980s. Changes in environmental laws forced papermakers to produce less environmentally harmful wastes. This motivated papermakers to produce alkaline paper – a more environment friendly product. These laws, combined with strong concerns expressed by the library and archive communities, have resulted in 81 percent of all 1990s imprints from the United States and Northern Europe⁹ being printed on acid-free paper. The United States and Northern Europe are singled out because 75 percent of all volumes acquired by the KU Libraries bearing a 1990s imprint came from the United States and Northern Europe.

the circulation survey were too brittle to survive a single double-fold test. Thus, approximately 7,000 embrittled volumes are circulated annually.

⁹ For the condition surveys, the Preservation Task Force defined Northern Europe as: Austria, Belgium, Denmark, Finland, France, Germany (West Germany), Great Britain, Greenland, Iceland, Ireland, Luxembourg, Netherlands, Norway, Sweden, and Switzerland.

Table 5 shows the percentage of 1990s imprints printed on acid-free paper by the geographic location in which they were printed. Many of these locations do not have a large enough number to provide a significant sample. However, the table does show general trends of what regions of the globe are using good quality paper in the materials they produce.

Place of Printing	Number of Volumes Printed in 1990s	Number of Volumes Printed on Acid-free Paper	Percentage of Volumes Printed on Acid-free Paper
Australia/New Zealand	1	1	100.00%
Canada	2	0	0.00%
China and Asia	41	16	39.02%
Eastern Europe	3	2	66.67%
Former USSR	9	0	0.00%
India	2	0	0.00%
Japan	34	25	73.53%
Latin America & Caribbean	9	1	11.11%
Northern Europe	94	70	74.47%
Southern Europe	6	4	66.67%
U.S.	228	190	83.33%

Table 5

TEXT BLOCK CONDITION

A bound volume is made up of two parts, the text block, that is, the bound pages, and the cover. Data from the surveys relating to each of these parts will be looked at in turn. These two components were considered separately when collecting data for the survey because the physical integrity of volumes will fail for different reasons depending on how their text blocks are put together and how their covers are made.

The primary component of a text block is paper – which has been discussed in detail. Next, one must consider how the pages of the text block are held together, called “leaf attachment.” The task force planned to determine if some kinds of leaf attachment methods proved superior to others. As Table 6 shows, most leaf attachment methods hold up well in the stacks – the only real exceptions, as one would expect, are seen in spiral and other loose bound text blocks, and side sewn or stapled volumes.

LEAF ATTACHMENT	Good Condition	Remain in Stacks	Broken Sewing or Adhesive	Broken Text Block	Loose Pages	Damaged Pages	Missing Pages	Pages Curled from Lack of Support
Sewn Through the Fold	90.50%	3.45%	4.72%	1.32%	2.36%	2.7%	0.06%	0.4%
Oversewn	96.45%	2.20%	0.51%	0.17%	1.02%	2.54%	0%	0.34%
Adhesive Bound	90.39%	5.12%	3.02%	0.64%	1.1%	2.29%	0%	0.82%
Stapled Through the Fold	88.24%	7.35%	1.47%	0.74%	1.47%	5.15%	0%	2.21%
Side Sewn or Stapled	79.54%	12.50%	2.27%	4.54%	5.68%	12.5%	1.14%	3.41%
Spiral or Other Loose Sheet Binding	64.70%	14.70%	2.94%	5.88%	8.82%	2.94%	2.94%	8.82%

Table 6

By conducting the same analysis on only those volumes that have circulated six or more times in the past ten years we find that items that have been sewn through the fold hold up better than items that are adhesive bound (see Table 7).

LEAF ATTACHMENT	Good Condition	Remain in Stacks	Broken Sewing or Adhesive	Broken Text Block	Loose Pages	Damaged Pages	Missing Pages	Pages Curled from Lack of Support
Sewn Through the Fold	86.54%	4.49%	7.05%	2.56%	2.56%	2.56%	0%	0%
Oversewn	100%	0%	0%	0%	5%	5%	0%	0%
Adhesive Bound	78.79%	11.36%	9.85%	8.33%	3.79%	3.79%	0%	0.76%
Stapled Through the Fold	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Side Sewn or Stapled	75%	25%	0%	0%	0%	0%	0%	0%
Spiral or Other Loose Sheet Binding	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Items that have circulated 6 or more time in the past ten years

Table 7

Laboratory testing has shown that there is, as a general rule, a dramatic difference in quality between the kind of adhesive binding performed by publishers and that performed by commercial binders. Publishers use hot-melt adhesives that dry very quickly and are usually quite stiff and brittle. Commercial binders use a cold adhesive and a double-fan binding method — meaning the loose leaves are fanned to each side during the gluing process to allow a small amount of adhesive to adhere itself to the sides of each page — greatly improving adhesion. These cold, polyvinyl acetate (PVA) adhesives dry slowly, are very strong, and remain flexible for many years. Therefore, to truly determine how adhesive bound text blocks hold up to use, publisher and commercial bindery adhesive bindings were analyzed separately and the results are given in Table 8.

ADHESIVE BOUND ITEMS BY TYPE OF BINDING	Good Condition	Remain in Stacks	Broken Sewing or Adhesive	Broken Text Block	Loose Pages	Damaged Pages	Missing Pages	Pages Curled from Lack of Support
Commercial Case Binding	94.69%	2.31%	0.46%	0.46%	2.54%	4.39%	0%	0.23%
Commercial Mylar Binding	95.58%	2.65%	1.77%	1.77%	0%	0%	0%	0%
Pamphlet	73.91%	8.70%	8.70%	4.35%	0%	0%	0%	4.35%
Publishers Binding	83.97%	9.54%	5.72%	4.96%	1.14%	0.76%	0%	0.38%
Publishers Paper Binding	88.93%	6.11%	4.58%	3.44%	0.38%	2.67%	0%	1.53%

Table 8

A higher percentage of materials that are adhesive bound by the commercial binder are in good condition compared to those that are adhesive bound as part of a publisher binding. However, these differences are not statistically significant. Analysis of only those adhesive bound items that have circulated six or more times in the past ten years demonstrates an increasing gap in performance between commercially adhesive bound volumes and publisher adhesive bound volumes. But again, though commercially bound volumes hold up better, the difference in performance is not statistically significant – results the task force did not expect.

BINDING CONDITION

Survey results indicate that bindings, like text blocks, were in good overall condition for the collections. The task force recorded a large amount of detail about the cover of each surveyed volume in an effort to gain as much specific information as possible. This information not only describes the collections, but will also help the Preservation Department develop informed treatment priorities for the collections.

The 14 scripted answers about the condition of bindings can be classified into three main categories which are (1) binding is in good condition; (2) binding has some damage or weakness, but not enough to yet warrant treatment, and, therefore, the volume can remain in the stacks; and (3) binding is damaged enough to need preservation treatment. Table 9 shows the condition of bindings in the collections based on these three classifications.

Type of Binding	<i>Combined Condition Survey</i>						<i>Combined Circulation Survey</i>		
	<i>All Surveyed Items</i>			<i>Items Circulating 6 or More Times in Last 10 Years</i>			<i>All Surveyed Items</i>		
	In Good Condition	Remain in Stacks	Needs Treatment	In Good Condition	Remain in Stacks	Needs Treatment	In Good Condition	Remain in Stacks	Needs Treatment
Publishers Binding	79.27%	13.05%	7.68%	64.53%	19.7%	15.77%	84.95%	11.83%	3.22%
Publishers Paper Binding	80.3%	12.42%	7.28%	61.54%	23.08%	15.38%	79.92%	14.09%	5.99%
Pamphlet	82.04%	10.18%	7.78%	50%	50%	0%	83.33%	5.56%	11.11%
Commercial Case Binding	96.38%	1.52%	2.1%	96.38%	1.85%	1.77%	94.07%	2.54%	3.39%
Commercial Mylar Binding	96.45%	1.42%	2.13%	93.3%	6.67%	0.03%	94.12%	5.88%	0%

Table 9

The data show that commercially bound volumes hold up much better than do publisher bindings. However, the data also indicate that publisher paper bound volumes hold up as well as publisher hard bound volumes, a finding not expected by the task force. Based on the good performance of paper bound volumes, the Preservation Department enthusiastically supported the Retrieval Department's proposal to switch to a paper bound preferred acquisitions profile. (See Appendix E for report entitled, "Paper Bound versus Hard Bound: Findings from the Preservation Task Force's Condition Survey," presented to the Collection Development Council.)

Another unexpected result was that the bindings on circulating materials are similar in condition to bindings on materials in the stacks. The task force had anticipated a higher percentage of damaged bindings on circulating materials.

Analysis was conducted to determine if some geographical regions of the world produced better quality bindings that withstood heavy use. However, there was not sufficient information to produce statistically valid results.

OVERALL CONDITION

Tables 10 shows the overall condition of the general collections.

	Watson	Science	Gov. Docs.	Engineer.	Art	Music	E. Asian	Combined Stacks	Circulation
Treatment Decision for Volume									
In Good Condition	76.13%	84.97%	98.28%	86%	76.7%	83.52%	93.82%	83.28%	78.79%
Send to Stacks as is	14.76%	10.12%	1.71%	11.14%	11.93%	6.7%	2.25%	10.06%	12.12%
Needs Commercial Binding	3.71%	1.49%	0%	0%	0.85%	4.75%	0%	2.06%	4.24%
Needs In-house Repair	2.9%	2.23%	0%	1.71%	4.26%	4.19%	1.12%	0.71%	3.69%
Needs Conservation Treatment	0.97%	0.45%	0%	0%	1.7%	0.28%	0%	0.6%	0.4%
Send to Brittle Book Processing	1.05%	0.3%	0%	0.28%	1.99%	0%	0%	0.62%	1.01%
Place in Enclosure	0.56%	0.45%	0%	0%	0.85%	0%	0%	0.35%	0%

Table 10

From these data we can quantitatively predict the preservation treatment needs of the Libraries' general collections.

Treatment Decision	Number of Items in the Stacks Needing Treatment	Number of Items that Circulate a Year Needing Treatment	Number of Treatments Performed in FY 1996
Needs Commercial Binding	42,230	20,988	12,100 ¹⁰
Needs In-house Repair	14,555	18,266	8,302
Needs Conservation Treatment	12,300	1,980	0
Send to Brittle Book Processing	12,710	5,000	169
Place in Enclosure	7,175	0	689
TOTAL	88,970	46,234	21,260

Table 11

From data in Table 11, it is clear that the KU Libraries have not been able to keep pace with the preservation needs of the Libraries' collections. The Libraries *are* making additional efforts to preserve the collections. In fiscal year 1996, for example, the Libraries committed funds to hire a conservator and build a

¹⁰ This is the total number of damaged volumes that were sent for commercial binding as a preservation treatment option in fiscal year 1996. This figure does not include materials that were bound as part of a shelf preparation process like journal and thesis binding.

conservation laboratory so that materials needing in-house repair or conservation treatment can be treated.

The data also show that the KU Libraries will need to continue to fund the relatively high costs of reformatting embrittled materials given the estimated 5,000 embrittled volumes which circulate each year that are too damaged to return to the stacks without preservation treatment.

The percentage of circulation returns that need repair is significantly higher than the percentage of materials from the stacks that need repair, because of the amount of handling each volume receives every time it is checked out.

Each volume receives a great deal of handling for each circulation. It is little wonder that the result of all of this is damaged volumes. However, it is difficult to know if anything can or should be done differently in the circulation process to preserve the life of the Libraries' collections. A future study of the effects of the circulation process on volumes should be undertaken by randomly selecting an appropriate number of volumes from the stacks, surveying the condition of the volumes at the time they are pulled. These volumes could then be checked-out and returned as part of the normal workflow. After completing the full circulation cycle, each volume could be pulled and surveyed again to identify the amount of damage that can be attributed solely to the Libraries' portion of the circulation process.

MUTILATION

Mutilation is defined as the intentional – though not necessarily malicious – destruction of library materials. Many people do not consider the ramifications of their actions, however, ignorance does not lessen the effects of mutilation. The Preservation Department must increase efforts to work with other Library departments to help educate users about how to properly care for the Libraries' materials.

Table 12 shows the amount of each kind of mutilation that was found during the surveys. The task force found these relatively high percentages alarming. We knew there was a problem with mutilation, but we did not expect to find that nearly 1 in 3 of all volumes returning from circulation was mutilated.

	Gov.						Combined		
	Watson	Science	Docs.	Engineer.	Art	Music	E. Asian	Stacks	Circulation
Mutilation and Patron Damage									
Total Percentage of Volumes Mutilated	26.53%	11.9%	20.8%	15.14%	27.84%	17.88%	8.43%	19.76%	31.11%
Pencil	10%	4.76%	13.39%	2.86%	6.82%	14.52%	4.49%	9.98%	16.36%
Ink	7.34%	2.53%	2.85%	2%	4.26%	3.63%	0.56%	4.92%	9.49%
High-lighter	1.29%	0.6%	1.14%	0%	0.85%	0%	0.56%	0.79%	3.64%
Paper Clips	0.24%	0%	0.57%	0%	0%	0.28%	0%	0.16%	1.41%
Dog-ears	6.53%	2.08%	2.28%	7.71%	3.98%	2.79%	1.68%	4.29%	10.1%
Post-it notes	0.4%	0.15%	0.28%	0.28%	0.28%	0%	0%	0.24%	0.61%
Book Marks left in the Volume	4.03%	1.93%	2.85%	2.28%	1.99%	2.23%	1.12%	2.72%	3.43%
Pages Torn or Cut Out	0.89%	0.74%	0%	0%	1.14%	0.28%	0%	0.57%	0.4%
Animal Damage	0.08%	0%	0%	0%	0%	0%	0%	0.02%	0%
Pages or Cover Stained with Food, Drink, or Water	7.58%	3.12%	0%	4%	19.32% ¹¹	2.51%	1.12%	5.71%	9.29%

Table 12

The level of mutilation is even more startling when only those volumes that have circulated six or more times in the past ten years are analyzed as shown in Table 13.

Combined Stacks	
Mutilation and Patron Damage	
Total Percentage of Volumes Circulated 6 or More Times in Past 10 Years that are Mutilated	47.78%
Pencil	28.16%
Ink	1.85%
High-lighter	4.43%
Paper Clips	0%
Dog-ears	13.92%
Post-it notes	.95%
Book Marks left in the Volume	4.43%
Pages Torn or Cut Out	.95%
Animal Damage	0%
Pages or Cover Stained with Food, Drink, or Water	14.87%

Table 13

¹¹ This figure includes volumes that were damaged (soiled) by paint, clay, or other artist materials as a result of being used in art studios.

The Libraries, with aid by others on campus, must redouble their efforts to reduce this needless damage.

SHELVING CONDITIONS

The task force decided to evaluate the shelving condition of each of the 3,679 sampled volumes of the stacks survey. The results of this portion of the survey are presented in Table 14.

	Gov.	Watson	Science	Docs.	Engineer.	Art	Music	E. Asian	Combined Stacks
Shelving Condition (Mark all that apply)									
Shelved Correctly	83.31%	87.65%	95.73%	91.71%	81.53%	83.24%	87%	86.27%	
Shelved too Tightly	12.18%	0.3%	1.71%	4.28%	0.57%	0.56%	3.93%	5.22%	
Not Shelved Straight	2.1%	9.08%	0.57%	0.28%	3.12%	8.38%	0%	3.56%	
Shelved on Fore-edge	1.45%	0%	0.57%	0%	6.82%	1.96%	1.12%	1.49%	
Shelved on Spine	0.16%	0%	0%	0%	0.28%	0%	1.12%	0.19%	
Shelved in Wrong Location	2.58%	2.83%	0.28%	2.57%	6.82%	7.82%	4.49%	3.51%	

Table 14

The task force was pleased to find that over 86 percent of the volumes in the Libraries' collections are shelved appropriately considering that:

- Nearly 495,000 volumes circulate a year.
- The stacks are open to users to allow browsing.
- The Libraries' lack of shelf space.

It is interesting to note that Watson has the worst problem of materials being shelved too tightly, with over 12 percent of the sampled volumes falling into this category. *While 12 percent itself is an alarming figure, we must remember that if one volume on a shelf is packed too tightly, then the entire shelf is packed too tight – greatly compounding the problem.*

Finally, as was reported earlier, with the large number of volumes that are taken from and replaced on the shelves each year, and with so much of that being done by users, it may be remarkable that only 3.51 percent of the entire collection is shelved in the wrong location. However, 3.51 percent of the collection is nearly 72,000 volumes – a number nearly equal to the Engineering Library's entire holdings.

**COMPARISON OF PRESENT SURVEY RESULTS
TO THOSE FROM A 1975 CONDITION SURVEY**

In 1975 a committee chaired by Alexandra Mason, which had as some of its members Bill Mitchell and Roger Anderson, conducted a condition survey of materials in Watson Library. The task force decided to compare some of the data collected from both surveys, the results of which are given in Table 15.

Survey Questions	1975 Survey	Present Combined Condition Survey	Significant Chi-Squared Results
Type of Binding			
Publisher Binding	58.4%	46.67%	
Publisher Paper Binding	10.8%	12.69%	
Commercially Bound	8.8%	32.26%	P = or < .05
Binding Condition			
In Good Condition	56.4%	85.7%	P = or < .05
Remain in Stacks	25.8%	8.94%	P = or < .05
Paper Condition			
White and Strong	43.3%	62.11%	P = or < .05
Yellowish or Tan	32.4%	32.7%	
Brown	11.2%	5.05%	P = or < .05
Brittle (Less Than 2 Double-Folds)	11.7%	5.99%	P = or < .05
Volumes That have Never Circulated	25.3%	39.03%	P = or < .05
Mutilated Volumes	6%	19.76%	P = or < .05

Table 15

The 1975 survey and the present surveys obviously used different criteria for defining the survey questions, and for this reason only the above questions were selected for comparison because they clearly matched in both terms used and context. It is interesting to note how the collections have changed. A higher percentage of the current holdings have been commercially bound. The condition of the paper and bindings has improved. There has been a dramatic increase in the amount of mutilation. The improvement in binding and paper conditions must certainly, in part, be attributed to the relative newness of the current collection, as more than 61 percent of the collection has been printed in the 1970s or later.

One very positive contrast between the 1975 report and this report is that the 1975 committee accurately reported the glum future of acidic paper, and

lamented that circumstances did not look good for any changes in papermaking practices. Thankfully, change has occurred as 81 percent of all United States and Northern Europe 1990s imprints are now printed on acid-free paper.

ACTIONS SUGGESTED BY RESULTS OF SURVEYS

The task force believes that the results of the condition surveys support the following actions:

- Because almost two-thirds of the volumes in the collections have acidic paper, it is imperative that the Libraries redouble efforts to work with Facilities Operations to improve environmental conditions in each library. Improving environmental conditions is the most cost-effective way to preserve such materials. For example, lowering the temperature just a few degrees and stabilizing it, *and* more closely regulating humidity levels can add literally decades of life to acidic paper by slowing down the acid degradation process.
- The Preservation Department should continue to focus its treatment efforts on materials that are returning from circulation because these materials are in demonstrably worse condition than volumes in the collections overall and have a higher probability of being borrowed again for use outside the Libraries.
- Hiring a conservator and building a conservation laboratory is both prudent and essential to address the preservation needs of the over 20,000 circulating items a year that need conservation treatment or book repair.
- The Libraries should increase funding for “brittle books reformatting,” i.e., microfilming, preservation quality photocopying, or digitization. At the current level of funding, only 250 volumes of the ca. 7,000 severely embrittled volumes that circulate each year can be reformatted.
- Increase substantially the number of volumes commercially bound each year. The circulation condition survey showed that over 20,000 volumes return from circulation in need of binding each year. In FY96, over 12,000 damaged monographs were commercially rebound – 60 percent of the collections’ actual need. Add to this the fact that in FY96 the Libraries bound just over 19,000 journal volumes – a number significantly lower than the total number of journal volumes the Libraries acquired during the year, continuing a trend of many years. Thus, the binding backlog for journal volumes continues to grow. Furthermore, wise acquisitions decisions, such as the paper preferred plan, could generate needs for additional binding funds. (See Appendix E for report entitled, “Paper Bound versus Hard Bound:

Findings from the Preservation Task Force's Condition Survey," presented to the Collection Development Council.)

- Because defacement or mutilation of library materials is a very serious problem at KU, the Preservation Department must aggressively take the lead, with the cooperation of others in the Libraries, in improving staff and user education about the consequences of this problem.
- Overall, the task force recommends an increase in preservation funding to \$530,000 annually – to come closer to meeting the preservation needs of the collections by achieving the goal of the 1993 Strategic Planning Steering Committee Report, section I, subsection C, strategy 5c, which states, "... increase the Library's preservation expenditures to at least 5% of the overall Library budget." (The estimated FY96 level of funding for preservation was \$318,000, or 3 percent of the overall Library budget (Lawrence Campus, excluding the Law Library).)
- Schedule periodic (between 5 and 10 years) condition surveys of this kind to monitor problems and provide information essential to target limited resources to areas of greatest need.

CONCLUSION

Although there are clear causes for serious concern about the condition of KU's library collections, the task force is pleased to report that the Libraries' collections are in relatively good condition when compared to those of many other research libraries in the United States. The Library staff, and staff in allied units such as Facilities Operations, and many library users should be proud of the care that has been taken to preserve these valuable collections. Vigilance has resulted in relatively well preserved holdings – something most university research libraries in the United States cannot boast.

The Preservation Department is now charged to provide leadership to focus and accelerate the Libraries' preservation efforts based on the findings of this survey, lest the collections not be available to future generations of students and scholars.

The Libraries must work closely with users and staff to ensure that the collections are protected from damage. They must also support preservation efforts to save damaged materials. The Preservation Department needs sufficient funding to treat the materials that are damaged by use each year.

The survey provided a wealth of valuable preservation related data about the Libraries' collections – of which only a fraction is presented in this report. If additional, specific information is desired please contact Brian Baird (4-3568, bbaird@ukans.edu) who will be happy to provide you with the information you need.

APPRECIATION

The task force would like to thank the circulation and shelving staffs throughout the Libraries. Their help and cooperation was greatly appreciated in collecting the samples for the condition survey of materials returning from circulation and reshelving the over 4,000 items that were surveyed. Without this assistance, the task force could not have accomplished the survey as quickly as they did.

The task force would also like to express their appreciation to Robert Glass, Assistant Scientist, at the Institute for Public Policy and Business Research who was hired as a statistical consultant. He provided many hours of statistical work and much practical advice on how to conduct our survey in a way that would guarantee the randomness of the samples and provide statistically valid data and analysis.

Finally, the task force would like to thank the Libraries' administration for providing the financial support. They also thank Susan Craig and Bill Mitchell for providing a "fresh perspective" to the task force's efforts by reviewing a final draft of this report before its release.

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APPENDIX A

CONDITION SURVEY QUESTIONNAIRE

Size of Volume

- Regular
- Folio
- Oversized

Type of Volume

- Monograph
- Part of Multi-volume Set
- Serial
- Scores

Leaf Attachment

- Sewn Through the Fold
- Oversewn
- Adhesive Bound
- Stapled Through the Fold
- Side Sewn or Stapled
- Spiral or Other Loose Sheet Binding

Condition of Text Block (Mark all that apply)

- In Good Condition
- Remain in Stacks
- Broken or Loose Sewing or Adhesive
- Broken Text Block
- Loose Pages
- Damaged Pages (not mutilation)
- Missing Pages (not mutilation)
- Pages Damaged or Curled from Lack of Support (paper backs)

Gutter Margin Width

- Less than 1/2 inch
- More than 1/2 inch, but less than 3/4 inch
- More than 3/4 inch, but less than 1 inch
- 1 inch or more

Paper pH (Abbey Pen)

- Yellow or Clear (Acidic)
- Tan (Slightly Acidic)
- Purple (Alkaline)

Paper Fold Test (Paper breaks After)

- Less Than 1 Fold
- Less Than 1 Double-Fold
- Less Than 2 Double-Folds
- Less Than 3 Double-Folds
- More Than 3 Double-Folds

Paper Condition (Mark all that apply)

- White and Strong
- Yellowish or Tan
- Brown
- Glossy or Coated
- Calendered
- Ground Wood Paper
- Pest Damaged
- Volume Indicates it is Printed on Acid-Free Paper

Mutilation and Patron Damage (Mark all that apply)

- Pages Marked with
 - Pencil
 - Ink
 - High-lighter
 - Paper Clips
 - Dog-ears
 - Post-it notes
- Book Marks left in the Volume
- Pages Torn or Cut Out
- Animal Damage
- Pages or Cover Stained with Food, Drink, or Water

Type of Binding

- Publisher Binding
- Publisher Paper Binding
- Pamphlet
- Commercial Case Binding
- Commercial Mylar Binding

Condition of Binding (Mark all that apply)

- In Good Condition
- Remain in Stacks
- Damaged Spine
- Loose Joints
- Damaged Inner Joints
- Damaged Paper Cover
- Cover off Volume
- Red-rot leather
- Title Worn off
- Title Label Missing
- Call Number Worn off
- Call Number Missing
- Volume Damaged From Lack of Support
- Insect Damage

Last Circulation

- Previous Year
- Previous 5 Years
- Previous 10 Years
- Previous 25 Years
- None in the Last 25 Years
- No Circulation History
- Restricted Use Collection

Number of Circulations in Last 10 Years

- 0-5
- 6-10
- 11-15
- 16-20
- 21-25
- 26 or More

Imprint Date

- 1990s
- 1980s
- 1970s
- 1960s
- 1950s
- 1930-49
- 1910-1929
- 1890-1909
- 1870-1889
- 1850-1869
- 1830-1849
- 1800-1829
- 1750-1799
- Pre 1750

Place of Printing

- U.S.
- Canada
- Latin America & Caribbean
- Northern Europe
- Southern Europe
- Eastern Europe (Former Soviet Bloc)
- Former USSR
- Central Africa
- South Africa
- Northern Africa (Arabic States)
- Middle East
- India
- Central Asia
- China and Far East (Not Japan)
- Japan
- Australia/New Zealand

Previous Preservation Treatments (Mark all that apply)

- Damaged or Missing Pages Replaced
- Been Repaired In-house
- In Acidic Box
- In Acidic Pamphlet Binder
- In Acidic Paper Envelope
- Volume Tied Together with String
- In Acid-free Box
- In Acid-free Pamphlet Binder
- In Acid-free Envelope
- Been Reformatted

Shelving Condition (Mark all that apply)

- Shelved Correctly
- Shelved too Tightly
- Not Shelved Straight
- Shelved on Fore-edge
- Shelved on Spine
- Shelved in Wrong Location

Treatment Decision for Volume (Mark all that apply)

- In Good Condition
- Send to Stacks as is
- Needs Commercial Binding
- Needs In-house Repair
- Needs Conservation Treatment
- Send to Brittle Book Processing
- Place in Enclosure

INSTRUCTIONS FOR THE CONDITION SURVEY

July 29, 1996

Brian J. Baird

In order for this condition survey to be valid it will be important for all surveyors to score the questions the same way. It is, therefore, important that each surveyor use the following criteria in determining a volume's condition:

Size of Volume

These sizes represent the shelving size location designations used by the Libraries.

Regular

Volumes in regular stacks.

Folio

Larger volumes shelved by themselves in the "folio" stacks.

Oversized

Very large materials, usually stored flat in "oversized" stacks.

Type of Volume

Designates what kind of a publication the item is. This will help in comparing damage to publication types, it will also help in estimating binding costs which differ for each binding type.

Monograph

Single volume monograph.

Part of Multi-volume Set

Monograph that is part of a multi-volume set, series, etc.

Serial

Periodical literature, magazines, journals, etc.

Scores

Musical scores.

Leaf Attachment

It is important to determine how the leaves (or pages) of the text block are held together to know what kind of binding and preservation problems to expect with each type of leaf attachment, and to determine future binding costs (e.g., recasing costs, adhesive binding costs, and extra handling charges for removing side sewing).

Sewn Through the Fold

Items with either machine or hand sewn signatures. Can identify these items by looking for sewing thread in the gutter, or inner margin, of the middle of a signature, or gathering of pages. Just because a text block has signatures does not mean that it is sewn. *Do not* be fooled by burst-binds which still have signatures, but are adhesive bound instead of sewn. Also, some volumes have signatures that are held together with staples (see below).

Oversewn

A long practiced leaf attachment method used to sew single leaves together—especially common in commercial bindings. Individual leaves are grouped in small (1/8") gatherings which are side sewn together. The oversewing machine operator continuously feeds these small gatherings into the machine which sews the gatherings together. Can be recognized by very inflexible spine, and uneven inner margin.

Adhesive Bound

Text block is held together solely by adhesive. This is done by either gluing loose leaf pages together, or by gluing signatures together which is called a burst binding. Burst bindings are made by forcing hot melt adhesive into the folds of the signatures to hold the pages together. Adhesive binding methods are used by both publishers and commercial binders.

Stapled Through the Fold

Some books published in the late 19th century were made by stapling the signatures to crash or mull that was glued to the spine of the text block. Staples are also used in many pamphlets. It is important to know about staples because they can rust and damaged the paper.

Side Sewn or Stapled

Some volumes, particularly government documents and middle and far eastern publications, are made by stapling or sewing the pages or signatures of the volume together through the side of the text block. This is a very damaging leaf attachment method for volumes with western papers.

Spiral or Other Loose Sheet Binding

This category is for any material bound in three ring binders, spiral bindings, plastic comb bindings, Velo bindings, or other type of non-permanent binding.

Condition of Text Block (Mark all that apply)

This will rate the condition of the text block (the book minus the cover). Paper condition will be looked at later. This only considers the block of pages that make up the volume. It does not consider mutilation, brittleness, torn pages, etc.

In Good Condition

The text block is perfectly sound. No breaks, it is not deformed, it is not loose or sagging out of shape.

Remain in Stacks

The text block is not in good condition, but it is in good enough shape that it can remain in the stacks for further uses. In other words, the condition of the text block itself would not give cause to pull the item to be sent to the Preservation Department. The primary determinant in this case is to answer the question: Will the text be damaged, pages lost, or repair cost increased by not pulling the volume now?

Broken or Loose Sewing or Adhesive

The text block is still in one piece, but the threads are loose, or the adhesive has broken down, or the signatures in the text block are loose. Another sign of this problem is if the volume opens to one spot where the spine is broken, but the text block is not yet split in two pieces.

Broken Text Block

The text block has actually broken into two or more sections, or clumps of pages are coming out of the volume.

Loose Pages

When single or multiple pages have detached from the text block. This will often occur as a result of a split text block, or because the adhesive in an adhesive binding fails, allowing pages to break free. Other times, paper can be so brittle that pages will break away at the inner margin.

Damaged Pages (not mutilation)

This refers to any damage to pages—usually tears—that occurs as a result of normal use, or because of text block damage. However, this does not include mutilation or malicious patron damage such as writing on or

marking pages, tearing pages out, etc. When in doubt, damage will be attributed to normal wear and tear rather than to mutilation.

Missing Pages (not mutilation)

Pages that are missing as a result of non-patron damage such as pages falling out of a book after they become loose. When in doubt, damage will be attributed to normal wear and tear rather than to mutilation.

Pages Damaged or Curled from Lack of Support (paper backs)

This is a category specifically for paper backed materials. We need to measure how many paper back items have damaged pages because they do not have the support of a hard cover.

Gutter Margin Width

As paper becomes more expensive, publishers are providing narrower margins in the volumes they produce, especially periodical and paper back materials. The inner, or gutter, margin needs to be wide enough to allow for future rebindings and for good readability and photocopying. Measure the gutter margin width with a ruler beginning from the text printed closest to the gutter. Check through the books to make sure that you find the text printed closest to the inner margin.

Less than 1/2 inch

More than 1/2 inch, but less than 3/4 inch

More than 3/4 inch, but less than 1 inch

1 inch or more

Paper pH (Abbey Pen)

The pH of paper greatly affects how long it will last. Acidic paper will, generally speaking, last between 50 and 150 years, while alkaline paper will last many centuries. For this survey the paper's pH will be tested using an Abbey pH Pen which contains chlorophenon red. Make a 1/2 inch long mark on the paper near the gutter of a page near the center of the volume. When the mark dries the read the color. Sometimes there are different kinds of paper in the same volume (e.g, often photographic plates will be on a different kind of paper). Test the paper that makes up the majority of the volume. Test a page that is between other like pages (i.e., don't test a page that is next to a plate). Be careful, some off-white papers can make it difficult to read the color changes of the pH pen.

Yellow or Clear (Acidic)

Yellow or clear means that paper is definitely acidic with a pH of 6.0 or lower.

Tan (Slightly Acidic)

Tan, or a faint, deep purple means the paper is slightly acidic with a pH range of 6.0-6.8.

Purple (Alkaline)

A rich purple or lavender means the paper is neutral or alkaline with a pH of 6.8 or higher.

Paper Fold Test (Paper breaks After)

This is a test for paper brittleness. This test is made folding a corner of a page over like you were dog earring it. Press the crease of the fold between your finger and thumb, and then fold the paper back the other direction and crease it again. This is one double-fold. Do this three times. It is important to perform this test on a part of page that does not have print. It is also important to perform the test, when possible, at least 3/4" into the page since most pages are more brittle along their edges than they are farther in. Non-ground wood paper (see "Ground Wood Paper" in the "Paper Condition" question) printed in 1960 or later will not need to be tested since paper this recently made will pass the three double-fold test.

Less Than 1 Fold

Some papers are so brittle that they will not survive even a single fold.

Less Than 1 Double-Fold

Less Than 2 Double-Folds

Less Than 3 Double-Folds

More Than 3 Double-Folds

Paper Type and Condition (Mark all that apply)

This looks at the physical characteristics of the paper in the volume.

White and Strong

Paper in very good condition like a new book.

Yellowish or Tan

As paper begins to deteriorate it turns first yellowish or tan and then brown.

Brown

This paper is generally further deteriorated than paper that is yellowish or tan.

Glossy or Coated

Paper that has a shiny or is very smooth and glossy. Pages that have photos on them, or art books, or many magazines have coated paper. Only mark as having glossy paper if the majority of the paper in the volume is glossy.

Calendered

This is paper that, at first, may appear to be coated, however, it receives its smooth texture not from a coating, but rather from being pressed by hot rollers when it was being made. It is, therefore, not shiny or glossy like a coated paper. Calendered paper was made primarily for lithography printed books of the late 1800s and early 1900s. Often seen in art books, and other highly illustrated books.

Ground Wood Paper

Ground wood paper is relatively inexpensive compared to high quality papers and is used often in newspapers and paper back books. It is also very widely used in printing done by third world countries. This paper is very acidic, is made from short, weak cellulose fibers, and has a high lignin content which causes the paper to severely brown when it ages (think of how yellow your newspaper gets after just one day in the sun).

Pest Damaged

Older materials, and materials from tropical climates are often infested with book worms, which are beetle larvae which feed on the cellulose in paper. Cockroaches and silverfish will also feed on books and paper if they do not have other food sources. Cockroaches and silverfish will often nibble at the edges of pages much like a caterpillar eats a plant leaf. Often this will happen on the spine edge of a volume since the cockroaches and silverfish are attracted to the animal glue on the spine of some text blocks. It is very difficult to identify if a book is infested, so for this survey we will primarily be looking for worm holes, bug eaten pages, dead larvae, "saw dust" from chewed up paper, or other obvious signs of infestation.

Volume Indicates it is Printed on Acid-Free Paper

Many modern American and west European books (1980s and later) will indicate, on the verso of the title page, that they are printed on acid-free or alkaline paper. If the book in hand was printed in 1980 or later, check to see if the publisher has indicated that the book is printed on acid-free paper. Some times they will indicate this with an infinity sign (∞).

Mutilation and Patron Damage (Mark all that apply)

It will be important to determine what percentage of the collection has been damaged by patron mutilation or neglect. It will also be nice to know what kind of damage occurs most often.

Pages Marked with

Check quickly for any patron made marks in the text and record what kind of marks were found.

Pencil

Ink

High-lighter

Paper clips

Mark yes to this question if there are paper clips in the text block, or if you can tell, by damage to the pages, that there were paper clips used as book marks.

Dog-ears

When a corner of a page is folded over to mark a place. Mark yes to this question if you find folded over corners, or if you can tell that a corner was dog-eared from a crease left on a page.

Post-it notes

Post-it notes can be damaging to paper because residual adhesive is left behind when the Post-it note is removed which can stick pages together. The adhesive used on Post-it notes releases easily for a while, but in time, the adhesion becomes permanent which means the note cannot be removed without tearing the paper. Post-it notes can also damage weakened paper when the adhesive is stronger than the paper. Post-it notes can also lift print from the page.

Book Marks left in the Volume

People use all sorts of things for book marks—many of which they leave in the volume when they are finished with it. Large objects like pencils, and very acid materials, like newspaper, can permanently damage the volume. Answer yes to this question if book marks, other than dog-ears, paper clips, and Post-it notes, are found in the volume.

Pages Torn or Cut Out

Answer yes to this question if it is obvious that a page(s) was torn out of the volume, or if pictures or text were cut out. If there is doubt about how the page went missing do not count it as mutilation.

Animal Damage

For volumes that get chewed on by dogs, or for any other type of damage to a volume that is clearly the result of an animal.

Pages or Cover Stained with Food, Drink, or Water

Mark yes to this question if there is any clear damage to a volumes pages or cover that is caused by a user's food, drink, or water (e.g., rain).

Type of Binding

The text block and paper of the volume have been examined, and now the condition of the cover will be recorded.

Publisher Binding

Any volume that is in a hard-bound cover produced by the publisher. Do not count commercial bindings here.

Publisher Paper Binding

Any paper back volume that still has its paper cover.

Pamphlet

Any pamphlet, or single signature, saddle stitched item—including musical scores. Record all pamphlets here, regardless of whether they have received an in-house pamphlet binding or not.

Commercial Case Binding

Any volume that has been sent to the commercial bindery, or has been given a commercial type binding from the Libraries' in-house binder that operated into the 1970s. A commercial binding can be identified by its heavy buckram cloth cover and its generally gold or white stamped label on the spine.

Commercial Mylar Binding

A commercial binding that employs the original paper cover from a paper back volume by laminating it to the new covering material.

Condition of Binding (Mark all that apply)

This section will record the condition of the binding, or cover of the volume.

In Good Condition

Binding is in good condition, displaying none of the problems listed below.

Animal Damage

For volumes that get chewed on by dogs, or for any other type of damage to a volume that is clearly the result of an animal.

Pages or Cover Stained with Food, Drink, or Water

Mark yes to this question if there is any clear damage to a volumes pages or cover that is caused by a user's food, drink, or water (e.g., rain).

Type of Binding

The text block and paper of the volume have been examined, and now the condition of the cover will be recorded.

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Commercial Mylar Binding

A commercial binding that employs the original paper cover from a paper back volume by laminating it to the new covering material.

Condition of Binding (Mark all that apply)

This section will record the condition of the binding, or cover of the volume.

In Good Condition

Binding is in good condition, displaying none of the problems listed below.

Remain in Stacks

This describes a book that is in good enough condition to remain in the stacks, but is not in perfect condition. It may have slight damage, but not enough to warrant sending it to the Preservation Department. The primary determinant in this case is to answer the question: Will the text be damaged, pages lost, access diminished, or repair cost increased by not pulling the volume now?

Damaged Spine

This is a situation where the spine of the book is damaged enough to cause a lack of structural support, to allow the labeling information to be lost, or to allow part of all of the spine of the cover to fall off. Damage usually occurs in two ways, 1) from the headcap being pulled on to remove a book from the shelf, and 2) from the spine in-lay cutting through the covering material. If a spine is loose it will weaken the support of the cover and allow the inner hinges to become damaged very quickly. If there is only spine damage, a volume can be repaired in-house.

Loose Joints

This describes the condition where the cover has become loose on the text block because the joint areas (the part of the cover that hinges) are loose. This happens because the weight of the text block pulls itself out of the cover. A volume falls into this category if it has loose joints, but has no damage to the materials that make up the inner hinges or outer joints.

Damaged Inner Hinges

The inner hinge is the joint area on the inside cover of the volume. The material in the inner hinge is usually paper which, being weaker than the cloth of the outer joint, breaks first. If the inner hinge of a volume is damaged it must either be sent to the commercial binder, or be given conservation treatment depending on the age and condition of the paper in the volume.

Damaged Paper Cover

In our effort to gain as much information as possible about how well paper backed volumes hold up in the stacks, we need to document how many paper backed volumes are damaged. A damaged paper cover is one that no longer protects the volume, is delaminating, is breaking in the joints, coming off the text block, wearing away, or generally in bad condition. Include all kinds of paper covers including paper backs, pamphlet bindings, etc. Anything with a damaged paper cover.

Cover off Volume

A cover of any kind that has broken away from the text block either in parts (such as a single board, or one side of a paper cover) or as a whole cover.

Red-rot leather

The term "red-rot" is used to describe the dry, crumbly, weak condition of leather when it deteriorates because of the acids it contains. When you touch red-rotted leather your fingers often pick up a dark, dry powdery material. A good example of red-rotted leather can be seen on old tan, leather bound government documents.

Title Worn off

Mark this if the stamped titling information has been worn off of the spine of the volume.

Title Label Missing

Mark this if the titling label, from the original publisher binding or as a result of a repair, has fallen off of the spine of the volume.

Call Number Worn off

Mark this if the stamped or written call number information has been worn off of the spine of the volume.

Call Number Missing

Mark this if the call number label that was placed on the volume by library staff has fallen off of the spine of the volume.

Volume Damaged From Lack of Support

This applies mostly to paper back volumes, and pamphlets. It is important to know the percentage of materials in the collection that are damaged because they do not possess the necessary structural support to survive in the stacks.

Insect Damage

Cockroaches and silverfish will eat the starch filled cloth covers of many books. Insect damage looks like something has scraped off the top layer of the cloth leaving white spots.

Last Circulation

Circulation histories can be very helpful in determining what kind of a treatment an item needs. If the item has not circulated very much, or, as this question will measure, if the item has not circulated recently, it will not need the same kind of treatment that a heavily used item does. Circulation information will be taken from the date due slips in the back of the volume.

Previous Year

Previous Five Years

Previous 10 Years

Previous 25 Years

None in the Last 25 Years

No Circulation History

Restricted Use Collection

Number of Circulations in Last 10 Years

0-5

5-10

10-15

15-20

20-25

25 or More

Imprint Date

The age of a volume helps determine what kind of a treatment it will receive. Bookbinding and papermaking practices have drastically changed over the last several hundred years. For this reason it is important to see how binding structures and styles from various time periods are holding up.

1990s

Most scholarly books and many American and Western European books are printed on acid-free paper.

1980s

Some publishers begin regularly using acid free paper.

1970s

1960s

1950s

1930-49

Depression and World War II era. Paper is of generally poor quality throughout the world—especially in Europe.

1910-1929

1890-1909

Much of the paper from this era should be very brittle.

1870-1889

Much of the paper from this era should be very brittle.

1850-1869

Most of the paper from this era is acidic, but this is an experimental era in papermaking history, and, as a result, there are many types of paper and different levels of quality.

1830-1849

Pre-acidic papermaking era. Paper is not generally as good as older papers, but usually this paper will be white, flexible, and strong.

1800-1829

As a general rule, the older paper gets the better it gets.

1750-1799

Pre 1750

Place of Printing

Where a volume was printed tells a great deal about the preservation needs of that volume. Many third world countries print their books and periodicals on very poor quality paper and the bindings are often equally poor.

U.S.

Canada

Latin America & Caribbean

Mexico, Central, South America, and the Caribbean islands.

Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Surinam, Uruguay, Venezuela, West Indies

Northern Europe

Austria, Belgium, Denmark, Finland, France, Germany (West Germany), Great Britain, Greenland, Iceland, Ireland, Luxembourg, Netherlands, Norway, Sweden, Switzerland

Southern Europe

Greece, Italy, Portugal, Spain

Eastern Europe (Former Soviet Bloc)

Former communist or Soviet Bloc countries.

Albania, Bulgaria, Czechoslovakia (Czech Republic Slovakia), East Germany (GDR), Hungary, Poland, Romania, Yugoslavia (Bosnia, Croatia, Macedonia, Serbia, Montenegro, Slovenia)

Former USSR

Russian Empire until 1917 when it became the Soviet Union until 1991.

Aremenja*, Azerbaijan*, Belarus (White Russia)*, Estonia, Georgia, Kazakhstan*, Kyrgyzstan*, Latvia, Lithuania, Moldova*, Russia*, Tajikistan*, Ukraine*, Uzbekistan*

*Members of the CIS (Commonwealth of Independent States)

Tropical Africa

Angola, Benin, Botswana, Burkina, Burundi, Cameroon, Central African Republic, Chad, Congo (Brazzaville), Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi (Nyasaland), Mali, Mauritania, Mozambique, Namibia (South West Africa), Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire (Belgium Congo), Zambia (North Rhodesia), Zimbabwe (South Rhodesia)

South Africa

Northern Africa (Arabic States)

Algeria, Egypt, Libya, Morocco, Tunisia

Middle East

Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Saudi Arabia, South Yemen, Syria, Turkey, United Arab Emirates, Yemen

India

Central Asia

Afghanistan, Bangladesh, Bhutan, Burma, Nepal, Pakistan, Sri Lanka

China and Asia (Not Japan)

Cambodia, China, Hong Kong, Indonesia, Laos, Malaysia, Mongolia, North Korea, Papua New Guinea, Philippines, South Korea, Thailand, Vietnam

Japan

Australia/New Zealand

Previous Preservation Treatments (Mark all that apply)

We need to know what percentage of the collection has received previous preservation treatment. We must also know what kind of treatments the materials receive.

Damaged or Missing Pages Replaced

Mark this if photocopied replacement pages have been tipped into a volume.

Been Repaired In-house

Mark to indicate that a volume has received some kind of an in-house repair. This can include paper mends, spine repairs, hinge repair with cloth tape, etc.

In Acidic Box

If the volume has been placed in some kind of a protective box enclosure that is made of acid materials. Acidic materials can be identified by a dark brown board, or from acid burns on the paper enclosed in the box, or by age. Anything older than the mid 1980s will be acidic. When in doubt, test box material with pH pen.

In Acidic Pamphlet Binder

Pamphlet binders that match the same criteria as given above. When in doubt, test binder material with pH pen.

In Acidic Paper Envelope

Many volumes in the past were placed in acidic manila envelopes. When in doubt, test envelope with pH pen.

Volume Tied Together

Many volumes in the stacks have been tied together with a string, red cotton tape, or with rubber bands to keep the parts together.

In Acid-free Box

Boxes that were made since the mid 1980s should be acid free. When in doubt, test box material with pH pen.

In Acid-free Envelope

Thick, white paper envelopes, and Tyvek envelopes should be acid-free. The pH pens cannot test the pH of Tyvek.

In Acid-free Pamphlet Binder

Pamphlet binders that were made since the mid 1980s should be acid free. When in doubt, test binder material with pH pen.

Been Reformatted

To date, so few brittle items have been replaced with preservation photocopies that it is unlikely that we will find any in the survey, but there are some in the stacks, so we need to have this category defined in the survey instrument.

Shelving Condition

Records how the volume was stored on the shelf.

Shelved Correctly

Volume has been shelved correctly. That is, it is in the right location, it is not too tight on the shelf, is not too tall for the shelf, etc.

Shelved too Tightly

Volume is on a shelf that is packed too tightly making it hard to remove it from and return it to the shelf. A volume is shelved too tightly when you cannot remove it from the shelf without dragging adjoining books off of the shelf with it.

Not Shelved Straight

Shelf is too loosely packed allowing the volumes to lean or to fall over.

Shelved on Foreedge

Volume is too tall for the shelf and is, therefore, stored on its foreedge—the spine facing up.

Shelved on Spine

Volume is too tall for the shelf and is, therefore, stored on its spine—the foreedge facing up. This is the proper way to store books that are too tall for the shelf.

Shelved in Wrong Location

Volume is not shelved in the correct location in the stacks.

Treatment Decision for Volume (Mark all that apply)

The information for this question will be the most useful and the most general information gathered by this survey. For this question each volume must be examined the same way Preservation Department staff would examine it.

In Good Condition

Volume is in good condition. Has nothing wrong with the paper, binding, etc.

Send to Stacks as is

Volumes in this category do have some preservation concerns. They may have slight loose covers, or slightly brittle paper, but nothing that will prevent it from going to the stacks, or from being used one or more times before sending it to the Preservation Department.

Needs Commercial Binding

The decision to commercially bind a volume is largely based on the condition of the paper (paper must be able to pass a three double-fold test). Must be printed after 1930. Must have sufficient inner margin (3/8" or more). And have damage beyond what can be treated with an in-house repair (see below) and less than would warrant conservation treatment (see below). Items should be sent for either binding or repair if their structure is such that the item will not withstand use, or storage in the stacks (e.g., pamphlets, some spiral bound materials, side stapled or sewn materials that do not open well, thin paper back materials, very large paper back materials).

Needs In-house Repair

A volume needs in-house repair if its pages need to be slit open, if it is a pamphlet that has not been placed in a pamphlet binder, if it has torn or missing pages, if it needs an enclosure, or if the spine of the cover is damaged, but the inner hinges are still sound.

Needs Conservation Treatment

A volume needs conservation treatment if it is damaged and too old to be sent to the commercial binder (imprint earlier than 1930), or if it has paper that will not pass a three double-fold test, but will pass a two double-fold test, if it is a special item needing special care (e.g., special construction, no inner margin, needs lots of paper repair, text block needs to be re-sewn).

Send to Brittle Book Processing

If the paper in the volume will not pass a two double-fold test, and the text block is broken, it is sent for Brittle Book Processing. Also, if the paper in the volume will not pass a two double-fold test and a text block is sound, but the volume has been used three or more times in the past ten years, it is sent for Brittle Book Processing. Also, any volume that has paper that will not pass *at least* a single double-fold test is sent for Brittle Book Processing.

Place in Enclosure

If the paper in the volume will not pass a two double-fold test, and the text block is fairly sound, and if the volume does not regularly circulate (less than 3-5 times in the last 10 years), it is placed in a custom enclosure for

its protection until it is determined, through future circulations, that the volume should be further treated.

Call Number (OPTIONAL)

Place the call number of the item in the space provided if there is something about the volume that will necessitate it being retrieved at a future date. If there are questions regarding the surveying of a volume simply place the volume on a book truck and consult with the necessary personnel to resolve the questions.

Notes (OPTIONAL)

This unrestricted text field is for use by surveyors to note things about the volume they are surveying if the need arises. The information from this field will be tabulated separately.

APPENDIX B

Watson Condition Survey Form

Survey Item Number:

Size of Volume:

Leaf Attachment:

Type of Volume:

Gutter Margin Width:

Imprint Date:

Paper Fold Test (paper breaks after):

Paper pH:

Number of Circulations in the Last 10 Years:

Type of Binding:

Place of Printing:

Last Circulation:

Call Number for Volume:

Condition of Binding (mark all that apply):

- Binding in Good Condition:
- Remain in Stacks:
- Damaged Spine:
- Loose Joints:
- Damaged Inner Hinges:
- Damaged Paper Cover:
- Cover off Volume:
- Red-rot Leather:
- Title Worn off:
- Title Label Missing:
- Call Number Worn off:
- Call Number Label Missing:
- Volume Damaged From Lack of Support:
- Insect Damage:

Paper Type and Condition (mark all that apply):

- White and Strong:
- Yellowish and Tan:
- Brown:
- Glossy or Coated:
- Calendered:
- Ground Wood Paper:
- Pest Damage:
- Volume Indicates it is Printed on Acid-Free Paper:

Condition of Text Block (mark all that apply):

Text Block in Good Condition:

Remain in Stacks:

Broken or Loose Sewing or Adhesive:

Broken Text Block:

Loose Pages:

Damaged Pages (not mutilation):

Missing Pages (not mutilation):

Pages Damaged or Curled from Lack of Support:

Mutilation and Patron Damage (mark all that apply):

Pencil:

Ink:

High-lighter:

Paper Clips:

Dog-eared Corners:

Post-it Notes:

Book Marks Left in Volume:

Pages Torn or Cut Out:

Animal Damage:

Pages or Cover Stained with Food, Drink, or Water:

Previous Preservation Treatments (mark all that apply):

Damaged or Missing Pages Replaced:

Been Repaired In-house:

In Acidic Box:

In Acidic Pamphlet Binder:

In Acidic Paper Envelope:

Volume Tied Together:

In Acid-free Box:

Acid-free Pamphlet Binder:

In Acid-free Envelope:

Been Reformatted:

Shelving Condition (mark all that apply):

Shelved Correctly:

Shelved too Tightly:

Not Shelved Straight:

Shelved on Foreedge:

Shelved on Spine:

Shelved in Wrong Location:

Notes:

Treatment Decision for Volume (mark all that apply):

In Good Condition Overall:

Send to Stacks as is:

Needs Commercial Binding:

Needs In-house Repair:

Needs Conservation Treatment:

Send to Brittle Processing:

Place in Enclosure:

APPENDIX C

COLLECTING THE DATA

To enable others to duplicate this survey, it is important to provide detailed information on how samples were collected and surveyed. The circulation and stacks surveys are described separately.

CIRCULATION CONDITION SURVEY

Initial testing was performed by Brian Baird to ensure that the database functioned properly and to analyze the survey questions. The task force then used the circulation condition survey as a beta test for the stacks survey. Therefore, all of the circulation items were sampled and surveyed during the first week of March, 1996. The entire task force worked together to survey Watson library circulation returns. This allowed the group to work together to refine surveying techniques, answer previously unforeseen questions, and resolve common concerns. Later in the week, the task force divided into teams of two and surveyed circulation materials in the five branch libraries. These early sessions resulted in valuable training experiences.

Samples were collected in the following manner. Each task force member worked as a liaison between the task force and one of the libraries. The day before the task force was scheduled to survey materials, the liaison member coordinated with the library's circulation staff to set aside all items returning from circulation. The task force then randomly selected the required number of samples from the circulation returns and surveyed the volumes.

Following the circulation condition survey, the task force met to discuss the process before proceeding with the stacks survey. After the task force felt comfortable with the process, work began in earnest on the stacks survey.

STACKS CONDITION SURVEY

Each task force member was responsible for surveying one or more of the CU libraries or collections. Sample items were randomly selected from the stacks. The formula for selecting sample items was as follows:

Number of shelves in a location¹² ÷ number of sample items needed = n

Counting from the left side of the shelf, the surveyor sampled the 4th volume from every nth shelf. If there was not a 4th volume on the shelf, the first available volume left of where the 4th volume should have been was used. If there were no volumes on the shelf, the next available shelf with volumes on it was used.

To give all volumes an equal chance of being selected, the sampling technique involved counting shelves rather than ranges because many of the stacks in Watson, Science, Government Documents, and Art have differing numbers of shelves per range.

The fastest, easiest way devised to conduct the survey was to pull the volumes from the stacks, place them on book trucks, and move them to a work area for evaluation. A flag recorded the shelving condition for each sampled item (a copy of the flag is located in Appendix D). While this method proved helpful to the task force, it required the Libraries' various shelving units to reshelve the sampled materials. This represented a major commitment in some libraries, such as Watson where over 2,500 items needed to be reshelved throughout the collection as a result of the survey.

Gathering the data took two full months of work and required much time by the task force members. Analyzing the data also proved extremely time consuming. However, in the final analysis, the condition surveys have provided useful and encouraging information.

¹² This number is derived by multiplying the estimated number of shelves per shelving range by the total number of shelving ranges in the library.

APPENDIX D

Shelving Condition (Mark all that apply)

- Shelved Correctly
- Shelved too Tightly
- Not Shelved Straight
- Shelved on Fore-edge
- Shelved on Spine
- Shelved in Wrong Location

APPENDIX E

PAPER BOUND VERSUS HARD BOUND

FINDINGS FROM THE PRESERVATION TASK FORCE'S CONDITION SURVEY

Brian Baird
April 22, 1996

Soon after my arrival at KU, Rachel Miller and I began discussing the feasibility of changing our book acquisition profile to purchase paper back volumes instead of hard bound volumes whenever both binding options were simultaneously available. Rachel has worked to determine the financial implications of such a change, while I used the condition survey that the Preservation Task Force conducted to measure how well paper bound volume hold up to library use.

The condition survey focused on two aspects of the paper bound versus hard bound issue: 1) paper pH, and 2) how, over time, paper bound volumes survive use and stacks storage.

The results of the Watson portion of condition survey are presented below. Only Watson figures are given at this time because the surveys of the branch libraries are all not yet completed. Over 1,200 items were surveyed in the Watson stacks (excluding the East Asian Collection which was considered a branch library and surveyed separately). The sample was large enough to provide a 95% confidence level for the results.

PAPER PH

For the entire collection, it was found that 19% of all paper bound items are printed on acid-free paper, as are 22% of all hard bound volumes. However, it is important to note that 69% of all volumes printed in the 1990s are one acid-free paper showing an increased trend of printing on acid-free paper.

Analyzing the pH of monographs printed in the 1990s, and where they were produced, shows that 84% of all U.S. monographs have acid-free paper as do 75% of North European¹³ imprints. By comparing hard bound and paper bound monographs, the following results were found:

¹³ For their condition survey, the Preservation Task Force defined northern Europe as: Austria, Belgium, Denmark, Finland, France, Germany (West Germany), Great Britain, Greenland, Iceland, Ireland, Luxembourg, Netherlands, Norway, Sweden, and Switzerland.

	Percentage of Paper Bound Monographs Printed on Acid-free Paper	Percentage of Hard Bound Monographs Printed on Acid-free Paper
U.S. Imprints from the 1990s	73%	94%
N. European Imprints from the 1990s	69%	73%

The major contributor to the lower percentage of acid-free paper in paper bound volumes are the cheap, wood-pulp (news print type paper) paperbacks. Most of the scholarly publications are printed on high quality, acid-free paper. Thus, if we decide to switch to a paper bound preferred profile, care must be taken to insure that the profile applies to scholarly materials *only*, and not to popular literature. With most popular literature, the hard bound editions are bound very poorly and will not last. However, the paper is usually acid-free where the paper bound editions often are not. Thus, even though the Libraries will pay an extra cost for buying the hard bound edition, and though that edition will probably offer few, if any, additional circulations, the quality of the paper is enough to justify the expense. This leads to the second area of evaluation—how well paper bound volumes hold up to use.

HOLDING UP TO USE

In estimating the amount of savings the Libraries might realize by purchasing more paper bound monographs, it is important to look at how well paper bound materials hold up to use compared to hard bound volumes. In the survey each volume was evaluated based on the condition of its text block, the condition of its cover or binding, and it was then given an overall rating.

It is generally agreed that text blocks made up of signatures that have been sewn through the fold are superior to text blocks that are adhesive bound. This is because they have a stronger leaf attachment, they lay open flatter, and are less likely to completely fail. When an adhesive bound text block fails, the result is often numerous loose pages which can easily be damaged or lost. To determine if these assumptions were true the text blocks for all volumes were examined to learn how they were held together (leaf attachment), how the various leaf attachments hold up to use, and what kind of leaf attachments were associated with what kind of binding.

In Watson Library, 56% of the volumes have text blocks that are sewn through the fold, and 22% have text blocks that are adhesive bound. The

condition survey found that 91% of the text blocks that were sewn through the fold were in good condition, but a surprising 95% of the adhesive bound text blocks were in good condition. Adhesive binding is a fairly new leaf attachment method, so this should somewhat account for the high results, but one cannot completely discount these results. In a number of analyses, adhesive bound volumes seem to hold up well to research library use.

The survey showed that in the 1990s an increasing amount of volumes are being produced using adhesive binding as the leaf attachment method for both hard bound and paper bound materials.

	Hard Bound	Paper Bound
Adhesive Bound for entire collection	8%	45%
Adhesive Bound for 1990s imprints	38%	76%

Because adhesive bindings perform well over time, and because there will be more and more of them in the collections, what becomes important is not so much the contrast between adhesive binding versus sewn through the fold, but rather how well text blocks perform in paper and hard bound bindings.

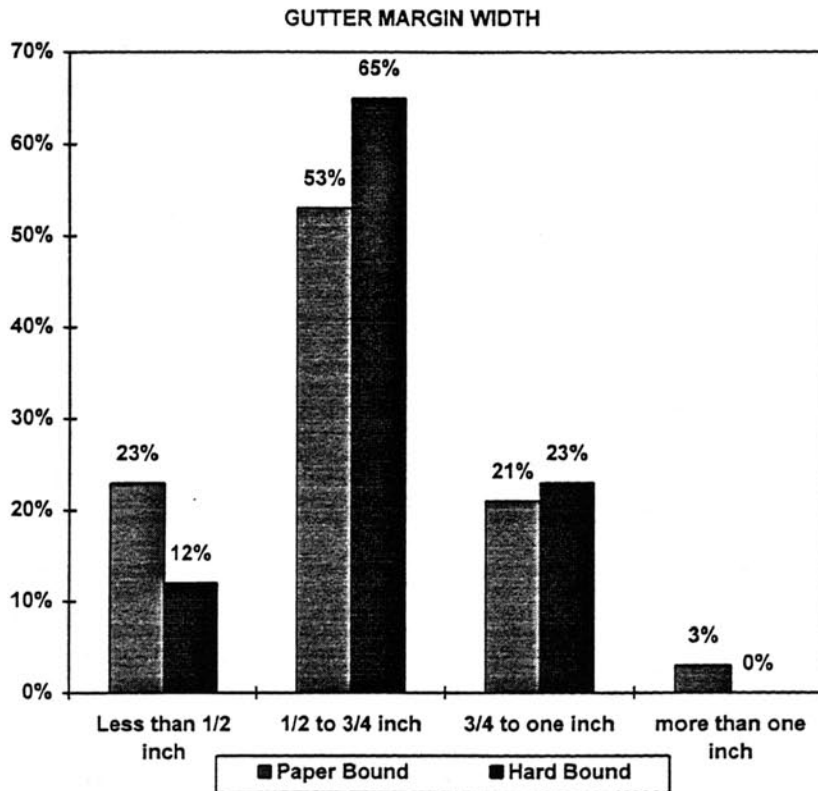
It was found that 89% of text blocks in paper bound volumes were in good condition, as were 92% of the text block in hard bound volumes. This shows that the text blocks themselves do not suffer a great deal more damage if they are not protected by a hard binding. Furthermore, the survey showed that 81% of the paper bindings themselves were in good condition compared to 76% for hard bound volumes. Even for volumes printed in the 1980s and 90s, 95% of paper bound volumes are in good condition compared to 90% for hard bound volumes.

Two specific concerns the Preservation Task Force had for paper bound volumes were, 1) would the covers hold up, and 2) would the text block have sufficient support. The survey showed that overall, only 2% of all paper bound volumes had damaged covers, and only 3% of paper bound text blocks were damaged due to lack of support.

The survey did find that for the overall collection, 12% of all paper bound volumes needed to be commercially bound compared to only 6% of hard bound volumes. This is because many of the damaged hard bound volumes could be treated with simply book repair treatments in-house.

The final area of comparison between hard bound and paper bound volumes is to compare the average amount of gutter margins of each binding

style. As the following graph demonstrates, hard bound volumes have larger gutter margins. These margins are important for photocopying text cleanly, and to allow for future rebinding. As a general rule, it is best to have at least 1/2 inch or more of gutter margin in a volume.



In this area hard bound volumes have a clear superiority. However, I do not feel this superiority justifies not moving ahead with a paper bound preferred policy if such a policy proves cost effective because the data show that in the 1980s and 1990s gutter margins are getting smaller and smaller in both paper and hard bound volumes. Therefore, we have no assurance that the decision to buy hard bound volumes will, in the future, guarantee a larger inner margin.

CONCLUSION

It is my opinion, based on the findings of the Watson condition survey, that there is no significant preservation reason for not pursuing a paper bound preferred policy for all scholarly materials. Such a policy will undoubtedly affect the binding budget, but this can be compensated for by channeling a small percentage of the realized savings from such a plan into the binding budget.