

A CONDITION SURVEY OF THE PRINT COLLECTION OF THE MUSIC LIBRARY
AT THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

by

Elisa M. Paul

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The aim of a condition survey is not only to determine the extent of deterioration of a collection, but also to evaluate the nature of the deterioration. This is done by evaluating the library building, the physical environment, and the library collection. The survey undertaken at the Music Library at the University of North Carolina at Chapel Hill is a collection condition survey. Information about the building and the physical environment are included to aid in the understanding of the condition of the collection and are based on observation or limited research.

The results of the condition survey show that 16.5% the paper in the collection is brittle, breaking after three double folds or less. The collection is also extremely acidic; 76.8% of the collection is printed on acidic paper. The best defensive against the loss of intellectual content in this material is through proper environmental control.

Headings:

Condition Surveys

Library Materials – Conservation and Restoration

Music Libraries and Collections – North Carolina

Music Literature and Scores – Preservation and Restoration

Surveys – Preservation of Library Material

University of North Carolina at Chapel Hill -- Libraries

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Introduction

Librarians are, according to Susan Swartzburg, “collection managers, who ensure the collection, organization, preservation and access of collections on behalf of their public.”¹ Thus, preservation is an aspect of collection management and as recent studies have shown an aspect that demands attention. In 1973 the Library of Congress estimated that 40% of its collection was brittle rendering it unusable or beyond repair.² The New York Public Library has estimated that about half of its collection reached a similar state of deterioration.³ Alerted to this problem, Yale University undertook a study of its collection. It was found that 37.1% of the books sampled had brittle paper and that 82.6% of the books had acidic paper.

These studies report the percentage of brittle paper because once the paper has become brittle the options for preserving, and thus accessing, the intellectual content of the item are limited. Reformatting, such as photocopying, scanning, and microfilming are means through which the intellectual content of damaged items may be preserved: however, if the paper is extremely brittle paper these reformatting options may place too much stress on the item. In these instances, the item may be placed in a phase box or another protective enclosure made of archival material, but the deterioration will

¹ Susan G. Swartzburg, *Preserving Library Materials: A Manual*, 2d ed. (Metuchen, N.J.: Scarecrow Press, 1995), 25.

² Graham Matthews, “Surveying Collections: The Importance of Condition Assessment for” *Journal of Librarianship and Information Science*, 27 (4) December 1995: 230.

³ Gay Walker and others, “The Yale Survey: A Large-Scale Study of Book Deterioration in the Yale College & Research Libraries” 46 (2) March 1985: 111-12.

continue. According to the Yale report, “One of the most serious problems facing research libraries today is the most serious problems facing research libraries today is the preservation of the materials that comprise their collections – materials that are deteriorating because of their chemical compositions, the mechanics of their construction, and the effects of uncontrolled environmental conditions.”⁴

These studies determined the extent of the deterioration of their collections through a collection survey. Also referred to as condition survey, conservation survey, and preservation survey,⁵ the aim of the collection survey is to not only to determine the extent of deterioration of a collection, but also to evaluate the nature of the deterioration.⁶ Different authors combine or categorize these elements differently, but they all agree that there are three main aspects to a complete condition survey: 1) library building, 2) physical environment, and 3) library collection. A survey of the library building asks questions about the building: when was it built; what was it built from; is the building on a flood plain; is the roof sloped or pitched.⁷ A physical environment survey takes into account the library’s HVAC system, how old the system is, how often it is maintained, as well as how well it controls temperature and relative humidity. This survey also addresses issues such as stack maintenance – are the stacks well braced, are they 4-6 inches off the ground, are water sources above the stacks – and housekeeping: is the area clean; is trash taken out daily, are pest management strategies in place, is eating allowed in the library. Security and shelving also fall within the physical environment survey.⁸

⁴ Walker, “The Yale Survey,” 111.

⁵ Matthews, “Surveying Conditions,” 227.

⁶ Ross Harvey, *Preservation in Libraries: Principles, Strategies and Practices for Librarians* (London: Bowker Saur, 1993), 58.

⁷ John N. DePew, *A Library, Media, and Archival Preservation Handbook* (Santa Barbara: ABC-CLIO, 1991), 236-38 and Swartzburg, *Preserving Library Materials*, 33-39.

⁸ Ibid.

The last type of survey is the collection condition survey. Three broad categories of information are collected in this type of survey: 1) preliminary information, such as call number and place and date of publication; 2) information on the nature and condition of the primary protection (anything dealing with binding, type of material, repair needs, etc.); and 3) information pertaining to the nature and condition of the contents of the item, such as acidity, folding strength of paper, and mutilation or damage done to text block.⁹

The state of library collections nationally has been established by several significant studies, including Yale, Stanford, Syracuse, University of Illinois at Urbana-Champaign, and the United States History, Local History and Genealogy Collection at the New York Public Library. Thus, conditional surveys now serve local needs. A condition survey is essential to any preservation program. It provides for proper planning, establishes priorities, and supports requests for funding.¹⁰

The survey undertaken at the Music Library at the University of North Carolina at Chapel Hill is a collection condition survey. Information about the building and the physical environment are included to aid in the understanding of the condition of the collection and are based on observation or limited research; measurements were not taken to support these observations.

⁹ Harvey, *Preservation in Libraries*, 58.

¹⁰ DePew, *A Library, Media, and Archival Preservation Handbook*, 235

Methodology

A music library has many different formats: books, scores, LPs, CDs, cassette tapes, videos, laser disks, etc. A condition survey covering all these formats would be a very large undertaking. Thus, it was decided to focus this condition survey on the print formats within the library. However, even then the scope still had to be limited. The rare books are not included in the survey, neither are LP jackets or LP or CD liner/program notes. Included in the survey are Dewey classed books and scores and LC classed books, scores, periodicals and theses.

The survey was designed after a review of the literature of condition surveys such as Yale, Stanford, and University of Kansas. The literature also contains reports of condition surveys done of music collections at Juilliard and Columbia. Aspects of these surveys were incorporated as needed. University Preservation Librarian Andrew Hart, Head Music Librarian Daniel Zager, and Public Services Music Librarian Diane Steinhaus Pettit reviewed the survey written for this project. Changes were made to the survey upon the recommendation of these three parties. A copy of the condition survey is found in Appendix A. Appendix B is a list of definitions and/or clarifications of terms and measurements used in the survey. More detailed information about the methodology pertaining to specific questions may be found there

An article by M. Carl Drott served as the basis for the statistical aspects of this survey. There are several methods for selecting items randomly from a collection for analysis. Drott gives examples using the shelflist, questionnaires, and due date slips. Range/shelf/book numbers may also be used. Whichever method is employed it is

important that the selection be random if it is to represent the entire collection as accurately as possible. Random numbers can be generated from a computer program or taken from a table. I used a table of “Miscellaneous Statistical Tables: A Table of 14,000 Random Units” from the *Handbook of Tables for Probability and Statistics*, edited by William H. Beyer. I decided to follow an example in Drott’s article of using the shelflist to select items for analysis. A random number of six digits is used to identify a particular card within the shelflist. The first two digits indicate the drawer, the second two digits the number of inches, and the last two digits the sixteenths of the inch. In his article Drott provides a table for converting numbers into inches and sixteenths of an inch. This is necessary because most card catalog drawers are sixteen inches long and of course the inch may be divided into sixteen even increments. As Drott explains it, “two random digits form one hundred combinations from 00 to 99. Since we want sixteen numbers (counting zero and fifteen) each group will have six numbers per group.”¹¹ Thus if the random digits are “00 to 05” they will be converted to “0” and the random digits “06 to 11” will be converted to “1.” Drott’s complete table follows:¹²

| If the random digits are: | Convert them to inches: |
|---------------------------|-------------------------|
| 00 to 05 | 0 |
| 06 to 11 | 1 |
| 12 to 17 | 2 |
| 18 to 23 | 3 |
| 24 to 29 | 4 |
| 30 to 35 | 5 |
| 36 to 41 | 6 |
| 42 to 47 | 7 |
| 48 to 53 | 8 |
| 54 to 59 | 9 |

¹¹ M. Carl Drott, “Random Sampling : A Tool for Library Research,” *College & Research Libraries* 30 (2) March 1969, 122.

¹² Ibid.

| | |
|----------|--------|
| 60 to 65 | 10 |
| 66 to 71 | 11 |
| 72 to 77 | 12 |
| 78 to 83 | 13 |
| 84 to 89 | 14 |
| 90 to 95 | 15 |
| 96 to 99 | Delete |

Digits 96 to 99 are deleted because two other random digits are used to calculate the sixteenth of an inch. The above table is also used to convert the third set of two random digits to sixteenth of an inch. Thus the random number 536020 is converted to drawer 53 and the card $10 \frac{3}{16}$ of an inch from the front of the drawer. All numbers beginning with 00 are deleted, as there is no 00 drawer. Because the shelflist of the music library's holdings has 96 drawers, all numbers beginning with 97, 98, or 99 were deleted.

After converting random numbers into locations within the shelflist and pulling the cards, the shelflist cards were copied onto the condition survey form. Prior to the actual survey, a training/refresher session was held to review the different types of binding materials, leaf attachment methods, and types of damage that would probably be seen while conducting the survey. The survey was then conducted in the stacks of the music library. If an item that was to be included in the survey, but was not on the shelf, for any reason, it was thrown out of the survey and I went on to the next available item. Based again on the Drott article the sample size of the survey was determined to be 384 items. This number allows for a confidence of 95 per cent and a tolerance of 5 percent,¹³ where the tolerance level is the accuracy of the result and confidence is the measure of "how certain one is that the true answer lies within the limits of the stated tolerance."¹⁴

¹³ Ibid., 124.

¹⁴ Ibid., 119-20.

The Stanford and University of Illinois studies were about the same size. Both studies reported that it took approximately 40 hours for student workers to do the survey. The survey at UNC took about the same amount of time, but because the shelflist cards were copied onto the survey form the time was portioned differently. It took 16.5 hours to covert the random numbers, pull the cards from the shelflist, copy the cards onto the survey, and then refile the cards. Conducting the survey required 32 hours and inputting the data into SPSS took 13 hours.

Building / Physical Environment of UNC Music Library

The Music Library at the University of North Carolina at Chapel Hill is a departmental library located in Hill Hall. This two-story brick structure, originally a Carnegie Library, was built in 1906 by the Washington D.C. architect Frank P. Milburn¹⁵ and functioned as the university library. A dramatic increase in university enrollment at the end of World War I necessitated the construction of a new university library, later known as the Louis Round Wilson Library. The new university library was dedicated on October 19, 1929 and plans were made to renovate the old Carnegie Library for the Music Department.¹⁶ However, a formal music library was not established within the department until 1936 or 1937.¹⁷ Today the collection is housed in the first and basement levels of Hill Hall with storage area in Wilson Library. Circulation, listening room, reference, hall cabinet (storage area for scores heavily used and susceptible to theft),

¹⁵ Russell Wong, "The Emergence of the Music Library at the University of North Carolina at Chapel Hill" (Masters paper, University of North Carolina at Chapel Hill, 1989), 5.

¹⁶ Wong, "The Emergence of the Music Library," 6.

¹⁷ Ibid., 24.

microfilms, CDs, video, laser discs, and staff work areas are located on the first floor. The majority of scores, books, and periodicals, as well as UNC theses are housed in the basement of Hill Hall.

The section of Hill Hall that houses the music library is made of red brick. There are very few windows in the basement. There is at least one HVAC unit installed in each of the five rooms in the basement of the library (four storage rooms and one staff office). However, this is not necessarily the number of working units. The two units in the bound periodicals / Dewey scores room have recently ceased to function. There is one fan in both the main room and in the ML/MT room to help facilitate air movement. Hot water pipes run across the ceiling of the basement rooms. Temperatures in this part of North Carolina average between 48.9°-88° for the high, with low temperatures averaging between 28.8°-68.1°. Averages for relative humidity range from 92-77% in the morning to 45-59% in the afternoon. There are no instruments in place to measure the average temperature and RH within the music library.

The average annual accumulation of rainfall is 41.43 inches, with 7 to 11 days each month with precipitation of at least .01 inches. The ML/MT room is particularly susceptible to flooding and usually does so during heavy rainstorms. In the past month this room has flooded four times. "Flooded" in this instance means usually ¼ of an inch accumulation of water across a relatively small section of the floor. The last "flood" was worse than most, with the water extending much further into the room. Most of the shelving in that room and in the library is metal and far enough off the floor so that flooding of this nature does not directly effect the books. Damage occurs from people walking through the water and from the increased humidity in the room.

In conducting a condition survey of any collection, one not only needs information about the physical storage and environmental conditions of that collection, but also needs to be familiar with any peculiarities of a collection. As mentioned above, music libraries consist of many, many different types of formats. What distinguishes the music library from other libraries is not the presence of these formats, but rather the quantity in which they exist in the music library. The most common format that is unique to the music library is the score; the print copy of the music as it appears in all its forms and sizes: complete score, piano score, miniature score, etc. In the music score, some of the music library's unique problems are made manifest. First, this resource serves a dual purpose, as a tool for both scholars and performers. Scholars analyze the contents of scores, looking for meaning and truth. Performers do much the same thing, but in a different way; they make the music audible. For a score to be performed from it must stay open and flat while on a music stand.¹⁸ In the process of preparing for a performance it is not uncommon for musicians to annotate scores and dog-ear pages to facilitate quick page turns.¹⁹ Not only is this behavior common, ensemble directors encourage it. While most music libraries do not collect music for large ensembles, the practice of marking music carries over from rehearsal and lessons to use of library scores. Performers are not the sole culprits of score marking. Scores are often written in when they are analyzed and people who listen to a piece with the score in front of them frequently mark or make comments on the score.

¹⁸ Elizabeth Sadewwhite, "A Condition Survey of the Circulating Score Collection of the Juilliard *Knowing the Score: Preserving Collections of Music*, ed. Mark Roosa and Jane Gottlieb (Canton, Mass: Music Library Association, 1994), 37.

Table 1
Hill Hall Music Library Print Collection Condition Survey

| Sample Size: 387 Total Holdings: 115,000 | Number out of 387 Items Surveyed | Frequency | Projected Number of Total Volumes within the Collection |
|---|--|-----------|--|
| Classification | | | |
| Dewey Scores | 32 | 8.3% | 9,545 |
| Dewey Miniature Scores | 7 | 1.8% | 2,070 |
| Dewey Folio Scores | 1 | .3% | 345 |
| Dewey Books | 22 | 5.7% | 6,555 |
| “M” Classed Scores | 182 | 47% | 54,050 |
| “M” Classed Miniature Scores | 17 | 4.3% | 4,945 |
| “M” Classed Folio Scores | 5 | 1.3% | 1,495 |
| “ML” Classed Monographs, Sets AND Periodicals and Theses | 104 | 26.9% | 30,935 |
| “ML” Classed Folio Monographs and Sets | 4 | 1.0% | 1,150 |
| “MT” Classed Monographs and Sets | 13 | 3.4% | 3,910 |
| Date of Publication | | | |
| Date not available | 13 | 3.4% | 3,910 |
| 1800-1875 | 3 | .8% | 920 |
| 1876-1900 | 8 | 2.1% | 2,415 |
| 1901-1930 | 40 | 10.3% | 11,845 |
| 1931-1950 | 37 | 9.6% | 11,040 |
| 1951-1960 | 37 | 9.6% | 11,040 |
| 1961-1970 | 61 | 15.8% | 18,170 |
| 1871-1980 | 78 | 20.2% | 23,230 |
| 1981-1990 | 61 | 15.8% | 18,170 |
| 1991-1999 | 49 | 12.7% | 14,605 |
| Height | | | |
| Not available | 7 | 1.8% | 2,070 |
| 16 cm | 1 | .3% | 345 |
| 17 cm | 2 | .5% | 575 |
| 18 cm | 8 | 2.1% | 2,415 |
| 19 cm | 19 | 4.9% | 5,635 |
| 20 cm | 11 | 2.8% | 3,220 |
| 21 cm | 16 | 4.1% | 4,715 |
| 22 cm | 22 | 5.7% | 6,555 |
| 23 cm | 22 | 5.7% | 6,555 |
| 24 cm | 24 | 6.2% | 7,130 |
| 25 cm | 27 | 7.0% | 8,050 |
| 26 cm | 11 | 2.8% | 3,220 |
| 27 cm | 13 | 3.4% | 3,910 |
| 28 cm | 32 | 8.3% | 9,545 |
| 29 cm | 11 | 2.8% | 3,220 |

| Sample Size: 387 Total Holdings: 115,000 | Number out of 387 Items Surveyed | Frequency | Projected Number of Total Volumes Within Collection |
|--|--|-----------|--|
| (Height) | | | |
| 30 cm | 30 | 7.8% | 8,970 |
| 31 cm | 74 | 19.1% | 21,956 |
| 32 cm | 22 | 5.7% | 6,555 |
| 33 cm | 15 | 3.9% | 4,4485 |
| 35 cm | 7 | 1.8% | 2,070 |
| 36 cm | 3 | .8% | 920 |
| 37 cm | 2 | .5% | 575 |
| 41 cm | 1 | .3% | 345 |
| Number of Pages | | | |
| Not given | 41 | 10.6% | 12,190 |
| 1-50 pages | 151 | 39.0% | 44,850 |
| 51-100 pages | 43 | 11.1% | 12,765 |
| 101-150 pages | 25 | 6.5% | 7,475 |
| 151-200 pages | 27 | 7.0% | 8,050 |
| 201-250 pages | 21 | 5.4% | 6,210 |
| 251-300 pages | 19 | 4.9% | 5,635 |
| 301-350 pages | 17 | 4.4% | 5,060 |
| 351-500 pages | 29 | 7.5% | 8,625 |
| over 500 pages | 14 | 3.6% | 4,140 |
| Country of Publication | | | |
| United States of America | 139 | 35.9% | 41,285 |
| Germany (East and West) | 83 | 21.4% | 24,610 |
| United Kingdom | 47 | 12.1% | 13,915 |
| France | 31 | 8.0% | 9,200 |
| Italy | 19 | 4.9% | 5,635 |
| Poland / Eastern Europe | 17 | 4.4% | 5,060 |
| Spain / South America | 13 | 3.4% | 3,910 |
| Austria | 11 | 2.8% | 3,220 |
| Other | 20 | 5.2% | 5,980 |
| Not given | 7 | 1.8% | 2,070 |
| Where Housed | | | |
| Hill Hall | 347 | 89.7% | 103,155 |
| Wilson Library (storage) | 40 | 10.3% | 11,845 |
| Location of Item Within Hill Hall | | | |
| Stacks | 336 | 86.8% | 99,820 |
| Reference Room | 23 | 5.9% | 6,785 |
| Miniature Score | 17 | 4.4% | 5,060 |
| Folio Score / Folio Monograph | 7 | 1.8% | 2,070 |
| Hall Cabinet | 4 | 1.0% | 1,150 |

| | | | |
|---|--|-----------|--|
| Sample Size: 387 Total Holdings: 115,000 | Number out of 387 Items Surveyed | Frequency | Projected Number of Total Volumes Within Collection |
| Type of Volume | | | |
| Score | 209 | 53.2% | 61,180 |
| Monograph | 133 | 34.4% | 39,560 |
| Monumenta | 34 | 8.8% | 10,120 |
| Periodical | 8 | 2.1% | 2,415 |
| Set | 4 | 1.0% | 1,150 |

| | | | |
|----------------------------|-----|-------|--------|
| Shelving Condition | | | |
| Correct | 211 | 54.5% | 62,675 |
| Not straight | 107 | 27.6% | 31,740 |
| Too tight | 57 | 14.7% | 16,905 |
| On fore-edge | 7 | 14.7% | 2,070 |
| Mis-shelved | 4 | 1.0% | 1,150 |
| On spine | 1 | .3% | 345 |
| Does Item Circulate | | | |
| No | 69 | 17.8% | 20,470 |
| Yes | 302 | 78% | 89,700 |
| On the fly | 16 | 4.1% | 4,715 |
| Last Circulation | | | |
| 0-9 years ago | 99 | 25.6% | 29,440 |
| 10+ | 27 | 7.0% | 8,050 |
| No record of circulation | 261 | 67.4 | 77,510 |

| | | | |
|-------------------------------|-----|------|--------|
| Paper pH (Abby pH pen) | | | |
| Yellow/Clear (acidic) | 302 | 78% | 89,700 |
| Purple (neutral or alkaline) | 85 | 22% | 25,300 |
| Paper Fold Test | | | |
| Does not break | 291 | 74% | 85,100 |
| Breaks at 1 double fold | 21 | 5.4% | 6,210 |
| Breaks at 2 double folds | 22 | 5.7% | 6,555 |
| Breaks at 3 double folds | 22 | 5.7% | 6,555 |
| Breaks at 4 double folds | 31 | 8.0% | 9,200 |

| Sample Size: 387 Total Holdings: 115,000 | Number out of 387 Items Surveyed | Frequency | Projected Number of Total Volumes Within Collection |
|---|--|-----------|--|
| Type of Binding | | | |
| Commercial | 186 | 48.1% | 55,315 |
| Publisher | 108 | 27.9% | 32,085 |
| Pamphlet – old | 79 | 20.4% | 23,460 |
| Pamphlet – new | 14 | 3.6% | 4,140 |
| Cover Type | | | |
| Cloth | 267 | 69% | 79,350 |
| Boards | 93 | 24% | 27,600 |
| Paper | 17 | 4.4% | 5,060 |
| Mylar | 6 | 1.6% | 1,840 |
| Leather | 4 | 1.0% | 1,150 |
| Item in Enclosure | | | |
| No | 367 | 94.8% | 109,020 |
| Yes | 20 | 5.2% | 5,980 |
| Quality of Enclosure | | | |
| Cloth | 15 | 3.9% | 4,485 |
| Boards – old | 1 | .3% | 345 |
| Boards – new | 2 | .5% | 575 |
| Plastic Folder | 1 | .3% | 345 |
| Item not in enclosure | 368 | 95.1% | 109,365 |
| Leaf Attachment | | | |
| Oversewn | 103 | 26.6% | 30,590 |
| Adhesive bound | 102 | 26.4% | 30,360 |
| Stapled through the fold | 65 | 16.8% | 19,320 |
| Sewn through fold / oversewn | 48 | 12.4% | 14,260 |
| Sewn through the fold | 44 | 11.4% | 13,110 |
| No attachment | 13 | 3.4% | 3,910 |
| Side stapled | 9 | 2.3% | 2,645 |
| Sewn through the fold / adhesive | 1 | .3% | 345 |
| Spiral | 1 | .3% | 345 |
| Hole punch / rings | 1 | .3% | 345 |

| Sample Size: 387 Total Holdings: 115,000 | Number out of 387 Items Surveyed | Frequency | Projected Number of Total Volumes Within Collection |
|---|--|-----------|--|
| Repairs Needed | | | |
| Torn / detached pages | | | |
| No | 350 | 90.4% | 103,960 |
| Yes | 36 | 9.3% | 10,695 |
| Torn head cap | | | |
| No | 372 | 96.1% | 110,515 |
| Yes | 15 | 3.9% | 4,485 |
| Loose / missing spine | | | |
| No | 377 | 97.4% | 112,010 |
| Yes | 10 | 2.6% | 2,990 |
| Broken text block | | | |
| No | 356 | 92% | 105,800 |
| Yes | 31 | 8% | 9,200 |
| Endsheet split | | | |
| No | 371 | 95.9% | 110,285 |
| Yes | 16 | 4.1% | 4,715 |
| Gutter Margin Width | | | |
| Less than 3/8 inch | 44% | 11.4% | 13,110 |
| 3/8 inch | 8% | 2.1% | 2,415 |
| more than 3/8 – less than 1/2 | 83 | 21.4% | 24,610 |
| 1/2 inch | 37 | 9.6% | 11,040 |
| more than 1/2 - less than 3/4 | 107 | 27.6% | 31,740 |
| 3/4 inch | 41 | 10.6% | 12,190 |
| more than 3/4 - less than 1 inch | 41 | 10.6% | 12,190 |
| 1 inch | 10 | 2.6% | 2,990 |
| More than 1 inch | 16 | 4.1% | 4,715 |

| | | | |
|--|-----|-------|---------|
| Mutilation and Patron Damage | | | |
| Pencil | | | |
| No | 327 | 84.5% | 97,175 |
| Yes | 60 | 15.5% | 17,825 |
| Ink | | | |
| No | 373 | 96.4% | 110,860 |
| Yes | 14 | 3.6% | 4,140 |
| Highlighter | | | |
| No | 385 | 99.5% | 114,425 |
| Yes | 2 | .5% | 575 |
| Post-it notes / tapes | | | |
| No | 373 | 96.4% | 110,860 |
| Yes | 14 | 3.6% | 4,140 |
| Pages or cover stained with food, drink, or water | | | |
| No | 356 | 92.0% | 105,800 |
| Yes | 31 | 8.0% | 9,200 |

| Sample Size: 387 Total Holdings: 115,000 | Number out of 387 Items Surveyed | Frequency | Projected Number of Total Volumes Within Collection |
|--|--|-----------|--|
| Environment | | | |
| Mold | | | |
| No | 382 | 98.7% | 113,505 |
| Yes | 3 | 1.3% | 1,495 |
| Insect Damage | | | |
| No | 377 | 97.4% | 112,010 |
| Yes | 10 | 2.6% | 2,990 |
| Water Damage | | | |
| No | 380 | 96.7% | 111,205 |
| Yes | 7 | 1.8% | 2,070 |
| Yellowing | | | |
| No | 248 | 64.1% | 73,715 |
| Yes | 139 | 35.9% | 41,285 |
| Fading | | | |
| No | 380 | 98.2% | 112,930 |
| Yes | 7 | 1.8% | 2,070 |
| Dust | | | |
| No | 255 | 65.9% | 75,785 |
| Yes | 132 | 34.1% | 39,215 |
| Brick Dust | | | |
| No | 387 | 100% | 115,000 |
| Yes | 0 | 0% | 0 |
| Miscellaneous Spotting | | | |
| No | 361 | 93.3% | 107,295 |
| Yes | 26 | 6.7% | 77,050 |
| | | | |
| Total Number of Items With Any Type of Patron Damage | | | |
| No | 300 | 77.5% | 89,125 |
| Yes | 87 | 22.5% | 25,875 |
| | | | |
| Total Number of Items With Any Type of Environment Damage | | | |
| No | 157 | 40.7% | 46,805 |
| Yes | 229 | 59.3% | 68,195 |
| | | | |

Results of Condition Survey

Thus, given the environment, history, and use of the collection one would expect the collection to be brittle, dusty, and written on. The survey revealed a collection in much that condition. The complete results of the survey are given in Table 1. Here, I will mention some of the highlights. The collection is indeed quite acidic and brittle. 78% of the collection is printed on acidic paper. Overall, 22.1% of the paper in the collection broke in 4 double folds or less. The criteria for embrittlement used in the Yale survey stated that paper that broke off after the first double fold was considered to be extremely brittle; paper that broke after two double folds was brittle.²⁰ Using these criteria, 5.4% of the UNC music library collection is extremely brittle and another 5.7% is brittle, for a total of 10.9%. This figure is well below that of most institutions. The Yale survey revealed that 37.1% of its collection was brittle,²¹ the Stanford survey 26.5%, and Illinois survey 37%.²² The Illinois survey was closely modeled after the Stanford survey. The difference in the amount of brittle paper between the two institutions was attributed by Illinois to environmental factors, principally the high heat and humidity of the summer months and frequent fluctuations throughout the year.²³ Similar environmental conditions exist at the University of North Carolina at Chapel Hill. However, the UNC collection is not as brittle as the Illinois collection. Rather, results of the survey place UNC more in line with Syracuse and Columbia, 12% of those

²⁰ Walker, "The Yale Survey," 119.

²¹ Ibid., 117.

²² Tina Chrzastowski and others, "Library Collection Deterioration: A Study at the University of *College & Research Libraries* 50 (5) September 1989: 577.

collections are brittle, and the University of Kansas, 6.14% of the paper in that collection broke with less than two double folds and 9.86% broke with less than three double folds. 16.5% of the paper in the music library at UNC broke with three double folds or less. One possible reason for the lower percentage of brittle books in the UNC music collection is that most music collections are not as old as other parts of the collection, and therefore less brittle. At Yale only 17.0% of the music collection is brittle, compared to the 37.1% figure for the overall collection.²⁴

The percentage of brittle paper in the music library is less than that of most other surveys; however, the percentage of acidic paper is generally higher. The percentage of acidic paper in the collection at the University of Kansas is 65.78%²⁵ and at Syracuse it is 61.73%.²⁶ Again, the results of the survey done here yielded 78%, an amount close to the 82.6% found at Yale. Thus, while brittle paper is not as much a problem in the music collection at UNC as it is in other places, the very high percentage of acidic paper suggests that the problem will exist eventually and probably in a proportion close to Yale's 37%.

The percentage figures for brittle books and acidic paper in the UNC music collection do not completely tell the whole story. These figures translate into large numbers when projected onto the entire collection. Based upon this survey it is estimated that 88,320 volumes out of 115,000 are printed on acidic paper. At this very moment, before any of other of the 88,320 volumes deteriorate, there are 18,975 brittle books and

²³ Chrzastowski, "Library Collection Deterioration," 581.

²⁴ Walker, "The Yale Survey," 118.

²⁵ Brian J. Barird, Jana Krentz, and Brad Schaffner, "Findings from the Condition Surveys Conducted at the University of Kansas Libraries," *College & Research Libraries*, 58 (2) March 1997: 118.

²⁶ Randall Bond and others, "Preservation Study at the Syracuse University Libraries," *College & Research Libraries*, 48 (2) March 1987: 139.

scores. That's 10,306 pages that need to be preserved, hopefully either through replacement or reformatting.

The main objective of most condition surveys is to determine the extent of deterioration of the collection, which is primarily done through an assessment of the amount of brittle paper in the collection. This being done, there are a few other aspects of the survey that stand out. In addition to being acidic and brittle, the survey revealed that the collection is shelved improperly, is dusty, and is, in true musician form, written upon. Only 54.5% of the collection is shelved correctly. The rest of the collection was either not shelved straight or the books were shelved straight, but too tight. Improper shelving damages books. Leaning creates the potential for cover and binding damage²⁷ and shelving an item on its fore-edge will cause the text block to pull away from the covers.²⁸ The shelving problems in this library occur almost entirely with the scores, both LC and Dewey classed; 146 scores out of 244 were shelved incorrectly. It is possible that because scores tend to be larger than monographs they fall over more easily when space is created on the shelf. Ironically, items being shelved too tightly was also a problem. There is a shortage of space in the library, which could result in tightly packed shelves. Another factor could be the presence of so many pamphlet bound scores. Where there are a lot of scores bound in this manner, I found that they were packed in extremely tight.

The collection is dusty. According to the survey 34.1% of the collection has dust on it. This is probably a conservative estimate. The survey was conducted in the stacks in the basement of the music library. The lighting there is not good and a thin layer of

²⁷ DePew, *A Library, Media, and Archival Preservation Handbook*, 246.

²⁸ Harvey, *Preservation in Libraries*, 95.

dust could have easily been overlooked. “Dust” in this survey does refer to particulates visible to the naked eye. Thus if a third of the collection has a visible accumulation of dust, it is quite likely that much of the collection is dusty to a lesser degree.

Marked or stained pages do not usually effect the strength of the paper.²⁹

However, the presence of any type of marking can create problems with photocopying, microfilming, or scanning. This is especially true of music scores in which there are already thousands of intentionally placed dots. The addition of new dots and other marks can make interpretation of the original difficult. 15.5% of the music collection has pencil markings to some extent. Pencil mutilation is much lower in non-music collections. For example, the Yale survey found that 3.8% of the collection had pencil markings. Kansas and Syracuse found higher incidents in their respective collections, 9.98% and 11.94%.³⁰ The collection with the highest percentage of pencil markings is Juilliard with 35.1% of the collection slightly marked and 7.8% heavily marked.³¹ These figures are quite high. It should be noted that Juilliard is a conservatory and the condition survey done there included only scores and it makes sense that scores would be more heavily annotated than monographs. However, this does not actually apply to the music collection at UNC. Patrons here do not discriminate. 17.3% of monographs have pencil markings, as do 15.3% of scores.

The survey also revealed something else that might be peculiar to music. The gutter margin width in 11.4% of the items surveyed is less than 3/8 of an inch. This is significant because at least 3/8 of an inch is necessary to rebind an item. Thus 11.4% of

²⁹ DePew, *A Library, Media, and Archival Preservation Handbook*, 248.

³⁰ Baird, “Findings from the Condition Surveys Conducted by the University of Kansas Libraries,” 119 and Bond, “Preservation Study at the Syracuse University Libraries,” 140.

the collection, regardless of paper quality, cannot be commercially rebound. In measuring the inner margin, I found that it was often the instrumentation or brackets connecting two staves that caused the margin to be so small. Thus, the margins started out at the appropriate size, but with the addition of these musical elements, the size of the margin decreased beyond the 3/8 of an inch mark.

Recommendations

Clearly the single largest problem with the collection is that it is acidic. Due to the great expense of mass deacidification, there is no economical way to stop acidic paper from becoming more acidic and susceptible to deterioration. However, with proper environmental controls the process can be slowed. Deterioration of collections is primarily caused through environmental factors. Paper may be weakened by light, atmospheric pollutants (such as sulphur dioxide or nitrous oxide), or high temperature and relative humidity. All of these factors speed up or create chemical reactions which cause the paper to become more acidic. Conversely, low humidity can also damage paper making it brittle and causing it to curl.

Spores of fungi that become mold or mildew are always present in the air and on objects. High temperatures and relative humidity create an environment suitable for germination. Mold can stain books and paper and can weaken and soften paper. Adequate air circulation and appropriate temperature and relative humidity can help prevent and control mold.

³¹ Sadewhite, "A Condition Survey of the Circulating Score Collection of the Juilliard School," 44-45.

Pests thrive where there is dust, inadequate ventilation, poor lighting, and high temperature and relative humidity.

Atmospheric pollutants may damage paper and other library items. Photographic images can change color, spots may form on the image, or the image may fade. Dust may cause deterioration of sound discs and other magnetic media and scratch photographs. Fluctuations of temperature and relative humidity causes items to expand and contract which weakens the physical structure of the item.

Changes and control of the environment can fix these problems. Some of the solutions have already been given. The ideal environment should maintain relative humidity between 40% and 50%. The temperature should be kept between 65°F and 75°F, the higher the temperature and the relative humidity, the greater of the risk of environmental damage. Thus, temperatures should be kept at the lowest tolerable and sustainable level; daily fluctuations need to be held to $\pm 5^\circ\text{F}$. A filtration system should be in place that removes at least 50% of particulates and ventilation needs to be such as to avoid stagnant air pockets. An environment of this nature will help protect library collections and slow the deterioration process.

Problems with shelving and dust can easily be solved once the problem has been brought to the attention of library staff and they understand the problem. Leaning puts undue stress on spines, sewing, and edges and can contribute to rapid deterioration.³² The use of proper size bookends can aid in keeping items straight on the shelf. Book ends should be high enough and deep enough to give as much support as possible, which means a music library consisting of objects of a wide range of sizes will require bookends

³² Harvey, *Preservation in Libraries*, 95.

³⁵ Removal of dust

thus slows the deterioration process and also removes food for pests. For these reasons, effective housekeeping is very beneficial for the collection. In fact, according to Ross Harvey, “Effective housekeeping regularly carried out is second only to maintaining stable temperature and humidity levels as the most effective preventive preservation method.”³⁶

Conclusion

I encountered a few problems while conducting this survey. Most of these can be attributed to not successfully understanding the differences between a music collection and most other library collections -- music collections are in some regards fundamentally different than other library collections. Thus, some important aspects of a music library condition survey are overlooked in other surveys. Before undertaking the actual condition survey, many institutions did a pilot survey in order to ascertain the usability and effectiveness of the survey form. A pilot survey was not done for the condition

³³ Ibid.
³⁴ Ibid.
³⁵ Ibid., 76.
³⁶ Ibid.

survey at UNC. It would not have helped much because I continued to find inadequacies throughout the course of the survey and while inputting the data. Luckily some things were easily fixed, such as adding “mylar” to cover type. Other things were forced to fit into the survey, such as chamber music and other music that consists entirely of parts. How does one describe it? It isn't really bound per se, but it is in an enclosure, although it is not an archival enclosure. After much trial and error, a set of questions was created to describe this.

Another problem associated with scores of this type is pagination. The shelflist card was copied onto the survey form so that descriptive cataloging information would not have to be copied. Pagination was one of those elements that was thought to have been on the card. In most instances this was true, but for 49 items it was not. Apparently according to AACR rules pagination is not recorded for multi-part items such as encyclopedias, monumenta, or a set of parts.

Another shortcoming of the survey is its treatment of pamphlet bound scores, specifically repairs to those scores. The repair section of the survey was designed for publisher or commercially bound items, not pamphlet bound items. This survey is tightly constructed; it doesn't allow much room for items that are exceptions. The problem is that pamphlet bound scores are not the exception in a music library. For example, there was no way to identify on the survey those scores that were coming loose from the boards.

Condition surveys have shown that many of the country's libraries are in terrible condition. Most collections are old and they will continue to age, but preventive measures may be taken to slow the process. And if embrittlement is caught at an early

stage steps may be taken to preserve the intellectual content of that item, usually through replacement, photocopying, microfilming or scanning. It is especially important in music libraries that a preventive preservation program be in place, because not all the reformatting methods are applicable to music. A microfilm copy of a score can, if necessary, be used for analysis, but it can not be played from in performance. A score is made up of many, many dots; any extra marking or mutilation of the score, whether caused by patrons or the environment, can make interpretation of the original very difficult. It must also be remembered that for these methods even to be employed the item must not be too brittle.

The best preventive measures against the deterioration of paper is environmental control. The print music collection at UNC is not among the most brittle collections in the country, but 16.5% of the paper in the collection broke with three double folds or less – 18,975 volumes are brittle. The problem of brittle paper does exist within this collection and with 76.8% -- 88,320 volumes -- of the collection printed on acidic paper the problem will become much worse. Again, the best defensive is through proper environmental control.

Appendix A

Hill Hall Music Library Print Collection Condition Survey

Volume and Condition

(copy of shelflist card)

1. Classification
2. Date of Publication
3. Height (cm)
4. Number of Pages

| | | | | | |
|------|--------|---------|---------|------|-----------|
| 1-20 | 21-150 | 151-300 | 301-500 | 500+ | not given |
|------|--------|---------|---------|------|-----------|
5. Country of Publication

| | | | | | |
|-----------------------|---------|------|---------|-------------|-------------------------|
| U.S. | Germany | U.K. | France | Italy | Poland / Eastern Europe |
| Spain / South America | | | Austria | Other _____ | Not given |
6. Where Housed

| | |
|-----------|----------------|
| Hill Hall | Wilson Library |
|-----------|----------------|
7. Location of Item within Hill Hall

| | | | | |
|-----------|--------------|------------|-------|--------|
| Reference | Hall Cabinet | Min. Score | Folio | Stacks |
|-----------|--------------|------------|-------|--------|
8. Type of Volume

| | | | | |
|-----------|-----|-------|-----------|------------|
| Monograph | Set | Score | Monumenta | Periodical |
|-----------|-----|-------|-----------|------------|
9. Shelving Condition

| | | | | |
|------------------|-----------|-------------|----------|----------------------|
| Correct | Too Tight | Not Shelved | Straight | Shelved on fore-edge |
| Shelved on spine | | Mis-shelved | | |
10. Does Item Circulate

| | | |
|----|-----|------------|
| no | yes | on the fly |
|----|-----|------------|
11. Last Circulation

| | | |
|--------------------------|---------------|-----------|
| No record of circulation | 0-9 Years Ago | 10+ Years |
|--------------------------|---------------|-----------|
12. Number of Circulations since 1994

| | | | | |
|---|-----|------|-------|-----|
| 0 | 1-5 | 6-10 | 11-15 | 16+ |
|---|-----|------|-------|-----|

more than $\frac{3}{4}$, less than 1 inch

1 inch

more than 1 inch

Damage

22. Mutilation and Patron Damage

- | | | | | |
|---|----|-----|----|-----|
| a. Pencil: | no | yes | | |
| b. Ink: | no | yes | | |
| c. Highlighter / Marker: | no | yes | | |
| d. Post-it notes / Tape: | no | yes | | |
| e. Pages or cover stained with food, drink, or water: | | | no | yes |

23. Environment

- | | | | | |
|---------------------------|----|-----|--|--|
| a. Mold | no | yes | | |
| b. Insect Damage | no | yes | | |
| c. Water Damage | no | yes | | |
| d. Yellowing | no | yes | | |
| e. Fading | no | yes | | |
| f. Dust | no | yes | | |
| f. Brick Dust | no | yes | | |
| g. Miscellaneous Spotting | no | yes | | |

Appendix B

Hill Hall Music Library Condition Survey – Vocabulary

Some of the survey questions and/or terms need clarification. Below is a list of these, each consists of the question number, the question, followed by clarification/definition. Again, this information has been provided only as needed.

1. Classification

Periodicals and Thesis are grouped with “ML” classified items. Non-score LC classified items are also included in this group.

4. Number of Pages

This is the number of pages with Arabic not Roman numerals. No attempt has been made to account for pages numbered with Roman numerals. Pagination is taken from the shelflist card.

6. Where Housed

Wilson Library is the storage site used by the Music Library

7. Location of Item within Hill Hall

The designation “Stacks” is for everything that does not fall within one of the other categories. “Hall Cabinet” refers to an on site closed storage system for high use/probable high theft scores. Patrons are not allowed to browse this collection. Library personnel retrieve these scores for patrons.

8. Type of Volume

“Set” is used here is designate a multi-volume series such as encyclopedias, not scores or periodicals.

“Monumenta” refers to composers’ complete works and historical editions.

10. Does Item Circulate

“On the fly” is the designator for all items that have circulated (whether by special permission or not) and do NOT have bibliographic records in DRA; special item records had to be constructed.

12. Number of Circulations since 1994.

The year 1994 is specified because this was the year the music library moved to DRA.

15. Type of Binding

“Pamphlet –old” identifies those items bound in the grey acidic boards with black cloth. “Pamphlet –new” bindings use acid-free boards.

16. Cover Type

For those instances in which there is more than one type of material used on the cover, the most difficult to care for is designated.

20. Repairs Needed

“Yes” is marked if condition is present, even if not in need of immediate attention. “Yes” is also marked for those items that were damaged and repaired, but repaired incorrectly or with poor quality materials.

21. Gutter Width Margin

This margin has measured with a piece of paper that has previously been marked with the following measurements: $\frac{3}{8}$ inch, $\frac{1}{2}$ inch, $\frac{3}{4}$ inch, and 1 inch. After a brief inspection of the item, the smallest margin found was measured.

22. Environment

“Brick Dust” was included in the survey because the majority of the collection is housed in the basement of a brick building.

“Miscellaneous Spotting” is used to indicate spotting on/in any item that cannot be easily identified or its cause determined.

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