

CONSERVATION OF YALE'S PAPYRUS COLLECTION

by Gisela Noack

Beinecke Rare Book Library has one of the best papyrus collections in the United States. It comprises approximately 3,400 papyrus manuscripts, in Greek, Arabic, Latin, and Egyptian, dating from approximately 2000 B.C. to A.D. 900. An inventory in catalog card form was compiled around 1970 and part of the collection (860 physical pieces) was mounted in glass. The quite various sizes were stored vertically in two size groupings. More than half the manuscripts remained sorted in boxes in either sealed plastic folders or blotting paper open on three sides. The latter were particularly vulnerable to loss and damage.

In this condition the collection did not encourage scholarly interest and publication, and further deterioration had to be feared. The importance of the collection entitled it to more serious attention.

In 1983 it was decided to restore, catalog and preserve Yale's papyrus collection to facilitate its study and publication and to prevent further deterioration.

A survey of the collection was undertaken and a group of six people: Ralph Franklin, Director of Beinecke Library, Stephen Parks, Curator of the collection, Suzanne Rutter, Head of Technical Services, Stephen Emmel, specialist in ancient Mediterranean history and a

papyrologist, Jane Greenfield, Consulting Conservator and I worked out a project proposal to conserve the collection and set the following priorities:

- a. Restore and mount all the remaining manuscripts of the collection between acrylic sheets.
- b. Remount all items already in glass in acrylic.
- c. Store the collection horizontally in acid-free boxes.
- d. Revise the records so there is a complete and accurate index to the collection.

Materials

Acrylic sheeting was determined to be the most suitable material for mounting. It is light in weight and highly impact resistant. (The Nag Hammadi papyri have been stored in acrylic sheets for twenty years with no known deleterious effects). Three sizes of the acrylic were chosen to fit commercially available standard size envelopes and drop-front boxes of archival quality.

Horizontal storage in boxes was decided to be preferable to vertical storage where the fragments tend to slide down. Boxing also provides protection from harmful ultra-violet rays and dust.

Additional equipment included mending tape, glassine, antistatic cleaner, labels, envelopes to protect the acrylic from scratching and small tools for handling, repairing and mounting the papyrus.

Catalog records

The existing card index to the collection provides limited

access points, sometimes lacks required information (publication numbers, size, etc.) and is known to have discrepancies between item and record. The records were to be revised to eliminate these deficiencies.

Staffing

The processing of papyrus requires specialized training and experience. No one at Beinecke Rare Book Library had the qualifications and the Conservation Studio lacked staffing. Stephen Emmel, a Ph.D. candidate at Yale, was willing to take on the project on a part time basis. He had recently spent three and one half years in Cairo working with other scholars to restore the Nag Hammadi Gnostic Codices and had learned the art of piecing together brittle papyrus fragments to reconstruct the writings of ancient cultures. He was willing to train an assistant to mount the restored papyri.

Basic Steps to Conserve a Papyrus Manuscript

1. Restoration

The fragments of the papyrus manuscript were kept between blotter and stored in a black storage box. Figure 1.

The fragments are being transferred to the work area where they are carefully laid out onto a piece of glass and if necessary unfolded. Dry surface dirt, sand, grass, etc., are removed with a scalpel. A label with the inventory number is prepared, using india ink on acid-free paper.

Each piece of papyrus has a very characteristic fiber pattern. During manufacture very thin strips of papyrus are lined up in a horizontal layer. Vertical strips complete the sheet and create a lattice pattern. The position of the fragments of each manuscript is determined by these fiber patterns. Attention is also given to coloration, shape and text. Magnifying lenses and a light source from below can reveal the fibers more clearly and a check under a binocular microscope is sometimes necessary. Figure 2.

Old mends are removed when they are inexact or crude or the mending material inappropriate. Usually, dampening of the old mends with distilled water and a fine brush is sufficient.

The usually numerous fragments of the manuscript are joined with tiny pieces of pregummed glassine approximately 1x3mm. The glassine is wetted and positioned with a fine-tipped brush and pressed down lightly with a blotter to dry. Figure 3.

These mending steps are repeated till all the fragments have been joined.

2. Binding

After a papyrus manuscript has been restored it is ready for the binding process.

Two identical pieces of acrylic sheeting appropriate for the size of the manuscript are chosen and the protective layers peeled off. The pieces are cleaned to remove any adhesive residue and dirt. The sides facing the papyrus are cleaned with distilled water and a paper towel, the outside with antistatic cleaner. This combination

of cleaning solutions works well in dissipating the static build-up in the acrylic sheeting without bringing the papyrus in direct contact with the antistatic cleaner.

The restored papyrus manuscript is transferred onto one of the cleaned sheets of acrylic and centered with the help of graph paper. Small strips of Filmoplast P, 2x10mm in size, are used to attach the papyrus safely to the acrylic, two strips or more are used, depending on the size of the manuscript. They are pressed into position making sure that the Filmoplast P does not overlap onto text. The already prepared label is taped down solidly with Filmoplast P in the upper left hand corner 2cm down and 2cm in.

Both pieces of acrylic are now airbrushed to remove dust and the second sheet is placed over the papyrus attached to the first sheet. To bind the edges of the papyrus-acrylic sheet sandwich, strips of Filmoplast P90 are used. After carefully measuring the length of the four strips and marking even overlaps the backing is peeled off one strip; the tape is placed on top of one edge and folded around the sandwich while applying pressure to have the edges of the two acrylic sheets meet.

After this has been done on top and bottom and the two sides, overlapping on corners, the binding of a papyrus manuscript has been completed. Figure 4.

3. Storage

Before storage the inventory number is repeated on the narrow edge of the taped sandwich which will show after it is slipped into

an acid-free open-ended envelope, and at the upper left-hand corner of the back. The sandwiches in their envelopes are stored horizontally, ten high, in acid-free drop-front boxes which are shelved two high in the climate controlled stacks of Beinecke Rare Book Library.

4. Cataloging and Accessibility

Each papyrus manuscript has its own inventory number. Manuscripts consisting of fragments without continuous fiber pattern are given one inventory number and subnumbers.

During the entire process of restoring and binding, a data sheet accompanies each manuscript. Figure 5 and 6. All available information is recorded on it which is then put into the computer. It will be used for the catalog and will be accessible to patrons and scholars.

Summary

Already 900 papyrus manuscripts in Yale's collection have been conserved in the above described way. We believe it to be an archivally sound one. There is still a significant number of manuscripts to be restored and mounted. After the conservation of Yale's papyrus collection has been completed, the fragile and precious manuscripts will be in a stable condition and can be handled safely. The improved cataloging system will make them readily accessible to patrons and scholars.

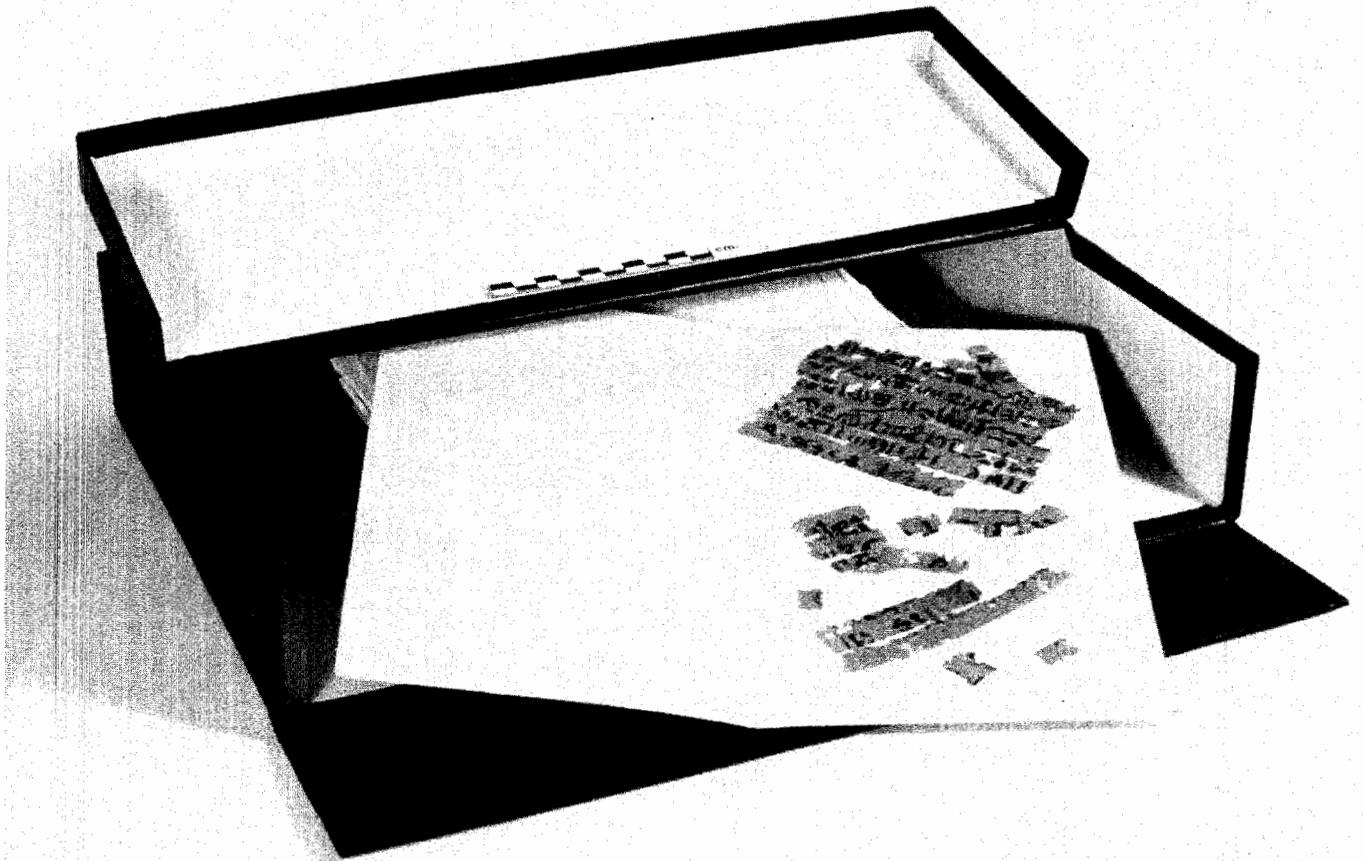


Fig. 1. Before restoration many of the papyrus manuscripts were kept between blotting paper in black storage boxes.

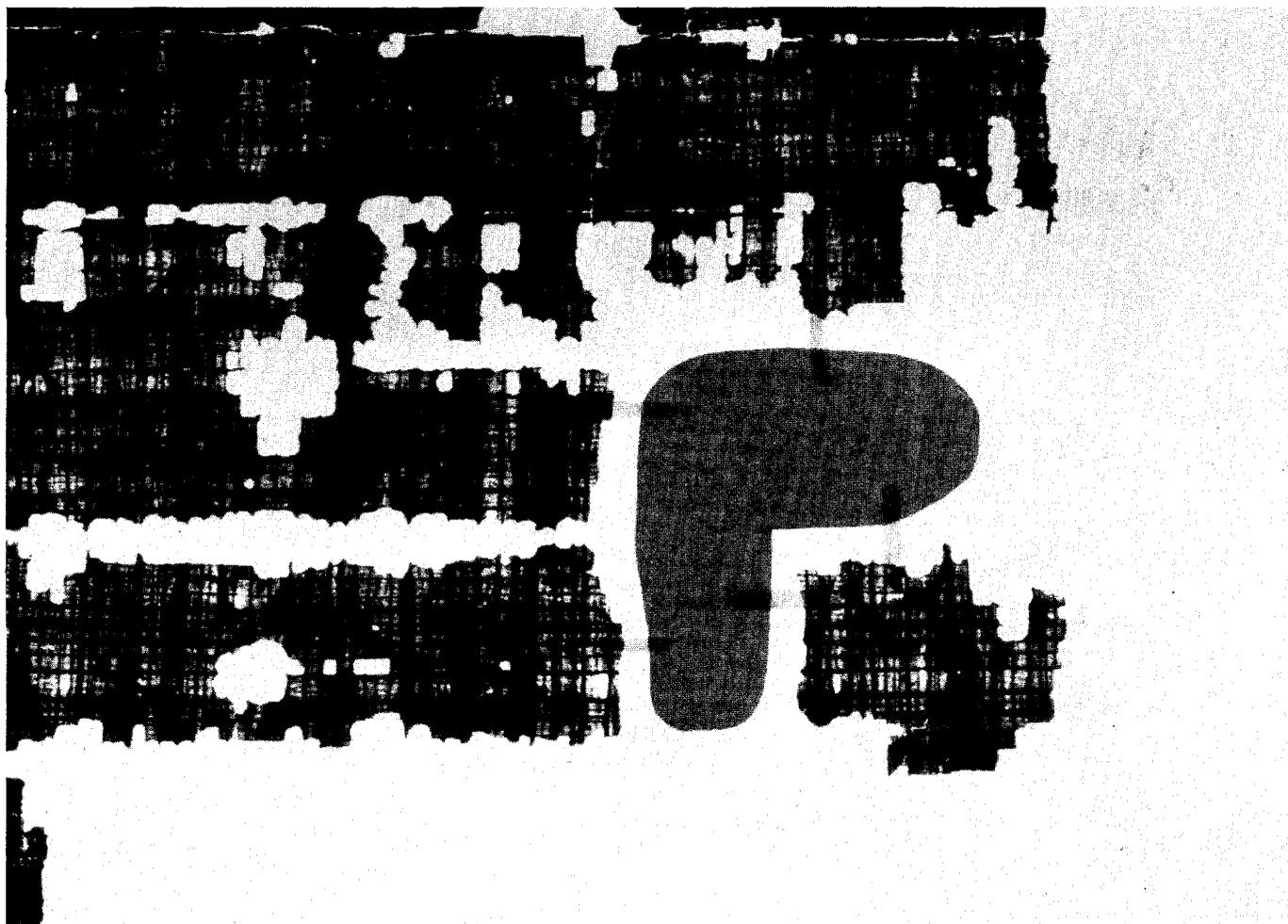


Fig. 2. A fragment is bridged to the rest of the manuscript.
Its position was determined by the match-up of horizontal and vertical fiber patterns.

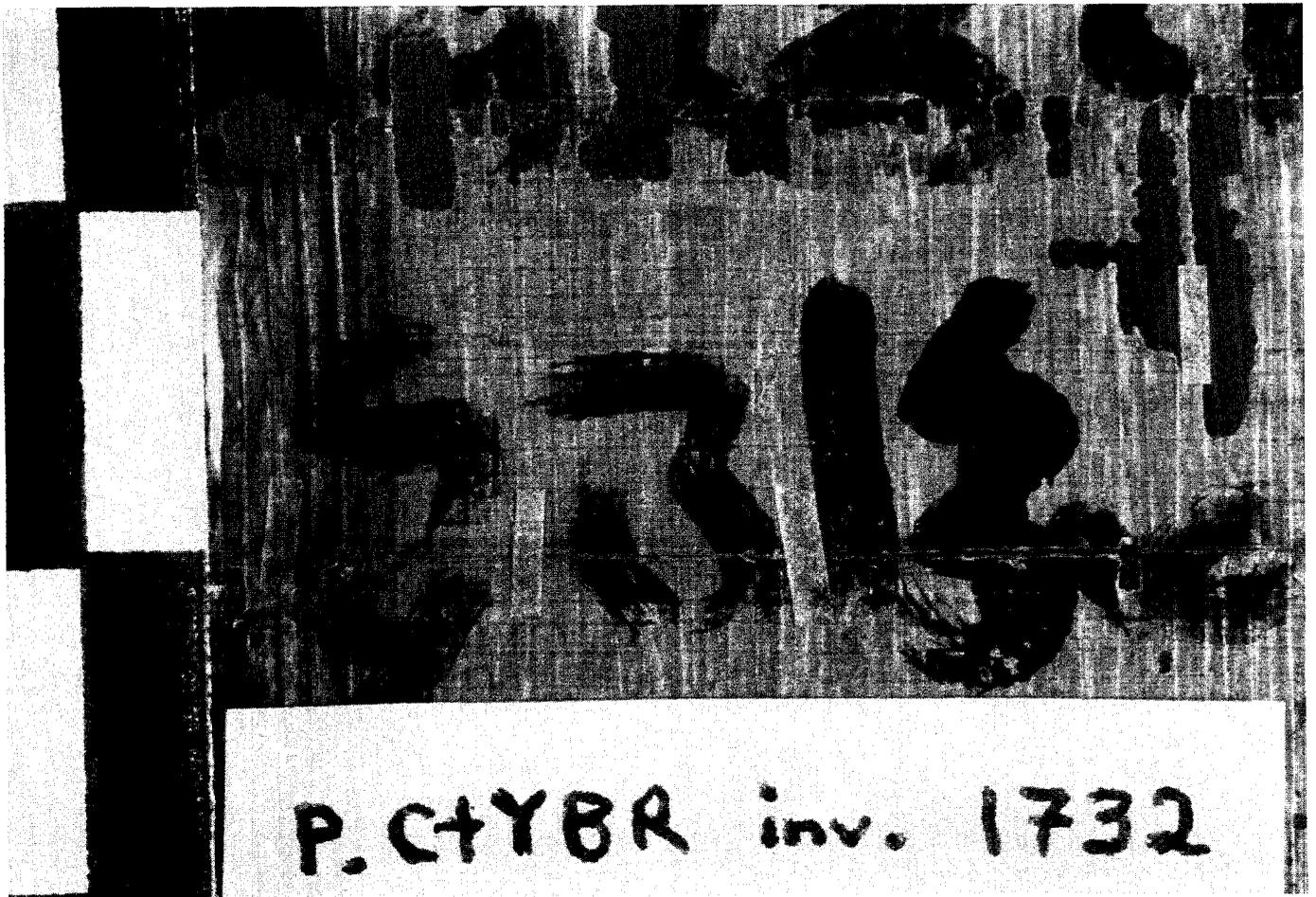


Fig. 3. Close-up of a joined area showing the tiny glassine strips.

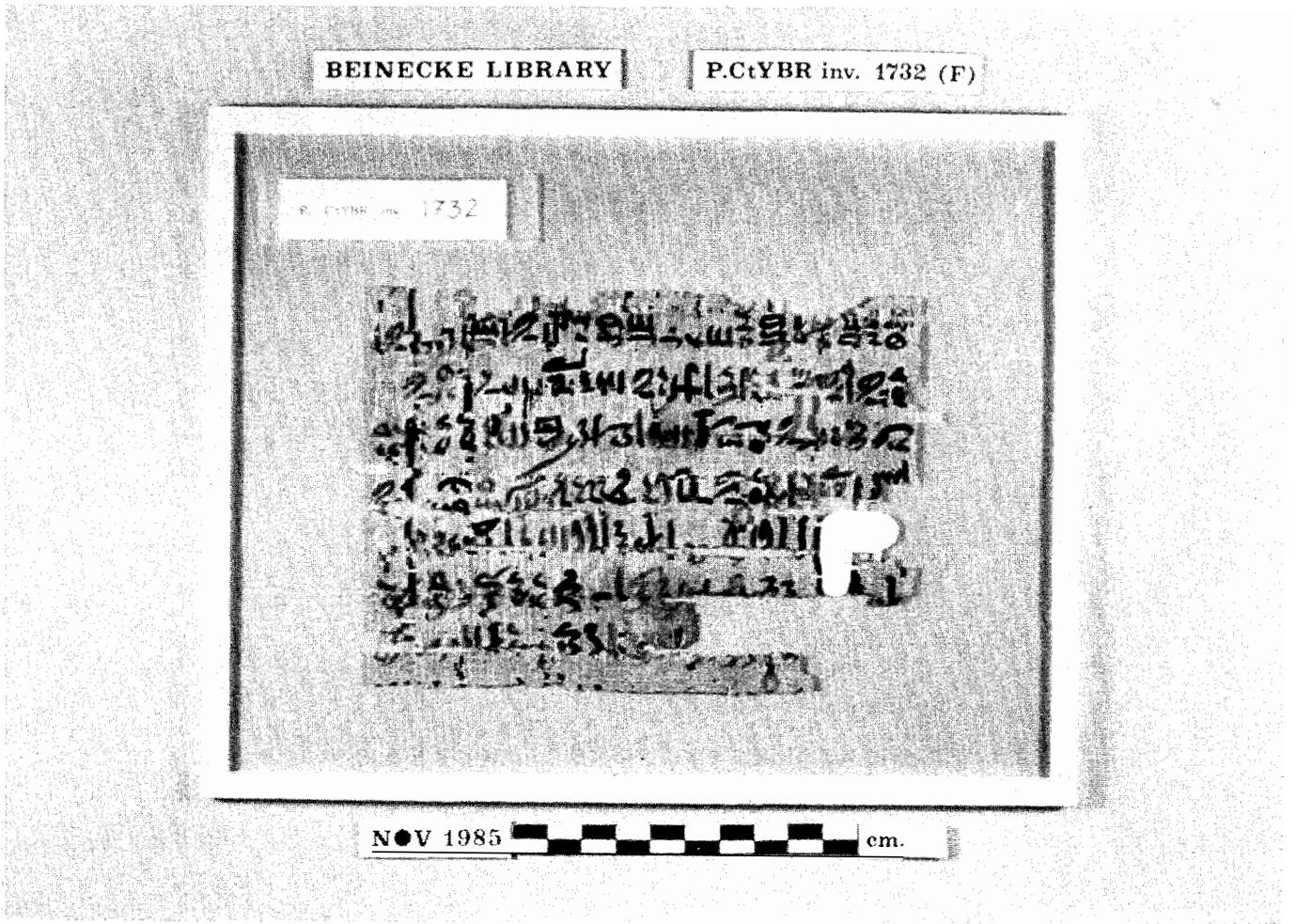


Fig. 4. Papyrus manuscript restored and mounted.

1. PINV P. CtYBR inv. 1732

2. DESC 118 x 159mm,
(Front) 8 lines, right bottom, left(?) margins,
(Back) 4 lines, right(?) bottom left margins
(This gives a physical description: size, number of
lines and margins if preserved.)

3. LANG Egyptian (Hieratic)

4. DATE Pharaonic BCE ca. XV (?) [BE]; BCE XIII (?) [ECU]
(Either precise date in text or opinion by scholar, []
initialed.)

5. ORIG ---- (Known ancient or modern archeological
site.)

6. GENR Letter (Rough categories of text: documentary
or literary.)

7. CONT ----
(More precise text, writer, subject matter.)

8. OREF ----
(Other reference: any other reference number this
piece is known by, old inventory or publication number.)

9. ACQU Acq 1945 (Year of acquisition)

10. MISC ----
(Information on how many pieces, in proper alignment
or in relative position, etc.)

Fig. 5. Data sheet for P. CtYBR inv. 1732 (General explanation)

11. Conservation Eleven fragments in folded sheet of blotter,
five of which are already made up of several fragments joined
by large pieces of glassine (in one case quite improperly).
All fragments join, but most of the previous joins must be re-
done. Two additional fragments in this folder join to
C. CtYBR inv. 1734, whither I remove them (7.X.85). I begin
to remove old glassine, unfold, repair and join fragments. (14.X.85)
I continue (17-18.X.85). I finish reassembling. I find no further
related fragments among acquisition 1945.

RFP (21.X.85) PIP (24.X.85)

(RFP = ready for plexiglass; PIP = put in plexiglass)

12. Bibliography -----

Gisela Noack is book conservator and Head of Conservation, Yale University Library, P.O. Box 1603A, Yale Station, New Haven, CT 06520. Mrs. Noack wishes to offer sincere thanks to Stephen Emmel. He was extraordinarily helpful in the preparation of this talk. He gave generously of his time and freely shared his expertise and the details of the repair process. His contribution to this paper is gratefully acknowledged.