

Conserving the Iraqi Jewish Archive for Digitization

INTRODUCTION

In May 2003, just days after coalition forces took control of Baghdad, a US Army team found thousands of Jewish communal and religious books and documents under four feet of water in the flooded basement of Saddam Hussein's intelligence headquarters.

Once most of the water was pumped out of the basement, the books and documents were brought out to a nearby courtyard. The team did their best to dry the materials, and then packed them into metal trunks (fig. 1). Unfortunately, in Baghdad's intense heat and humidity, the partially damp papers quickly became moldy.

Seeking guidance, the Coalition Provisional Authority placed an urgent request for assistance to the National Archives and Records Administration (NARA). NARA sent Director of Preservation Programs Doris Hamburg and Conservation Chief Mary Lynn Ritzenthaler to Baghdad to assess the damage and make recommendations for preserving the books and documents. In the meantime, the Coalition Provisional Authority secured a freezer truck to stabilize the materials. It was in this freezer truck that Doris and Mary Lynn first examined the collection.

The Baghdadi Jewish community has a 2500 year old history and was the most important center of Judaism outside of Jerusalem. Beginning in the 1940s, intensifying in the 1950s, and continuing through the 1970s, that community fled Iraq to escape persecution. This group of materials is not an actual archive in that it was not collected by the Iraqi Jewish community as an internal record of its activities. These books and documents were taken by Saddam Hussein's government. The name "Iraqi Jewish Archive" (IJA) was bestowed by Doris and Mary Lynn while they were assessing the disordered trunks of moldy material in Baghdad. The name provided a convenient way of referring to a collection that was otherwise difficult to define.

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Fig. 1. Recovery of books and documents in Baghdad, 2003. Photo courtesy of Harold Rhode.

The IJA contains published books, records of daily life, and correspondence from schools and organizations of the Baghdadi Jewish Community. There are approximately 2700 published books, tens of thousands of archival pages and 150 other items in the collection. An entry in the database could be a prayer book, an 800 page ring binder, a group of disassociated book covers or a single sheet of paper. It includes books from the 16th century through the 20th century, and documents largely from the 20th century.

PHASE 1: RECOVERY OF ARTIFACTS

With the agreement of Iraqi representatives, a Memorandum of Agreement between the Coalition Provisional Authority and the US Government was signed. External funding would be required as the National Archives was not in a position to use its operating budget which is mandated for work with US federal records. The archive was shipped frozen in the metal trunks to the United States for preservation and exhibition. This relocation was due to the limited treatment

options in Baghdad or elsewhere in the region at that time. In Texas, a commercial vendor vacuum freeze-dried the books and documents. Vacuum freeze-drying allowed the ice to sublimate off the collection materials as vapor. The paper and books were left dry, but in the same torn and distorted condition as when they were frozen. The mold was rendered inactive, but remained allergenic. The trunks were then shipped to the National Archives in College Park, MD to await further funding.

PHASE 2: ASSESSMENT AND PLANNING

In 2006, the National Endowment for the Humanities awarded a grant to the Center for Jewish History to assess the collection and plan for its care. In Phase II of the project, which was carried out at the National Archives, a Conservator and a Conservator Technician unpacked the trunks and separated the collection into discrete items (fig. 2). Each item was then wrapped in a Permalife paper package and assigned a number from 1 to 3846.

While they were unpacking the trunks and rehousing the material, they created a database. Each item was described by its physical format and condition as well as conservation needs. Digital photographs were taken for each entry, showing covers, title pages, and representative pages where applicable.

Catalogers used the photographs to view the still moldy material and then recorded their descriptions in the online database. Subject matter experts evaluated the entries and made recommendations for future actions, including digitization and exhibition priorities.

The combined recommendations from Phase II provided the conceptual framework for the National Archives to develop Phase III of the Iraqi Jewish Archive Preservation Project.



Fig. 2. Phase II: Conservator Susan Duhl sorting damaged material in 2006.

PHASE 3: CONSERVATION, IMAGING, AND ACCESS

The third and final phase of the project was funded in 2011 by the Department of State with a \$2.98 million grant to achieve the following goals:

- To complete cataloging of the collection and refine the database.
- To provide conservation treatment to:
 - complete stabilization to allow for safe handling during digitization
 - perform more extensive treatment for selected items to permit exhibition
 - rehouse for long term storage.
- To image all documents and selected books.
- To create an exhibit in English and Arabic to be shown at the National Archives in Washington, DC, and in Iraq.
- To create a web site to provide free, worldwide access to the database and digital images.
- To provide fellowships for Iraqi conservation professionals.
- To box, crate, and transport the collection.

In this paper, we focus on the role that conservation played in achieving those goals. Conservation's goals were to stabilize the collection for digitization, prepare for exhibition, rehouse all of the books and documents for shipment and permanent storage, and host the Iraqi Fellows.

Eleven full-time and three part-time staff were hired to accomplish the goals of Phase III. The team was headed by Project Manager, Sue Murphy, who coordinated cataloging, imaging, website development, and conservation. The conservation team was comprised of two conservators, Anna Friedman and Katherine Kelly, and two conservator technicians, Patrick Brown and Meris Westberg. Doris Hamburg and Mary Lynn Ritzenthaler provided consistent guidance throughout all phases of the project.

CONSERVATION WORK FLOW

PRELIMINARY ACTION

Given the moldy and damaged condition of most of the collection, the first stop for every object was in Conservation. From there, its progress depended on whether it would be digitized or simply rehoused. All archival documents entered the Imaging queue, but the Librarian assigned books either to the Imaging queue or to the Rehousing queue, based on bibliographic criteria.

For many entries in the collection, the Librarian could rely on the initial cataloging and images taken in Phase II to describe a book and assign it to a workflow. However, given the terrible condition of some entries, conservation staff sometimes had to work closely with the Librarian to uncover enough information to make even this basic determination.

SHAREPOINT

We used technology in some interesting ways to assist us in this collaboration. We tracked the progress of our material with a web-based computer program called SharePoint. The primary purpose of our SharePoint site was to track the location of all 3846 entries in the collection, but we also used it to generate documentation, record progress, and communicate with the Librarian and with Imaging staff. We also used SharePoint to pull information from the website database to print labels, box lists and work tickets. A work ticket was a one-page form we used to track an entry and record its treatment, rehousing, and digitization actions.

MOLD REMEDIATION

The collection is highly variable in its format and the level of damage it sustained. Some of the material looked like it never got wet and some items were fused, mold-covered, and unrecognizable as books (fig. 3).

The effects of mold on paper are well described in the conservation literature, so our description here will be cursory. At a microscopic level, paper consists of strands of paper fibers physically and chemically meshed together. When mold begins to grow in wet paper it sends out runners like roots which are called hyphae. They infiltrate the paper fibers and break down the connections between them. When the connections between the paper fibers are damaged, the entire sheet is softer and harder to repair. Well-established mold will eat away pages, leaving large holes and areas where the paper has been pulped together.

A conservation goal was to enable safe handling during digitization. In our case, this meant not only physically stabilizing the materials, but also minimizing the health risk posed to staff by the presence of the inactive, yet still allergenic mold. The principal health danger from mold is encountered when spores are inhaled. When books and papers are handled



Fig. 3. Severely distorted book (Iraqi Jewish Archive #203).



Fig. 4. Nilfisk vacuum with small attachments.



Fig. 5. Y-hose attachment for Nilfisk vacuum.

during treatment and imaging, inactive mold can easily become airborne, so removal was a priority.

The National Archives has well-established protocols for dealing with moldy materials, so our task was to adapt them to the special needs of the IJA project. Our project had dedicated use of one built-in fume hood and another stand-alone biological safety cabinet. The built-in fume hood vents to the outside of the building and can be used for mold particulates or solvent vapor. The biological safety cabinet, which recirculates air back into the room through a HEPA filter, can only be used for particulates like mold. In addition to these hoods, we also sometimes used a third fume hood generally reserved for NARA mold projects. Since all of our assessment, mold remediation, and measuring for boxes happened inside these hoods, we appreciated having lots of space.

Mold remediation was performed using a HEPA-filter vacuum and a variety of small attachments. The Nilfisk vacuum had an adjustable rate of suction, allowing us to gently clean even the most fragile papers. We used small attachments to get deep into tight binding structures and carefully clean tattered page edges (fig. 4). Larger attachments were useful for cleaning minimally affected material where the paper remained strong. When necessary, soot sponges were used after vacuuming.

Another great adaptation that NARA staff helped us to develop was the use of a Y-hose so that two people could work at the same time with one vacuum (fig. 5). When only one person was working, we would plug the other end of the Y-hose with a custom-shaped piece of Volara. The Y-hose attachment can also be set up in a single fume hood to permit quick switching between left- and right-handed use of the nozzle.

ERGONOMICS DURING MOLD REMEDIATION

Ergonomics was an area in which we were able to improve on the standard mold remediation protocol. Over the course of the project, nine different people worked on mold remediation. We worked hard to accommodate different people's heights, right- and left-handedness, and preferences for work styles. We used adjustable height lab chairs and padded floor mats. Staff were able to work both seated and standing according to their preferences. We also suspended the heavy hose of the vacuum so that the user would not be supporting its entire weight.

We modified the Nilfisk tools to allow them to be gripped more comfortably for long periods of time using Elastack tool tape. Elastack is a product marketed to people with arthritis or other medical conditions where gripping small tools like silverware is painful or impossible. It is a thick, soft, stretchable, clear plastic tape that can be wrapped around the handle of a tool to make it larger and give it a more secure grip. We sometimes put a layer of thin Ethafoam or Volara underneath the

Elastack to bulk it out further. It can be removed and replaced as necessary.

REVENUE STAMPS

Once we started working on archival materials, one problem that immediately presented itself was revenue stamps. Iraqi revenue stamps were used to notarize official documents. Any given page with stamps could have anywhere from one to dozens of stamps on it, and there were well over ten thousand stamps in the collection. Like postage stamps, these were originally attached with a water-based adhesive. All of that adhesive was washed away in the water event. When we opened a stack of papers, the stamps would detach easily and their original location could be hard to find again (fig. 6).

We solved this by reattaching each stamp in its original place with a small dot of methylcellulose as soon as we came across it. We became incredibly good at finding the original location of these stamps, even on the most mangled and damaged sheets of paper.



Fig. 6. Revenue stamps were reattached to archival documents with methylcellulose (*Ledgers from the High School Arts and Culture Association, 1970–72, Iraqi Jewish Archive #3472*).

One tool that allowed us to reattach stamps quickly and efficiently was a small syringe, filled with methylcellulose. This syringe allowed us to apply a very small and conservative dot of adhesive to the back of each stamp while keeping our work area clear.

While we worked in the hood, we also performed basic holdings maintenance tasks, like removing rusty staples or paperclips and replacing them with stainless steel paper clips over a barrier strip of paper. We also placed fragile documents in polyester sleeves and rehoused archival documents in acid free folders and document boxes. Books were usually measured for custom boxes after they were humidified and flattened because their dimensions could change drastically.

FLATTENING AND MENDING

Once mold remediation was done, the books and documents could be removed from the hood and further prepared for imaging. This collection had significant conservation challenges beyond the mold and surface dirt. Book bindings were warped, pages were brittle and torn, and much work needed to be done before each item was ready for imaging.

When items could be adequately flattened during imaging by using the hinged glass on the copy stand, we did not flatten them in Conservation. However, this left many distorted books and crumpled documents that did require our attention. When possible, we flattened materials dry under weight or with minimal moisture. This allowed us to work quickly and prevented the re-activation of mold.

One technique that we found to be a great help in flattening text blocks was humidification with Tek-Wipe. This non-woven polyester/cellulose fabric releases moisture more slowly than blotter, and by quickly moving a slightly dampened sheet through the pages of a book, the entire text block can be slightly humidified. This humidification was followed by reshaping of the text block and drying (figs. 7–8). Moving too slowly through the text block or working with a too damp cloth raised the risk of causing tide lines or of excessive wetting.

A technique which we used less frequently was complete immersion in water. The object seen in figs. 9–10 was successfully treated by completely immersing it and gently separating the pages underwater. As one can see, it went from being fused and unreadable to being entirely legible.

We used standard conservation materials for mending. These included long fiber tissues made from Kozo or Abaca fibers, and reversible water-based adhesives like wheat starch paste and methylcellulose. We also used reversible heat-set tissue, applied with a tacking iron.

We had a lot of success with the remoistenable tissue. We prepared it by lining 5 g Tengucho with wheat starch paste and methylcellulose. Small pieces of the prepared tissue could then be applied directly to tears and the adhesive reactivated with a small amount of moisture. We found that these prepared tissues allowed us to work accurately and quickly.



Fig. 7. *Handwritten Hebrew Book* (Iraqi Jewish Archive #73) with brittle and distorted text block, prior to treatment.



Fig. 8. Paper repair after overall humidification of the text block with Tek-Wipe (Iraqi Jewish Archive #73).

SCHOOL PHOTOGRAPHS

One of our most heart-wrenching conservation challenges was the school photographs found in student files. These administrative files, from the Jewish schools in Baghdad, generally contained a student's enrollment and graduation forms for elementary through high school. They included SAT scores, recommendation letters, transcripts, and almost always, several small silver gelatin photographs (fig. 11).

Like the revenue stamps, each school photo was originally attached to its record with a water-based adhesive. During the water event, this mounting adhesive almost always failed. Unlike the stamps, the photographs were severely affected by the water and subsequent vacuum freeze drying. In most cases, photographs were found with the gelatin side fused to the facing page.

If the attachment was strong, we left the photograph in place to avoid causing further damage, but when the



Fig. 9. Badly misshapen text block prior to treatment (*Al-Maustū'ah al-Filistīnīyah*, Iraqi Jewish Archive #173).



Fig. 10. After treatment photograph of *Al-Maustū'ah al-Filistīnīyah* (Iraqi Jewish Archive #173).



Fig. 11. Water damaged photographs removed from paper clip (*Student Folders with Photographs, Baghdadi Jewish Schools, 1961–71*, Iraqi Jewish Archive #3755).



Fig. 12. School photographs are presented to website users with background pages in place to show image offset and provide context (*Student Folders with Photographs, Baghdadi Jewish Schools, 1961–70*, Iraqi Jewish Archive #2853).

support layer released spontaneously from the facing page, we returned it to its original location. Sadly, the image layer often remained firmly adhered to the facing page or had already been washed away. In some cases, this produced a mirror image of the original photograph on the facing page.

The Imaging staff developed an approach to capturing these records that attempted to represent the photograph as completely as possible despite this problem. Each school file was imaged as a whole, with background pages in place. With this approach, they could show the original placement of the photograph and also any image offset on the facing page (fig. 12).

PREPARATION FOR IMAGING

Some other conservation challenges resulted from the variety of languages in the collection. Most obviously, it is more difficult to piece together fragments of text in unfamiliar languages, but there were also difficulties in simply rehousing and imaging the documents. The collection includes more

than ten languages, the most common being Arabic, English, and Hebrew. A mixture of Roman and non-Roman characters, with reading directions going right-to-left or left-to-right, was further complicated by blurry writing, ink that had bled through onto other pages, and unrelated stacks of papers that were gathered together. Conservation maintained the original order in all the materials we treated, and we were responsible for providing Imaging staff with guidance on orienting the text correctly. We devised a system to indicate to the Imaging staff what the correct (or most correct) orientation was so they knew how to page through a file folder for imaging. These "orientation flags" preserved everyone's sanity!

REHOUSING

A major goal in this preservation project was rehousing all the material in appropriate, archival housings. These housings contain each item and allow it to be handled, shelved, and labeled. Of particular importance for this moldy, fragmented collection, boxes help contain any residual debris and provide an environmental buffer against fluctuating temperature and relative humidity. The boxes will also protect the books and documents during transport and enhance long-term storage and access. In general, books over 1" in thickness were reboxed in custom-sized boxes and books under 1" in thickness were reboxed in folders in document boxes. Archival items were reboxed in folders and document boxes except in instances where the format of the archival item required a custom box.

TEAMWORK AND COLLABORATION

The Iraqi Jewish Archive Preservation Project was truly a team effort, and our work in conservation was closely tied to the work of the Librarian and the Imaging staff. One of the major constraints we had was the timeframe. This was a two year project, with no flexibility on the end date. Our success in responding to the many challenges and surprises we discovered in that time was due to the close collaboration among the team members. There was a formal process of establishing guidelines for treatment and imaging, and an informal process of communication throughout the project as new challenges were discovered. The Librarian frequently came to the conservation lab to help us piece together fragments of Hebrew text, and conservation staff were often called down to the imaging lab to consult on difficult items. Someone also noted that we did a lot of team-building through tea parties...

In October 2013, we were fortunate to be joined in our conservation efforts by two Iraqi Fellows, Ms. Nahid Fahil Mahdai and Ms. Zinah Adnan Majeed Al-Benezzi. They came to us from the Iraq National Library and Archives where Nahid is head of conservation and Zinah is a paper conservator. They tackled the full range of treatments as we made our final push towards completing the project and they

gave us a sense of how our Iraqi counterparts work and the challenges they face in their day-to-day preservation efforts.

The IJA team has made available on the IJA website (www.ija.archives.gov) all of the documentation for the project. Included is the entire history of the project, our guidelines for conservation treatment, how we prepared materials for imaging, and the standards that Imaging followed when they handled and digitized the collection. These guidelines were based on NARA standards, but adapted to the special needs of the IJA. We hope that they can be a useful starting point for others faced with similar challenges.

EXHIBIT: *DISCOVERY AND RECOVERY: PRESERVING IRAQI JEWISH HERITAGE*

Selections from the Iraqi Jewish Archive were exhibited at the National Archives in Washington, DC, from November 2013 to January 2014. From there the exhibit traveled to the Museum of Jewish Heritage in New York City, where it was exhibited from February to May 2014. There were 24 original books and documents in the exhibit as well as many facsimiles, chosen to represent the range of material in the collection and illustrate the history of the community where they originated.

Most of the archive received simple stabilization treatments to allow handling and digitization. Collection items that were selected for exhibition received more extensive treatment. This was done to assure the safety and stability of materials during display, as well as to maximize the viewing experience of visitors to the exhibit.

One of the items that required the most treatment was an 1815 Zohar (fig. 13). The Zohar is a kabbalistic commentary on the Torah, and this particular volume is a commentary on the biblical book of Genesis. When it came to us, it was in very poor condition. Mold and surface grime obscured text, the pages were tattered, and there were large losses in the hand-drawn frontispiece. The original binding was missing, and the sewing was broken in several places.



Fig. 13. Before treatment photograph of *Zohar 'al ha-Torah Helek Rishon Sefer Be-Reshit*, 1815 (Iraqi Jewish Archive #2035).

The treatment for this book was not unusual—the processes of surface cleaning, washing, and mending are familiar to many conservators. We would like, however, to highlight some aspects of this treatment, as they reveal some interesting characteristics of the larger collection.

When one washes an older book, the water often turns yellowish—it's a way to know that impurities and the byproducts of aging are being effectively removed. The water from this book was coffee-colored, just really gross. Although time and resources did not permit us to wash every book and document in the collection, when we did wash, the results were dramatic. Stiff, brittle, darkly stained and tide-lined pages became flexible and bright.

While some of the staining that had occurred in the 2003 water event was easy to remove, other kinds of damage were more stubborn. Many pages, particularly more modern book papers, suffered a kind of overwashing in the flooded basement that left them with a porous, rough surface and distorted paper fibers. The main treatment challenge that this posed was the difficulty of realigning text again during mending.

In addition to staining from the dirty water, there were more stubborn stains from ink offset, bleeding and rust. This type of damage was ubiquitous in this collection, particularly among the handwritten archival documents (fig. 14). Our standard treatment protocol did not attempt to reduce these stains as there were simply too many to make stain reduction a feasible option.

The Zohar treated for exhibition had one annotation that had suffered from ink bleeding. When the book got wet in Baghdad, one of the annotations bled out onto the neighboring pages and turned slightly purple. Our treatment of the book could not restore the original color of the annotation, but we were able to prevent further bleeding by fixing the annotation with cyclododecane prior to washing.



Fig. 14. An example of the staining from rust, ink offset, and ink bleeding found throughout the collection (Iraqi Jewish Archive #99).



Fig. 15. After treatment photograph of *Zohar 'al ha-Torah Helek Rishon Sefer Be-Reshit*, 1815 (Iraqi Jewish Archive #2035).

The remainder of this treatment shared its challenges with the collection as a whole. Some pages had to be pieced back together from fragments, and extensive mending was required to allow the volume to be safely handled. As an exhibit treatment, this tattered pile was rebuilt into a functional book, able to be used, handled, and read as was intended (fig. 15).

We see this as a metaphor for our work on the whole collection. We started with a huge mass of paper, unusable and unknown, and through conservation treatment, cataloging, and digitization, made it available for the entire world to see and to use.

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