

# With A Bucket of Extremes: Saving an ARL-Size Library Collection in New Orleans

*Andy Corrigan*

## Summary

This paper describes a massive library salvage and recovery effort in the aftermath of Hurricane Katrina. The setting in this case was Howard-Tilton Memorial Library at Tulane University, whose main building's basement was filled with more than eight feet of water. Among the submerged were a music library, a large federal documents depository, and a huge collection of microforms as well as the main building's mechanical, air, and electrical systems. In adjacent Jones Hall four feet of water had filled the lowest tier of the library's Special Collections stacks area. All collections in these two large structures were in harm's way, but a disaster mitigation company quickly responded to drain and stabilized these buildings. It also salvaged and froze materials selected for restoration. With library personnel displaced to locations throughout the country, serial subscriptions and book approval plans nonetheless were successfully stopped and later restarted. Both library buildings were re-opened for spring semester 2006 and other monumental challenges were addressed.

## Tulane University and Howard-Tilton Memorial Library

Tulane University is among the top research institutions in North America<sup>1</sup> as well as the largest private aca-

demical institution in New Orleans and the central Gulf Coast. In the wake of Hurricane Katrina, the university has emerged as a powerful and positive force in the monumental task of regional recovery. Its main Howard-Tilton Memorial Library supports the university's undergraduate and graduate programs in the humanities, social sciences, and science and engineering and serves as a major cultural resource for researchers and scholars from throughout the region. Its unique collections in areas such as Latin American studies, jazz, and New Orleans history often draw researchers from around the globe.

In collections size and expenditures, Tulane's libraries generally stand in the lower middle tier among members of the Association of Research Libraries (ARL), a group recognized as the top 123 research libraries in North America.<sup>2</sup>

## Responding to the Storm

On August 29, 2005 New Orleans and the Gulf South experienced the most expensive and among the deadliest disasters in the history of the United States as Hurricane Katrina tore through the area.<sup>3</sup> The storm and levee system failures caused the largest metropolitan diaspora in U.S. history, destroyed much of New Orleans, and left tens of billions of dollars in damages. Many

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*Andy Corrigan is Associate Dean for Collections, Tulane University, email: andyc@tulane.edu.*

lives were lost and countless upturned. In a recent paper published in the *Proceedings of the National Academy of Sciences*, one group of experts reviewed the research from previous disasters to produce a calendar of historical experience against which to gauge progress in reconstruction. It concluded that Katrina has produced a post disaster period likely to be longer in duration than that of any other studied and that to reconstruct the physical environment and urban infrastructure within the region affected by the storm may take eight to 11 years.<sup>4</sup>

The collective damage to academic library collections in New Orleans has also been enormous<sup>5</sup> and very likely also without precedent on domestic soil.

After the hurricane, approximately 80 percent of New Orleans<sup>6</sup> became a vast urban lake that encompassed the lower-lying two thirds of Tulane University's uptown campus. The basement of Tulane's main Howard-Tilton Memorial Library was filled with more than eight feet of water. Roughly the size of a football field, this area housed the highly-regarded Maxwell Music Library as well as very large collections of government documents, newspapers, microforms, valuable books in "protected storage," books waiting to be cataloged, and other general collections in storage. Jones Hall across the parking lot houses the library's Special Collections. Its basement was filled with about four feet of water, inundating a large volume of historical political papers and ephemera.

In those initial days after Katrina, both library buildings, especially the large Howard-Tilton main building, became ticking time bombs for their collections. Their deep lower-level lakes produced incredible amounts of rapidly growing humidity while the loss of power shut off any circulating air. Being mid-summer in New Orleans at the time, the interior temperatures in these closed-off structures quickly began to climb. Mold is toxic to library collections and this was the worst-case scenario for a library disaster of historic scale. In this one place, literally millions of research volumes were in considerable danger.

As part of the university's campus-wide emergency plan, BELFOR, an international disaster mitigation company, was called almost immediately and its crews were poised to enter the city early enough to face the need to clear away debris on their own in order to move in their trucks, workers, and supplies. Indeed the company had mobilized in surrounding states in advance of the hurricane.

Kirk Lively is director of technical services for BELFOR USA Group Inc. He recalled that BELFOR

was able to enter the city for a first look only three or four days after the storm. "Prior to that the military had everything isolated and were primarily dealing with rescue efforts. We helped support the National Guard by providing them a couple of generators. They were willing to help us get where we needed to go since we were helping them with our resources. At this time a majority of the areas were flooded. If they were not flooded, many roads were blocked by downed trees and power lines."<sup>7</sup>

Soon Tulane and BELFOR officials had met in Houston at Tulane's just-established command headquarters to discuss recovery options and by September 7 BELFOR had received a letter of intent from Tulane to utilize its services, which was the green light. It took only another day or so for the company to muster its equipment, personnel, and logistical support. On September 9 BELFOR headed for the library and Tulane's other facilities needing remediation in New Orleans. The city was closed off by then and the military had established a 4 p.m. city wide curfew for authorized emergency crews. Initially, the closest place that BELFOR could find housing for its personnel was in Lafayette, Louisiana, about 100 miles to the west of New Orleans. The following day, coordinating recovery operations with Tulane's director of facilities services on site, BELFOR crews first began pumping water from the Howard-Tilton building, which would prove difficult. On that first day there was standing water still outside the building. Water seeping back into the building would be a continuing problem for more than a week. But the water was eventually removed and a battle against humidity and mold quickly begun.

On September 12, BELFOR crews began clearing debris to allow for large vehicle access around the library buildings and on adjacent Freret Street, from which water had finally receded. Generators and other large equipment were staged the same day outside both the Howard-Tilton building and Jones Hall.

To stabilize the climate in the Howard-Tilton building, BELFOR trucked in and set up two large 300 kilowatt generators. These powered four desiccant dry air machines together capable of pushing 30,000 cubic feet of dry air per minute into the building. Also, set up were four additional cool air units capable of pumping some 40,000 cubic feet of air per minute into the building as well. In Jones Hall, two more 300 kilowatt generators were set up to power two desiccant dry air machines together capable of pushing 20,000 cubic feet of dry air per minute and two cool air units capable

of pumping some 20,000 cubic feet of air per minute into this building. The desiccant dry air and the cool air were blended to gain control of the humidity and temperatures and avoid huge mold outbreaks on the upper floors. In the lower reaches this created a reasonable work environment for teams packing out wet materials. A shift toward drying the basements would occur much later after all wet damaged contents—including drywall, floor tiles, carpeting, etc.—had been removed.

In these buildings BELFOR's army of emergency workers, most of them fitted in white coveralls and filtered masks, installed several thousand of feet of big inflated tubes to circulate pumped treated air throughout each floor in danger. By September 16, water from these basements had largely been pumped out, although they were still very wet from seepage. The next day crews began the first pack-out of materials selected for salvage. The first material hauled to frozen truck trailers by then waiting outside was a small portion of the microfilm collection comprised of critically important older Louisiana newspapers and Latin American titles. Only about 5 percent of the microfilm collection would eventually be salvaged because printed materials were thought to have a greater chance for restoration and the film had spent so much time underwater. With wet printed materials now exposed to open air, time was a factor to be weighed against the huge task at hand and priorities had to be set. BELFOR was very careful to let the library determine these priorities.<sup>8</sup>

First priorities for higher volume salvage were: (a) all materials damaged in Jones Hall since special collections there were inherently irreplaceable and (b) the music scores, books, and journals from the Maxwell Music Library, which had been collecting valuable printed musical works for the past 100 years. Pack-out for materials in Jones Hall began on September 18 and in the music library the following day. The salvage operation in the music library was hampered by the collapse of a portion of the shelving there, which caused some of the materials from those shelves to be lost in the soup, but it was also helped greatly by the proximity of this area to the large stairwell at the front of the building. Approximately 70 percent of the music print collection was eventually salvaged. However, all 12,435 recorded audio materials in the music library were lost, as was its substantial audio-visual media collection.

Less than a week later, the salvage operation and New Orleans suffered a grave setback with the news that another large storm, Hurricane Rita, was on the way. All emergency crews in the city, including BEL-

FOR's, were ordered to evacuate on September 23. This second storm would send to the west many of the military personnel that had been working in the city, as well as much of their equipment. During the next week or so the city was in disarray once more, but BELFOR was able to remobilize and re-enter the city on September 28. The salvage of priority microfilm and printed music materials in the Howard-Tilton building was completed by October 1 and the salvage of wet documents in Jones Hall finished on October 5.

Drained of water, the basement spaces of the Howard-Tilton building bore little if any resemblance to the same spaces pre-Katrina. Furniture and in some cases shelving had floated to different locations. Everything—walls, floors, and all contents—was coated with muck and slime. This had become a foul, dank 40,000 square foot cave whose pathways amidst the dark debris were lit only by the occasional bare bulb from utility lamps strung along yellow extension cords. Face masks were mandatory and workers used these trails to remove library collections in dark sacks that resembled body bags.

The last stage of the salvage operation in the Howard-Tilton building, the rescue of mostly older uncataloged government documents and a cataloging backlog, was very difficult since these materials had been shelved in compact, high-density shelving that no longer moved on its runners. Most of these shelving units had to be demolished to get at the materials inside. This was soggy and messy work that was finally completed on October 15, after which BELFOR crews removed all wrecked equipment and any speck of debris from these lower reaches, which were then gutted and any mold scraped away.

Some 692,905 volumes were underwater in these buildings; 483,011 were lost. In the case of microforms included in this count, volumes are analogous to titles or titled sets rather than pieces. More than 1.4 million pieces of microfiche alone were lost, for example, but individual pieces in this case could not be considered the equivalent of purchased volumes since a significant portion of the microforms collection was monographic in nature.

But some 209,894 important printed volumes and 18,269 reels of microfilm were salvaged and frozen for transfer to BELFOR's restoration facility in Forth Worth, Texas. The library expects that what was salvaged will be restored. Still, much of the work needed to rebuild Tulane's collections damaged or lost remains to be done.

This is an effort that goes beyond the interests of Tulane's faculty and students because the collections of Howard-Tilton Memorial Library have long served as one of the university's greatest community resources. Its music collection was not just a resource for the Tulane Music Department, it was the principal research collection in the Louisiana/Gulf Coast region for applied music and music studies. Its government documents collection was the oldest federal depository library in the region and among the largest. Its microforms collection held one of the region's largest and richest collections of newspapers in addition to thousands of facsimile collections of rare books and other research materials for study across a wide range of disciplines. Among the materials damaged in Special Collections were manuscripts that included the personal papers of several figures influential to Louisiana history (including two Louisiana governors and three former mayors of the City of New Orleans) and the records of a local bank that had been prominent in the 19th and early 20th centuries.

### Restoring Materials

BELFOR's restoration headquarters is housed in an industrial-looking warehouse building not far from I-30 on Blue Smoke Court in Fort Worth. Inside, engineers and technicians develop processes to restore important materials that outwardly appear to be destroyed: mostly books, documents, film, and computer hard drives that have been through floods, fires, and other catastrophes. For printed volumes the remediation process involves unfreezing each salvaged item, washing its pages, drying to remove moisture, and radiation treatment to eliminate any residual mold.

But specifically, the process begins on the disaster site with carefully packing the salvaged materials in waterproof bags placed into marked boxes. The boxes are placed in freezer truck trailers immediately and then retained in frozen storage until the recovery procedure begins. Delivered and unloaded at the restoration facility, the material ready for processing is allowed to thaw, identified, and then moved to a washing table. Each volume is carefully washed, page by page, with a gentle stream of filtered water and with a soft bristle brush or a foam brush if required. It is next placed on the table in its natural shape and the excess water is allowed to drain off. Then it is placed on a drying cart, care taken to support all the item's edges.

The carts full of washed materials are then refrozen and as space becomes available, they are placed into a

vacuum freeze-dry chamber, which uses vacuum pumps to remove the air inside until the air pressure level goes below 4.57 mm Hg. Normal atmospheric pressure is around 760 mm Hg, so more than 99 percent of the air that is normally present is pumped out in this process. The very low pressure level makes sure that all drying takes place by sublimation (ice changing to vapor without passing through the liquid phase) and that nothing will dry by evaporation (liquid changing to vapor). "If we can avoid the liquid phase during the drying process, the materials will not degrade further during drying," explains BELFOR's Kirk Lively.<sup>9</sup>

Microfilm is also packed and frozen similarly at the salvage stage. But once at the restoration facility, the film is inspected and set up for processing on a 35 mm microfilm processor using multiple rinse tanks. Rinse solutions are changed frequently as they become contaminated with dirt or residue remaining on the film. The film is closely monitored as it is cleaned by hand and dried since sticking or breaks may occur during this procedure. After reprocessing the film is placed on new spools, inspected, and then placed in light resistant black plastic boxes with new labels created using information from the original.

### Restarting the Library

Several key library personnel established contact with each other relatively quickly after the storm from their various locations in exile. Soon working contacts with BELFOR were established to assist with the salvage effort, including the handful of librarians who worked with BELFOR in New Orleans well before the city was open. A few other issues also needed to be dealt with fast.

Much of the library's \$5.2 million annual collections budget for 2005 was tied up in acquisitions that are automatically shipped; a train that would seem hard to stop. These include serial subscriptions and books purchased through approval plans, blanket plans, and standing orders. But from remote locations, yahoo email accounts and cell phones were used to contact major vendors to suspend these shipments immediately. Most of the library's other direct suppliers watched the news and wisely suspended shipments on their own. Then aside from the individuals still working with BELFOR in New Orleans and the library's dean and a small number of staff members who had joined the volunteer crew at Tulane's temporary headquarters set up in Houston, most library personnel settled in as best they could for a very long wait, anxious for news about when or whether

they would someday be able to return to work. While Tulane experienced huge operating losses and property damages alone exceeding \$160 million (excluding building contents),<sup>10</sup> it kept its personnel on the payroll. Eventually the university announced on a temporary web site that some personnel would be called back to campus to begin preparing for a 2006 spring semester. The campus recovery, facilitated by BELFOR and coordinated by Tulane's Facilities Services Department, had been dramatically successful and remarkable in terms of scale and speed. But as the reconstruction dust began to settle, it became clear that the library's main Howard-Tilton building had suffered especially severe damages and months after constant work it was still unable to function on its own without temporary power and tubes filling its open doorways and stairwells to blow in air from mobile HVAC units parked outside.

A plan emerged to bypass the basement, by then a vast empty cavern. Thus power would be reconnected to the building, data lines would be rerouted to restore phones and network services on the upper floors, and eight large temporary HVAC units would be installed along the rear of the building connecting through windows to each floor. Air would be circulated through plastic inflatable tubes again, but this time the tubes would be mounted from the ceiling to allow library users to walk freely through the building.

January 2, 2006, was the date set for library personnel to return to work in the building. About six weeks in advance of this date, vendors were contacted to restart shipments of serial subscriptions and books on approval and standing order. This was a huge gamble since progress on readying the building in time for the scheduled return began to run into delays, but the gamble paid off.

All library personnel who were able to return were indeed welcomed back to work on January 2, although the main building was still without power. It was an emotional day, as experiences were shared in stories or just in hugs, tears, or knowing nods of concern. Temporary assignments for staff were organized ad hoc in functioning Jones Hall across the parking lot. Power and data connections within the Howard-Tilton building were gradually brought online and within about two weeks most library personnel were back working in their own work spaces and, miraculously, faculty and students began to use the library on January 6 in preparation for a 2006 spring semester. Painfully, the library would soon see a reduction in staff from university wide layoffs: the loss of people who in their personal lives had worked

so hard to return to the city. But this was a library that was by then used to coping. More than 87 percent of Tulane's full time students returned for that first post-Katrina semester and, in the context of the university's Renewal Plan that includes reduced overhead and a more distinctive, focused curriculum, the enrollment outlook continues to look optimistic and the university has embarked on a solid financial plan for recovery and eventual growth.<sup>11</sup>

### **Unusual Challenges**

Even as the library was still planning to reopen it was apparent that lack of mail service in New Orleans would be a hurdle. The storm had destroyed the United States Postal Service processing and distribution center in the city, the primary facility for sorting mail to and from southeastern Louisiana, suspending mail for many months and eventually requiring mail to be rerouted elsewhere for sorting.<sup>12</sup> Package delivery from some commercial courier services would initially prove unreliable too. Not much could be done about the loss of regular mail delivery in the region, but the library worked with its primary courier services to straighten out problems and encouraged electronic delivery of invoices. The third party serials vendor EBSCO stepped in on its own to offer its JETS service for direct delivery of print serials provided to Tulane as well as to other storm-affected libraries in the region, a vital service this company provided free for more than a year.

As the 2006 spring semester progressed so did the seasons: hot and humid weather gradually returned to test the temporary HVAC system rigged for the Howard-Tilton building. On one weekend in early June a power outage caused humidity and temperature levels to spike briefly, but long enough to allow dormant mold to bloom on tens of thousands of volumes shelved on the third floor. BELFOR crews were called in to quickly treat these books on the shelves with backpacked HEPA vacuums and natural latex sponges. In a broader response the library set up its own digital climate monitors throughout the building and BELFOR set up more than a dozen of its own. After a second bloom in roughly the same location, weekly climate meetings were established to compare readings and weather forecasts in a successful effort to continually adjust the unwieldy system of temporary HVAC blower units and their add-on dehumidifiers to maintain a stable climate for books.

The library's damages and losses are subjects now in litigation. Quantifying these damages and losses was an extremely difficult task given the library's staffing limi-

tations and other competing tasks, but this was a project begun earnestly even before the return to campus. Eventually full lists of titles with imprint information were pulled from the library's online catalog for each of the building areas affected, but title lists failed to account for multiple copies of a title edition or for multiple volumes of journal titles. Order information available in the online system proved of little use for gauging the value of losses, since these data were available for only a small portion of the materials lost or damaged and often difficult to track, given frequent vendor and publisher changes. By far the most accurate and useful information for producing an item count for print collections came from the results of physical shelf counts undertaken for various architectural space planning exercises prior to the storm, information stored on a PC that luckily was housed in an upper floor office.

With its losses of basement collections and equipment, the library also lost some 40,000 square of space to house collections since for obvious reasons it was immediately decided that none of the library's collections would ever be housed at such low-level elevations again. The library was already short on collections space before the storm. Just three years before, about 500,000 older print volumes from the Howard-Tilton building had been moved to a warehouse renovated for off site library storage and located about two miles north of Tulane's uptown campus. Many of these volumes had been stacked in the aisles before the move and by 2005 shelves in Howard-Tilton building were again nearing capacity. Loss of space has created special challenges for accommodating both materials returning from restoration and those that the library would like to accept from donations. Hence, in fall 2006 the library formed a Building Steering Committee to organize a broad examination of future library building needs.

In a related note, crews arriving at the library off-site storage facility after the storm by boat were surprised and relieved to find that while this building was surrounded by water its raised foundation was about one inch higher than the water had reached and this building's flat metal roof was leaking but intact. But one wonders whether, post-Katrina, one inch will be good enough for the future.

### Turning Challenges into Opportunities

The library had returned to operation with its collections budget largely intact but only half the normal period of time to spend it and a very large but undermined amount of material carrying charges that were backed

up in the delivery pipeline. The loss of a full semester made expenditures for the year very difficult to predict. Moreover, while a surprisingly small number of invoices would actually be lost, many vendors and publishers waved price increases or discounted invoices for the period in which the library was closed. A few simply waved any charges for the year altogether. As the frequency of these often subtle gifts began to rise, it began to look like the library, against all odds, might be heading toward an expected windfall at least on the acquisitions front.

So began months of negotiations with several sympathetic publishers including Thomson Gale, Proquest, Readex, and Alexander Street Press, and these talks were aimed at leveraging subscription credits and other possible surpluses to acquire large archival digital collections at unusually discounted prices. In aggregate these would supply full-text access across the Tulane campus network to most literature published in America before 1900 and most literature published or collected in Great Britain before 1800. In another successful post-Katrina gamble, these purchases were lined up in advance without any real sense of how much of the money needed to purchase them would actually accumulate. In the final two weeks of its spending year, the library bought about 30 new digital collections in all, any one of which would have been a major single acquisition previously. One publisher of science, medical, and technical ebooks, Springer-Verlag, was even moved to donate free of any charges its entire new run of more than 11,000 e-books, any one of which can carry a list price of several hundred dollars. Further, Springer agreed to extend this gift to all academic libraries in New Orleans.

Only a portion of the content available in these new digital acquisitions could be considered a direct replacement of what the library lost to Katrina, but in some specific areas of study the library came out ahead and with a format more broadly accessible.

Within only about eight weeks after the Howard-Tilton building was reopened to staff, a temporary Music/Media facility was constructed in a retrofitted fourth floor area that had formerly served as an overly large staff lounge. This facility was furnished with audio listening work stations and a battery of media work stations for audio-visual recordings. Compact shelving was installed to accommodate books and scores arriving from donations, although the number of these in no way could alone support a music curriculum. Both Alexander Street Press and NAXOS, the two leading providers of streaming audio collections, donated a full year

of access to all of their audio databases, which quickly restored listening access to thousands of classical, early American, and folk music titles. Some additional scores were acquired online in Ebrary's Classical Sheet Music Collection. More scores online have been targeted in pre-publication. Also, it must be noted that the library's distinguished William Ranson Hogan Jazz Archive is a separate collection, still very much intact, and housed on the third floor of Jones Hall.

But rebuilding physical music and media collections remains one of the library's greatest challenges and priorities. More than 12,000 boxes of salvaged material will come back to the library from BELFOR's restoration process, including many of the library's original music books and scores. In addition, a number of libraries and publishers committed early on to donate many thousands of volumes of music books, scores, and government documents. This will provide a solid core for the rebuilding effort. Space to house these materials will simply somehow be found. However, with its reduction in staff overall, the library is stretched very thin to handle its normal workload, too thin for any hope of handling on its own handle the extra work of physically processing several hundred thousand recovered materials and cataloging donations.

### **Recovery Center**

So plans have been laid for an idea called the Recovery Center that will be the vital means by which the library will return its collections to strength. The Recovery Center is set to be based at Tulane's off-site library storage facility on Jefferson Davis Parkway not far from its uptown campus and where recovered and donated materials can be received and stored. It would provide the staff necessary to manage and process materials so that they can be identified in the library's catalog and eventually placed on the shelves. Its ambitious goal is to process nearly 300,000 items from restoration and donations.

The university has committed to spend nearly \$8 million on the restoration process for the materials salvaged. The library at first sought money for the Recovery Center to process these materials from private sources but is now working with the Federal Emergency Management Agency (FEMA), which has said it will fund the processing of these materials if the work can be contracted out to independent contractors who can provide this help as a temporary service for the library.

The largest and perhaps most critical phase of the Recovery Center's overall task will be the processing of

restored materials for eventual integration back into the library's collections. This will also be the very important process through which the library will be able to make a final determination as to exactly which of the 692,905 collected works formerly housed in its storm-affected areas were lost and which were saved. This landmark effort involves the physical handling of each item and two basic categories of work: (a) checking returned items against the library's holdings to reactivate online catalog records while updating holdings information where needed and (b) basic sorting of restored uncataloged material such as manuscripts from Special Collections.

This phase is being treated as one independent service contract and bids for this project were recently collected. Many of the books to be restored are also being shipped to a separate bindery company for rebinding and then returned to BELFOR in Ft. Worth for quality control review. All restored materials eventually will be returned to the library's off site storage facility in New Orleans in boxes shipped on pallets, generally 32 boxes per pallet and some 400 pallets in all. The boxes are marked with data identifying their content in relation to the specific locations in the collections from which they were originally salvaged and each pallet will be accompanied with a detailed inventory in both .pdf and .xls.

It is currently estimated that 111,975 of these returning items will need to be checked against the library's holdings to reactivate their online catalog records and another 80,550 will need basic sorting. It is also estimated that 77,145 returning items are government documents, 13,500 are music scores, 20,430 are music books or journal volumes, 16,290 are books from the protected storage area and cataloging backlog, and 64,260 are archival works mostly comprised of political papers and other historical documents. Processing the music materials will be a critical first priority.

The basic work category of checking returned items against the library's holdings to reactivate their online catalog records applies to general collections materials salvaged from the main Howard-Tilton building. More specifically this work will need to include: checking imprint information from each physical item against Tulane's online catalog (Endeavor Voyager) using its cataloging module; reactivating records that are currently suppressed for each restored cataloged item; updating holdings records to reflect individual pieces of a title restored; and linking barcodes within the catalog system for restored items. In summary, processed items must be made "shelf ready," which includes replacing spine

labels, barcodes, date due slips, and property stamping as needed. Items searched for and not found in the catalog such as older government documents must be sorted out, listed in an inventory, and reboxed. Items searched for and found in the catalog with only short provisional records indicating that the items were “in process” at the time of the storm must also be sorted out, listed in an inventory, and then also reboxed.

The basic category of sorting restored, uncataloged material mostly applies to archival materials salvaged from the library’s Special Collections in Jones Hall. For these materials this work will need to include: examining all boxes to determine whether box labels match box contents (and relabeling boxes when necessary); ordering the boxes in relation to the specific collections in which they belong; checking individual folders in each box to determine if folder labels match folder contents (and rectifying when necessary); creating an inventory of this material to compare against previous collection finding aids to determine which materials have been lost; merging restored materials with some undamaged materials salvaged from the same area and reboxing and relabeling these collections when necessary; maintaining accurate records of this process for the production of new collection finding aids identifying collection contents at the series, sub series, box, and folder levels and that will identify lost materials when apparent.

The processing of donations is a project phase of the Recovery Center that is smaller in scale, but more technically complex in that it will require the items handled to be cataloged, very likely including some original cataloging for items such as music scores. This will require a much higher level of expertise different from the processing of materials returning from restoration. Therefore because of this difference in work requirements this phase will likely be treated in a separate contract.

In summary, a great deal has been accomplished under extraordinary circumstances and a lot of very difficult work remains to be done. But if the rebirth of a city like New Orleans is tied to the idea that a city is more than its buildings, the same may hold true for a great library.

### Thoughts and Conclusions

This paper is a set of observations rather than a report from an objective study. Therefore the conclusions that follow are drawn only from experience. Also, with so much work yet to be done the proper point for final reflection seems not yet to have arrived. But the following are offered as early lessons.

- Our experience appears to show that libraries do not need their own individual disaster plans as much as they need to be included in an overall general campus disaster plan that makes effective use of a qualified disaster mitigation company such as BELFOR. The reason is simple: in the event of an actual disaster, the type of equipment, expertise, and organization required (especially for library or other document salvage but also for critical building environmental control) is obviously far beyond what an individual library or even an individual institution could reasonably hope to continually prepare for. This would seem to apply to major fires, floods, or explosions limited to a building or two just as much as campus wide or city wide events. Disaster management is its own profession with its own quickly evolving technologies and standard practices. This stuff is much better left to the experts.

- Leaving a data trail to follow in the wake of a disaster is essential to determining losses. Our experience has shown that holdings information from the library catalog is useful but likely to be incomplete in capturing the actual number of physical items owned. Periodic shelf counts are highly recommended as probably the most reliable source for an accurate item count. As mentioned earlier, we had shelf count data from previous architectural space planning projects available. We had even recorded serial to book volume ratios through sampling and had this data available too. This has turned out to be invaluable in our case, but even simply maintaining an accurate map of a library’s shelving layout would be similarly useful.

- Backing up important electronic office data—excel files, word documents, etc.—will come in handy only if the backup copy is safe. Encourage library personnel to save and store important distributed documents to create multiple backups. Server storage alone can be vulnerable. Back up your own office PC by periodically copying files to a portable hard drive, which today are very cheap, about the size of an average PDA, and very simple to evacuate.

- Be wary of the quick fix, easier said than done but important nonetheless. Possible sources of assistance such as insurers, government agencies, and top level university administrators may have little understanding of the specific nuances of how libraries work: about assessing losses of collections or library equipment or staff; about the difficulty of replacing even recently acquired collections; about how even donated materials have significant costs associated with cataloging and physical processing; about the continuing importance

of physical spaces to house library collections. A basic rule of thumb for library administrators in disaster-affected libraries might be to grab for opportunities, but test each one against how or whether it would benefit the institution as a whole two or three years down the road.

▪ The popular record of the aftermath of Hurricane Katrina seems to have focused primarily on the weak government response, which in turn seems to have been too focused on itself. While it is important to hold these authorities accountable, perhaps too little attention has been focused on the non-government efforts that held New Orleans together after the storm and that have largely sustained a current ground-up effort to rebuild. Tulane University, the city's largest private employer, marshaled its own early and successful effort to remediate damages on its uptown campus and its downtown medical center while at the same time largely retaining its work force. A dozen more colleges and universities in the city struggled but reopened as well. A "ride-out crew" at NASA's Lockheed Martin Michoud plant in otherwise devastated Eastern New Orleans kept pumps running throughout the hurricane, immediately started making repairs to the facility, and within three months most of the plant's 2,000 workers were back on the job.<sup>13</sup> Hotels downtown, shippers and shipyards alongside the Mississippi River, and even the large refineries in otherwise walloped St. Bernard Parish east of the city resumed their operations quickly. Remarkable numbers of small business and restaurant owners rolled up their sleeves to do whatever it took, reopened, and now hope for the best. Most who could rebuild their homes did so and with little help beyond their standard insurance policies. None of this was easy but it is what has helped to hold the region together, for now.

## Notes

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8. In setting salvage priorities, Eric Wedig, chief bibliographer for social sciences and government publications, was the library's primary on-site liaison to BELFOR in the Howard-Tilton building. Wilbur Meneray, assistant dean for special collections, was the primary on-site liaison to BELFOR in Jones Hall. The author approved all salvage priority and restoration decisions for materials in the Howard-Tilton building in contacts by phone, on-site, and in trips to BELFOR's Ft. Worth TX, restoration facility. Leonard Bertrand, the library's acting head of music/media, made an early trip to the Howard-Tilton building and has since traveled more than once to Ft. Worth to review the restoration process.
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