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## *Abstracts presented during the Book and Paper Group Session*

### **POV: An Archives Conservation Laboratory's Efforts in Reaching Out and Leveling Up**

*Ayaka Ajiki, Sanira Beevi, and Cassandra Tang*

The wheels started turning in a different direction for conservation in the National Archives of Singapore (NAS) three years ago. Tucked away in a picturesque hillside building, the conservation team operated in the shadows, as a back-of-house function. Driven by the goal to raise the profile of conservators, stoking an interest in conservation resulting in pride in and respect for the meaningful work conservators do, a progressive route was charted for the team targeting outreach, education, and engagement.

#### *Outreach*

We were eager to challenge preconceptions of conservation being deadly serious business, with no room for humor. From a dearth of conservation-related posts on our institution's social media two years ago, conservation is now front and center, gracing social media platforms such as Zoom, Instagram, YouTube, and, most recently, TikTok, making archival conservation sexy again!

Notably, Conservation in NAS, a 10-episode TikTok series, threw the spotlight on our conservation team. The series highlights behind-the-scenes conservation processes at NAS. It has garnered 1,465,200 views and is climbing (the average views per clip is 146,520). Most hearteningly, the comments section has been ripe with queries on how one can join the profession. It also won the National Library Board's Outstanding Innovation Award in 2023—a recognition for being the first conservation series from an institution in our local TikTok scene. Ultimately, it has endeavored to make conservation education accessible, eliciting wonder and reaching new audiences.

#### *Education*

It is no surprise that conservation practices are varied around the world. With limited educational institutions offering conservation training especially in Asia, such educational opportunities or professional training might be out of reach for many aspiring conservators. To tackle the issue of making

conservation training accessible for our team, we created a comprehensive in-house professional training program that serves a dual purpose of being an induction program for new conservators and a progressive training model for conservators to develop their competencies at beginner, intermediate, and expert levels.

Taught by veterans in the team who have cultivated a wealth of experience training on the job, this model also serves as a means of sustainable knowledge transfer. Born during the COVID pandemic when we were sorely missing travel, it was aptly named the *Training Passport*, where conservators “travel” to new experiences and challenges and obtain a stamp when they reach their destinations. While putting together the sessions which targeted skills necessary for a paper conservator, from cooking wheat starch to cutting mat boards to sizing and lining, we also made sure to include training for operating the equipment in the laboratory. This ensured that crucial knowledge and know-how did not solely rest on one or two conservators' shoulders but are now part of the skill set of every member of team. Supplemented by a curated list of external online courses, we have been keeping abreast with the dynamic conservation landscape.

In early 2024, we extended an abridged version of this training to a group of conservators in neighboring countries, helping to raise the standard of conservation in the region.

#### *Engagement*

Necessitated by internal incidents with hazardous chemical agents and agents of deterioration, the Archives Conservation laboratory designed a first-ever internal records handling program for our library and archives staff. The National Library Board has a mandate to collect, preserve, and manage Singapore's public and private archival records of historical and national significance for their long-term preservation. As recent local and international events demonstrate, it is not enough for conservators alone to be apprised of the potential hazards in collections. Anyone who has exposure to physical records needs to be alert and informed of the signs of potential risk, and how to respond and protect oneself.

A component of our Collections Disaster Management Plan covers agents of deterioration, assessing condition of records, staff health and safety measures, best practices in records handling, how to identify health hazards, and mitigating steps to be taken. It has changed the way collections staff approach records, prioritizing their health and safety. Communication is smoother and quicker with clear

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escalation channels when the unforeseen happens. Staff and users are educated to understand the vulnerability of the materials they are handling.

Our training, which focuses on the special care required to ensure the long-term preservation of records, has also been extended to include participants beyond our organization, with external collection owners, archivists, and conservators from other local GLAM organizations to cover a wider group of users. This strengthens and cements the unifying role we play in preservation as agents of change, actively engaging an otherwise rather fragmented local conservation community.

This three-pronged approach has transformed the role we play as conservators in our organization. We are highly encouraged and motivated to do more and to do better—to make conservation accessible to all.

### **Starr-Crossed or Serendipitous? The Unexpected Move of Columbia University's C.V. Starr East Asian Library**

*Rachael Arenstein and Eugenie Milroy, A.M. Art Conservation;  
Alexis Hagadorn, Emily Lynch, Emily Holmes, and Morgan  
Adams, Columbia University Libraries*

In November 2022, Columbia University Libraries' staff were notified that the entire contents of the C.V. Starr East Asian Library had to be moved off-site before the end of the academic year. Required construction to update the historic building's fire suppression system would begin in June 2023, leaving the library six months to relocate a circulating collection of roughly one million volumes, and an extensive special collection of artifacts, scrolls, rare books, and archival material. While there was ample precedent for transport and off-site storage of the circulating collection, the special collections presented a different set of challenges. Portions of the collection were not fully cataloged on an item level, creating an initial hurdle as the size and scope of the project was not clear. Another major issue was housing, as many of the 3D objects were not housed suitably for a move.

Given the tight time constraints and project scale, a team of object conservators, archivists, packers, riggers, and movers were contracted to augment in-house expertise and capacity. This collaborative group comprising more than 30 team members managed to complete the project on time and within budget. Over five months, the contract team created more than 4,000 inventory records in a custom-designed Airtable database representing more than 17,300 items. Standard- and custom-sized boxes, designed to fit on the university's library shelving, were used to pack the collection for transport in a manner and with materials designed to also be safe for long-term storage upon the return of the items after construction is complete. What initially seemed like an unexpected ordeal for the library wound up becoming a fortuitous opportunity, providing construction money for

an inventory and rehousing project that would likely not have been otherwise funded.

While it is widely known that libraries hold more than books and works on paper, the depth and breadth of the 3D collections at Starr posed a challenge requiring cross-specialty collaborations and solutions. Each storage room, cabinet, and bank of shelving held surprises. The partnership between the Libraries' Preservation Division and the contractors enhanced the project as every firm contributed their expertise and experience in housing and moving artifacts, small and large. This article will focus on the collaborative tools, workflows, mistakes, and lessons that allowed the team to invent and adapt solutions throughout the fast-paced project.

### **The Production and Deformation of Drying Boards**

*Ting-Fu Fan and Yi-Chiung Lin*

Drying boards are one of the most frequently used equipment in Eastern painting and calligraphy conservation and mounting studios, aiming to dry and flatten artworks. Traditional drying boards are made of wooden boards, or a combination of wooden boards and paper, or wood strips with paper such as the classic Japanese-style Karibari.

High-quality wood strips and craftsmanship can be costly, limiting the options available to some studios and conservators and reducing the likelihood of use.

In this article, I will share how to use aluminum extrusion brackets instead of wooden strips and combine them with paper to create drying boards with the same functionality. This method allows for easy production of drying boards in any desired size, offering light weight, high structural strength, and resistance to deformation. Moreover, connecting drying boards of the same size can also provide a convenient option for occasional conserving or mounting of larger artworks.

### **Assessing Collections at the Library of Congress: The Human Aspects for Sustainability**

*Beatriz Haspo*

The Library of Congress is the world's largest public library, with more than 170 million items, containing 838 miles of shelving in three buildings in Washington, DC, and other facilities. Like any other institution, the Library of Congress struggles with storage space.

This article presents the integrated approach to space management and collection needs: the Space and Emergency Management Survey—the Stacks Survey, developed for the nearly 22 million books, pamphlets, and other printed of the General Collections at the Library of Congress. Besides the survey methodology and results, it will emphasize how

the survey design focused on the human component, using an innovative, inclusive, and equitable approach.

This is the first time in the history of the institution that such a large-scale survey for the General Collections has been conducted. Using tablets for portability, a team of 96 people is surveying around 95,000 sections in collections areas of the Jefferson and Adams buildings, where General Collections are stored, dedicating one 90-minute shift/week/person to the project. The survey was developed with a minimum number of questions needed to gain the most possible data in key areas in a short time focusing on inventory, environmental risks, condition, and space issues, and capturing images of sections. The survey of each section takes less than 5 minutes. As part of the survey, sections are also being documented with images, constituting the first-ever comprehensive visualization of each section of the General Collections in the history of the Library of Congress.

As the project manager, I have been responsible for engineering the design, planning the logistics, staff training, and overseeing its implementation. This article will share testimonials about how the survey has been empowering staff of various backgrounds conducting the survey and impacting their understanding of the collections, storage areas, and the role they play in sustainable preservation.

The Stacks Survey is an important initiative that will provide information to support preservation actions for years to come. But the impact on the team will go much further, beyond numbers.

## **A New Technique for Strengthening of Naturally Degraded Acidic Paper With Cellulose Fibers Coating**

*Ryota Kose, Takayuki Okayama, Masazumi Seki, Naoko Sonoda, and Yuki Tanaka*

From the mid-19th century until about 1990, acidic paper based materials were produced in large quantities throughout the world. Unfortunately, the use of acidic paper reduced the paper's strength due to chemical reactions during long-term storage. Although efforts have been made to mitigate this degradation through deacidification such as the Bookkeeper (BK) method, it remains difficult to restore the strength of degraded paper. The authors have developed an innovative coating method using fine cellulose fibers (FCF) as a strength-enhancing treatment after deacidification of degraded paper. FCFs are defined as nano or submicron fibers prepared from cellulose fibers by miniaturization, and are characterized by high optical transparency and chemical affinity with the cellulose. This method was patented and registered as a Japanese patent in February 2022.

Prior to FCF coating, the BK method was conducted on naturally degraded wood-free paper, after which the paper was wetted and excess of water was removed on a vacuum

suction table. Until now, the FCF coating process has been done manually using a coating bar. In this study, we developed a compact coating machine that enables continuous coating on both sides of degraded paper by passing through two rolls in sequence. As optimized conditions, a coating speed of 4 m/minute and a gap of 1,500  $\mu\text{m}$  between the rolls were selected for the coating of commercial FCF. Freeze drying, thermal drying, and vacuum drying were attempted as drying conditions for the paper after coating, with vacuum drying being the most appropriate. In this experiment, vacuum drying was performed at 40°C. Under this condition, the coating amount was approximately 1.2 g/m<sup>2</sup>.

While BK treatment of degraded paper did not change the tearing strength of the paper, FCF coating treatment increased the tear strength of BK-treated paper by 1.2 times. Comparing the tear strength of papers after accelerated aging showed that BK-treated paper was 1.2 times stronger than the untreated paper, indicating that degradation was inhibited. Furthermore, BK-treated paper coated with FCF was 1.4 times stronger than untreated degraded paper. This indicates that the combination of BK treatment and FCF coating treatment can achieve both degradation suppression and strength improvement. The legibility of the original paper remained unchanged after the FCF coating treatment, and the increase in thickness due to FCF coating was about 1% of the original thickness.

Good experimental results were also obtained in the possibility of lowering the drying temperature from 40°C to 30°C and in the preparation from raw materials (bleached hardwood kraft pulp) of FCF suitable for the coating.

## **The Collections Won't Pack Themselves: A Preservation and Special Collections Collaboration**

*Mary Leverance, Amber Cooper, Sally Crutcher, and Estefani Mann, University of Arkansas*

Major building renovations required the complete removal of collections, materials, and staff from two levels in Mullins Library at the University of Arkansas in 2022. Due to an accelerated timeline, library staff had an unexpectedly short timeframe to plan for the move and to pack materials. This talk will address how the Libraries Preservation Unit collaborated with Special Collections staff to prepare and pack approximately 80,000 collection items for the move out of the building. Preparations began in January 2022, with a deadline of everything moved from the building by November; renovations began mid-December.

The first steps taken by Preservation and Special Collections staff were to establish guiding principles for the project, assess collections, and identify temporary storage locations based on material usage. Preservation staff were familiar with Special Collections materials in general, but

preparation of various material types for packing required a quick assessment of storage conditions and items needing preservation attention. This assessment allowed for basic triage (e.g., Mylar covers for volumes with red rot, using pre-made four-flap enclosures) while notes were taken on issues to address once collections are moved back into the refurbished space. Preservation staff provided guidance on packing procedures, trained library staff in packing, ordered appropriate supplies, and implemented easy and low-cost solutions for packing a variety of materials, including multimedia, rare books, oversize books, and objects. While there is some literature on packing collections for a move, preservation staff spoke with others in academic libraries who have recently completed a move, learned from their insights, and implemented various tips on packing.

Moving collections inherently carries a degree of uncertainty—timelines shift, or surprises are found on shelves—and this project was not an exception. Unexpected events were experienced over the course of the project: plans to make compact shelving space more accessible did not pan out, issues with the HVAC meant running portable dehumidifiers for a few months, repeated conversations about packing and moving flat files with different moving companies took place, and staff needed to take time from their regular job duties to help pack materials. Preservation and Special Collections staff managed problems as they arose and ultimately met the final deadline for the move.

### **Wet Recovery: The National Library of Jamaica's Perspective**

*Lisa-Ann Norris, National Library of Jamaica*

There is no doubt that changes, uncertainties, and surprises are inevitable aspects of life. However, how we adapt and respond to them when faced with different adversities is what matters most. The field of Preservation and Conservation is one in which changes, uncertainties, and surprises occur frequently. We see changes in the different equipment used to undertake conservation works, processes, and, of course, emerging technologies, which is one of the main perpetrators of change in this 21st century. Global warming, natural disasters, and globalization are also factors to contend with in the field of Preservation and Conservation. This poster will examine how an uncertain event took us by surprise at the National Library of Jamaica. It will also examine how the event was handled and how it has allowed us to embrace the changes that came about because of this event. This event that is being referred to is a flood that took place at the National Library of Jamaica on April 16, 2016. This flood was due to a broken main connected to a cooling system from the microfilm processing laboratory. This resulted in water seeping through the roof from the fourth floor of the buildings to

the ground floor. It resulted in a horrific experience for the National Library of Jamaica team, who was faced with such an uncertain event that began over the weekend (Saturday) until it was discovered the Monday on reopening the library for its usual business. There was a trail of destruction on every floor. Map cabinets filled with water and water-soaked maps, which resulted in them being discolored, soaked, and extremely fragile. Manuscripts, books, and rare books, among other paper-based items from the collection, were affected. How such a situation was handled and what changes it brought about for the organization will be discussed and analyzed thoroughly in the presentation of the poster. Finally, expecting the unexpected and embracing change, uncertainty, and surprise is a valuable mindset that can lead to personal and professional growth, enhanced resilience, and the ability to adapt effectively. By understanding the inevitability of change, embracing uncertainty, and reframing surprises as opportunities, individuals can navigate through life's unexpected twists and turns with confidence. It is also important for us to remember that change should not be seen as a deterrent but instead as an invitation to discover new possibilities.

### **Soluble or Not? Research Outlining Solubility and a Natural Aging Study of Water-Soluble Pencils and Pastels**

*Lindsay Sisson, Rosaleen Hill, Jennifer Poulin, and Scott Williams*

Water-soluble pencils and pastels have been produced and utilized since the early 1900s. Water-solubility, originally developed to aid in the clean-up of waxy graphic media, soon became a desirable property for artistic practice. As such, water-soluble graphic media was integrated into the works of Jackson Pollock, Sarindar Dhaliwal, Saul Steinberg, and other artists' collections. Due to the myriad ways artists can apply this media, it can be challenging to visually distinguish it from their non-soluble pencil and pastel counterparts, as well as traditional watercolor washes. This is further impacted by the limitations of media labels, product data sheets, and the nature of artistic practice, which has made it difficult to track artworks made using water-soluble graphic media in collections. As previous studies have indicated, unlike traditional watercolor, water-soluble pencils can remain soluble long after they are applied due to their water-soluble waxy binder. The differences in their solubility behaviors paired with how easily they can be mistaken for other media can have dire consequences for artworks in collections. Additionally, there is little literature exploring the natural aging properties of these materials; therefore, the need for further exploration of these materials has been identified.

This research explores the composition, aging, and solubility behaviors of seven water-soluble graphic media: Caran d'Ache Neocolor II Aquarelle Water-Soluble Wax Pastels

and Museum Aquarelle Watercolour Pencils, Brevillier's Cretacolor Aquarelle Oil Pastels, Derwent Inktense Ink Pencils, Faber-Castell Albrecht Dürer and Goldfaber Aqua Watercolour Pencils, and Gallery by Mungyo Watercolour Crayons. Fourier transform infrared (FTIR) spectroscopy, pyrolysis-gas chromatography-mass spectroscopy, and portable x-ray fluorescence were used to identify the binder, bulking agents, and colorants. Preliminary analysis has indicated the presence of polyether-polyols and other sugars instead of traditional gum binders which may contribute to the media remaining soluble over time as described previously. Thermo-aging in hybridization tubes was undertaken on media that were applied to Arches hot-pressed watercolor paper. A set of aged and unaged samples were then immersed in baths of commonly used paper treatment solvents: distilled water, ethanol, acetone, ethyl acetate, and toluene. Any color

shift resulting from these baths was monitored with a Konica Minolta CM-700d color spectrophotometer, whereas the relative amount of media was tracked using ATR FTIR.

All research samples and data, in addition to pencil and pastel sets, acquired will be added to Queen's Artist Material Archive to support the development of a long-term natural aging study of these materials. An additional goal of the Artist Material Archive will focus on the creation of a database of External-Reflection FTIR spectra to help distinguish water-soluble graphic media from non-soluble pencils and pastels. This method will allow conservation professionals with access to FTIR to identify unknown media without damaging or sampling an artwork. This definitive baseline for future identification and material research will aid in the study of conservation concerns and treatment options for contemporary water-soluble pencils and pastels.