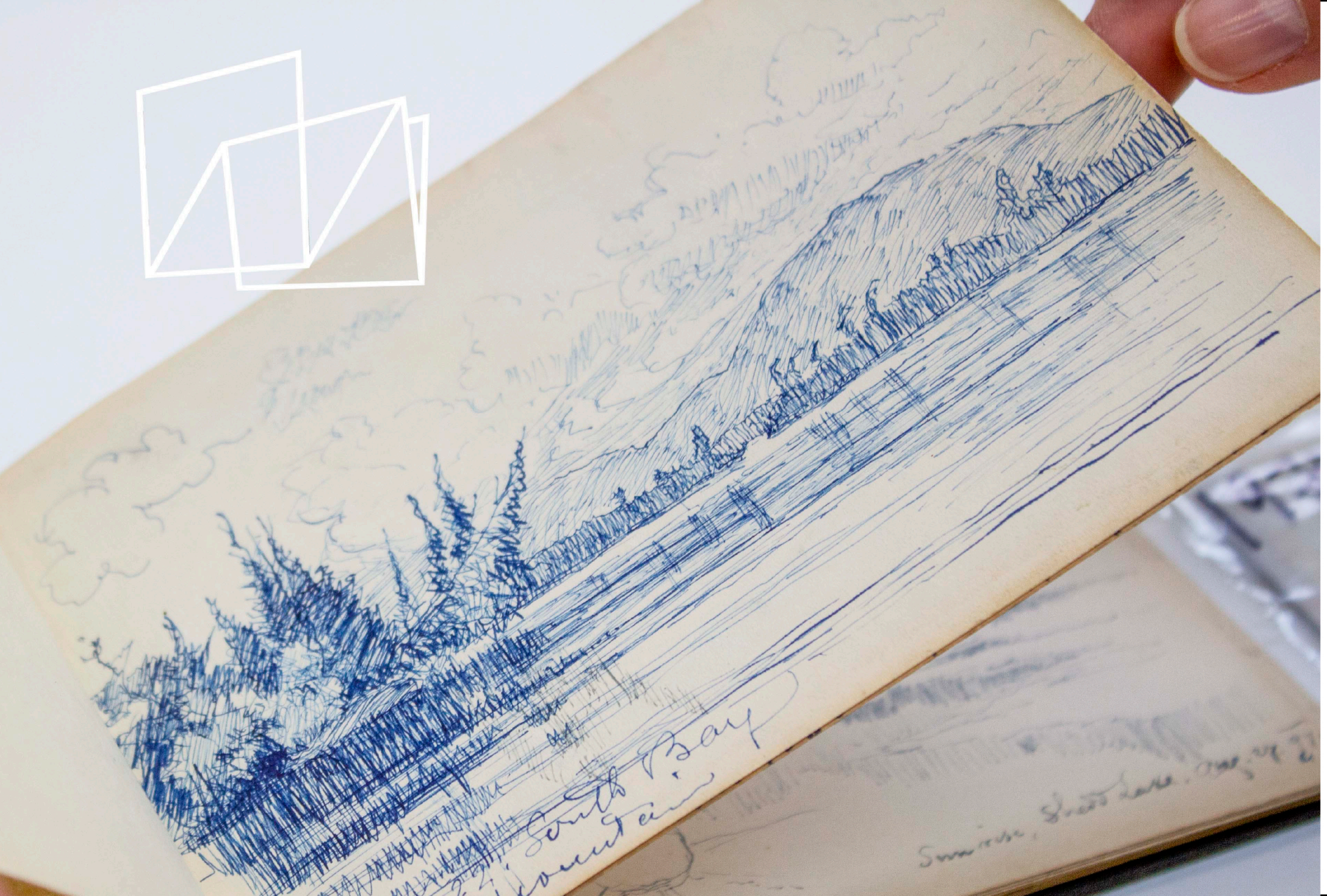
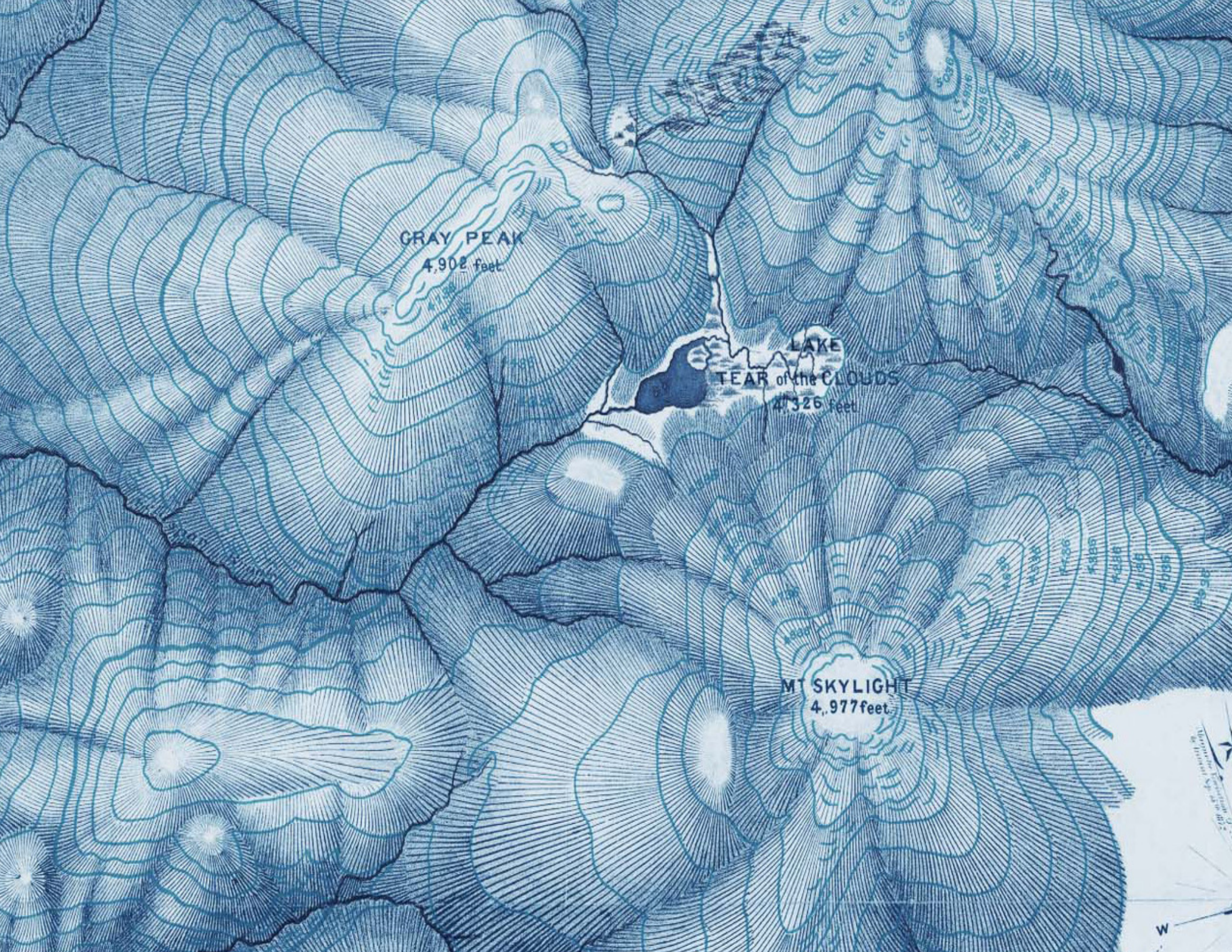



GRAY PEAK
4,902 feet.
LAKE
TEAR of the CLOUDS
4,326 feet.
MT SKYLIGHT
4,977 feet.
W

ART CONSERVATOR

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COVER | SNOW FAIN FLIPS THROUGH A SKETCHBOOK FROM THE ADIRONDACK EXPERIENCE | PHOTO CREDIT: MAGGIE BARKOVIC

RIGHT | ILLUSTRATION CREDIT: BRYAN MINNICH



A LETTER FROM THE DIRECTOR

Change can be more than good! This spectacular issue of Art Conservator is the first production by Maggie Barkovic, Editor as well as Associate Conservator of Paintings here at the WACC. The new format and design is true testament to her design skill's, which she has used to update our website and branding. She also assisted in the successful submission of our application to the Mellon Foundation which awarded the Center $580,000 under the Mellon Foundation's Coprehensive Organizational Health Initiative. This initiative is a multi-million dollar commitment to strengthen the organizational health of small and midsize arts institutions and regional conservation centers. In the next issue of Art Conservator I will give you a full report of the progress made for both WACC and AACC as the result of this grant.

I am also happy to report of an additional grant for two years from the Stockman Family Foundation for the conservation of 35 18th century Dutch Patroon portraits in the collectionof the Albany Institute of History and Art in amount of $238,000. I have been hoping to do something to put this collection in order for my entire career. We will finally be able to crown the last year's of my practice with fulfilling that ambition. More specific details will be in upcoming issues of the Art Conservator.

A PUBLICATION OF THE WILLIAMSTOWN + ATLANTA ART CONSERVATION CENTER

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INTO THE WILD





FIG. 2 Sketchbooks from the Adirondack Experience



FIG. 3 Inscription from Allen's sketchbook: "Canandaigua N.Y. 1869"



FIG. 4 Allen, "Lower Ausable Lake", graphite on paper, August 1869

LEFT | FIG. 1 Allen, "Ralston", chalk and graphite on paper, 1869

INTO THE WILD AND LEAVING A PAPER TRAIL

SNOW FAIN | ASSOC. CONSERVATOR OF PAPER | ATLANTA

Over the past centuries, the serene and beautiful wilderness of the Adirondacks have inspired wanderer, painter, and poets alike to capture nature into their sketchbooks. Seven intimate sketchbooks from the Adirondack Experience were brought to our Atlanta Art Conservation Center. The sketchbooks show illustrations by Rev. Frederick Baylies Allen, Daniel Folger Bigelow and Dr. Arpad Geyza Gerster: pastor, artist, and surgeon. All of these sketchbooks were easily portable (fig. 1), accompaning their master through the woods. The three artists represented by these sketchbooks all came from different lifestyles and carrier choices but found sketching an important pastime. Whether by paper, pen, or paint, in these books, you will find imprints of the Adirondacks on the minds of those that ventured, sharing the beauty that the wilderness and solitude can provide.

The history of the Adirondack acreage spans back to the 1600's, where it has existed through different wars and colonization. In 1858, a set of artistic intellectuals from Cambridge and Boston chose Follensby Pond (named for a reclusive captain) for the "Philospher's Camp", bringing together poets, scientists, doctors, lawyers, and writers. After becoming a capital for intellectual and creative output for misanthropes, William H.H. Murray's book "Adventures in the Wilderness; or Camp life in the Adirondacks" (1869) triggered a large number of curious visitors to see the Adirondacks. The Adirondack Park was not established until 1892, and over the years multiple areas of exploration were created and opened to the public. The Adirondack Museum was opened in 1957 and renamed Adirondack Experience: The Museum on Blue Mountain Lake in 2017.

THE SKETCHBOOKS OF FREDERICK BAYLIES ALLEN

Frederick Baylies Allen was born in Boston, Massachusetts in 1840. He was educated at Harvard University and Amherst College [1], prior to being ordained. He was a pastor in both Rhode Island andNew York before returning to Boston for the rest of his career [1]. During his deliberations and relocations, he still found time to sketch in his spare time. His sketchbook was brought to AACC with a loose sewing structure and detached pages within the textblock. The loose pages will need to be hinged back in place before sewing the textblock back together.



FIG. 4 Allen, "Literary Devotion", graphite on paper, 1869



FIG. 5 Allen, "View in the Adirondacks", watercolor on paper, 1869

In Rev. Allen's sketchbook, he used a variety of mediums such as pencil, pen and watercolor. Of the three artists represented in the seven sketchbooks brought to AACC, he was the most versatile when sketching (figs. 1, 3-5,).

THE SKETCHBOOKS OF DANIEL FOLGER BIGELOW

Daniel Folger Bigelow was born in Peru, New York in 1823 and was an established artist living in Chicago. He was a founding member of the Chicago Academy of Design, which would later become the Chicago Institute of Art [2]. Throughout his career as an artist, he became well known for his Adirondack sketches. He completed five of these sketchbooks and carried a variety of sizes and types. The smallest measures 11.5cm x 7.1cm with only five folios (fig. 6).

This sketchbook may have had other sections, which may have detached over the years through use and handling. His largest sketchbook may have had a case at one point, as it suggests within the sewing and fragments left on the spine (fig. 7). A smaller one appears to be a section out of another sketchbook (fig. 8). Along the spine, there are remnants of a tight-back binding that mimics the type of sketchbook he had in figure 7. This might suggest he separated his sketchbooks during his sketch studies, maybe kept like images with like. Or it might show how enthusiastic he was while sketching and weakened the spine by opening the sketchbook completely, breaking the spine. In both of these sketchbooks, Bigelow had the same type of approach when sketching the landscape around him. There is more shading and darker, more pronounced lines within the sketches (fig.9).

The last sketchbook was constructed of just one section adhered into a pamphlet like case made from linen . The linen may have been adhered to the endpapers of the textblock (area where the artist sketched or wrote), and through the years of use, the spine has worn away were the sewing held the textblock in place. The sewing within the textblock is still secure and holding the folios in place.

DR. ARPAD GEYZA GERSTER was born in 1848 in Kassa, Hungry. After graduating with a medical degree from the University of Vienna in 1872, Dr. Gerster moved to Brooklyn, New York. He bought a private practice, and he also worked as the appointed surgeon at the St. Peter's Hospital in Brooklyn [3].

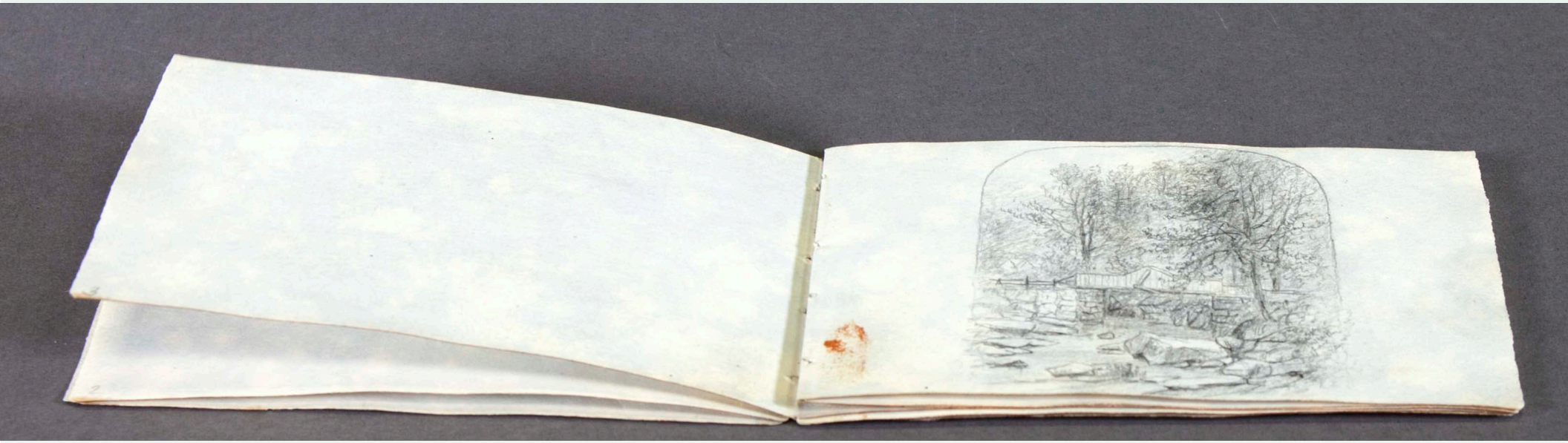


FIG. 6 Bigelow, detail from sketchbook, graphite on paper, c. 19th century

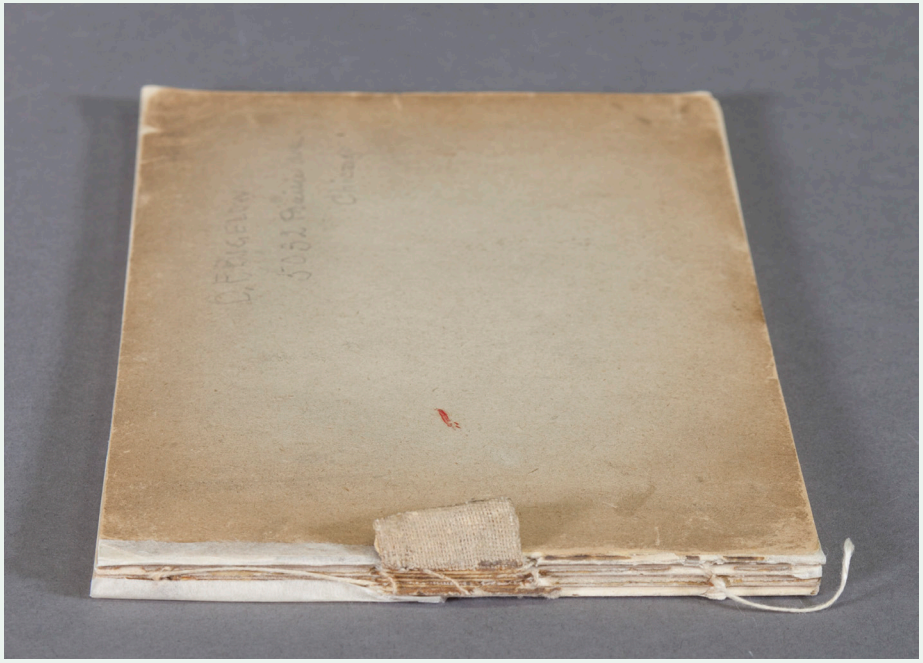


FIG. 7 Sketchbooks from the Adirondack Experience



FIG. 8 Sketchbooks from the Adirondack Experience

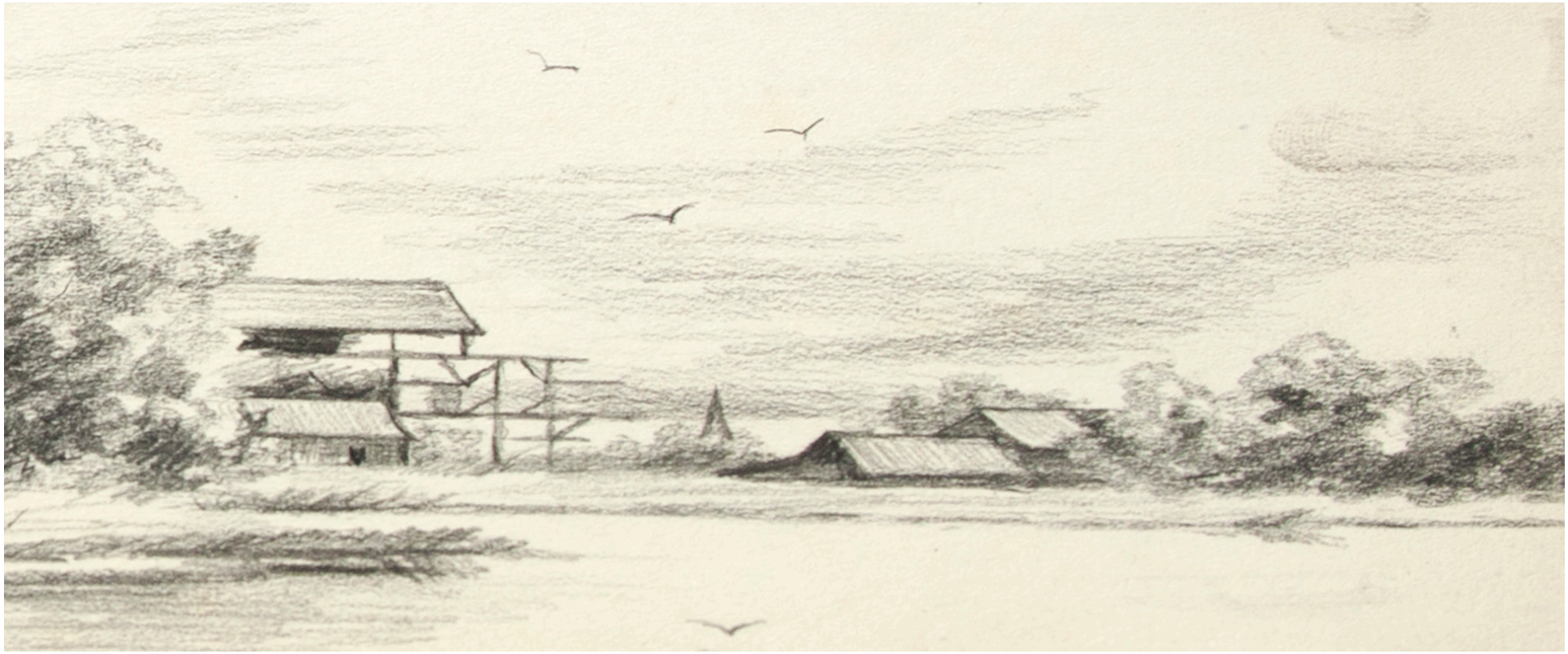


FIG. 9 Bigelow, detail from sketchbook, graphite on paper, c. 19th century

His thorough diaries, which accompany these sketches, span 1895-1898 [3]. His accounts of his time in this refuge are found in Notes Collected in the Adirondacks. The invigoration Dr. Gerster felt during his time spent can be captured in a thought while he was rowing along Raquette Lake:

> "BUCK YOUR TOSSING WAY AGAINST THE BLACK SQUALL AND NUMBERLESS, UNCEASING FILES OF ONCOMING, WHITECAPPED SEAS. IT MAKES YOUR BLOOD TINGLE, AND BRINGS OUT THE SWEAT UNDER THE JACKET." -- DR. GERSTER

Compared to Rev. Allen and Bigelow, Dr. Gerster's sketches were more heavy-handed in nature, and he was the only one to use pen to complete some of his sketches (figs. 10-11, cover). His sketchbook has loose pages within the textblock and added paper hinges to the first and last pages of the textblock to secure it within its case.

it within case. Figure 14 shows the spine of the textblock during treatment. The previous paper hinges were removed as the thickness of the paper hinges were heavier in weight compared to the paper used for the textblock; the heavier paper was causing a weakness where the hinge met the endpaper.



FIG. 10 Gerster, "Falls Pool",blue ink on paper, August 1897

The textblock is not sewn together and is sitting within the case. The overall sewing of the sketchbook was loose, and to secure each page back into the textblock, this sketchbook was taken a part. The loose pages will be hinged to a section before sewing the textblock back together. The textblock will be attached to the case using a linen extension to secure the textblock back into place.

Being able to compare these sketchbooks next to each other gives a glimpse into the mind of the person that sketched on each page. They each captured the area around them and were able to take that piece of the Adirondack back home with them. The Adirondack Experience is a fitting name for a museum where a unique experience is produced for every visitor. The treatment of the sketchbooks will allow future viewers to see the rare glimpses into the past of what each of these men saw when they would visit the Adirondacks to get away from the dolling thoughts of the everyday. They act as an inspiration to new artists to create their own portable window to the wilderness.

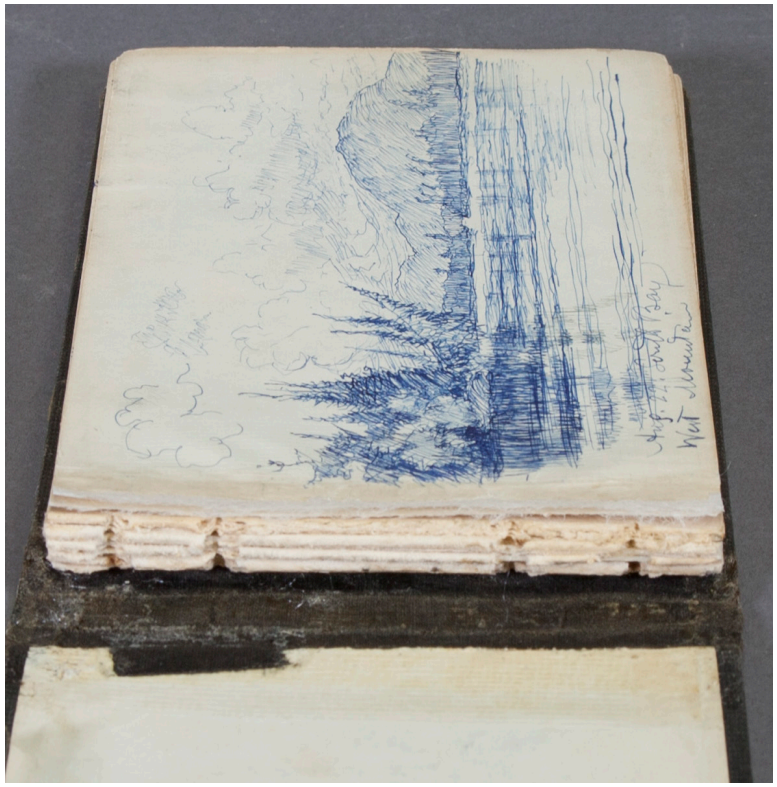


FIG. 11 Gerster, Detail of a sketchbook with pen and ink drawing

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LENETT FELLOW



EACH YEAR, THE JUDITH M. LENETT MEMORIAL FELLOWSHIP IS AWARDED TO A SECOND-YEAR STUDENT IN THE WILLIAMS COLLEGE GRADUATE PROGRAM IN THE HISTORY OF ART. THIS YEAR, OUR FELLOW NORA ROSENGARTEN, WORKED CLOSELY WITH BOTH OUR PAPER AND FURNITURE DEPARTMENT TO RESEARCH AND CONSERVE JOSIAH LORING'S TERRESTRIAL GLOBE FROM THE CHAPIN LIBRARY.


ARABIAN
SEA
BAY OF
BENGAL
Laccadive
Islands
Maldive
Islands
CEYLON
Gr. Andaman
Lit. Andaman
Lit. Nicobar
Gr. Nicobar
CAMBODIA
Cambodia
PHILIPPINE
ISLANDS
CHINESE SEA
BORNEO
Borneo
SEA OF JAVA
Batavia
Str. of Sunda
SUNDA
ARCHIPELAGO
EASTERN
ISLES
Chagos Adv
Bank
Diego Garcia
Christmas I.
Keeling or
Cocos I.
Sharks B.
NEW
HOLLAND
AUSTRALIA



MY FEET ARE NO MORE ON THE EARTH | CONSERVING JOSIAH LORING'S TERRESTRIAL GLOBE

NORA ROSENGARTEN | LENETT FELLOW, WILLIAMS COLLEGE

On December 7, 1972, one of the astronauts aboard the Apollo 17 spacecraft took a photograph, known as The Blue Marble. The most frequently requested photograph from NASA's Archives, it is also one of the most famous photographs ever taken from outer space. In fact, The Blue Marble is the first photograph to record the entirety of the Earth's circumference. Around the same time the shutter button clicked, the following exchange took place between astronaut Eugene Cernan and Mission Control's Robert Parker:

> Cernan: "Bob, I know we're not the first to discover this, but we'd like to confirm, from the crew of America, that the world is round."
> Parker: "Roger, that's a good data point."

The Blue Marble captures the arresting perspective Cernan and other astronauts assumed at this moment: looking down at our planet from above. Despite the seeming novelty of this image, human beings had been imagining this very disembodied, god-like vantage-point for thousands of years. More than imagining: cartographers, philosophers, scientists, printmakers, and artisans went so far as to construct three-dimensional models representing this precise spatial relation—that of a viewer gazing down at the Earth.

The first time I saw the pair of globes in Williams College's Chapin Library, I immediately thought of The Blue Marble. Boston-based Josiah Loring created two globes in 1833: one depicted the celestial realm, while the other recorded the terrestrial (fig.1). I focused on the terrestrial globe; WACC conservators will address the celestial as part of a further conservation effort. Although there is no extant record of the globes' provenance, they likely entered Chapin's collection when the library was founded in 1923. These objects testify to a rich history of globe-making that stretches back thousands of years, situated at the nexus of politics, metaphysics, and the production of knowledge. While there are records of globe-production in Ancient Greece and Rome, the earliest surviving terrestrial globe is Martin Behaim's Erdapfel (fig.2).



FIG. 1 **Terrestial Globe**, Before Treatment



FIG. 2 Martin Behaim's **Erdapfel**

Terrestrial globes solved a problem: two-dimensional maps are always slightly distorted, unable to accommodate the Earth's roundness. In contrast, the Erdapfel was without distortion; the cartographer could convey topography directly onto the globe without distortion.

While Behaim's globe was aesthetically and technically sophisticated, it could not be mass-produced. Only a few years after the Erdapfel, the German polymath Johannes Schöner altered revolutionized globe production with the invention of gores—oblong strips of paper with points at each end that can be molded perfectly onto a sphere. This allowed globemakers to print their maps on paper, rather than paint or draw them by hand, making the globes more exact and transforming this class of objects from solely unique art objects to commodities.

Loring's globe consists of three main components. The most obvious is the globe itself—a term which technically refers only to the paper-gore-coated sphere. The second component is the meridian ring. This is the metal circle that runs vertically around the sphere. The final component is the stand—in Loring's case made of turned wood—which contains legs and the horizon ring (the ring running horizontally around the globe's middle). My conservation efforts would address each component of the globe. But before I could begin addressing conservation issues, I integrated both scientific analysis and art histocial research to inform both methods of treatment and understanding of the materials and techniques used to fabricate the globe.

The surface had detertiorated ude to handling, environmental flutctuations, and age. Most apparent was discoloration throughout the Southern Hempishere (fig.3); these appeared to be long white drip-like markings, surrounded by bright green ocean. As a result, many sections of the globe were completely illegible and could not be spun. Why would the globemakers color the ocean green? Further, what were the unsightly white marks?

By the eighteenth-century, globe production was thoroughly standardized, and treatises like Benjamin Martin's Description and Use of Both the Globes and globemaker Didier Robert de Vaugondy's entry for "Globe" in Denis Diderot's renowned 1757 Encyclopédie described the procedure in detail. Drawing upon Martin and Vaugondy's respective accounts, a common pattern emerges. Globemakers tended to work from two half-sphere molds, coating each in a thin layer of plaster. Once the plaster dried, the maker connected the two halves, joining them around a central pillar (usually wood) and securing the joins with several nails and pivot pins.

ANALYZING THE GLOBE | UNDERSTANDING COMPOSITION + DEGRADATION

Since the slightest disparity in plaster thickness might cause the globe to favor one orientation, the globemaker often had to "weight" the globe—glueing something heavy onto the globe's interior to balance it. Once this



FIG. 3 Detail of discoloration throughout the Southern Hemisphere

process was completed, the globemaker would attach the gores, and mount the globe onto its stand. Remarkably, the procedure did not evolve between the eighteenth and nineteenth centuries; Loring's globe was very likely produced according to this same sequence.

An X-ray revealed that the construction of the globe was composed of a wooden pillar, pivot pins, nails, and weighting. The weighting was most likely leadshot—a collection of small lead balls—since this was a common form of weighting, and, in Loring's globe, several pellets have come loose. The X-rays showed the pellets rolling around inside the globe (fig.4). There is no way to correct this without puncturing the globe, so we left the lead shot as is; it is part of the globe's history.

The meridian ring, which is most likely brass (copper and zinc) or another copper alloy, displayed signs of oxidation in addition to a dark, thick build up. FT-IR analysis (a technique used to identify organic materials using infrared light) was used to analyze the unusual dark build up, identifying high levels of bitumen, kirilac, two kinds of brown pigment, cobalt drier, and carboxylic acid amine salts. The salts likely formed in reaction with the copper and zinc of the brass. However, the bitumen and kirliac (which is a type of unrefined shellac) indicated a coating had once been applied to the globe. Varnish often collects at the base of globes, since it invariably drips down while drying. Interestingly, there was no evidence of varnish on the paper. This led us to conclude that the globe was at one time varnished, and the varnish was probably removed at a later date. The rings was cleaned with both solvent and aqueous methods that would preserve the integrity of for a nearly two-hundred-year-old globe (fig.5). This method of analysis also shed insight into why the ocean appeared green. The pigment, viridian had been used to color the ocean blue; however, it had turned a slight green due to oxidation. Once analysis was completed, treatment could commence.

After removing the globe from its stand, we were able to begin treating the paper surface. Remarkably, there was almost no lifting; the gores remained adhered to the plaster. Each gore is painstakingly aligned with its neighbors—the registration is nearly perfect.

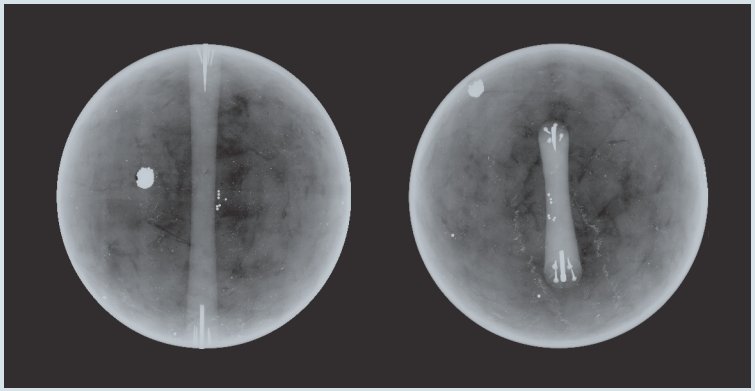


FIG. 4 X-radiography illustrates the globe's composition. The small dots represent the leadshot used for weighting.



FIG.5 Nora works to remove grime and products of oxidation from the brass meridian ring



FIG. 6 Surface cleaning with a vinyl eraser reduced the grime without affecting the support or pigments



FIG. 7 Retouching the discoloration from the white "drips"

TREATMENT + REASSEMBLING THE GLOBE

In some more invasive globe conservation efforts, conservators have removed each individual gore, cleaned it, and then returned them to the globe. However, since there was no lifting, we decided that such an approach would be overly invasive, and potentially destructive. Instead, we decided to clean the paper surface while attached to the globe.Localized areas of lifting were stabilized (consolidated) using an aqueous adhesive sympathetic to the globe's construction.

We began with spot testing to assess what cleaning method would be least invasive and most effective. The globe posed a particular challenge due to its three dimensional configuration and plaster support. Both solvent and aqueous-based approaches were tested, yet un-sucessful. Due to both sensitivities in the support and pigments. dry-cleaning with vinyl erasers proved to be the most effective way to reduce the soiling and leave an improved, yet damaged surface which could be reintegrated through retouching (fig.6). The wood was covered in hand oils from use, since the stand is the most obvious place to grasp the globe. The wooden stand was cleaned with an aqueous solution of 2% Triammonium Citrate, 1% Triton XLN, and 1% Benzyl alcohol, in order to remove grime, dirt, and built up wax. At this time, the joinery was reinforced. The damage to the Southern Hemisphere was reintegrated utilizing watercolors over an isolation layer of a 4% (w/v) methylcellulose so that the inpainting remained reversible and sympathetic to the globe's original materials. Several losses in the horizon ring were filled with 19th century paper sympathetic to the globe. The paper was washed in a bath of calcium hydroxide, then rinsed it with de-ionized water to reduce acidity. Using a historical paper ensures that the fill will age at a similar rate to the rest of the paper. After washing, we dried the paper. The losses were then reintegrated with watercolors. (fig.7)

Once the globe was conserved, the globe was reassembled (fig.8). Much to our excitement, after the thorough cleaning the globe was no longer bound, and could be turned both horizontally and vertically. Like Ptolemy, I found myself moving in between moments of material contact with this globe, and the contemplation the object evokes, shifting between embodied and disembodied modes.



FIG. 8 Conservators Becca Johnston and Hugh Glover help Nora to reassemble the globe and give it its first "spin" in a long time.

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FUJI UNDER GLASS



FUJI UNDER GLASS | TREATMENT OF AN EARLY 20TH CENTURY JAPANESE DOUBLE PANED REVERSE PAINTED GLASS PANEL

CHRISTINE PUZA | DEPT. HEAD OF CONSERVATOR OF FURNITURE & FRAMES + SCIENTIFIC ANALYSIS

Rarely used today as a medium of decoration or artistic expression, reverse glass paintings have a rich and storied history. Made by applying an oil based paint to the back of a pane of smooth glass, works created using this technique have an unexpected luminosity and depth, with saturated colors and an unexpected warmth when illuminated by candlelight.

Completely opposite to the creation of a painting on any other substrate, images painted on glass requires the artist to think and paint in reverse sequence. Each piece is done back to front: fine details are painted first, then larger color areas are worked overtop, with the background painted in last. It is a skill that requires great care and precision, as the primary, most visible surface is sealed in by each subsequent layer. Further adding to the difficulty is that asymmetrical scenes and text must be painted in a mirror image to be "right-reading" when seen from the front of the glass. There is absolutely no room for mistakes.

THE HISTORY OF REVERSE PAINTED CLASS

The application of colors and metal leaf to the reverse side of a flat sheet of glass is a technique that originated in antiquity with the production of reverse gilded glass tiles found in mosaics. The technique continued to flourish in Italy through the Byzantine era and into the 1300s and beyond. Reverse painted glass panels in a European context were first used as icons and altarpieces but were soon utilized as an artistic medium in and of themselves. In America, reverse painted glass reached the height of its popularity in the first half of the 19th century, where it was incorporated into mirrors, clocks, and other decorative art objects.

Reverse painting on glass is not a native tradition in Asian culture but an adapted one brought through trade. The earliest references to painting on glass in Asia were in China in the mid-seventeenth century, brought to the Kanxi court with the Jesuit introduction of Western technologies which included the production of glass and mirrors. By the 1750s, the production of glass paintings were centered in Canton, where it became a specialty product for exports. The technique was introduced to Japan as an import from China during the Edo Period (1603-1868) [1]. During the mid- to late 19th century, Japanese artists, drawn to the particular vibrancy of color this style of painting produced, created various reverse-glass works often featuring foreign lands as well as traditional Japanese landscapes and motifs.

CONDITION ISSUES

This Japanese double reverse painted glass panel (fig. 1) dates to the early 20th century. It likely depicts a scene from the Fuji Five Lake (富士五湖, Fujigoko) region that encircles the northern base of Mount Fuji. The panel has an elaborate double-paned construction, with the back pane set apart from the front with spacers to create the illusion of space and depth.

FIG. 1 (OPPOSITE PAGE) The reverse glass panel after treatment



FIG. 2 Christine removes old adhesive from a previous repair



FIG. 3 The primary panel is on the easel for the retouching stage where small losses are reintegrated from the reverse of the glass panel.

It also incorporates materials uncommonly seen in reverse glass paintings. The figures and lower sections of the houses within the painted landscape, for instance, were not painted, but are paper images cut from a woodblock print and adhered to the reverse of the glass. The material used in the roof of the houses is also unusual; this is made from finely crushed mother of pearl flakes bound in a natural resin varnish, with a glittering effect as the object is viewed.

The panel has several condition issues, all typical of this class of object and its inherently fragile materials. The back glass panel was broken at some point in the past and repaired with a dark brown adhesive (fig. 2). This adhesive has now failed, leaving a shard of glass free to move. Also of great concern is the fragility of the painted surface on the back of the panels. Typical of reverse painted glass objects, there are numerous areas of loss, with a cracked, lifting and flaking paint film.

Besides mechanical damage, there are inherent adhesion problems caused by the incompatible marriage of unfired paint and metal leaf to glass. While poor binding mediums can also be a contributing factor, most paint loss found on reverse painted glass occurs from fluctuations in relative humidity and the differential thermal expansion and contraction between paint and glass. As the paint layers age and become progressively stiffer, they begin to pull away from their substrate, leaving a gap between the glass and paint. This first stage of paint separation causes a bubble of desaturated color visible on the viewing surface. Inevitably, this bubble cracks along its perimeter, causing the fragile and embrittled paint layer to lift further from the surface, until it eventually falls away. This process is accelerated in objects housed in unfavorable environments and where paint is thickly applied. Once paint has detached from the glass surface, it will inevitably continue unless it is treated. The eventual result is a complete loss of the image.[2]

Glass panes manufactured prior to 1950 are not always consistent. Sheets of glass from the 19th century can vary in thickness and can be out of plane along one or both axes. The surface is often wavy, with streaks, inclusions, and air bubbles.[3] Part of the reason the secondary pane had broken was due to the uneven nature of the panel; it curves upward at the top corners, with no accommodation provided for this curvature in the frame.



TREATING THE REVERSE GLASS PANEL

The treatment of this object began with a complete disassembly of the glass panes from its frame. The back panel consists only of a small triangle of glass, which had been adhered into the rabbet of the frame with what appeared to be an animal glue. Heavily acidic and degraded cardboard had been used in the interior of the frame to act as spacers and a backing board; these were removed and discarded.

Flaking and lifting paint was consolidated with a solution of 5% B-72 in Xylene, which was carefully wicked into the cracks and beneath detached paint flakes with a fine sable brush. This process was repeated several times until the surface was consolidated. Regions of clear glass, both on the front and back of the panels, were then cleaned with a 1:1 mixture of deionized water and ethanol. This was successful in removing a heavy layer of sooty black soiling. The brown adhesive along the edge of the break from the previous repair was removed from along the break as much as possible.

Unfortunately, the adhesive had wicked under the paint layer on both sides of the break when it had been originally repaired, and was not able to be completely removed without sacrificing the surrounding paint, so it remains visible, but reduced from its original appearance. Once cleaned, the break was adhered with Hxtyl epoxy. Inpainting the losses required working in much the same way as the original artist- from the reverse side of the glass (fig. 3). Golden MSA colors were used, for their working properties, the toughness of the film, and reversibility. In addition to the physical difficulty of working from the back of the panel, color matching is extremely challenging, as you not only must compensate for the change in color from the saturation of the paint on the glass, but also for the slight color shift that occurs between the wet media versus the dried film. And, just as with the original artist at the time of its creation, there is little opportunity for second chances once the color is placed.

After the inpainting stage was complete, the object was reframed with internal spacers made from Coroplast and new archival matboard. Small shaped strips of Volara were used at the upper corners of the back pane, to provide support for the curvature of the glass. Finally, a rigid Dibond backing board was secured to the back of the frame to provide overall support.

The final result of treatment is a double reverse glass panel that is structurally secure, reframed with archival materials, and more visually unified. However, due to the inherent qualities of the materials and their continued interaction with the environment, the remaining original paint film remains delicate. What appears secure at this time will always have the potential for future cracking and flaking.

Despite its fragile beauty, this sweeping view of Mount Fuji captured under glass can now be appreciated for many years to come.

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TECHNICAL BULLETIN

NATIVE AMERICAN BEADWORK PART TWO | CONDITION ISSUES

NORA FRANKEL | ASSOC. CONSERVATOR OF TEXTILES

The most common condition issues found with Native American beadwork are lost or loose beadwork, soiling, and corrosion of glass beads. These issues arise from historic use, improper storage or display environment, and inherent issues within the materials. While every object has individual needs, if intervention is considered necessary, a conservation professional is likely to focus on corrosion, soiling, previous repairs, and stabilization. It is always important to consider source communities when working with Native American objects, and if possible it is strongly recommended to consult with a community representative before undertaking treatment. Some communities may not find interventive treatment appropriate, while others may prefer a more complete restoration, which can only be established by direct communication with the appropriate representative.[1]

HANDLING + STORAGE Bead loss is most likely to occur during handling and transportation. Loose beadwork can be difficult to spot, and handling may result in unintentional damage. Beads can easily stick to bare or gloved hands or pop off of areas that had appeared stable until an object is flexed or touched. Beads can be very small and may fall off of an object and roll away and become lost. Beaded objects are typically flexible and heavy for their size, which can add additional challenges.

Always handle as little as possible and with caution. Use rigid supports such as trays, boxes and boards where possible, handling by the support rather than manipulating the object. Storage boxes can be manufactured with tray, mounts, and boards that lift out for examination and display. Do not remove beaded objects from mounts unless necessary. Ensure that fringes, straps, tassels, and ribbons are supported and not freely hanging. If possible without causing strain to other parts of the object, handle by non-beaded areas. Note that detached beads may hide in crumpled tissue and box corners; take care when unpacking objects with beadwork and review or establish protocols for fragments to prevent disassociation.

Maintaining a stable relative humidity (RH) at approximately 55% RH is appropriate will prevent unnecessary dimensional changes that can cause stress, reduce risk of pest infestation on organic elements, and maintain appropriate hydration of hide and textile. If corrosion on glass or metal is present, a lower RH may be recommended, which is discussed further below. Reducing or minimizing light and UV is also important to prevent fading or weakness of the organic elements.

SOILING Soiling and dust deposition are common on beadwork. It can be visually distracting, act as a pest attractant, react with moisture to promote corrosion, and cause abrasion. Soiling may be from historic use, post-collection conditions, or both. It may not be desirable to remove historic use-related soiling, and some representatives from Native American communities have expressed that even post-collection dust is an important part of an object's history. It is important to consider the context and origin of the object before determining if and how much to clean. Beaded Tuscarora whimsies manufactured for a non-Native tourist market and contemporary art pieces, for example have a stronger argument for cleaning than beadwork on a 19thcentury Lakota honor shirt or beaded gun stock. Light surface cleaning may be a comfortable happy medium.



FIG. 1A Beaded Haudenosaunee bag, design suggests pre-1850s. Wool trade cloth, silk, glass beads, and thread. Rockwell Museum.



FIG. 1B Note severe losses of beadwork on edges, especially corresponding to degraded green silk ribbon bindings

It is important to ensure that all beadwork is stable prior to cleaning to prevent causing damage. Fragile beadwork may appear well attached until it is too late. If any beadwork is loose, which can be tested by gentle prodding with a gloved finger or dry cotton swab, it is best to bring the piece to a conservator rather than risk damage. A conservator can gently clean with a soft brush and low-suction HEPA filtered vacuum to dislodge loose dust without removing greasy soiling or dirt in beadwork interstices. To prevent beads from being sucked into the vacuum, Vellux® fabric can also be stretched over a vacuum nozzle and secured with a rubber band. This can then be put in direct contact with the beadwork, and the nylon flocking of the fabric acts in place of brush bristles to gently reach the interstices.[2]

Additional cleaning with deionized water, ethanol, or a mixture of the two can also be considered to further reduce soiling. It is important to note that water and ethanol both have effects on thread, sinew, hide, textile, and metal, which may be difficult or impossible to avoid due to the nature of beadwork construction. Water swells fibers and solubilizes dirt, which can cause stress to materials and creation of tidelines. Moisture also accelerates glass and metal corrosion. Ethanol reduces the potential for tidelines due to increasing evaporation, but can blanch dyes and dehydrate or damage fibers. Saliva has been historically used, and while many bead workers themselves use saliva and mouths as tools, some communities may find it disrespectful for a non-Indigenous conservator to use saliva for treatment.[3]

LOST + LOOSE BEADWORK Beadwork loss may be a result of broken beads, broken sewing material, or torn substrate. Corroded beads are more likely to fracture and break. Thread is more likely to break than sinew. Hide or fabric may give out before sewing material, usually resulting in strung beads that are no longer fully attached to the substrate (fig. 1). Areas frequently handled, such as edges, or flexed, such as shoulders, often incur the most damage (fig. 2).

PREVIOUS REPAIRS Previous repairs and reinforcements may be present on beadwork objects. These may be Indigenous repairs performed by the maker or an individual who has used the objects. They may also be undertaken by a collector attempting to stabilize or add value to a piece, or by a conservator. Repairs range in skill and effectiveness. Determining the source of the repair is important. If the repair, even if resulting in deformation, is suspected to be Indigenous, removal is strongly discouraged. Removing any repair requires justification, as it is an irreversible erasure of object history, and usually results in weakness that will need to be addressed subsequently.

One of the most common issues with previous repairs is distortion of beadwork and fabric. This is most noticeable on edgings, where the repair threads have not followed the original technique, and therefore beads sit incorrectly (fig. 3). Careless or poorly tensioned stitched repairs can cause stress and deformation, which is a structural as well as aesthetic issue. Thread colors may also be poorly matched, and bright hues of polyester or mercerized cotton sewing thread may help date some interventions.

BEADWORK STABLIZATION If beads are loose or lost due to weak sewing material, stitched stabilization performed by a conservator is preferable to adhesives as it moves naturally with the object. Adhesives can bleed into fabric, thread, and hides, resulting in stiffening and making reversibility challenging. When this contrasts to the flexibility of surrounding materials, adhesives can crack and fail. Adhesives often have an undesirable sheen. Some communities may also object to the use of unnatural materials on their heritage objects, and stitching may better fit with the intention of the object.

If the substrate is strong fabric, stitches can be inserted directly into the textile and through the beads, following original technique where possible, or by using couching stitches to support weakened areas. It may be possible to use a support fabric in areas where original fabric is weakened. Stitches made into hide will result in permanent holes, and if sinew is strong it may be preferable to stitch into surrounding areas of stable beadwork. However, arguments can be made for stitching into hide in some circumstances, and holes can be minimized with fine suture needles. Stitching through paper interlayers similarly creates a permanent hole, and may promote fragmentation of brittle paper.

Some beads are so fine that it is not possible to insert even a small modern beading needle through the hole. Beads can sometimes be threaded directly without a needle; it is better not to force a needle beads may break in half. The mechanical stress of re-threading beads can also result in thread or fabric breakage and loose beads becoming detached while working. Beadwork on silk may be particularly fragile. To prevent losses, it may be helpful to work in a tray. It is therefore important to consider this factor before embarking on a



FIG. 2 Detail of beaded Niagara style Haudenosaunee bag. Beads along edge of flap have become lost or partially detached, and remaining threads are tangled. Rockwell Museum.



FIG. 3 Interior of closure flap on Niagara style bag showing previous repairs in white cotton thread. Repair stitching does not follow beadwork pattern and may result in disrupted appearance of decorative edging. Rockwell Museum.

stabilization campaign. It is important to weigh the risk of damage as a result of stitched intervention with the need for support. Any additional detachment that occurs during conservation may suggest beadwork that was too fragile to survive travel and display.

METAL CORROSION Metal beads and spangles may have corrosion or tarnish. In some cases severe corrosion may result in structural weakness, and corrosion products may stain sewing material or substrate. If it is considered very visually disruptive, a light cleaning with acetone or ethanol may be helpful to remove oily soiling or salts that may encourage further corrosion, as well as offer a mild brightening effect. As noted above, care must be taken to prevent solvents from contact with hide or textile, as it may cause dehydration or changes in dyes. Corrosion may be considered patina, and therefore valuable, and it is not always appropriate to aggressively remove.

GLASS DISEASE Glass disease is a corrosion of historic glass that results in instability, visual changes, and increased surface alkalinity. The most common characteristics are white hazes, crystalline surface accretions, crizzling, and weeping. This can be visually disruptive and result in weakness and breaking of glass beads. Glass disease appears to be a combination of inherent glass composition and environmental factors, especially high humidity. Therefore, it is not uncommon to notice only certain colors of beads affected in polychrome beadwork. To test for glass disease, a drop of deionized water can be placed on a pH strip, which is then gently pressed against the affected bead. If tested areas have a pH of 10 or higher, glass disease is likely present.

The most important factor in reducing glass disease is to store the object in a stable, low RH environment. Most sources suggest between 35-40% lower RH, although organic materials such as textile and leather can become damaged at very low RH. Cleaning affected glass beads with deionized water or 1:1 deionized water to ethanol may improve appearance and remove compounds that may exacerbate the problem. However, it has been observed be noted that glass disease often, but not always, returns after a number of years.[4] Never clean beads that are not well-attached to the surface, and make sure there is no historic soiling or pigment before proceeding.

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GROWING OUR TEAM IN ATLANTA

MAGGIE BARKOVIC | EDITOR, ASSOC. CONSERVATOR OF PAINTINGS

A new generation of interdisciplinary conservators have joined our team in Atlanta for an exciting future of working with our Members in the South. Thanks to the support from the Mellon Foundation grant, the Center in Atlanta is now equipped to treat a wider range of objects to include paintings, objects, and works on paper. The grant has also facilitated integrating our two locations through digital teleconferencing equipment and travel so that our Williamstown and Atlanta teams can easily exchange ideas and collaborate on various projects. Our newest team members are Snow Fain (Assoc. Conservator of Paper) and Kristen Gillette (Assoc. Conservator of Objects) joining Megan Crouch (Assoc. Conservator of Paintings). We asked our colleagues a few questions about what brought them into conservation and the inspiration they find in Atlanta, an area that is growing as a creative magnet for contemporary art.

Snow Fain has a background in the fine arts as both a ceramicist and painter. She has cross-disciplinary training in both paintings and paper conservation with strengths in modern and contemporary art and book conservation. It's no surprise that Snow is attracted to objects that pose challenges with mixed media. She is very eager to engage





Snow Fain, Assoc. Conservator of Paper, and Megan Crouch, Assoc. Conservator of Paintings, discuss future collaboration on a painted photograph.



Thanks to the support from the mellon foundation, our studio in Atlanta is equipped with an interdisplinary staff to treat paintings, objects, and works on paper.



A detail of a William Hawkins painting illustrates a complex range of materials in this painting that will require collaboration between different types of conservation discplines. Wrapping paper, a doll hand, an aluminum can, and paint palette are just a few present in this image.

with the High Collection, which has a rich collection of Modern and Contemporary art and a fantastic representation of Outsider Art. Outsider art can be particularly challenging to preserve and treat due to the various self-taught methods and an array of artist materials or found objects that are incorporated into the artwork.

She has built up the paper lab with various new types of equipment, consulting with our paper conservators in the Northeast to ensure that both labs have the same capabilities for a range of treatments. As Snow moves forward, she's also keen to personally submerge into the growing art scene by joining a print making lab and a ceramicist studio.

Kristen Gillette gravitated towards the field through an immense appreciation of antiques and artefacts at a young age. Her love and interest for historical objects is shared with her grandfather, an antiques dealer and carpenter with a talent for furniture restoration. This lead her to study both archaeology and objects conservation.

She is passionate about spreading her enthusiasm for conservation through public engagement and education. Our Atlanta team has opportunities to provide instruction on collection care through preservation workshops that take place at AACC. Earlier this summer, the team taught a workshop on "Prevention, Prioritization, & Practicality: Assessing the Condition of Your Collection" for museum professionals in the community.

When asked about the growing art culture in Atlanta, Kristen said that the art community was a central reason she decided to make Atlanta her home: "there are also a lot of advancements with new types of art (time-based media, digital design, film) and a city that seems to be intent on making artistic expression accessible to as many people as possible".

A FOND FAREWELL



Leslie Paislie works with graduate intern, Perrine LaSoux.



Hugh Glover works on a custom frame in the studio.

Art conservation is a diverse field that attracts various types of minds and skillsets, but there is something key to our vocational motivation—a fervent passion for preserving the pieces of our cultural heritage for the next generation. Art captures us because it relates intimate pieces of our humanity that don't just transport, but transforms the beholder. In the case of the art conservator, we have the unique privilege to study and understand an object up close over a long period of time. Small details or new facts may come to light under the microscope or in the raking light of the morning that tell us how the artist worked, perhaps how a certain pigment or material behaves, and most often, inspire us to create and see our environment differently. It's a long road to become a conservator and the careful diligence and patience required to preserve and treat objects will tell you that the people on that road do it for their devotion to art. If it's not clear, it's a job that is addictive, rewarding, and hard to leave.

The Center has fostered an incredibly close community of colleagues who are committed to the preservation of art through innovation, collaboration, and mentorship. This year two of our dedicated conservators retired to start their next adventure: Leslie Paislie (former Department Head of Paper) and Hugh Glover (former Department Head of Furniture and Frames). We gave them a proper send-off amongst their colleagues and friends.



Leslie gives an uplifting talk about her journey at WACC at the retirement party.

Both Hugh and Leslie have been at the Center for well over twenty-five years, testifying to the supportive and gifted team at WACC and multitude of resources and opportunities. As a large regional center, there is a constant and steady influx of objects that challenge and refine our skills in addition to providing the unique resources—whether equipment or training--- required to meet those challenges. The diverse range of members and artworks often requires innovative strategies to manage and provide treatment for these collections. Leslie reflected on how thankful she was for the support and encouragement the WACC provided to participate in various professional development workshops throughout her career.

Leslie came to WRACL in 1989, after being Senior Paper Conservator at the Pacific Regional Conservation Center (PRCC) in Honolulu. She came to Williamstown to raise a family with her husband, just over an hour from her hometown where her family still lived. She also found her calling to conservation in England, while studying art history during her last year at university. Afterwards, she received significant training from her mentor, Christa Gaehde, in the States. Christa's lively mind, curiosoity, and energy remain a source of professional and personal inspiration for her. Leslie helped build up our paper lab as head of the department through her exceptional talent and enthusiastic mentorship. She will be spending more time at her cottage in Maine, enjoying the surrounding calm waters through gardening, walking and yoga. Travelling to see the kids and grandkids more is in the works, and perhaps a new canine friend will join her too. Hugh beat Leslie to that with a new puppy upon retirement, named "Maple". We're dog people.

Hugh had trained in England and first came to WACC, then WRACL, in 1986 for a one-year Getty Advanced Internship before returning to Williamstown in 1988 as a staff conservator in the department of frames and furniture. He started his profession by making custom furniture but found that "picture frames were plentiful, fascinating, and relatively neglected in the world of conservation and museum curatorship". He has been a pioneer in the study and conservation of picture frames, identifying trends in various collections and elevating their importance to the aesthetic interpretation of paintings.

Hugh is a great craftsman in and out of the lab. Hugh has been collecting hand tools and different type of woods for a long time. As a great craftsman in and out of the lab, he'll continue his passion for woodworking after retirement.

Their experience as mentors and educators was one of their most rewarding parts of their job at WACC. Other the years they mentored interns, colleagues, and Williams College students, seeing many of them develop into professional conservators and reflecting that they learned as much as they taught from these experiences. Leslie particularly enjoyed organizing professional development workshops with fellow paper conservators, paper historians, paper scientists, and craftsmen. An area rich in mill history, it was a wonderful place to collaborate and learn about contemporary manufacture of paper and print making. Leslie recommends the Crane Museum of Papermaking in Dalton to understand the history and art of papermaking (and perhaps make some too!).

Outside of conservation, one of the things that made them invest in WACC was the close community in the Berkshires that provided a wonderful place to raise a family while pursuing professional opportunities and challenges. Both Leslie and Hugh will miss their working relationships with their colleagues and the collaboration with the WACC team. They'll be missed as well.

"THE LAB IS UNIQUE IN THE SYNERGY THAT IS CREATED BY MUSEUM PROFESSIONALS, SCHOLARS, STUDENTS, AND CONSERVATORS, AND ALL IN ONE SMALL TOWN."

-- HUGH GLOVER



Hugh Glover receives his retirement gift to help upkeep his brilliant garden in Williamstown.

WACC + AACC STAFF

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When cows invade : the cows broke out of their gate at Stone Hill and surrounded the studio windows. We couldn't help but take a break outside with them too.

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