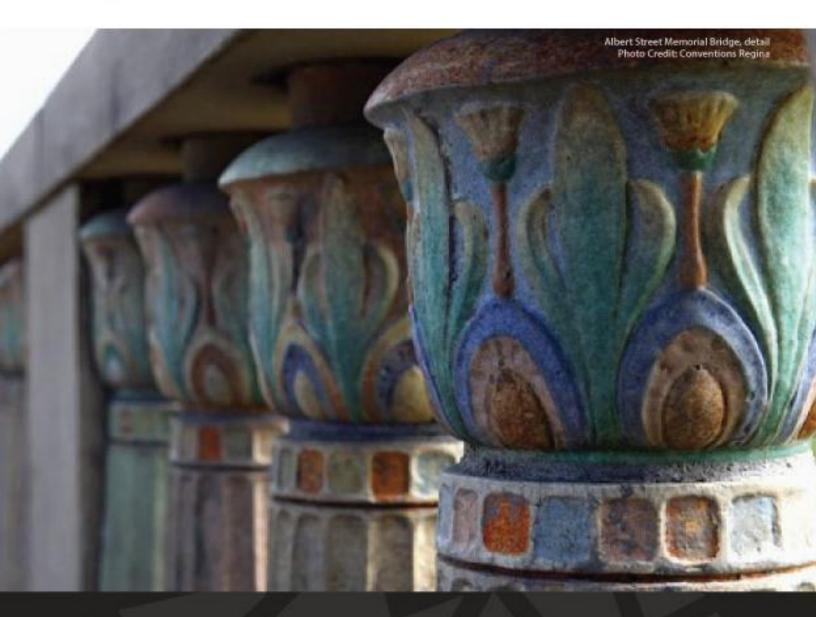


Canadian Association for Conservation of Cultural Property

Association canadienne pour la conservation et la restauration des biens culturels



43<sup>rd</sup> Annual Conference & Workshops

**PROGRAM | ABSTRACTS** 

Regina, Saskatchewan June 6-10, 2017

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### A Message from the Saskatchewan Minister of Parks, Culture and Sport

On behalf of Premier Brad Wall and the Government of Saskatchewan, welcome everyone to the Canadian Association for Conservation of Cultural Property's 43<sup>rd</sup> Annual Conference and Workshops.

While non-indigenous built-history here on the prairies goes back at most 200 years, the richness and diversity of First Nations culture in Saskatchewan is at least 12000 years old. Saskatchewan's archaeological and ethnographic cultural heritage, along with First Nations and Métis history is boundless.

From Wanuskewin Heritage Park just north of Saskatoon, to the Provincial Archives, the Royal Saskatchewan Museum here in Regina and the T.rex Discovery Centre in the community of Eastend, conservation has a vital role in respecting our heritage and planning for the future.

Of note, over the past few years, a great many of us have been enlightened and personally touched through the work of conservators and archivists as they examined Saskatchewan's contributions to the First World War on its centennial.

From the badlands and native prairie, to our cities to the magical north, Saskatchewan is magnificent in its physical beauty. We are increasingly diverse, multicultural and proudly indigenous. Multigenerational residents and newcomers alike find Saskatchewan a warm and friendly place to work, play and raise a family, with a focus on quality of life.

I wish you all the best for the conference and I hope you have a wonderful stay in the Queen City. I know that many people have worked hard to make you feel welcome. As Minister for Parks, Culture and Sport, let me personally invite you to come back soon and explore the people, places and communities of our beautiful province.

Ken Cheveldayoff

Ken Cheveldayoff Minister



### 2017 CAC CONFERENCE ORGANIZING COMMITTEE

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### CONFERENCE PLANNING COMMITTEE:

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TRANSLATION:

Béatrice Leroux Danielle Allard

Thanks to David Turnbull and Cindy Colford for their fundraising assistance!

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**Nova Scotia** Elizabeth Jablonski

Newfoundland and Labrador Beverley Lambert

### ACKNOWLEDGEMENTS

The CAC Regina 2017 conference organizing committee gratefully acknowledges the generous contributions of the following:

Our employers, who continue to support our professional involvement in the activities of CAC and provided time and space for the planning of the 2017 conference:

- MacKenzie Art Gallery
- Museums Association of Saskatchewan
- Provincial Archives of Saskatchewan
- RCMP Historical Collections Unit
- Royal Saskatchewan Museum
- Saskatchewan Arts Board
- Provincial Archives of Alberta
- Canada Science and Technology Museum

Our colleagues who have been instrumental in delivering the CAC 2017 program and events:

- Joe Towers, Global Forensics
- Jennifer Barnes
- Robert Truszkowski, University of Regina
- Bernard Flaman SAA, FRAIC, Conservation Architect

### SPECIAL EVENTS

### WORKSHOP AND EMERGING CONSERVATORS RECEPTION

Wednesday, June 7th, 2017 6:00 pm - 9:00 pm

Beer Bros.

1821 Scarth St., Regina SK S4P 2G9

Join us for a casual get together in Regina's historic Scarth Street Mall. Beer Bros. is famous in Regina for its beer inspired menu! Appetizers are provided, as well as a cash bar.

### CONFERENCE RECEPTION Thursday, June 8th, 2017 6:00pm – 9:00 pm

MacKenzie Art Gallery

3475 Albert St, Regina SK S4S 6X6

The Conference Reception in the MacKenzie Art Gallery's elegant Agra Torchinsky Salon is a wonderful way to meet and catch up with national colleagues! There will be Saskatchewan themed tapas by University Club Catering, a cash bar, and live music by Chris "Tiny" Matchett. Transportation is provided from the tours to the reception, and back to the DoubleTree Hilton.

### CAC BANQUET & SILENT AUCTION

Friday, June 9th, 2017 6:00 pm – 11:00 pm

Edna May Forbes Theatre and Lady Slipper Courtyard

2900 Wascana Dr., Regina SK S4P 3S7

Join us for the Conference Banquet at the Edna May Forbes Theatre and Lady Slipper Courtyard, located in beautiful Wascana Park, one of the largest urban parks in North America. Dinner will feature a Saskatchewan themed buffet prepared by the chef of locally owned restaurant Fireside Bistro. We will dine on local game, wild rice and locally grown produce. Live music provided by the Ben Winoski Project. Transportation is provided from the DoubleTree Hilton.

### Tours:

Thursday, June 8, 2017 (4:30-6:00)

All tours depart from Doubletree Hilton. Transportation is provided to tour locations (except for the walking tour), and then to the Conference Reception.

### REGINA DOWNTOWN ARCHITECTURAL WALKING TOUR

Bernard Flaman SAA, FRAIC, Conservation Architect based in Regina

Victoria Park is one of only two municipal heritage conservation districts in Saskatchewan. The buildings surrounding the park illustrate a complete chronology of architectural styles of the 20th century - from the Classical and Gothic "Revival" styles of the pre First World War era to the De-constructivist pretensions of the City Square project. The walk will begin at the corner of Victoria Ave and Cornwall St. on the park side of Victoria Ave.

### RCMP HERITAGE CENTRE TOUR

Enjoy a guided tour of the world famous RCMP Depot Training Academy where all Mounties begin their careers! We will visit the beautiful grounds, training buildings and the RCMP Chapel, the oldest standing building in the city of Regina.

### MACKENZIE ART GALLERY TOUR

The MacKenzie's Head Curator, Timothy Long and Curator, Michelle LaVallee will host tours of the MacKenzie Art Gallery's current exhibition "Alex Janvier" from the National Gallery of Canada and a behind the scenes look at the collection facilities (our enviable loading dock, vault and conservation lab).

### ROYAL SASKATCHEWAN MUSEUM GALLERY TOUR

Currently on display: We are All Treaty People, featuring the Chief Paskwa Pictograph, Canada's only known written record of Treaty promises from the viewpoint of the Indigenous people.

Wander the RSM's stunning dioramas for a taste of Saskatchewan's diverse eco-regions. Explore the history and traditions of Saskatchewan's Aboriginal societies in one of the first galleries in Canada to have been developed in consult with First Nations Elders and Communities. Uncover Saskatchewan's rich palaeontology history in the RSM's Earth Sciences gallery. Backdrops and murals throughout the galleries include the artwork of R.D. Symons, Fred Lahrman, Wee Lee, and Bob Boyer.

### 2017 "GIVING BACK" PROJECT

Wednesday, June 7th, 1pm - 4pm

The CAC Conference Committee and the Museums Association of Saskatchewan (MAS), is excited to announce the 2017 "<u>Giving Back Project</u>" at the *Civic Museum of Regina*. Volunteer conservators will work with museum staff and volunteers to conduct basic conservation reports and provide insight into storage solutions for their collection.

The Civic Museum of Regina is a not-for-profit museum that preserves the history of the city of Regina through tangible and intangible cultural preservation practices. The museum has just under gone a major move to a new location and has recently changed its mission and mandate to an eco-museum model.

Eco-museums, sometimes called "museums without walls," are locally-run community museums that foster sustainable forms of social and economic development based on in situ conservation and interpretation of natural and cultural heritage. As an eco-museum, the *Civic Museum of Regina* works with other local community and private organizations to bring the history of Regina into the public through public displays, presentations, lectures and educational initiatives.

### PRE CONFERENCE WORKSHOPS

### FORENSIC PHOTOGRAPHY FOR HERITAGE MATERIALS WITH GLOBAL FORENSICS

Tuesday, June 6, 2017 to Wednesday, June 7 2017

113 College West; Riddell Centre, University of Regina, 3737 Wascana Parkway, Regina SK \$4\$ 0A2

Forensic Photography for Heritage Materials with Global Forensics (2 days) will explore the capabilities and benefits of using forensic photographic and lighting techniques in artifact assessment. Joe Towers of Global Forensics will instruct participants in the use of macro, HDR, IR and UV photography, with plenty of time for demonstration and hands-on practice.

Snacks and coffee provided. Lunch is on your own. There are several options available on campus.

### PHOTO-ETCHING WITH ROBERT TRUSZKOWSKI

Wednesday, June 7, 2017

RC 035, Riddell Centre, University of Regina, 3737 Wascana Parkway, Regina SK S4S 0A2

Photo-Etching with Robert Truszkowski, University of Regina (1 day) will demonstrate the printmaking technique of photo-etching, and then allow participants to try it out themselves. Guided by Visual Arts professor Robert Truskowski, participants will return home with a creation of their own.

Snacks and coffee provided. Lunch is on your own. There are several options available on campus.

### PROGRAM & SCHEDULE

### **Tuesday June 6**

Workshops Day 1	
Time	
9:00 am - 12:00 pm	Workshop 1: Forensic Photography for Heritage Materials
12:00 pm -1:00 pm	LUNCH
1:00 pm - 4:00 pm	Workshop 1: Forensic Photography for Heritage Materials

### Wednesday June 7

Workshops Day 2 Time			
9:00 am - 12:00 pm	Workshop 1: Forensic Photography		
10:00 am	for Heritage Materials	Workshop 2: Photo etching	
12:00 pm - 1:00 pm	LUNCH		
1:00 pm - 4:00 pm	Workshop 1: Forensic Photography	Workshop 2: Photo etching	
4:00 pm - 5:00 pm	for Heritage Materials		
6:00 pm - 9:00 pm	Workshop Reception & Emerging Conservators Reception @ B		
	Bros.		

Conference Day 1 Time	1			
8:00 am - 8:30 am	Registration & Del	egate bag pick-u	0	
8:30 am - 9:00 am	Welcome and Int	roductions		
9:00 am - 9:45 am	Per Guldbeck Me	morial Lecture		
	Sarah Spafford-Rid	cci		
9:50 am - 10:20 am		BRE	AK	
SESSION 1 – ARCHITEC	CTURE & PUBLIC ART			
Session Chair – Rober	-			
10:25 am - 10:45 am	Knox Metropolitan Church Bell Tower Restoration Project			
	June Botkin			
10:50 am - 11:10 am	Prescribing Public	Art Lifespans		
	David Turnbull			
11:15 am - 11:35 pm	Treating the Flow of	of Time: Conservat	ion of Gerhard Ha	ns Class
	Centennial Sculpt	ural Fountain (197	1)	
	Jeremy Jaud and	Andrew Todd		
11:40 pm - 11:50 pm	Q & A			
11:55 pm - 1:25 pm		LUN	СН	
		CAC-ACCR Regio	nal Rep Meeting	
SESSION 2 – REPRODU	CTIONS & MODERN	MATERIALS		
Session Chair – Caroly	vn Sirett			
1:30 pm - 1:50 pm	Humble Beginning	•		non Walking
	Cane Became an Early 19thC Sterling Sceptre			
	Alex McPhie			
1:55 pm - 2:15 pm	Stuck on Silicone:	Making Displayat	ole Reproductions	of Degrading
	Elastomers			
	Alison Fleming			
2:20 pm - 2:40 pm	Steel-rubber com			•••
	collections: understanding their (co-)deterioration, conservation			
	problems and wor		ntial solutions	
0.45	Jacqueline Riddle		•	
2:45 pm - 2:55 pm	Q & A			
3:00 pm - 3:30 pm	BREAK			
4:30 pm - 6:00 pm	Tours			
	Tour 1:	Tour 2:	Tour 3:	Tour 4:
	Regina	RCMP Heritage	MacKenzie Art	Royal
	Downtown	Centre	Gallery	Saskatchewan
	Architecture			Museum
				Gallery
6:00 pm - 9:00 pm	Confe	rence Reception,		allery
		Transportatio	on provided	

### Thursday June 8

Conference Day 2 Time	
8:30 am - 8:35 am	Morning announcements
Session 3 – PREVENTIV	E CONSERVATION
Session Chair – Aman	da Harding
8:40 am - 9:00 am	Time Machines: Preserving Function through Preventive Maintenance
	at the WRM
	Richard Fuller
9:05 am - 9:25 am	Thunder from above: Extra measuresunder a major demolition and
	construction project
	Rebecca Latourell
9:30 am - 9:50 am	Coping with the unexpected: a case study of heritage inventories
	conducted for government agencies
	Alicia Ghadban and Erika Range
9:55 am - 10:05 am	Q & A
10:10 am - 10:40 am	BREAK
Session 4 – PREVENTIV	
Session Chair – Diana	
10:45 am - 11:05 am	Planning and Perseverance: Addressing Outstanding Preservation
	Needs Through Considered Collections Growth
	David Daley
11:10 am - 11:30 am	Making Ethafoam Mannequins using a CNC router
	Gail Niinimaa* and Nils Sundstrom
11:35 am - 11:55 am	A Collective Look at Practical Lighting Strategies
	Emily Cloutier
12:00 pm - 12:20 pm	Outdoor Sculpture at the University of Lethbridge
	Juliet Graham
12:25 pm -12:35 pm	Q&A
12:40 pm - 2:10 pm	LUNCH
	CAPC General Meeting
Session 5 – IGNITE SES	SSION (5 MIN TALKS) AND POSTER SESSION Q&A
Session Chair – Alyson	
2:15 pm - 2:45 pm	The Conservation of Indigenous Basketry: A Report on New
	Approaches Invented and Adopted at the Arizona State Museum
	Victoria Kablys
	Two Creative Uses for Rare Earth Magnets – From Clay to Canvas
	Brenda Smith
	Bubbling B72: when things don't always go as planned
0.50	Erika Range and Alicia Ghadban
2:50 pm - 3:00 pm	Q & A
3:05 pm - 3:35 pm	BREAK
3:40 pm - 5:00 pm	CAC-ACCR Annual General Meeting
6:00 pm - 11:00 pm	Banquet bus service provided 5:45-7:00 pm & 9:00-11:30 pm

### Friday June 9

Conference Day 3 Time	
8:30 am - 8:35 am	Morning announcements
Session 6 – ADVOCAC	
Session Chair – Cindy	
9:10 am - 9:30 am	The CAC-ACCR Advocacy Committee Presents: A National Public
	Awareness Campaign for Conservation
	CAC-ACCR Ad-Hoc Advocacy Committee
9:35 am - 9:55 am	Conservation for the 99%: The role of the conservator in small
	museums
	Fiona Graham* and Laura Hortz Stanton
10:00 am - 10:20 am	A New DistList?: Practices and Possibilities for Conservation and Social
	Media
	Elspeth Jordan
10:20 am - 10:30 am	Q&A
10:30 am - 11:00 am	BREAK
Session 7 – OBJECTS	
Session Chair – Mauro	ay Toutloff
11:00 am - 11:20 am	The Battle of Blenheim in Miniature: A Collaborative Conservation
	Project
	Heather Dumka*, Lee Churchill and Priyanka Vaid
11:25 am - 11:55 am	Revisiting the Restorations of Old: approaching the physical,
	aesthetic, and ethical factors in the retreatment of an Etruscan
	bucchero stand
	Gyllian Porteous
12:00 pm - 12:20 pm	Reflections of the Past: Uncovering the Chemical Mystery of
	Daguerreotypes
	M.S Kozachuck*, T.K Sham, R.R. Martin and A.J. Nelson
12:25 pm - 12:35 pm	Q&A
12:40 pm - 1:40 pm	LUNCH
Session 8 – WORKS OI	
Session Chair – Shann	on Coles
1:45 pm - 2:05 pm	Adapting Schweidler: Upgrading Historic Paper Restoration with
	Modern Methods
	Kyla Ubbink
2:10 pm - 2:30 pm	Variations on a Theme of Gellan Gum: Further Explorations into Gum
2.10 pm 2.00 pm	Properties and Treatment Applications
	Crystal Maitland and Greg Hill
2:35 pm - 2:55 pm	Friable Media and Gellan Gum: The Treatment of a Pastel Painting
2.00 pm 2.00 pm	Rosaleen Hill*, Emily Cloutier and Vincent Dion
3:00 pm - 3:10 pm	Q&A
3:15 pm - 3:30 pm	Closing remarks

### Saturday June 10

# KNOX METROPOLITAN CHURCH BELL TOWER RESTORATION PROJECT

June Botkin

Knox Metropolitan Church is constructed of red clay lime bricks with Indiana limestone architectural accents. The original design of the church by Toronto, Ontario architects Darling and Pearson was built in 1906-07 at a cost of \$100,000. On June 30, 1912, the church sustained significant damage when an F4 tornado with wind speeds of 800 km/h (500 mph) destroyed an estimated eighty percent of the building fabric. This tornado remains the deadliest in Canadian history killing 28 people, injuring hundreds and leaving 2500 people homeless. The tornado had a width of 150 m (490 feet) and traveled 30 km (19 miles) before dissipating. It also had other unexpected impacts on the building fabric of Knox Metropolitan Church that remain evident to the present day.

The purpose of the conservation project on the bell tower was to perform masonry repairs including selective repointing, stone repairs and masonry cleaning, to the upper 50 feet of the bell tower. Erection of an engineered scaffolding was required to reach the designated work area allowing for a safe, comfortable working environment. Many of the mortar joints on the North and East faces of the tower had lost most of the front point mortar. This exposed the condition of the interior of the wall cavity indicating that the bricks had not been properly bedded. While investigation of the building faces within the conservation area was being undertaken the discovery of some of the impacts of the tornado from June 30, 1912 and the rebuilding of the church after this catastrophic event were being discovered. These details were photodocumented prior to the commencement of any conservation work.

Due to the many anomalies found around the building, the archivist with the City of Regina was contacted. Dana Turgeon was able to provide some photographs of the church from the time period of 1906 to after 1912. The exact dates of the photographs were not known but it was determined after review and comparison of the present design features with the original features that the church had not been rebuilt in its original form, and the full impact of the tornado of 1912 started becoming evident. It was discovered for instance, by photographic comparison, that the top of the bell tower had been rebuilt in a crenellated fashion. The original design for the top of the bell tower had the capstones placed all on the same plain. Further investigation and photographic analysis indicated that many of the original design features had changed. These features over time have become accepted as the original design details from 1906.

At the time of the tornado, the church was called Metropolitan Methodist church until the name was changed to Knox Metropolitan United Church in 1951. The Darke memorial chimes were installed in 1927. The Christian Education wing was added in 1952. To this day, the church on the corner of Victoria Avenue and Lorne Street remains a hub of the community hosting the Rotary Carol Festival, musical events, workshops and book sales. Conserving a small part of this building will allow it to continue as a vibrant symbol for the community for many years to come.

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### PRESCRIBING PUBLIC ART LIFESPANS

### David Turnbull, Edmonton Arts Council

Not unlike other areas of Conservation, the success of public art requires that the artworks look good, are structurally sound, and work properly. Permanent artworks in the public realm require constant care and attention and can deteriorate quickly if not looked after properly and routinely. If left unattended these artworks can attract vandalism, become safety hazards, violate the artist's moral rights, and cause headaches for publicly funded public art programs.

How can public art conservation programs keep up with the increased demands of rapidly growing and highly visible collections? And how are they supposed to manage the care of these artworks forever? Taking care of artworks with increased material complexity with unforeseen condition issues and a lack of permanent funding and foresight leads to questions of what should be done with our public art collections. For many programs, the notion of responsible collecting is not considered up front and programs are hit with unanticipated high costs to take care of their public art assets.

Public Art programs frequently commission permanent artworks for the public realm and they have a responsibility to their cities, their programs, their publics, and to their artists. Commissioning artworks with realistic expectations of how long the artworks will exist in the collection and what resources will be required to keep them in good condition for their lifespans is a start. Bringing in conservators at the beginning of projects and integrating them into the commissioning process helps, but ethical dilemmas cannot be avoided when it comes time to remove artworks from collections. A healthy public art collection relies on a certain amount of responsible deaccessioning and pre-determining how long an artwork is going be a part of the collection. This presentation will look at some examples of artworks in the Edmonton Public Art Collection that have exceeded their useful lives, and some of the issues related to their removal or extension of life.

### "TREATING THE FLOW OF TIME": CONSERVATION OF GERHARD HANS CLASS CENTENNIAL SCULPTURAL FOUNTAIN (1971)

Andrew Todd and Jeremy Jaud

In the heart of downtown Vancouver, BC in the plaza of the Queen Elizabeth Theatre stands Gerhard Hans Class's 1971 Centennial sculptural fountain. Comprised of a cast bronze central column and orb with radially arcing stainless steel components encircling the cast, the sculptural fountain had undergone no recorded conservation treatment or maintenance schedule since its installation 45 years ago. Responding to a proposal in the autumn of 2015 and through an assessment process, AT Conservators Ltd. determined that the surfaces of the cast bronze were heavily deposited with pollutants and paper pulp from unfiltered circulation of municipal water as well as decades of airborne contaminants. The site is a major vehicular and pedestrian thoroughfare and so posed specific challenges to treatment and future conservation maintenance strategies. The stainless steel components had varying degrees of accreted deposits, dependent upon exposure to the water from the fountain's action. Specific intersections of sculptural components had extensive corrosion from non-stainless steel hardware that had affected all connecting surfaces. The sculpture had minor surface damaged from being incorporated into a Christmas tree display for the annual Christmas Market. Due to other upgrades to the fountain's structural and mechanical systems, AT Conservators Ltd. recommended the sculptural fountain be re-located to a secure studio for a complete conservation treatment in order to protect the sculpture from the impacts of other on-site work. Working with industrial art movers and other contractors, the monumental sculpture was moved and underwent conservation treatment that will be detailed in a longer paper and presentation. In September 2016, after conservation treatments and considerable structural and mechanical upgrades were complete, the sculptural fountain was reinstalled at its original location and in November 2016, the fountain resumed operation.

### HUMBLE BEGINNINGS AND HISTORIC PROCESS: HOW A COMMON WALKING CANE BECAME AN EARLY 19THC STERLING SCEPTRE Alex McPhie

The so-called 'Senior Stick', a prestigious silver sceptre, awarded annually to valedictorians of Brandon University since 1919, had disappeared. The sceptre had presumably been stolen sometime in the 1960's or later, and now having been without for decades, the university sought a high quality reproduction of the original for the 2016 homecoming ceremony. The piece was the length of a walking cane; the shaft of lacquered, ebonized hardwood; a silver plated brass ferrule tip at one end with a beautifully ornate, bulbous, repousse sterling finial at the other. The sceptre had a lengthy collar of just under fifty sterling rings, each hand engraved with the school year and name of the valedictorian. The rings had been individually held in place up the tapered shaft with multiple sterling pins. Very few archival photos existed of the original, and of these, most were pixelated on the fine ornamental details when focussed.

To create this early 20<sup>th</sup> century sceptre, research and revival of some period knowledge, practices, and techniques were utilized; some of which are in use today, and others, scarcely practiced. How was hardwood traditionally ebonized? How does one identify and extrapolate ornately engraved historic patterns where a photo is obscured? What are some hand engraving techniques of the early 20<sup>th</sup> century? The look and feel of the final piece comes not only from historic materials, but also from the processes and techniques used to create it. From antique shops, steaming pots, to a candle store and makeshift lathe, this presentation follows the challenges and adventures faced in conservation, requiring ingenuity and not a small dose of creativity, while blending conservation, historic metalworking and woodworking disciplines to create this complex and intricate project. The polished sterling piece was received by a company of very pleased Brandon University staff who remarked it could easily be mistaken for the original.

# STUCK ON SILICONE: MAKING DISPLAYABLE REPRODUCTIONS OF DEGRADING ELASTOMERS

Alison Fleming, Royal Alberta Museum

Museums now have more plastics and elastomers in their collections than ever before. Certain inherently unstable polymers will inevitably succumb to deterioration, or may require stringent environmental controls to prevent them from degrading. If an artifact needs cold, dark or anoxic storage, or has already deteriorated to the point where it is has visually altered, it may never be exhibited.

Because there is very little conclusive published research on the remedial conservation of polymers, especially actively degrading ones, the use of full or partial reproductions for display has become an acceptable way to ensure that fragile originals can remain safely preserved under appropriate environmental conditions.

Most conservation labs have pourable two-part silicone on hand for making moulds. In some cases, though, silicone itself can be effectively used as a casting material for reproductions and can be modified to visually match a variety of surfaces. Since silicone is commonly used in the special effects industry, it is readily available in a range of hardnesses, translucencies and degrees of elasticity.

This presentation focuses on two case studies and offers some guidelines for making silicone reproductions. One case study is a full reproduction of a degraded silicone film prop belonging to the Toronto International Film Festival. For this project, platinum-curing translucent silicone tinted with Silc Pig brand colours was cast in a plaster mould that had been made from a sculpted clay copy of the original. The second case study is a reproduction of the sheet rubber "skirt" portion of a portable respirator that has a stable acrylic bodice. The rubber component was hardened, torn, had white bloom on it, and was leaching a yellow residue. This artifact is in the collection of the Royal Alberta Museum, and was slated for display in its new galleries. In this case, a film of tin-curing silicone was cast onto cotton cloth and the sections of rubbery sheeting adhered together with liquid silicone.

Some of the benefits of silicone will be discussed, such as its ease of use and its chemical stability. Silicone reproductions do not off-gas, and so do not harm other materials enclosed in cases alongside them the way that vulcanized rubber or PVC originals might. I also address some challenges, such as how to make a copy without interfering with the original (degraded surfaces should not be cast directly) and planning the steps of a project. The issue of copyright is also discussed.

Degrading elastomers are found in medical, military, textile, industrial, and modern art collections, so this "non-treatment treatment" might be an option for a number of different sorts of artifacts. Silicone casting also has the potential to be used in conjunction with 3D scanning, or, conversely, can be used alone for simple objects that cannot be scanned due their translucency or reflectivity.

### STEEL-RUBBER COMPOSITE OBJECTS IN SCIENCE AND TECHNOLOGY MUSEUM COLLECTIONS: UNDERSTANDING THEIR (CO-) DETERIORATION, CONSERVATION PROBLEMS AND WORKING TOWARD POTENTIAL SOLUTIONS

Jacqueline Riddle, University College London, Doha, Qatar (Currently Canada Science and Technology Museums Corporation)

Science and technology museum collections contain objects representing current, disappearing and obsolete technologies. These objects can be made of numerous modern materials, including engineered metal alloys, plastics and other organic and inorganic materials in close contact. This paper presents the principal findings of the author's M.Sc. dissertation concerning a subset of these objects: composite objects made of steel and rubber. As steel and rubber manufacturing methods continue to change rapidly, each steel-rubber artifact represents a snapshot of disappearing technologies whose full obsolescence may be prevented by correct conservation practice.

Steel-rubber composite objects are prevalent in technological collections and come in all shapes and sizes: automobiles, printing presses, agricultural machinery, typewriters, medical instruments, household appliances, and more. However, despite the ubiquity of steel-rubber composite objects, little has been published on their preservation. The author conducted an investigative inquiry into conservation, heritage science, and mainstream science and engineering literature with the following research questions:

- Under which environmental and physical conditions do rubber and steel deteriorate together, and to what extent do they affect each other's deterioration?
- How are conservation decisions made when these two materials have competing treatment needs?
- How can literature from steel and rubber engineering and technology inform conservation treatments?

The literature study is followed by a case study in the characterization and proposed treatment options for a 1966 SEMI VéloSolex motorized Bicycle, Type 3800 from the collection of the Sheikh Faisal bin Qassim Al-Thani Museum in Qatar. Characterization of plastic and rubber samples from the artifact was performed using Fourier Transform Infrared (ATR-FTIR) and X-ray photoelectron spectroscopy (XPS), and in-situ analysis of the metal alloys was carried out using portable X-ray Fluorescence (pXRF). The characterization shows the many materials that may be present in a single technological object. The treatment options are a cross-section of typical treatment options for any steel-rubber composite artifact.

Based on the literature review and case study findings, several conclusions are drawn:

• Conservation treatments frequently choose conditions that favour steel over rubber parts. This is likely due to the well-established treatments for steel, in contrast to the less-established treatments for rubber. These conservation practices risk causing the gradual disappearance or *obsolescence* of rubbers in technological collections.

- There is little to no published knowledge of how conservation treatments on steel (coatings, inhibitors etc.) affect adjacent rubbers or other plastics, and vice versa.
- Scientific and engineering research aims to produce *new* long-lasting rubbers and steels, rather than improve the longevity of current or historic materials.
- Metallic ions are known to worsen the deterioration of rubber. In addition, the release of acidic gases from oxidizing rubber can worsen the corrosion of steel.

The practical outcomes of this research will be presented to demonstrate several possible 'quick-fix' solutions to the complex issues posed by steel-rubber composite objects. Many degradation processes and respective treatments discussed in this study are applicable to other types of metal-plastic composite artifacts and artworks. Overall, the research provides a first step in understanding current conservation practices and developing effective treatments for these composite artifacts.

# TIME MACHINES: PRESERVING FUNCTION THROUGH PREVENTIVE MAINTENANCE AT THE WRM

Richard Fuller, Waterloo Region Museum

Although many clocks in our collection silently rest on shelves, we also operate several weight and spring driven clocks in our Heritage Village. Here, working clocks animate building interiors, as they would have during our interpretation period of 1914. These clocks are over a hundred years old in most cases, yet due to their mechanical integrity, it is possible to operate them as manufacturers intended when technical knowledge, skill, proper tools and enthusiasm are available.

This presentation will discuss how these clocks can be operated responsibly, given ethical conservation guidelines, while maintaining the inherent purpose and integrity of these horological artifacts.

As is the case of most mechanical objects, conditions of operation and maintenance can change, limiting continued function, yet the Waterloo Region Museum chooses to extend the essential function of these objects for the benefit of the visiting public, while the possibility exists.

Of primary importance to this process is the dedication of volunteers who have worked with the Waterloo Region Museum consistently for the past twenty years in maintaining our clocks and timepieces, without whose generous commitments, this could not have been possible.

# THUNDER FROM ABOVE: EXTRA MEASURES...UNDER A MAJOR DEMOLITION AND CONSTRUCTION PROJECT

Rebecca Latourell, Canadian Museum of History

Over the last five years, the Canadian Museum of History (CMH) has been busy consulting, planning, designing and constructing a brand new exhibition gallery devoted entirely to Canada's history. The new Canadian History Hall (CHH) represents the largest and most ambitious exhibition project that the Museum has undertaken since opening in 1989 and is due to open on July 1<sup>st</sup>, 2017 on the 150<sup>th</sup> anniversary of Confederation.

The Hall's objective is to tell the story of Canada and its people from the dawn of human habitation to the present day while enhancing our visitors' knowledge, understanding and appreciation of the events, experiences and people that reflect and have shaped Canada's history and identity.

The Canadian History Hall will cover approximately 44,000 square feet and incorporate over 1,500 artifacts. Together with leading researchers, museologists, designers, and building architect Douglas Cardinal, the space where the Canada Hall once lived has been completely transformed.

Located in the upper levels of the museum core the CHH connects to all other exhibition and public spaces in the museum. As such, additional measures were put in place to ensure ongoing collection safety and security, as well as to maintain regular building operations. Risk identification, management, mitigation, communication, and education and working with both internal and external stakeholders were essential to successfully isolating these surrounding spaces from the potentially hazardous effects of demolition and reconstruction.

Conservation staff has played a role in the project from the beginning, starting with condition reporting all objects removed from the original Canada Hall then moving on to assessing objects being considered for the new CHH, and completing required treatments. Input into design, mounting, and fabrication material choices has also been provided. Special attention was paid to the largest "living" artifact in the Hall – the St. Onuphrius Church, which was lifted and moved to its new location.

Extra monitoring programs were also instituted to ensure the safety of collections on display in adjacent galleries. In collaboration with the Canadian Conservation Institute (CCI) a vibration monitoring program was put in place. This program helped to ensure that the construction company was respecting physical impact limitations as outlined in their contract, while helping to inform choices regarding methodologies used in the demolition phase of the project. Additionally, a dust-monitoring program was implemented to track the effectiveness of mitigation strategies designed to keep construction debris contained. Communication with the contracted construction company and site supervisor has been especially important and rewarding in ensuring that risks to collections were well managed.

The new Canadian History Hall promises to be a new, innovative, and interactive experience for visitors from around the world. We welcome you to visit and explore our nation's history next month!

### COPING WITH THE UNEXPECTED: A CASE STUDY OF HERITAGE INVENTORIES CONDUCTED FOR GOVERNMENT AGENCIES

Erika Range and Alicia Ghadban

Inventories are known to most as the tedious and lengthy task of identifying what you have, where they are located, and their state of condition. Despite the general discontentment, this process is fundamental to preserving and making collections accessible. This past year, two similar and yet vastly different inventories were completed for government agencies in the Ottawa region – the National Capital Commission and Public Service Procurement Canada (PSPC). The purposes of the inventories were to pave the way for both organizations to move forward with the care of their collections and revitalize the sites in question (i.e. Bradley Log Farm at 670 Cedarview Road and the former U.S. Embassy at 100 Wellington Street). This paper will compare and contrast the process of both inventories, and address the concerns and challenges encountered by examining how you plan and prepare for an inventory when no existing policies or documentation exists. It will also examine how you adapt to changing client needs while balancing conservation best practices.

### PLANNING AND PERSEVERANCE: ADDRESSING OUTSTANDING PRESERVATION NEEDS THROUGH CONSIDERED COLLECTIONS GROWTH

David Daley, University of Calgary Archives and Special Collections

When the official announcement was made on March 31, 2016 that the University of Calgary Libraries and Cultural Resources (LCR) was to acquire the complete archive of Universal Music Canada, the flurry of media articles and interviews was immediate. As the extent of the acquisition began to be known, the numbers were vast: 5,500 boxes containing more than 18,000 video recordings, 21,000 audio recordings and more than two million documents, photographs and artworks. Preliminary processing of the archive was already underway.

The volume of magnetic media in the acquisition is significant: more than 40 different recording types are represented including quarter-inch, half-inch, one-inch and two-inch reel-to-reel tapes, U-Matic tapes, DATs, Betacam, VHS tapes and standard sound recording cassettes. These include approximately 13,000 original audio session tapes and master recordings and 3,100 original studio two-inch multi-track reels. This material is believed to represent about 5000 hours of sound recordings.

Along with the magnetic recordings come their technological obsolescence. Magnetic media makes up a huge amount of sound recordings in collections but is inherently unstable and, through a variety of degradation types, is fast approaching the end of its measurable lifespan. Obsolescence and difficulty in operating magnetic media playback equipment further diminishes the likelihood of reformatting before the hard-copy recordings finally become unplayable. Permanent information loss is looming worldwide.

In 2011, the University of Calgary opened an off-site High Density Library to store lesser-used items and make better use of the space within the new campus library. Funding commitments from various levels of government and a Mellon Foundation grant have recently been secured to double the size of the High Density Library. Plans for this extension include a magnetic media-reformatting studio and a conservation laboratory. These provisions are partly intended to address the reformatting needs of the Universal Music Canada Archives, but also to build the capacity to reformat existing magnetic media holdings and address other outstanding preservation needs within the LCR. Through considered planning and collections growth, existing conservation needs can be addressed while taking on greater preservation commitments.

### MAKING ETHAFOAM™ MANNEQUINS USING A CNC ROUTER

Gail Niinimaa\*, Niinimaa Enterprises Inc. and Nils Sundstrom, Solid Woodwork Ltd.

After 35 years of building mannequins by hand using a stacked disc or cross sectional slab method, Gail Niinimaa, Niinimaa Enterprises Inc. had the opportunity in 2016 to build 20 mannequins for the new National Music Centre in Calgary, AB, within an 8-week time frame. Collaboration between Nils Sundstrom, Solid Woodwork Ltd, a Calgary company that had both the CNC router and the computer expertise, resulted in a very successful project. Measurements taken from the actual costumes were used to create the correct body type and size for each costume going on display. Nils interpreted the 2D measurements and created the 3D files that were needed and transferred them back to the CNC cutting process. The CNC router was used to cut the 2″ planks of Ethafoam<sup>™</sup> 220 into 5 sections per mannequin. These sections were hot glued together with 3M low melt hot glue to create the 3D forms. Gail finished the mannequins by completing the final fitting, cutting the Ethafoam<sup>™</sup> by hand where necessary, covering with fabric and adding arms and legs when needed.

The use of this technology enabled the project to be completed quickly and provided a better starting point for building a safe mannequin compared to traditional mannequin making methods. Overall, there was less handling of the costumes and a better fit was achieved with much less time and effort. A variety of finishing methods were completed on the mannequins including padding with fiberfill batting, covering with jersey knit and several different solutions were used for the arms and legs including Fossshape<sup>™</sup>, Ethafoam<sup>™</sup> and soft sculpture. The collaboration between a Textile Conservator and an Industrial Designer helped this idea of making mannequins with the CNC router become a reality. The opportunity to work with an upcoming exhibition allowed us to develop a range of body types that would work for this project.

### A COLLECTIVE LOOK AT PRACTICAL LIGHTING STRATEGIES

Emily Cloutier, Centre de Conservation du Quebec

As museums and galleries are increasingly moving towards mixed-collection exhibitions, conservators are faced with the dilemma of setting lighting guidelines for objects of mixed light-sensitivities that are displayed within the same space. The practice of lighting entire galleries of light-sensitive objects at 50 lux often is often not adapted to the needs of contemporary exhibition design. Conservators must meet the challenge of making collection items available to the public while also preserving them so that they may benefit their communities for generations to come.

The National Gallery of Canada (NGC) found itself challenged with the prospect of exhibiting objects of mixed light-sensitivities while planning for a major reinterpretation of their permanent collections. The newly renamed Canadian and Indigenous Galleries, due to open in 2017, was expected to include light-sensitive Indigenous objects exhibited alongside more light-stable objects such as oil paintings. In order to prepare for this change, the NGC's Claudia de Hueck Fellow in Conservation gathered information on practical and responsible lighting strategies. Conservators at over 20 exhibiting institutions both in Canada and abroad were contacted to discuss light-management strategies. From those conversations, a report was written outlining solutions to exhibiting light-sensitive objects, particularly in mixed-collection settings.

This presentation will discuss how lighting policies can be tailored to fit institutional needs and what tools can be used to assist with planning. It will not only describe how concrete approaches, such as microfade testing and light monitoring equipment, can reinforce decision-making, but it will also reflect on how a nuanced discussion of acceptable damage can help guide an institution in setting a lighting policy. The presentation will also share a number of creative methods of establishing practical rotation schedules and reducing light exposure.

Lighting policies must adapt to changing museum theories and exhibition design. Over the course of many conversations with conservators, it became clear that no single institution had all the answers but that collectively conservators have dealt with individual challenges thoughtfully and creatively. Collectively, their approaches form a valuable resource.

### OUTDOOR SCULPTURE AT THE UNIVERSITY OF LETHBRIDGE

Juliet Graham

The Papokan sculpture park was officially opened on campus on the occasion of the University of Lethbridge's 25<sup>th</sup> anniversary; 2017 marks the University's 50<sup>th</sup> anniversary and the maintenance of these works is becoming a pressing concern. There are 24 public sculptures, 12 of which are sited outdoors. They are part of the permanent collection of the University of Lethbridge Art Gallery and gallery staff is responsible for their care and management. Case studies will examine some of the challenges of working with large scale and outdoor works and some of the procedures being put into place to manage and maintain the works.

The inspiring vision of the founders of the sculpture park 25 years ago was not paired with a maintenance plan, and at the present time the University risk and safety department as well as the campus facilities and operations staff are also responsible for the works as objects on campus. The maintenance plan being developed is intended to give the gallery a leadership role in the management and to take the tenets of conservation and translate them into a workable plan that can be easily implemented and understood by all the campus personnel with a vested interest.

The development of this maintenance plan also has become a learning opportunity for a museum studies student to learn more about collection surveys, condition reporting, photography of site-specific sculpture and has given her a role in this project.

# THE CONSERVATION OF INDIGENOUS BASKETRY: A REPORT ON NEW APPROACHES INVENTED AND ADOPTED AT THE ARIZONA STATE MUSEUM

### Victoria Kablys, Master of Art Conservation Candidate

This short talk reports on the evolving approach to the conservation of Indigenous baskets by the team of conservators at the Arizona State Museum (ASM). In response to a large basketry project involving over 35,000 items of archaeological and ethnological basketry related objects, conservators have had the opportunity to re-evaluate past treatments including traditional conservation adhesives, and approaches to mends, internal supports, and housings. The modified approach is based on availability of funding, students, and desire to include research into the conservation program. The logic of this methodology is to find the easiest, safest, most direct conservation technique to specifically address the particular structural need of each basket break or problem. I was a 2016 summer intern in this four-year project that has received funding from the National Endowment for the Humanities-Save America's Treasures Grant Program (2014), the Institute for Museum and Library Services (2015) (2016), the Samuel H. Kress Foundation (2013) and (2016). The project has included 2 large exhibits, condition survey of the entire collection, treatment of over 300 ethnology baskets in highest priority, and plans to begin conservation of 120 archaeology perishable items and re-house 2000 items of highest priority. I will provide an overview of some of the materials and techniques, both old and new, that I observed while at the ASM, in addition to a providing a brief discussion about concerns for the future.

# TWO CREATIVE USES FOR RARE EARTH MAGNETS – FROM CLAY TO CANVAS

Brenda Smith, MacKenzie Art Gallery

The use of rare earth magnets in new and creative ways first began with the retrospective of Jack Sures, a local ceramic artist, who deals with both small and very large pieces. One particular work, (Untitled) constructed from 77 individual tiles, had never been mounted prior to the show. Because of the size and weight, the tiles were mounted on four separate pieces of plywood, which were screwed to the wall at each corner. The challenge was to be able to be able to mount the work repeatedly without the mounting system being visible and to keep it close to the wall.

The solution was to leave the tiles at each of the four corners unmounted. Rather, they had one or two magnets adhered to their verso. The placement of the magnets corresponded to inset washers in the plywood/screw on the wall. This method allowed repeated installation/deinstallation of the tiles in a very simple, expedient yet safe method that hid the screws.

The following year the MacKenzie Art Gallery planned to host a large Carl Beam retrospective from the National Gallery. Included in this exhibition was an extremely large painting on canvas entitled Time Warp – over 3 by 12 meters. This piece had been exhibited at the National Gallery of Canada and had travelled previously. However, the method used for installation was not optimal for the artwork or for the installers, and, at a certain point, it was not certain whether it would be loaned for the show.

This necessitated some creative thinking. The solution was to use a rigid backing to provide complete support while lifting the work, while allowing for its installation and safe removal of the backing afterwards. The recent experiences with the Sures show brought the rare earth magnet to mind to hold it in place while lifting. Rare earth magnets can have a very strong magnetic pull or strength depending on the size and number of magnets used, as well as the steel backing behind them. These attributes can be manipulated depending on the strength needed for the project. Using the total dimensions and weight of the Time Warp painting, a smaller mock-up was made testing the rare earth's capability to hold it up. The test was successful and eventually the powers that be at the NGC were convinced.

The complete method in brief, consisted of unrolling the painting face down onto a Gatorboard<sup>™</sup> support (constructed in 4 parts that were brought up to the gallery and attached together on the verso). The support was prepared with inset washers and screws about every 8". Once unrolled it was secured to the Gatorboard<sup>™</sup> with magnets. The whole was then lifted up by a team of preparators – flat against the support – to the waiting wall. It could then be secured to the wall in the usual manner with staples (in unpainted borders) as each magnet was removed. The support was then lowered to the floor moved away and taken apart. The method was so successful that the NGC adopted it for use in a future installation of the work.

### BUBBLING B72: WHEN THINGS DON'T ALWAYS GO AS PLANNED

Erika Range and Alicia Ghadban

Planning and best practices are important for all projects, and one would think that labelling is one of the more straightforward processes, however this was proven otherwise during an inventory project for the National Capital Commission. While conducting an inventory of over 1000 artifacts, a catalogue was simultaneously conducted as no documentation existed. Part of the project included assigning accession numbers and labelling each artifact. Though best practices were researched, timeline restrictions and conditions for labelling artifacts were not ideal and posed many challenges. This presentation will discuss these issues and lessons learned for future planning.

# THE CAC-ACCR ADVOCACY COMMITTEE PRESENTS: A NATIONAL PUBLIC AWARENESS CAMPAIGN FOR CONSERVATION

Natasa Krsmanovic, Gyllian Porteous\*, and Sophia Zweifel\*

In the fall of 2016, the CAC-ACCR formed an ad-hoc committee on advocacy to promote awareness of heritage conservation at local, provincial, and federal levels, in an effort to provide new opportunities to emerging and established conservation professionals through the creation of new legislation, policies and funding programs. In seeking to create a voice for conservators both within the Canadian heritage community and beyond it, the Advocacy Committee is focused on attracting audiences by raising public awareness of the conservation profession. This paper introduces conservation professionals to one branch of the Advocacy Committee's public awareness campaign – a national public lecture series to be debuted in September 2017. Through the development of a bank of customizable stock presentations and assistance in the organization of events, the Advocacy Committee hopes to facilitate volunteer professionals in leading outreach efforts within each volunteer's local community. Presentations are formulated for a variety of audiences, of different age groups and backgrounds, also with the goal of making the conservation profession more accessible both as a career path and as a resource to communities. Parties interested in volunteering are invited to attend the talk presented by the Committee's co-chairs and to express their interest following the presentation.

# CONSERVATION FOR THE 99%: THE ROLE OF THE CONSERVATOR IN SMALL MUSEUMS

Fiona Graham<sup>\*</sup>, Conservation Consultant and Laura Hortz Stanton, Executive Director, Conservation Center for Art & Historic Artifacts

Most small museums do not employ a conservator nor do they have budget dollars regularly allocated to conservation. Despite the lack of funding, these institutions often serve as community anchors, tell stories that are important to their communities, and hold collections of national importance. While conservators are rarely embedded in these institutions full-time, there are opportunities for conservators to provide meaningful contributions to the vitality of these organizations.

Many small museums are operated by minimal staff that are balancing shoestring budgets and accomplishing collections-related tasks with volunteer labor. Administrators at these organizations often feel that conservation expertise is outside of their reach and that conservation principles are too lofty to be applied by staff without extensive training. Conservators and preservation professionals can play an important role in dispelling these myths by providing resources, training, and expertise to help ensure that collections in these museums are protected.

This presentation will discuss the role of the conservator in small museums, from the perspective of a conservator specializing in preventive conservation and a former curator/collections manager with a background in preservation. Topics that will be covered include: obstacles that prevent small museums from pursuing conservation and preservation initiatives; strategies that conservators can utilize to build trust with small museum staff and volunteers; strategies for overcoming barriers in small museum participation in the preservation conversation; types of services of greatest value in under resourced organizations; and implementation of conservation principles in the small museum setting.

### A NEW DISTLIST?: PRACTICES AND POSSIBILITIES FOR CONSERVATION AND SOCIAL MEDIA

#### Elspeth Jordan

The CAC's Code of Ethics and Guidance for Practice states: The conservation professional shall seek to promote an awareness and understanding of conservation through communication with those who have a vested interest in the cultural property, with other professionals and with members of the public. But what does this mean in our ever evolving communications world?

In our current changing media environment, the sources for finding and sharing conservation resources are constantly multiplying. In addition to the traditional routes such as specialized journals, distlists and word of mouth there are now huge numbers of blog and social media platforms, which makes sharing fast, cheap and relatively easy.

More and more conservation professionals and institutions are engaging with conservation topics on social media. This presentation will share the results of an online survey examining how conservators are using these new platforms. Questions that will be answered include: What are the preferred platforms? Do people use corporate or personal accounts? Who are the intended audiences? Are people implementing ideas found on social media in their conservation practice?

In addition to looking at current users, this presentation will offer information on getting started sharing your own conservation experiences and looking for resources on social media. The advantages of various platforms will be discussed as well as resources meant to support users. Examples from leaders in the field will be highlighted and potential pitfalls and challenges discussed.

# THE BATTLE OF BLENHEIM IN MINIATURE: A COLLABORATIVE CONSERVATION PROJECT

Heather Dumka, Lee Churchill and Priyanka Vaid, Glenbow Museum

In 1964, the Glenbow Museum acquired five miniature military dioramas from the now-defunct Royal United Services Institute Museum in London, England. These dioramas are part of a series of fifteen that were commissioned by the well-known model collector and creator, Otto Gottstein, commemorating great moments in British military history. The Glenbow dioramas consist of flat tin-lead figures attached to a base, and a painted backdrop. Three of these dioramas were re-done in the 1990's for display in our Warriors gallery. The original bases were discarded and the figures were remounted on new bases. The backdrops were not used for this exhibit.

The two remaining dioramas, *The Landing of the Romans under Julius Caesar* and *The Battle of Blenheim*, have not been altered and have remained in storage. *The Battle of Blenheim* was recently brought to the conservation labs for treatment as part of a project to improve the storage of these dioramas and make them more accessible for researchers and other visitors to storage. The treatment of the diorama and the backdrop has been a collaborative project with the objects conservator working on the diorama base and figures, and the paper and paintings conservators working on the backdrop.

The painted wooden base depicts a battlefield, and attached to it are over 300 model soldiers and horses. These flat figures, made from a tin-lead alloy, are very soft and a number of them were found to be completely bent over or have bent appendages. The vegetation on the diorama was in poor condition, with much of the foliage from the trees and the bushes detached and scattered over the base. The diorama backdrop is made from a thick, stiff, multilayered cardboard. At some point, in a misguided attempt to make it smaller for storage, it was folded into three sections. This caused major cracks from top to bottom, damaging the board and the paint layer. As the scene wraps around the diorama base it was impossible to repair the board flat; the tensions between the repairs and original material would be unlikely to hold up to reforming the original curve. Strengthening the board while trying to reform the curve required an unusual solution.

The water based paint layer was moderately grimy and required surface cleaning. The lifting and flaking paint at the cracks required consolidation and flattening while keeping the backdrop in a vertical position. Several losses in paint layer at the cracks needed to be infilled before inpainting in a compatible medium.

### REVISITING THE RESTORATIONS OF OLD: APPROACHING THE PHYSICAL, AESTHETIC, AND ETHICAL FACTORS IN THE RETREATMENT OF AN ETRUSCAN BUCCHERO STAND Gyllian Porteous

Like many of its contemporaries, the Phoebe A. Hearst Museum of Anthropology, on the campus of the University of California at Berkeley, possesses a storied past as it relates to the amassing of its collections. At the turn of the century, the Museum purchased, with funds from its benefactor, Phoebe Hearst, a number of pieces to form a Classical archaeology teaching collection. Among the artifacts was a small bucchero stand decorated with rams' heads and orientalising portraits. Over a century later, guestions arose as to the authenticity of the stand and it became the focus of a conservation internship. Mechanical exploration of its surface revealed extensive reconstruction, which necessitated the excavation of at least two campaigns of restoration and 7 layers of different materials. Nine sherds original to the vessel were uncovered, along with restorations comprising two large sections of the walls and half of the base. Of the decorative heads, none were authentic to the vessel, and only two heads out of the six appeared to be made of bucchero. Analysis by Fourier Transform infrared spectroscopy identified some of the restorers' materials as sand, clay, paper, deer hide glue, and polyvinyl acetate. By the end of the treatment, the stand was nearly unrecognizable. This paper presents the various hurdles surmounted in achieving the final condition, notably the physical challenge of removing the layers of restoration, the ethical considerations in disassembling the obsolete pastiche, and the aesthetic factors in determining the ultimate appearance of the stand.

## REFLECTIONS OF THE PAST: UNCOVERING THE CHEMICAL MYSTERY OF DAGUERREOTYPES

#### M.S Kozachuk\*; T.K Sham; R.R. Martin; A.J. Nelson; J. McElhone

Invented in 1839 by Louis Daguerre, the daguerreotype was popular in Europe and North America between 1839 and 1860. This innovative form of the photographic image was produced by first exposing a silvercoated copper plate to iodine vapours to produce a light-sensitive surface. Improvements continued to supplement this process until it was superseded by film-based photography. Although an outmoded technology, daguerreotypes provide a significant historical record of individuals and events from that period. However, this imaging technique and the chemical damages that disfigure many valuable daguerreotypes remains poorly understood. One current restoration method regarding these images is the utilization of an electrocleaning process, which has proven to be one of the safest conservation techniques to date. However, the effects of this preservation treatment have yet been analyzed in depth.

This research describes the use of synchrotron- and laboratory-based techniques to elucidate the electrocleaning technique. Two daguerreotypes were supplied by the National Gallery of Canada's conservation department study collection: one was heavily tarnished, the other electrocleaned. Synchrotron-based X-ray absorption near edge structure (XANES) spectroscopy and X-ray fluorescence (XRF) microscopy allowed for chemical characterization of the surface alongside the chemical distribution imaged in the XRF elemental maps. The results showed the presence of sulfur and chlorine on the untreated plate, elements believed to be responsible for tarnish on daguerreian images. The analysis also reveals that the image particles are comprised of gold, mercury, and silver. Furthermore, gold appears to be elevated in the bright areas. The electrocleaned plate has had its image restored; long-term artifact stability is still unclear.

#### ADAPTING SCHWEIDLER: UPGRADING HISTORIC PAPER RESTORATION WITH MODERN METHODS

Kyla Ubbink; Professional Conservator/Owner Ubbink Book and Paper Conservation

Max Schweidler's book "The Restoration of Engravings, Drawings, Books and Other Works on Paper" was in 1938 one of very few texts to describe the secretive techniques of restorers. The 2006 English translation of his book imparts insight into past techniques for restoring paper, and the author's approach and descriptions are inspirational. The term 'Schweidlerize' was coined "to describe extraordinarily skilful, virtually undetectable repairs on old master prints". Although some of his methods are outmoded, they can be adapted to incorporate and enhance today's practices. Partial submersion techniques, descriptions of 'stitching' tears together fibre by fibre, recreating 'wire' lines in loss compensations, and his paper splitting methods are all useful to any modern paper conservator. Furthermore, the text describes a few methods that are rarely considered in modern times, and yet prove to be very effective.

Extreme washing times and the use of boiling water exalted by Schweidler are still incorporated into treatments when warranted. His acetic acid treatment however, is more radical; especially given the number of published sources proving the harmful effect of acetic acid when introduced as an atmospheric pollutant. The book describes using a 3% acetic acid bath that effectively reduces stains, reverses yellowing and brightens intaglio and lithograph prints created on robust papers. Being an electrolyte, the acetic acid creates a conductive solution removing dirt and swelling the paper fibres. Although further research and testing is required, recent studies into the use of pH and conductivity adjusted solutions in cleaning treatments support the potential validity of Schweidler's acetic acid treatment. Updating his technique to include neutralization of the acetic acid followed by thorough rinsing, provides an effective treatment which is easy to control and bears no risk of over whitening the paper artifact.

Adapting Max Schweilder's treatments with today's practices and understanding of paper artefacts proves to be extremely useful. Whether it is his methodically described hand techniques, tips and tricks, or his more remarkable aqueous treatments, incorporating historical ideas with modern materials, tools, and equipment provides a broader range of treatment options and skills.

#### VARIATIONS ON A THEME OF GELLAN GUM: FURTHER EXPLORATIONS INTO GUM PROPERTIES AND TREATMENT APPLICATIONS

Greg Hill and Crystal Maitland

The Paper Lab at the Canadian Conservation Institute (CCI) continues to explore treatment possibilities and gellan gum properties (in collaboration with Library and Archives Canada?). Building off the foundational work by the paper conservators at the Instituto centrale per il restaurao e la conservzione del patrimonio achivisico e librario (ICPAL), CCI has found gellan gum to be a useful means of controlled aqueous treatment. Addition of alkaline agents, reducing agents, neutral calcium salts, and other treatment solutions to the gum offers the ability to customize treatment. By varying the concentration of gel, as well as the ratio of high acyl (HA) to low acyl (LA) gellan gum it is also possible to create gels of variable stiffness and surface conformability while controlling the overall moisture delivery.

This paper will present a number of vignettes of gellan gum use including treatment case studies involving enzyme delivery, research analyses of gellan treatment potential on one and two layered photographic print materials, and test cases investigating treatment possibilities with calcium phytate, various HA:LA ratios, and water miscible organic solvents. Each of these vignettes continues to explore and expand the application possibilities of gellan gum, providing potential both in paper-based artifacts and in other material disciplines.

## FRIABLE MEDIA AND GELLAN GUM: THE TREATMENT OF A PASTEL PAINTING

Rosaleen Hill\*, Emily Cloutier and Vincent Dion, Queen's University Art Conservation Program

In the late 1990's, the Dineacopolis Collection was donated to Queen's University. The donation included a single, heavily damaged, pastel painting by Émile Lévy.

Émile Lévy (1826 – 1890) was a French artist known to his contemporaries primarily as portrait painter, exhibiting frequently in the Salon and earning a first class medal in 1878. He was also recognized in 1867 with the Legion of Honour. However, in his later years he was one of a group of French artists who turned to the pastel as artist's medium. While other artists were experimenting with new subject matter and pastel techniques, Lévy distinguished himself with his highly accomplished pastel portraits.

The pastel painting, a portrait of a young woman, bears the inscription "À Henri Chapu, son ami, Émile Lévy, 1887." The pastel was donated unglazed and unframed yet still on its original strainer. At some unknown point in the past, the pastel suffered water damage, tears, punctures and mould damage. These extensive condition problems not only significantly impeded the appreciation of this once beautiful and technically proficient portrait, but made it extremely fragile to handle and impossible to display.

This presentation outlines the historical context, technical analysis and innovative treatment approaches used for this conservation treatment. Gellan gum was used in direct contact with the friable pastel surface to successfully minimize disfiguring tidelines, discolouration and mould stains. Losses were filled with traditional fill methods but also using newer technology such as digital inkjet fills to compensate for large areas of loss.

The very poor condition of this pastel provided the ideal opportunity to investigate more interventive treatment approaches than would be normally be considered for a pastel artwork.

#### FORENSIC INVESTIGATION OF MILITARY & POLITICAL HISTORY ARTIFACTS AT THE ROYAL ALBERTA MUSEUM

Carmen Li\*, Jennifer Barnes\*, Anthony Worman, and Joe Towers

This poster outlines the results of a series of forensic imagery techniques as applied to the Military & Political History collections of the Royal Alberta Museum. It illustrates what can be gained from this kind of investigation to enhance artifact research.

With the assistance of local law enforcement agencies and with Global Forensics, Inc., conservators and Military & Political History programs have embarked on a series of artifact investigations using infrared (IR) photography, ultraviolet (UV) photography, and photography using forensic lights that emit a narrow and specific range of visible light wavelengths. Digital manipulation has also been used to enhance imagery via the use of colour filters.

The most successful cases have involved enhancing faded inks where the result have recovered, confirmed and solidified the provenance of artifacts within the collection. The results have also provided clues that have taken artifact research to a whole new level of investigation and success. This poster will illustrate several successful case studies including a military tunic, where IR imagery was successful in extracting a service number, connecting the tunic to a previously unknown person and their story. As well, the poster illustrates a wedge cap belonging to a German prisoner of war. Through the use of digital filters to enhance the blue within the ink, the owner's name became legible, again connecting the cap to a specific researchable history. Taking a collaborative approach, we have been able to extract as much evidence from objects as possible, connecting artifacts with histories that were previously unknown.

#### LARGE-SCALE BLOCK LIFT OF AN INTACT ARCHAEOLOGICAL FEATURE AT HEAD-SMASHED-IN-BUFFALO JUMP

Carmen Li\*, Bob Dawe, and Darren H. Tanke

This poster illustrates and describes a recent collaborative effort to block lift an intact archaeological feature at the World Heritage Site Head-Smashed-In-Buffalo Jump. It is the largest block lift ever attempted within an archaeological context in Alberta, and possibly largest in Canada. The lift is removing an intact roasting pit, previously unexcavated in 1990, for the new exhibits at the Royal Alberta Museum.

While block lifting is a well-known technique in archaeological conservation, it is not commonly employed at Albertan archaeological excavations. When the project was first discussed, conservator Carmen Li realized the size of the block lift was orders of magnitudes larger than anything RAM conservators had previously attempted. Alberta, however, is world renowned for the preservation of dinosaur remains and paleontologists in the province have successfully achieved extremely large lifts of dinosaurs. Li reached out to colleagues at the Royal Tyrrell Museum of Paleontology (RTMP) for expert advice and assistance. RTMP graciously approved the involvement of Darren Tanke, who has many years of experience with dinosaur digs, including successfully lifting a specimen that weighed approximately 3 tons.

Under the direction of Darren Tanke with a dedicated team of archaeologists, the roasting pit was jacketed, by systematically trenching, undercutting, pedestalling, and tunneling, until the entire block rested on wood supports and could be lifted by a crane. This process is illustrated in the poster. The interdisciplinary effort resulted in a successful lift approximately 6 feet in diameter and weighing 3020 lbs., employing materials and techniques that, as far as the authors are aware, were not previously used in an archaeological context. The jacketed feature will now be slowly excavated in a lab environment, and will be on display at the new Royal Alberta Museum building, due to open early 2018.

# LABELLING BEST PRACTICES FOR NATURAL HISTORY COLLECTIONS – 3 DECISION TREES

#### Erika Range

Choosing the right substrate, attachment method, inks and printing technologies are critical to ensuring that the information remains intact and associated with an artefact or specimen. In natural history collections, labels often contain original data not found elsewhere, so their preservation is as important as the specimens. The Canadian Museum of Nature houses over 10 million specimens requiring a vast variety of labelling methods. A recent survey at the Canadian Museum of Nature revealed three types of labels typically used in natural history collections, and also attempted to adapt standards to help clarify to collections staff what to buy and how to use it, as they adopt new technologies for labelling. Three 'Decision Trees' were created to guide collections and conservation staff and volunteers with choosing the right tool for the right job, while also highlighting standards and best practices for materials in archives as well as some simple tests for quality control.

## RE-ORG CANADA (ATLANTIC): STORAGE REORGANIZATION OF THE COLCHESTER HISTOREUM

Alicia Ghadban and Margaret Mulrooney

The RE-ORG methodology was developed by ICCROM with the support of UNESCO to assist smaller museums (under 10,000 objects) who do not have access to external expertise and whose collections are at serious risk due to overcrowding and poor storage conditions. In March 2016, the Canadian Conservation Institute held the face-to-face workshop component of its RE-ORG Canada program in partnership with ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) and the Association of Nova Scotia Museums (ANSM). The workshop was hosted by the Colchester Historeum (Truro, Nova Scotia) and allowed professionals in the region to gain practical experience implementing a storage reorganization project. The host museum presented an ideal case study as objects could be found stored directly on the floor, collection and non-collection items were stored in the same space, furniture units (e.g. shelves, drawers) were overcrowded making accessibility extremely difficult and unsafe, sub-collections were displaced in various storage rooms, and duplicate accession numbers existed over a four year period – all within a storage room approximately 32 m<sup>2</sup> (344 ft<sup>2</sup>) in size.

This poster will outline the solutions devised and accepted by staff members of the Colchester Historeum as they lowered the risk to collections and provided improved working conditions for museum staff members. The solutions included installing newly purchased compact shelving; dismantling and repurposing existing units for several storage solutions; removing non-collection items from the storage room; and isolating objects with duplicate accession numbers.

### STARTING SOLUTIONS: A QUICK REFERENCE FOR SMALL MUSEUMS

#### Raene Poisson

*Starting Solutions: A Quick Reference for Small Museums,* suggests three main areas that are common problems for small museums, staffing, collections, and funding, and offers resources for solutions.

Staffing problems occur when there are too few employees on staff, or a lack of communication. An overview of employees in museums is listed to add a frame of reference how differently sized institutions can fill staffing roles. Small museums often have one person wearing many hats within the museum, which can affect timelines, complexity of projects, and the mental welfare of the employee. Volunteers and internships are recommended to help ease the work load while a case statement is made for more employees to be hired.

Collections care can be problematic for smaller institutions, especially with staffing issues, overcrowded storage and wide collecting mandates. An overview of the agents of deterioration, and of the responsibility that museums hold for collections care is referenced. Making sure the collections match the mandate of the museum, and re-organizing are solutions. The Canadian Conservation Institute and RE-ORG are listed as organizations to research to find more information on collections care.

Funding is often one of the keys for easing these problems, but is also a problem unto itself. A list of potential funding resources is provided such as grants, sponsorship, and fundraising. Communication between the museum and the community is fundamental as community stakeholders want to see their investments used for value. A museum will not be sustainable without community support – so bridging gaps, creating dialoged, and conducting community based research initiatives can help strengthen the perceived value of the institution. Generating this kind of support is an ongoing task.

Solutions to solving staffing, funding and collections issues are not simple, and the hardest part is finding the starting point. This poster attempts to provide this starting point for smaller museums – compiling helpful resources all in one place.

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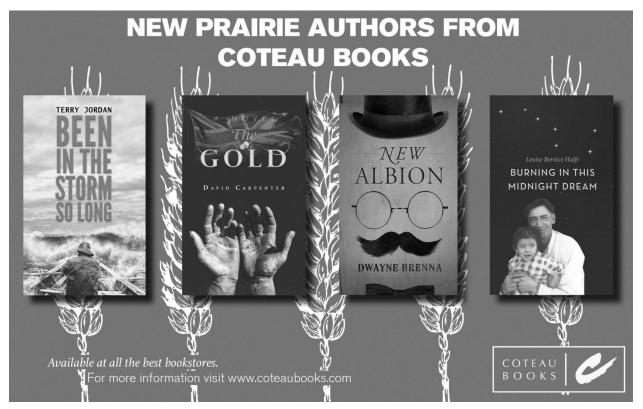
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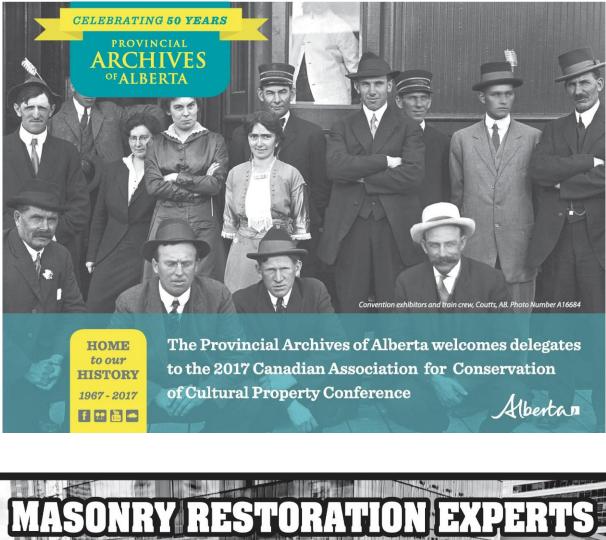
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Alex Janvier, Land of Beauty and Joy, 2015, watercolour on paper, 91.4 cm (diameter). Courtesy of the artist and Janvier Gallery, Cold Lake First Nations © Alex Janvier. Photo: NGC.





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