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News In Conservation

INTERNATIONAL INSTITUTE FOR CONSERVATION OF HISTORIC AND ARTISTIC WORKS

Germany's first emergency container | Saponins as sustainable surfactants | Looking back at SFMOMA

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Cover image: SRAL conservators using the spray tent for preparing the lining for a Mist-Lining. © SRAL (story on p. 24). Inside cover image: Traditional lime plastering technique-Araish- still practiced at the City Palace Museum, Udaipur. *All images courtesy of The City Palace Museum, Udaipur ©MMCF* (story on p. 64).

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3 Birdcage Walk
London SW1H 3JJ
Tel: +44 (0)20 7799 5500
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NiC Contributing Staff
Sharra Grow, Editor in Chief
news@iiconservation.org

Ellie Sweetnam, Fellowship and Membership Programme Manager
Ellie.Sweetnam@iiconservation.org

Alexandra Taylor, Book Reviews Coordinator
alexandra.taylor2@outlook.com

Marina Herriges, Associate Editor for Environmental Sustainability
marina.herriges@gmail.com

Kate Stonor, Web News Editor
kate@tsrimaging.com

Kate Smith, Digital Engagement Editor
communications@iiconservation.org

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From the President's Desk

The editor of *News in Conservation*, Sharra Grow, often weaves a theme either subtlety or overtly through each edition. This edition is not just focused on the theme of environmental sustainability, but is a special issue that draws together a wide range of threads on this subject from around the world.

Our response to climate change and our actions as conservators in adapting to and mitigating the effects of climate change continue to be the great challenge of our times. The situation in Ukraine elicits our heartfelt concerns for our professional colleagues working there and for the family and friends of Ukrainian conservators working elsewhere round the world who are trapped in the country in the most terrible of circumstances. Please rest assured that IIC is doing all that it can to reach out to and support those impacted.

But we continue to have no time to lose in responding to climate change.

Australia is one of the countries that seems to be particularly exposed to the impact of climate change for a number of reasons, and it can be seen as a microcosm of what we are having to deal with around the world. Two years ago I wrote about the devastating bush fires here that burnt an area equivalent to more than 2 1/2 times the total landmass of Sri Lanka, taking 24 lives and destroying 1,700 homes.

Now we have had floods over February and March 2022 on a scale that has never been seen before, taking, to date, 25 lives and destroying at least 3,000 houses. In the town of Lismore on the New South Wales north coast, big floods have been seen before, and the town knows how to prepare for them. The Lismore Regional Art Gallery had carefully moved everything upstairs, but when the flood peaked at 16.5m above river level, which was over 2.5m higher than ever recorded, all the exhibition and storage areas were completely inundated. In addition the volume of water and the power of its movement literally lifted up houses and swept away trees causing massive infrastructure damage. Unlike bushfires which basically result in total destruction, floods tend to partly destroy, manifested by leaving in their wake soggy collections saturated with a muddy, oily, sewage residue that deposits on everything as the water recedes. With Lismore in late summer, experiencing 95% relative humidity and temperatures in the low 30s °C, mould immediately takes a grip.

Since the events of early 2020, the role conservators can play has clearly moved from adaptation to changing circumstances and mitigation of the effects of climate change on our cultural heritage to planning for and dealing with the disasters arising from it. In Lismore the key was to move the collection into cold storage as soon as we could. Having been part of the process, from the many learnings, two particularly caught my attention. Firstly, the level of community support that could be drawn upon by both the Art Gallery and the local museum (which also suffered inundation). This was extraordinary with 70 volunteers turning up to help save their local cultural heritage on the first day after the floods receded and it was safe to enter despite the fact that, in many instances, their own homes had been destroyed. Secondly, the mental anguish that comes with these events significantly compromises the ability of the local community to deal with and respond to the event in a logical and systematic way. The trauma of people losing their lives—and indeed in this instance, at least two members of the Art Gallery community almost drowning—had a significant impact on the salvage process. As first responders once a building is safe, conservators need training in how to deal with this.

One of the saddest parts of the 2020 bushfires in Australia was the loss of an estimated 1 billion animals. Floods can be equally devastating for animals when they rise as fast as this recent one with many thousands of animals drowned in the process. But the resilience of our natural community for survival was highlighted by an amazing photo that captured two native mice (and a frog) riding on the back of a brown snake swimming for dryland. As conservators most of us are also environmental conservationists that feel strongly about the conservation of natural habitat. That image summarises to me both the resilience and community partnership that our natural world is showing us and that we in our professional lives must continue to explore and expand upon in the face of climate change.

I commend to you this special issue of *News in Conservation* focused on environmental sustainability.

With best wishes,

Julian Bickersteth
IIC President

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"The President's Desk"
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CHINESE, FRENCH, GERMAN,
HINDI, PORTUGUESE and SPANISH

Message from the Executive Director

With so many tumultuous events in the world, we know that many conservation professionals are operating within very difficult and demanding contexts—facing volatile, hostile and dangerous conditions—that require the ability to be highly resilient. This reality has prompted IIC to extend its support and grant funding programmes to help colleagues around the world during times of crisis, and we'll continue to make sure our efforts are grounded in real action.

I've been spending a lot of time recently looking at IIC's own resilience and environmental impact because, even though the last two years has been dominated by Covid, we know that climate change is not going away. In this issue we share our climate action plan and our work with global partners (p. 30-31). On top of this, we have continued our planning for the IIC Wellington Congress in September 2022, which has brought with it a realisation that carbon emissions associated with delivering hybrid events can be quite significant, including those underpinned by carbon off-set schemes that are fraught with issues linked to trust and misuse (there'll be more on that in a forthcoming blog on the IIC Community platform). This year our Congress will come with a very special level of engagement and experience that won't cost the earth (literally); there's a lot of work going on behind the scenes and we're excited to release the details shortly!

At IIC we fundamentally believe that things can be better. That's our starting point. We'll never be different for the sake of being so. But most importantly, we try to "walk the talk". My ambition is to make sure sustainability, inclusion and promoting fair and equitable access to knowledge and learning is inherent in everything we do; it should not be bolted onto our programmes, but should be part of our purpose. So we'll continue to share our learning with you as we go in the hope that this brings some form of benefit to all.

Sarah Stannage
IIC Executive Director

Editor's Sounding Board

We're always working on something behind the scenes at IIC, and there are several new projects I am excited to share with you. Firstly, in an effort to reach a more diverse audience, we will be translating parts of *News in Conservation* beginning with the "President's Desk" column which, for this issue, is available in Chinese (traditional and simplified), French, German, Hindi, Portuguese and Spanish. This was made possible by a group of fantastic volunteers. We would love to hear your thoughts on future language selection and which translations you might contribute.

I must also recommend to you the recent episode of The C Word Podcast "Conservation and Conflict" which centers on the war in Ukraine as a jumping-off point to discuss resources for cultural heritage preservation during times of war, disaster, and crisis. In this episode, IIC Executive Director Sarah Stannage shares the resources IIC has gathered including our nimble Opportunities Fund.

I would like to leave you with a bit of a teaser for a project to be announced during my presentation at the AIC conference in May. With help from a host of colleagues around the world, I am creating an open-access resource that I hope will catalyze global connections within our professional community. But more on that in the next issue of *NiC*.

Sharra Grow
IIC Editor in Chief, News in Conservation

News in Brief

Here is a sampling of some of the greenest museums from around the world. While this is by no means a definitive "top ten" list, it does highlight a variety of ways in which museums have become more sustainable in recent years. Take a look, and perhaps discover ways to inspire change in your own workplace!

CALIFORNIA ACADEMY OF SCIENCES (SAN FRANCISCO, USA)

Designed by Renzo Piano (known for his sustainable architecture), the California Academy of Sciences opened in 2008 and faces the de Young Museum across a large outdoor courtyard in the middle of the iconic Golden Gate Park. The most immediate and striking feature of the Academy is its living roof, which is a lawn of rolling hills atop the building. These rooftop hills boast millions of plants, attracting local wildlife. This landscape naturally insulates the building below, reducing energy costs, and is also designed to catch rain water. As if the roof wasn't already doing enough, it features solar panels providing the power for the museum's lighting.

The metal structures used to construct the Academy are made up of almost 90% recycled material. It is not only the construction, however, that makes this museum a leader among green museums. Inside you'll find a rainforest, aquarium, and countless other exhibits that teach about our natural world alongside our stewardship to care for it. It's no surprise that the Academy is already Platinum LEED certified and aims to become the greenest museum in the world.

THE MUSEU DO AMANHÃ / MUSEUM OF TOMORROW (RIO DE JANEIRO, BRAZIL)

From the outside, Rio's Museum of Tomorrow, which opened in 2015, looks like a prehistoric skeleton and a futuristic airship, harkening back to our past and looking forward into the future all at once. The solar panels on the exterior were designed to move with the sun throughout the day, inspired—as stated by the architect Santiago Calatrava—by the bromeliads in Rio's Botanical Gardens.

The museum was also constructed with an air conditioning system that uses water from Guanabara Bay, on which the museum sits. As part of the process, the museum's cooling technology cleans and then returns the water back to the bay. It also collects and reuses rainwater.

The designers have stated that the museum uses 40% less energy than conventional buildings, and it saves 9.6 million liters of water and 2,400 megawatt-hours of electricity per

year. A striking difference from most other museums, The Museum of Tomorrow focuses on ideas rather than on objects. The Museum gears its exhibits toward humanity's need to reflect and to change. The exhibits focus on our changing earth, mapping out where we came from and where our choices may lead us, making the mission of this museum one of sustainability at its core.

The Museum has also fostered partnerships with Brazil's leading universities and global science institutions in order to track data on the climate.

TERRA—THE SUSTAINABILITY PAVILION (DUBAI, UAE)

The 2020 Expo in Dubai, a 6-month world fair covering over 1,000 acres, was postponed due to Covid-19, and just finished at the end of March 2022. The entire Expo, while not technically a museum, more or less functioned as one, focusing on the themes of sustainability, mobility, and opportunity.

One of the main areas, Terra, was the Sustainability Pavilion, which played a key role over the span of the entire event. The centerpiece of the Expo was undoubtedly the 440-foot-wide steel canopy holding 1,000 solar panels and featuring technologies allowing the Pavilion to produce its own energy, cooling, and water.

"We felt that if you can operate a totally net-zero building in one of the world's most challenging climates," says Andrew Whalley of the firm Grimshaw, the Pavilion designers, "then clearly it can be done anywhere in the world." Another innovation included building most of the exhibition space below ground level, providing natural, energy-saving insulation from the unforgiving desert heat.

The Sustainability Pavilion portion of the Expo promises to have a life after the event, reusing at least 80% of the built infrastructure which, in and of itself, includes LEED Gold and Platinum-certified buildings. Terra will actually become a public children's science center focusing on sustainability once the Expo is closed.

Top: Green roof of the California Academy of Sciences (2014. Image by Ruth Hartnup/Flickr. Licensed under CC BY 2.0. Original location here.

Left: Museum of Tomorrow. Museu do Amanhã (2018). Image by Rodrigo Soldon Souza/Flickr. Licensed under CC BY-NC 2.0. Original location here.

Right: Some of the solar panels which are part of Terra, the Sustainability Pavilion at the Expo 2020 Dubai. 2022-03-FL-22-3 Expo 2020 Sustainability Pavilion-1-1 (2022). Image by ACME/Flickr. Licensed under CC BY-NC 2.0. Original location here.

Top left: The Prado (Madrid, Spain). (2012). Image by Mike Norton/Flickr. Licensed under CC BY 2.0. Original location here.

Bottom left: Hermitage Museum in Saint Petersburg (2019). Image by Pedro Szekely/Flickr. Licensed under CC BY-SA 2.0. Original location here.

Top right: Wa Pian Wall. Rubble wall at Ningbo History Museum (2013). Image by Santo Chino/Flickr. Licensed under CC BY-NC 2.0. Original location here.

Bottom right: Zeitz Museum: Zeitz Museum (2018. Image by Arthur Spring/Flickr. Licensed under CC BY-NC 2.0. Original location here.

THE PRADO MUSEUM (MADRID, SPAIN)

While many of the museums celebrated for their sustainability are new constructions from the 21st century, it is not always possible to build new from the foundation up, nor is it often the most sustainable option. There are several museums around the world which utilize an existing structure, finding creative ways to green-up their old buildings.

The Prado in Madrid is an excellent example of this. In 2015 the museum partnered with la Fundación Iberdrola to create a more sustainable lighting system. With the installation of LED lights, the Museum was able to cut down its energy use by 75%, cutting CO_2 emissions by 320 tons each year.

As a fine art museum, not traditionally focusing its collection and exhibitions on sustainability, the Museum got creative in order to spread this message through art. In 2019, coming out of the UN COP25 held in Madrid, the Prado partnered with the World Wildlife Fund to digitally alter four of its masterpieces in a project titled "+ 1,5°C Lo Cambia Todo", (+ 1.5°C Changes Everything) illustrating what those painted scenes might look like in a world ravaged by rising temperatures. What if Goya's woman from *The Parasol* (1777) was actually a displaced refugee in a tent encampment? Or perhaps Velazquez's *Felipe IV a Caballo* (1635-36) might find himself and his steed not on a hill top, but within a flooded ravine.

The Prado's recent efforts make the museum a fantastic example, using its strengths and existing resources to create more sustainable practices and also to bring more awareness to the public without new construction.

THE HERMITAGE (SAINT PETERSBURG, RUSSIA)

The Hermitage is another example of a historical structure which has managed to change its practices to become one of the greenest museums in the world. Once home to the great Tsars of Russia, the palace now houses an art collection rivaled by few.

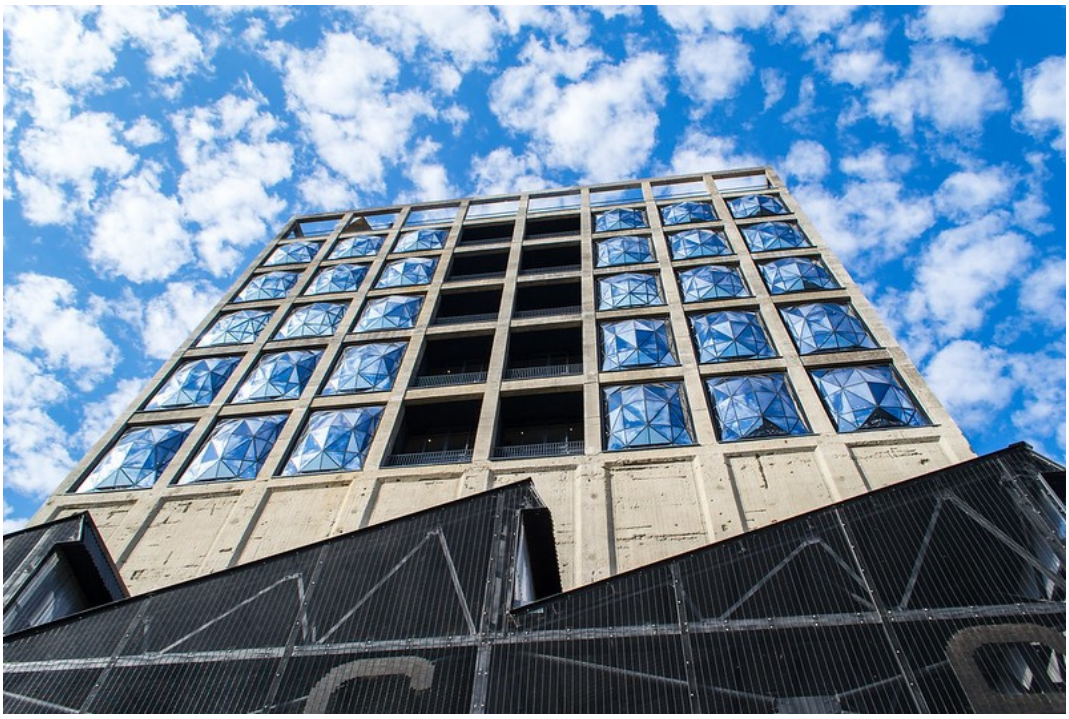
By square footage, it is one of the largest, as well as one of the most visited, museums in the world and, perhaps due to its size, is now one of the greenest. Just by switching out the old lighting system for energy-saving bulbs, the museum was able to reduce its overall energy costs by nearly 60%.

NINGBO HISTORY MUSEUM (NINGBO, CHINA)

Chinese architect Wang Shu, known for his firm's sustainable designs, completed the Ningbo History Museum in 2008. While this museum was a new construction, Wang created the building out of rubble gathered from demolition sites in surrounding provincial villages. Wang used the traditional rammed earth technique to create the walls, but instead of using freshly quarried earth, as is done traditionally, he used millions of brick fragments, roof tiles, bamboo and other salvaged architectural fragments from buildings recently flattened. This design is not only more sustainable, but it also literally preserves pieces of architectural traditions from past decades within the museum walls.

Wang's firm won the Pritzker Architecture Prize in 2012 for the Ningbo History Museum design which resembles an upside-down mountain, symbolizing the Museum's mission to explore the natural and cultural histories of the region. While practical and sustainable, Wang is also critiquing China's common practice of architectural demolition and renewal; he is demonstrating a new, greener way forward.

ZEITZ MUSEUM OF CONTEMPORARY ART (CAPE TOWN, SOUTH AFRICA)



The Zeitz Museum of Contemporary Art opened on the V&A Waterfront, Cape Town in 2017, the first museum of its scale dedicated to contemporary African Art on the continent, situated on the banks of a city which may soon be underwater due to the climate crisis.

The building was originally a grain silo, built in 1924, but stood closed and vacant since 2000. The architect, Thomas Heatherwick, incorporated much of the old silo structure, which saved a huge about of money on materials and also lowered many other costs; think of all the trucks driving back and forth, the building supplies hauled from one place to another, the energy to break up old construction and then carry it out, depositing it into another location. To further drive home this point, we can compare the cost to create the Zeitz Museum (30 million GBP) and the cost to complete the new Tate Modern building extension in London (270 million GBP).

The museum also takes advantage of natural light and natural ventilation aided by the seawater cooling plant which serves the entire waterfront district in Cape Town, using cool water from the ocean. Additional sustainable efforts include a water monitoring system that uses low-flow plumbing fittings to minimize water use and the use of non-potable water for tasks such as window washing.

The decision to turn the old silo into a museum not only saved money, resources and energy in construction, but it also preserved some of the history of the community. Architect Thomas Heatherwick makes an interesting point when quizzed on the building's sustainability. He said architecture "tends to just get judged on how much energy usage is saved, and how little water is used... The real meaning of sustainability is far more complex. It includes the human dimension, and assessing how much possibility a building has for working in 100 years from now."

IIC Environmental Susta

IIC RESOURCES

"Starter for Ten" Environmental Sustainability Resources

IIC Community: Sustainability Theme

"Eco-Friendly Art Packing and Transport" by Peter Cannon-Brookes

"News in Conservation" Environmental Sustainability column by Marina Herriges

COP26 and the IIC "Edit-A-Thon"

"Stemming the Tide" Symposium and open-access publication

2018 Point of the Matter Dialogue "Culture Cannot Wait: Integrating Cultural Heritage First Aid with Humanitarian Assistance in Crises"

IIC 2020 Congress Dialogue "Climate Action and Covid: What is the Heritage Impact?"

AGM 2021 Talk: Reaching Carbon Neutral at the Australian Museum and the Role of Conservators

IIC, ICCROM, and ICOM-CC Joint Commitment for Climate Action in Cultural Heritage

BOOKS AND PUBLICATIONS

"Sustainable Heritage: Merging Environmental Conservation and Historic Preservation" by Amalia Leifeste, Barry L. Stiefel

"The Green Museum: A Primer on Environmental Practice" by Sarah S. Brophy and Elizabeth Wylie

"Environmental Sustainability at Historic Sites and Museums" by Sarah Sutton

"Heritage Futures" by Rodney Harrison et al.

"Sustainable Museums: Strategies for the 21st Century" by Rachel Madan

"Cultural Heritage and the Future" edited by Cornelius Holtorf and Anders Högberg.

"Practical Considerations for Safeguarding Intangible Cultural Heritage" by Michelle L. Stefano

inability Resource List

OTHER RESOURCES

Julie's Bicycle "The Art of Zero: An indicative carbon footprint of global visual arts and the transition to net zero"

"17 Ways to make your website more energy efficient" by Tom Greenwood

Our Collections Matter: Tool Kit by ICCROM

Climate.Culture.Peace Conference YouTube Playlist

Conservators Combating Climate Change Podcast from AIC Emerging Conservation Professionals Network

"Being a 'Green' Philantrepreneur!" episode interviewing Sarah Sutton on the Philantrepreneur Show

"Greening the Museum" episode from 7 February 2014 on The Museum Life podcast

"Going Green" (S04:E01) The C Word: The Conservator's Podcast

STiCH: Tools for Informed Sustainable Choices

Ki Culture

Sustainability in Conservation

Green Museum Podcast

Sustainable UCL: sustainable lab practices at University College London

CHN: Climate Heritage Network

The American Institute for Conservation (AIC) Wiki: Choosing Materials for Storage, Exhibition and Transport / Sustainable Practices / Plastics are Forever

Connecting to Collections (C2C) Care: Reducing Environmental Impacts of Collections Care and Management (webinar recording)

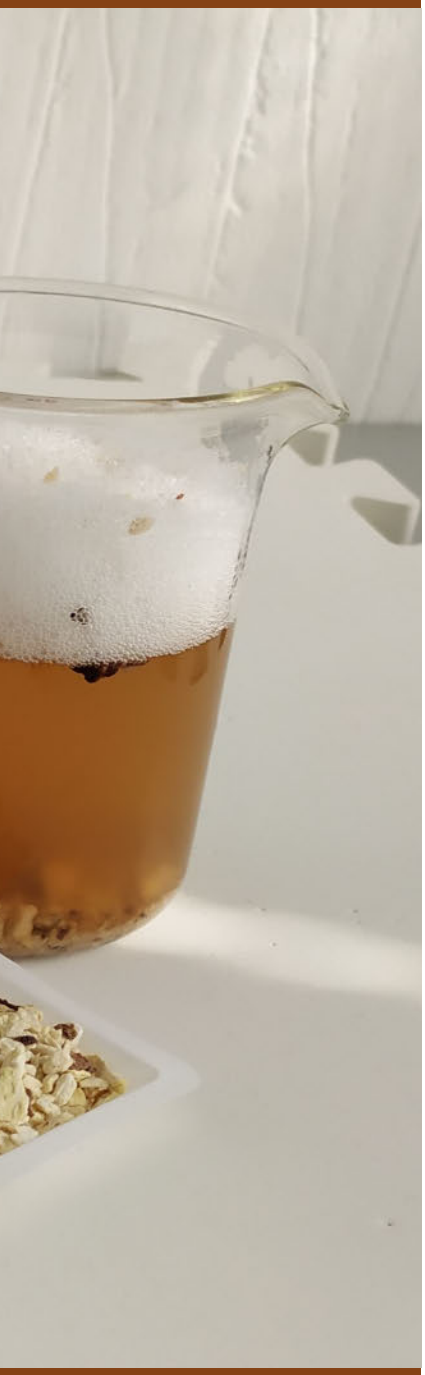
The Sustainable Heritage Network (SHN)

Sustainable Practice for Heritage Institutions: Canadian Conservation Institute (CCI)

"Future of Our Pasts: Engaging Cultural Heritage in Climate Action" The International Council on Monuments and Sites (ICOMOS) report

Culture and Sustainable Development: Powering Culture Across Public Policies (The United Nations Educational, Scientific and Cultural Organization—UNESCO)

My Green Lab ACT Label Database



Saponins: potential surfactant for historical textiles

By Caterina Celada-Prior

Textile conservation is becoming more aware of the environmental impact of current conservation practices, and professionals are searching for greener and more sustainable alternatives. Within this context, during the summer of 2020, I explored the potential of natural plant-based surfactants for the wet cleaning of historic textiles as part of my dissertation for the MPhil Textile Conservation. The research aimed to provide a groundwork for making informed decisions in the application of saponins as a potential alternative to current surfactants in textile conservation treatments.

Wet cleaning is an important part of the domestic care of textiles and textile conservation practices. Traditionally, before the mid-20th century, soaps and natural surfactants (non-synthetic) were the main sources of cleansing agents. These were gradually superseded by the arrival of synthetic surfactants (highly efficient and affordable).

SURFACTANTS IN TEXTILE CONSERVATION

Synthetic surfactants—commonly called detergents—lead wet cleaning treatments in textile conservation. In order to provide a controlled cleansing action whilst minimising changes and damage to the fibres, the selection of surfactants is subject to their stability. Mostly, synthetic anionic and non-ionic surfactants are chosen due to their specific properties: lack of colour, neutral odour, low critical micelle concentration (CMC), good wetting power and high solubility at low temperatures, amongst others. However, these purely synthetic refined oil-based and petroleum-based surfactants raise environmental, economic and social concerns related to their production (e.g., atmospheric emissions and intensive farming) and waste disposal (e.g., biodegradability).

SEARCHING ALTERNATIVES

In alignment with a sustainable conservation practice, natural surfactants such as Funori and saponins have been researched as potential alternatives to current practices. Saponins (from Latin 'sapo', i.e. soap) are amphiphilic molecules (mainly found in plants) with surface-active properties and soap-like behaviour. These especially draw my attention as historically they have been widely used around the world and across cultures for cleaning textiles. Unfortunately, despite the "re-discovery" and rise in popularity of soap nuts (*Sapindus Mukorossi)* as a green alternative to commercial detergents, the rich intangible heritage attached to their use is at risk of loss.

Saponin plant extractions. From left to right: *Hedera Helix leaves, Sapindus Mukorossi* fruit pericarp, and *Saponaria Officinalis* dried roots. Image courtesy of Caterina Celada-Prior.

Knowing of the existence of Saponaria (*Saponaria Officinalis*) in Spain as a traditional means for personal hygiene and washing textiles (a tradition that today is almost forgotten), along with a personal interest in traditional and sustainable conservation practices, these traditions piqued my curiosity regarding the potential role of saponins in textile conservation.

SAPONINS IN TEXTILE CONSERVATION

Through a literature review, I came to understand the extent of their use, the types of saponins and their sources. I could also verify whether saponins' properties were fully understood and if they would be appropriate to use in textile conservation.

My literature search disclosed a historic, steady—though fairly inconspicuous—presence of sources on saponins within the profession. Inherited traditional beliefs indicating saponins to be mild and therefore adequate for delicate textiles seemed (in many cases) to govern the rationale behind their application. Details on saponin sourcing and rationale for use were occasional. The most recent uses in conservation are mainly done using purified forms. However, I also found references to natural saponin plant extracts being used in the early days of the profession and continued use still in some areas of the world.

The promising usefulness of saponins in conservation is illustrated in the incipient research focused mainly on detergency parameters of purified forms of *Quillaja Saponaria* (Soapbark tree) and *Saponaria Officinalis* (Soapwort). However, the literature shows a limited understanding of these compounds (detergency properties, behaviour, sources and limitations of their use) and their implications for health and the environment. Some groundwork was necessary to fill in the missing gaps in order to inform textile conservators' decision making in the application and development of further research into these compounds.

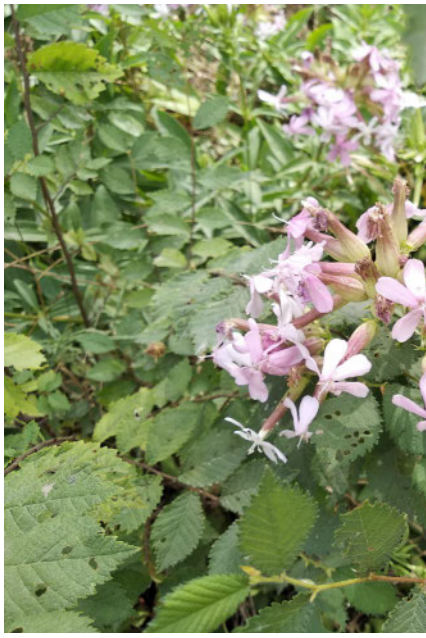
DISCOVERING SAPONINS

Diving into the understanding of saponins, I found them to be widely varied and complex compounds. Although chemical structures affect detergency properties across species, saponins as pure compounds have many similar characteristics to their synthetic non-ionic counterparts. They have good wetting properties, a low CMC and foaming and emulsifying abilities, having the potential to be efficient and effective non-ionic cleaning agents within conservation standards. Establishing what species of saponins would be the ideal cleansing agents still requires further research. Even so, factors such as high aggregation (i.e. number of surfactant monomers in a micelle) and hydrophilic-lipophilic balance number (HLB), could be indicators of higher cleaning power, with monodesmoside saponins (i.e. saponin species containing one sugar chain) presenting better foaming abilities.

Some species of saponins are commercialised as pure compounds for biomedical and industrial purposes. These are the main forms recently used in conservation due to their controllability and similarities to powdered forms of synthetic surfactants. However, the complex purification processes required come with elevated costs, making them inaccessible to many.

In contrast, I became particularly interested in the potential behind traditional forms of saponin extraction (plant extracts) and use. By reclaiming sources locally available and independent of industrial processing and commercialisation, plant extracts could become an eco-friendly source of surfactant. I also saw this as an opportunity to expand the scope of preservation to the intangible heritage linking the knowledge of the environment with the preservation of textiles.

Saponin-yielding plants as sources for detergent are abundant including a wide variety of plant families worldwide. These often receive their common names in reference to their



Stable foam produced by saponins of *Saponaria Officinalis* roots. Image courtesy of Caterina Celada-Prior.

Plant of *Saponaria Officinalis* located near a river in Sabadell, Spain. Image courtesy of Caterina Celada-Prior.

Textile conservators wet cleaning a textile with synthetic surfactants. Image courtesy of Zenzie Tinker Conservation Ltd.

soap-like properties, e.g. Soapberry (*Sapindus Saponaria*). I was able to identify almost fifty different plants referenced in the literature as traditional means used in the cleaning of textiles around the globe proving local sources are readily available, and there is the potential for sourcing diversification. Ivy (*Hedera Helix*) and Yuca de Mojave (*Yucca Schidigera*) are two examples of native sources, the former from Europe and the latter found in the southern United States and Mexico.

CHALLENGES IN USING SAPONINS

The use of purified forms of saponins allows for accurate calculation of detergency parameters (e.g., CMC) in washing solutions and keeps preparation time low, while the use of plant extracts obtained by traditional means of extraction (i.e. maceration and decoction) comes with challenges and conundrums regarding their stability for application in contemporary conservation practices.

Plant extracts linked to the knowledge of local sources of surfactants require only basic processing and implements, making their use accessible and affordable regardless of available infrastructure. Plant extracts contain saponins and many other substances such as flavonoids (colourants). Plant extracts also vary their saponin content, both in their chemical composition and their concentration according to several factors. These include plant species, parts of the plants included, geographic area of growth, development stage of the plant and post-harvest treatment. The presence of compounds other than saponins raises concerns in regards to the stability of these extracts (e.g., ageing in textiles) according to conservation standards, and the variability of saponin composition and content diminishes the precision of their application.

There are obvious positive environmental advantages of saponins as a renewable surfactant due to their high biodegradability as surfactants—both for the end-products and by-products such as shells, leaves or roots—as well as the possibility of diversification of sourcing crops, avoiding monocultures.

That said, we must bear in mind that "natural" does not automatically equate with "innocuous". A mindful practice involving health and environmental protection should always be encouraged, no matter the source of the product.

Due to saponins' biochemical defensive function in plants, once they are separated from the plant source, they can alter the media or inadvertently affect other living organisms. Saponins can be highly poisonous for fish, insects, worms, molluscs and amphibians. In warm-blooded animals (including humans), saponins can often be toxic in direct contact with eyes and blood due to their haemolytic properties. Avoiding their ingestion and implementing the use of PPE (protection of eyes, skin and direct contact with open wounds) would ensure safe use in conservation. The disposal of saponins into waste management systems

Plant of *Saponaria Officinalis* located near a river in Sabadell, Spain. Image courtesy of Caterina Celada-Prior.

containing water treatment facilities has been reported as safe due to their high biodegradability in this context. However, their disposal to open sources of water should be avoided, and caution should be taken when watering fields with saponin-containing water.

Saponins in their pure form (isolated from other compounds in the plant) can be considered a potential source of surfactant for use in conservation in line with standard practices. That said, we should recognize the need for further research regarding the long-term and ageing behaviour of fibres treated with saponins, particularly in their unprocessed extracted forms. The relationship between plant colourants and possible staining on fibres also needs to be considered when identifying the best sources of saponins as cleaning agents and their cleaning performance.

In addition, the implementation of saponins in conservation practise should be accompanied by a rise in experiment and treatment documentation standards. Accurate reporting of substances used (i.e. the source of saponin, form and preparation) is undoubtedly essential for informing decision-making and future research.

Caterina Celada-Prior graduated from the University of Glasgow (UK) in 2020 with an MPhil in textile conservation following an MA in conservation from the University of Barcelona (Spain). After acquiring experience through several internships in Spain, the UK and Switzerland, she now works as a textile conservator at Zenzie Tinker Conservation Ltd, Brighton, UK.

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Germany's first Emergency Container equipment for a quick reaction

By Nadine Thiel, Dr. Ulrich Fischer and Frank Peters

Abrollbehälter Kulturgutschutz. Image by Nadine Thiel.

From humble beginnings about twenty years ago, emergency associations have now become a mainstay in the protection and disaster relief efforts for cultural heritage in Germany. These associations formed by museums, libraries and archives on a local level have since begun to join forces in order to develop more efficient emergency procedures and to share the cost and effort of providing for emergency equipment for common use.

Upon its foundation in 2018, the Emergency Association of Cologne Archives and Libraries (Notfallverbund Kölner Archive und Bibliotheken) acquired equipment for use in an emergency occurring in any one of its 24 member institutes. Masks, overalls, boots, gloves, stretch film, hoses, carts and many other items were collected in rolling lattice boxes and kept at the City Archive's site at Köln-Porz Lind for transport to an emergency site by the fire department.

However, both the experience of the collapse of the city archive in Cologne in 2009 as well as that of the fire in the Museu Nacional in Rio de Janeiro (2018) made it abundantly clear that, in the case of an emergency, a single container holding all necessary equipment for a quick reaction would be desirable. Moreover, such a container should also provide all-weather working space for members of the emergency association and everything needed for standard procedures during disaster relief and emergency documentation.

Collaborating closely with the city fire department, a working group in Cologne came up with the idea of an emergency container. This was further refined with more input from the fire department which has used a portable container the size of a standard freight container for a number of purposes: from providing catering equipment for large scale missions to high-end chemical labs used by the analytical task force for emergencies involving chemicals. Soon it became clear that such a container could be the ideal framework for a cultural heritage emergency container, as it could be easily transported to any disaster site. If need be, the portable container could be transported not only by the fire department, but also by other agencies such as the technical relief service, the army, the city administration or even commercial transport companies which all have standard transport equipment, thus freeing fire brigade capacities in the case of a major disaster.

With the institutes pooling their funds for emergency measures, additional funding from a modernisation programme run by the City of Cologne, and grants by a federal scheme for the preservation of cultural heritage, a regional agency and a local bank, the emergency container was ordered from a manufacturer for special vehicles. All in all, the total costs for the container were just short of 150,000 EUR.

THE GUIDING PRINCIPLES IN THE DESIGN OF THE EMERGENCY CONTAINER

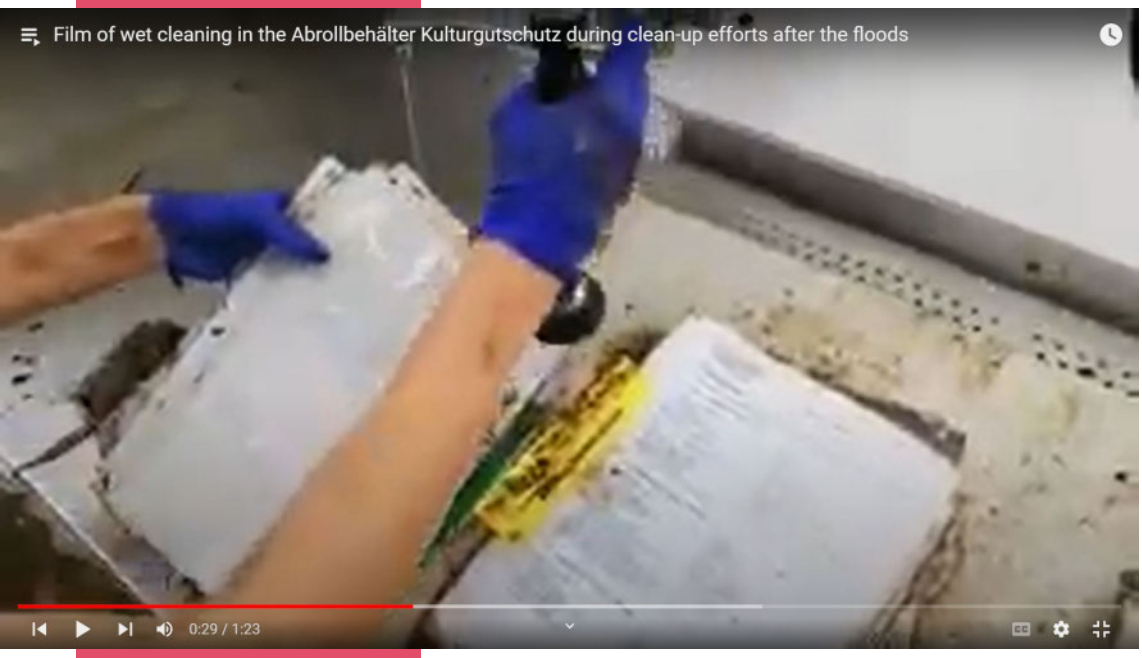
Our first priority was to make sure the container fittings were compatible with the machinery and equipment of the city fire brigade. We realised quickly that any catastrophic event involving cultural heritage would inevitably lead to the fire brigade deploying. In the case of a major disaster requiring the entire force of the fire brigade, any of the other agencies or even a commercial carrier would be able to move the container with a standard truck equipped with a load handling system. For electricity and water, as well as drainage, we rely on standard fire brigade equipment. If need be, this could also be provided by other agencies or the army.

Above: Conservators performing wet cleanings in the Abrollbehälter Kulturgutschutz. Image by Frank Peters.

Top right: The Abrollbehälter Kulturgutschutz put into use in Stolberg after the floods. Image by Frank Peters.

Right: Damaged storage of the City Archive in Stolberg. Image by Frank Peters.

Secondly, the container is not intended for restoration treatments; it is meant to be used just like an ambulance vehicle for cultural heritage, not a mobile lab. Damaged material would be salvaged by members of the disaster relief forces and, with the help of volunteers and members of the emergency association, would be registered, documented and stabilised in the container before being transported to a long-term storage facility. In most cases, at least in all those involving water (this includes flooding from rain or ground water, but also damage caused by faulty plumbing in a building or even from water used to put out a fire), heritage material will have to be rinsed with water and then frozen to prevent infestation with mould and other microbes. Before freezing, the material will have to be wrapped in stretch film. It is for these minimum standard procedures that this particular rescue infrastructure is intended. All other conservation-restoration processes as well as identification measures by experts will take place at a later stage and in proper restoration labs.



Left: The video shows the cleaning of archive materials from the Stolberg City Archive in July 2021. In the emergency container, the flood-damaged files and graphics could be freed from the mud and rubbish and prepared for freezing. Washing stations and packaging materials are available in the container for this purpose. It was the first use of this unique mobile container for protecting cultural heritage. Film by Frank Peters. Click on the image or follow the link HERE to watch. **Right:** Abrollbehälter Kulturgutschutz. Image by Nadine Thiel.

Thirdly, the container is to provide adequate working spaces for these tasks. The main goal was to enable quick, level and secure passage for the potentially fragile, damaged materials. At least six people (including experts and volunteers) can work together in the container to effectively process the damaged heritage material. The container has a heating system, making it dry even in the most inclement weather, and it can be fitted with an internet connection. Awnings can be extended and linked to additional emergency infrastructure, such as the foldable tents (3x3 metres with a 2-metre minimum height inside) that are also part of the equipment stored in the container.

Finally, the container must be able to hold all the equipment needed for emergency reaction. There has to be ample storage for any protective gear required including the materials used for the rescue procedures and technical appliances for documentation. Moreover, equipment to expand the emergency station (such as the tents) is stored in the rolling lattice boxes. As all needed materials are concentrated in the container, the fire department does not need additional information on what materials to bring or where to find them—they simply bring the emergency container. The fire department itself has drawn up a preliminary operation plan which calls for sending out the container together with a standard fire engine. This means that a core staff for setting up the container will be available at the site, plus all the equipment needed for setting up water and electricity (either from the public grid or from independent sources).

FIRST MISSION: THE FLOOD IN WESTERN GERMANY

In October 2020 the "Abrollbehälter Kulturgutschutz" (the mobile container for protecting cultural heritage) was delivered to Cologne. The Covid-19 pandemic prevented the first planned training session in early 2021 making the unexpected flood disaster in western Germany in the summer of 2021 the first occasion to use the container. In July 2021, the flooding of the entire town of Stolberg affected the holdings of the city archives. While the archivist and a group of volunteers supported by the city archive of Aachen had immediately begun a rescue operation in the basement of the town hall, additional archival material was kept in another basement room a few blocks away. After liaising with the local fire brigade, the Cologne fire department brought the container to this disaster site. Manned by volunteers from the Cologne disaster relief association and

supported by local volunteers and an army detachment, the container was used to process 46 pallets and pallet cages of soaked archive material in five days.

Not much later, it became apparent that museum collections stored in an underground car park in the town of Ahrweiler had also greatly suffered from the flooding in that area. After this material was recovered by specialists from the technical relief services, a special transport lorry—conceived and run by Thuringian specialists—was used to ferry the collection materials to Cologne where they were prepared for freezing or further treatment elsewhere.

After these two missions, we can confidently say that the container has lived up to our expectations. And what is more, its performance has been noted by federal agencies which, in the wake of the disastrous flood catastrophe, have subsequently secured funds for the protection of cultural heritage. Thus, there are plans for additional "Abrollbehälter Kulturgutschutz" to be acquired in the regions affected by last year's floods in order to ensure an adequate reaction should such a disaster happen again.

Nadine Thiel is head of conservation-restoration at the Historical Archives of Cologne. After the archive collapse in 2009, she coordinated the salvage work on site. She is part of the Presidium of the German Association of Restorer-Conservators (VDR), of the Emergency Network Cologne and Blue Shield Germany.

Dr. Ulrich Fischer is the deputy director of the Historical Archives of Cologne. Since the collapse of the archive in 2009, he has been in charge of reconstruction of the archive. In 2013, he took over as head of the department on municipal records dating back to 1815 and general archival policies. He is a member of Blue Shield Germany. Together with Nadine Thiel, he initiated the Cologne Emergency Network.

Frank Peters has a degree in engineering and is a member of the Cologne professional fire brigade. He is the incident commander for fire protection and technical rescue. He oversees the operational planning in the field of cultural assets as well as the Cologne Cathedral, and he was in charge of operations when the Cologne City Archive collapsed in 2009.

Mist-Lining: a greener solution to the structural reinforcements of canvas paintings

By Kate Seymour, Joanna Strombek and Rachel Childers
Stichting Restauratie Atelier Limburg (SRAL), Maastricht, The Netherlands

The modern-day painting conservator requires an aptitude in many areas including artistic practice, chemistry, mechanics physics, art history, digital imaging and more. Conservators have really become the jack of all trades! We immerse ourselves in history when reconstructing a partly damaged composition or delve into chemistry, manipulating molecules, when removing complex layers of aged varnish and dirt from solvent-sensitive paint films. We must carefully consider numerous aspects each time a canvas painting is treated. And today, we are confronted with a new challenge—to contemplate the impact that our decisions and treatments will have on climate change (see the UN 17 Sustainable Development Goals). Now we strive to become more sustainable in our practice and in our choice of materials.

THE EMERGENCE OF THE MIST-LINING SYSTEM

This global shift in approach to structural treatment for canvas paintings inspired Jos van Och at SRAL (Maastricht, NL) in the early 1990s to adapt the cold lining approach. This novel technique interwove elements of the different methodologies presented at the 1974 Greenwich conference. SRAL's adaptation of the nap-bond system using acrylic dispersions focused on the minimal impregnation of both original and lining canvases with an adhesive, while providing additional support to structurally damaged canvas paintings. The lining adhesive remains sandwiched between the two canvases without being absorbed into the original textile or decorative layers, which aids in reversibility and eliminates any aesthetic alteration. The technique has been used by SRAL very successfully for lining large-scale paintings, paintings previously lined with wax-resin or glue-paste adhesives, both old masters and modern and contemporary (watch this film documenting the Mist-Lining process: https://www.youtube.com/watch?v=jU-QwEfYt44).

Top image: Preparing for a Mist-Lining: Setting up a low-pressure envelope. © SRAL. **Bottom left:** Materials required for Mist-Lining © SRAL. **Bottom right:** Spraying the acrylic adhesive formulation. © SRAL

SUSTAINABILITY OF THE MIST-LINING SYSTEM

Longevity of the Canvas Structure

A key driver behind the development of the Mist-Lining technique was to follow the updated research, trends and code of ethics in conservation. The latter, shaped over the past century, have unified the conservation field globally and have systemised approaches, crossing cultural and geographical boarders. Avoiding the impregnation of the original canvas required a new way of thinking and acceptance of a different aesthetic as mist-lined canvases maintain a natural drape that is often lost with other lining systems. Revisited Mist-Linings carried out twenty years ago do not demonstrate new structural issues, even when exhibited in uncontrolled environments. Those who practice Mist-Lining see the benefit of this supplementary support without alteration of original materials, even if the treatment will last one generation instead of multiple. In this sense, Mist-Lining is a sustainable practice.

Minimal Solvent Usage

A key aspect of the Mist-Lining system is the minimal usage of solvents. A simple formula allows the conservator to calculate the precise ratio of solvent to adhesive area necessary to create the bond between canvases.

The formulation of acrylic adhesives used at SRAL combines Plextol D512 with Dispersion K360. These adhesives swell and tackify in a wide range of solvents including xylene, ShellSol A100, ethanol, and isopropanol. There are several factors to weigh when considering the solvent selection, including paint sensitivity, aromatic content (the acrylic requires at least 20 percent aromatics) and, of course, availability. We are considering using greener solvents, but further testing will be necessary.

Low Energy Impact

One of the greatest environmental factors to consider when weighing the various lining options is energy usage. The initial misting of the adhesive onto the canvas with a spray-gun is efficient and requires no more energy than a typical spray varnish application. For the lining process, a simple shop vacuum cleaner can be used to extract air from a homemade low-pressure envelope structure using an air-extraction ring which generates the pressure required to bond the canvases together. This system uses much less energy than that required to create a heat-seal bond using a hot-table or lining iron.

Low Cost and Readily Available Materials

Within the context of sustainable practices, we need to mention the sourcing of materials required for Mist-Lining. Much of the materials to create this infrastructure can be sourced at local hardware stores; these include the plastic sheeting for the spray tent and envelope, the PVC tubes that are used to construct the low-pressure ring and the textiles used for breathers within the low-pressure envelope.

Our biggest challenge, however, is the sustainability of the adhesive used for Mist-Lining. We source our acrylic dispersions through conservation material suppliers who, in turn, buy from the coatings and adhesive sector. We are subject to the whim of these manufacturers for the continuation of their products. Currently at SRAL we are working with the fourth generation of adhesive formulations for effecting Mist-Linings. With each new formulation, we must run tests to ensure a trust in the working characteristics and long-term suitability of the adhesive in terms of chemical and physical stability. This poses a real threat to the sustainability of the Mist-Lining system. Furthermore, the acrylic adhesives we used at SRAL are not readily available across the globe. Again, we are working with colleagues to remedy this situation.

Use of Plastics

Mist-Lining is not without its issues. It is a system that uses acrylics—a form of plastic. However, the manufacture process of acrylics is greener than other adhesive types, as less fresh water is required and less wastage is produced. Acrylics use an emulsion free-radical polymerisation process which is an environmentally friendly method to create polymeric dispersions.

The spray application process produces a considerable overspray which can be messy and tricky to clean up. To combat this, we suggest constructing spray tents using plastic sheeting—lots of it! The floor, walls and sometimes ceilings of these spray tents are constructed out of plastic, which is disposed of when it becomes too sticky for reuse.

Opposite page: Material-Kit sent to participants of the Mist-Lining workshop 2021. © SRAL

Right: SRAL conservators using the spray tent for preparing the lining for a Mist-Lining. © SRAL

Bottom: *De-Mystifying Mist-Lining* was filmed, produced and edited by Big Eye Productions by Ben Brack and Akkie Brack- Sewalt (to be edited by Big Eye Productions). This video is made possible with support from the Getty Foundation through its Conserving Canvas initiative. Click on the image or click HERE to watch the film.

The system requires more plastic for the construction of the low-pressure envelope which allows for a gentle, even pressure over the whole surface (front and back) during the creating of the lining bond. The plastic sheeting can be reused, but it will need regular replenishment. This considerable use of plastic is not particularly environmentally friendly, and alternative sources of plastic are being sourced. Nevertheless, any plastic used during the lining process needs to be solvent resistant as solvent vapours are used to reactivate and tackify the adhesive. Once again, alternative greener solvents are being considered. All plastic sheeting used should be recycled as appropriate.

We are also concerned about disposing of the adhesive. To avoid contaminating water supplies with micro-plastic we suggest leaving excess adhesive to dry out as sheets (which can also be later used as heat-seal adhesives for other tasks) and to wash the spray gun in a container of water. The micro-plastic residues can be filtered out and disposed of in a sustainable manner using carbon filters.

LOOKING FORWARD

Sustainability has wider connotations than just an ecological or economic impact. For Mist-Lining to become a sustainable practice, more practitioners need to become experts in the method. To date, the technique has been taught to students, interns and fellows passing through SRAL. While inspired by the system, few go on to use and develop it. The system is deceptively simple and requires an out-of-the-box attitude to problem solving. Time needs to be factored into resolving structural issues prior to lining. This means that the practitioner must have a good grasp of mechanics and structural treatments and must accept that the bond achieved will not be identical to that obtained by other lining adhesives or systems. With this in mind, convincing the field that Mist-Lining is a viable alternative to other modern lining systems has been an ongoing challenge! Producing new ambassadors for this technique will ensure that Mist-Lining becomes a sustainable practice.

As research and conservation trends progress, our profession develops. With each step forward, we get closer to combating the global issues concerning world preservation, sustainability and climate change, and we consider the conservation field in greater context. It is hoped that, for the foreseeable future, we can practice Mist-Lining in a sustainable manner by conserving our heritage for future generations while impacting our environment as minimally as possible.

ACKNOWLEDGMENTS

Mist-Lining would not have developed into such a sustainable practice without the input and guidance of Jos van Och and the many SRAL students, interns and fellows that have contributed to the system over the years. Our thanks go to all! Additionally, thank you to Ivana Jerdoneková for proofreading this text so ably.

Spraying the lining canvas in the spray tent during a workshop. © SRAL

MATERIALS LIST

- HDPE masking plastic sheet, 910 – 990 kg/m3 – Colad, https://www.colad.co/en_gb/
- Linen Libeco Loomstate P 165 ECRU (linen 100%) (manufactured by Libeco) https://www.libeco.com/en/
- Linen Libeco Loomstate 5653 ECRU (linen 100%) (manufactured by Libeco) https://www.libeco.com/en/
- Dispersion K360 (manufactured by Synthomer): https://deffner-johann.de/de/dispersion-k-360-nachfolgeprodukt-von-plextol-d-360-1-l.html
- Plextol D12 (manufactured by Synthomer): https://deffner-johann.de/de/plextol-d-512-1-l.html
- Sefar Petex Acoustic (poly(ethylene terephthalate), open weave) – SEFAR, https://www.sefar.com/en/
- Trevira CS (heavy duty white, polyester trevira) (180-200 g/m2), – Theatex (NL) https://www.theatex.nl/nl/home

Read more about Mist-Lining from the SRAL on the IIC Community. Click the BONUS CONTENT button.

Kate Seymour, IIC Fellow**,** is an art historian with a passion for conservation. She moved to the Netherlands in 1999 to work as a painting conservator at SRAL where she is now head of education. In addition, Kate Seymour is chair of the ICOM-CC Directory Board. She is a coordinator and lecturer for the Mist-Lining Workshops hosted at SRAL and currently coordinates the Indian Conservation Fellowship Program (ICFP). k.seymour@sral.nl

Joanna Strombek is a paintings conservator at the SRAL (NL). She is participating in the Getty Foundation Conserving Canvas initiative. Joanna holds an MA with honours in conservation and restoration of painting and polychrome wooden sculpture from the Academy of Fine Arts, Warsaw amplifying her conservation training at the Nicolaus Copernicus University in Torun. She is an assistant coordinator for the ICOM-CC Paintings Working Group. j.strombek@sral.nl

Rachel Childers. After graduating from SUNY Buffalo State with an MA in paintings conservation in 2020, Rachel completed a post-graduate fellowship at the Williamstown Art Conservation Center before joining SRAL. Additionally, she has completed graduate internships at the Cleveland Museum of Art and the Fine Arts Museums of San Francisco. r.childers@sral.nl

Sustainability and Clim
An International Comm

Sustainable Development Goals

We know that urgent action is needed to address the reported unsustainable trajectory towards four degrees of warming.

In 2015, the United Nations published 17 Sustainable Development Goals (SDGs) as part of the 2030 agenda for sustainable development. These goals form an urgent call to action, for all countries both developed and developing, to help tackle the big issues humanity currently faces– from poverty to hunger; to climate change and biodiversity losses; from gender equality to decent working conditions; and from clean energy to responsible resource consumption.

It's a broad set of factors – but that's because the SDG framework recognises that the world's problems can't be solved in isolation, and definitely not without effective cooperation and collaboration between Governments, Non-Government Organisations (NGOs), businesses and communities.

Because the goals are interlinked, we know that our sector can meaningfully contribute to many, if not all SDGs. IIC is well placed globally to support two SDGs in particular: climate action (SDG13) and partnerships for the goals (SDG17).

Here's how we're doing it:

IIC Climate Action Plan and Global Partnerships

The last two years have been dominated by COVID-19 but the climate crisis has not disappeared. We know that urgent action is needed to address the reported unsustainable trajectory towards four degrees of warming. Global goals for 2030 and beyond can only be achieved through transformative change.

The challenges we face, both now and over the next few years, are going to be among the most difficult – and interesting - in our history.

International Declaration and Joint Commitment for Climate Action

Back in 2019 IIC declared a climate and environmental emergency, with IIC council signing the Memorandum of Understanding becoming an endorsing partner to the launch of the Climate Heritage Network, and then in 2021 IIC convened an international alliance with the leading international conservation bodies, ICCROM and ICOM-CC, to launch a 'Joint Commitment for Climate Action in Cultural Heritage Conservation' (full statement and launch video is on the IIC website).

Subsequently, this 'Joint Commitment for Climate Action' has been signed by the following IIC Regional Groups with further groups about to announce their support, extending to around 5,000 conservators and conservation professionals globally – making this one of the largest and most important alliances in the history of our profession:

- Nordic region (the Nordisk Konservatorforbund: Denmark, Finland, Iceland, Norway and Sweden),
- Gruppo Italiano dell'IIC (IG-IIC), Italy
- IIC Hrvatska grupa, Croatia
- IIC Japan

Challenging the Greenwash

We will work with the growing band of organisations committed to challenge the 'greenwash' behind most declarations of Net Zero, including where they rely on the use of unviable carbon offsets to support 'business as usual' activities.

ATE ACTION:
MUNITY CHALLENGE

Measuring IIC's own Environmental Impact:

Within the UNFCCC Race to Zero, there are three defined scopes when measuring carbon emissions:

Scope 1: Direct Emissions from owned or controlled sources, e.g. owned equipment and generators, refrigerant leaks.

Scope 2: Indirect emissions from the generation of purchased electricity.

Scope 3: All other emissions in a supply chain. From packaging and materials to water use and more.

Our aim is to become Net Zero as soon as possible, we have set ourselves three challenges:

1. As an organisation we have set a clear target to be net zero by 2030 on Scope 1 and 2 emissions, and scope 3 emissions by 2050 or earlier if practicably possible.
2. We will publish our plan on how we will reduce carbon emissions in line with our Net Zero target by the end of 2021/22 financial year, with interim reporting on sustainability.
3. We will publicly report on progress as part of our Annual Review against a recognised international standard – this will be ISO 14001 (Environmental Management Standards) for all IIC publications, activities and operations, and ISO 20101 Sustainable Events for IIC Congresses and Student and Emerging Conservator Conferences.

We have set 2021/22 as our baseline year and have published an interim Environmental Sustainability and Carbon Analysis Report.

Helping to Create a Resilient and Sustainable Conservation Community

IIC as an international body will be inviting members, fellows and institutions to add their support to the 'Joint Commitment for Climate Action in Cultural Heritage' to reach Net Zero by 2050, or even earlier in 2030. We want our members to feel included and to be part of this action. That extends to upholding the principles of Agenda 2030 and the SDGs, with their focus on people, planet, prosperity, peace and partnership: https://sdgs.un.org/2030agenda.

To help members do this, we will be launching a Net Zero initiative and partnering with other international bodies and friends, we welcome members to join the Special Interest Community for Sustainability and Climate Action, to access resources, training and to share insights and experiences that promote positive change.

Providing Support

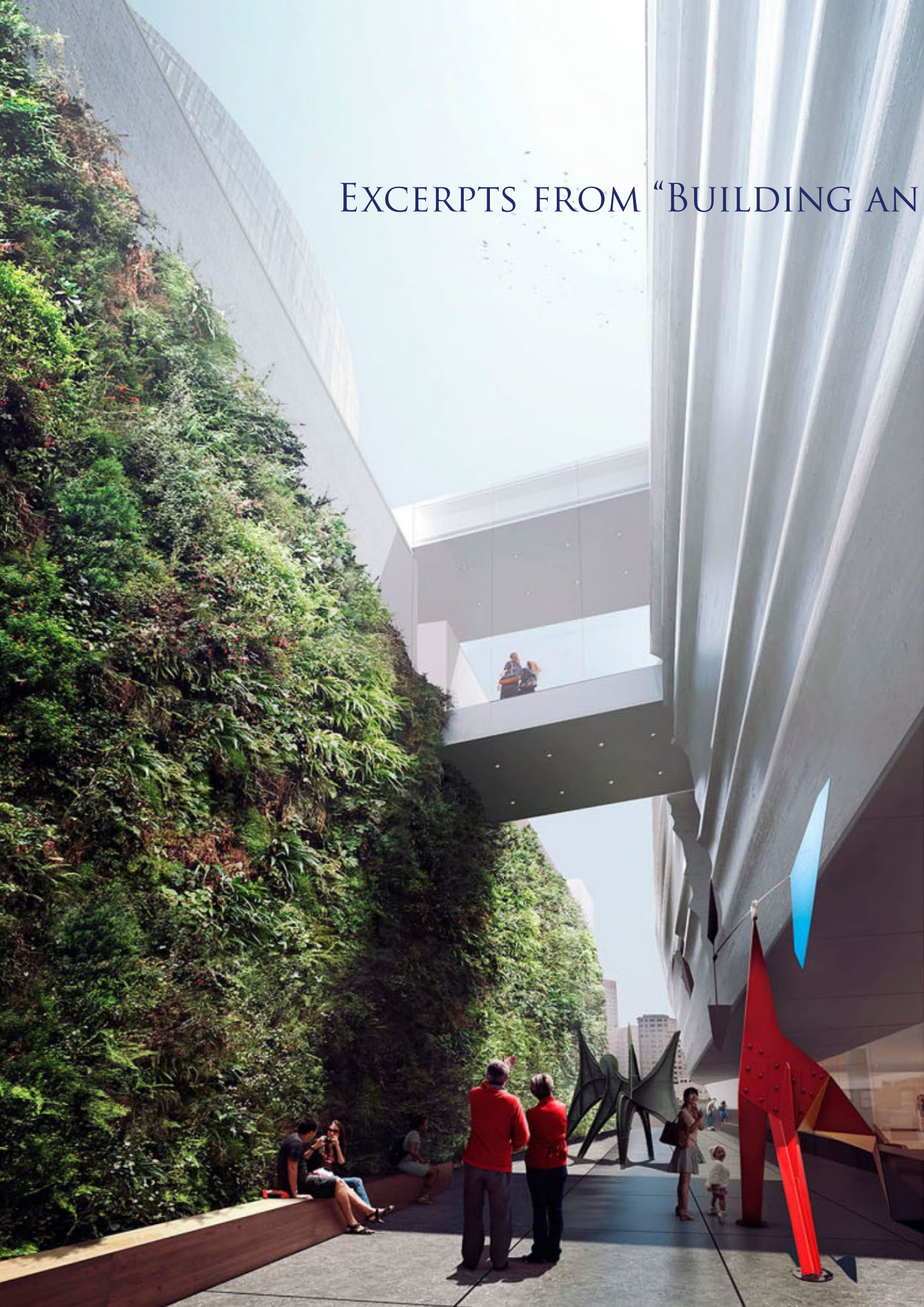
IIC recently partnered with ICCROM through the Our Collections Matter initiative to deliver a training workshop for IIC Member, "Connecting the dots between cultural collections and sustainable development" identifying resources to support improvements and towards directing work activities towards creating a better future for everyone.

IIC members can access seed funding through the Opportunities Fund [link]for projects and initiatives that promote sustainability, resilience, or adaptation.

We will only make a difference if we choose to work together as a sector.

Please contact the IIC Office if you would like to receive further information about IIC's Net Zero initiatives and information on how to join the Special Interest Community for Sustainability and Climate Action, contact us on **iic@iiconservation.org**

Excerpts from "Building an



Environmentally Sustainable San Francisco Museum of Modern Art"

This article, published in Studies in Conservation *(63, sup 1, 242-250) was presented at the 2018 IIC Congress in Turin. I remember being in the auditorium and was captivated by the efforts the Museum made to ensure a more sustainable future for the expanded building. When researching and gathering stories for this special* NiC *issue, Jill and Roberta's paper was one of the first that sprang to mind. Here I present excerpts from the paper. You can read the full article in* SiC *HERE, available for free with your IIC membership. (Sharra Grow,* News in Conservation *Editor in Chief)*

By Jill Sterrett and Roberta Piantavigna

In 2016, the San Francisco Museum of Modern Art (SFMOMA) opened a very large-scale expansion that has significantly impacted the museum's educational, social and economic role in the city. Since its foundation in 1935, SFMOMA has been a museum of and for its times, with an early embrace of modern media such as photography, regular evening hours for a working public, and traveling exhibitions that reached remote regions of rural California.

Before the project was announced in 2009, it was necessary to ask, why expand? How would an expansion enhance the core purpose of bringing individual visitors face-to-face with art in such a way that each is richer for the encounter? SFMOMA is on pace to triple the number of schoolchildren served. The galleries have more than doubled, from 4600 to 12200 m2. The museum is free, in perpetuity, for everyone under 18 years of age. Free art-filled spaces in the museum increased from 1600 to 4200 m2. These are but a few of the community-minded ambitions that guided this expansion.

Situated in the Bay Area, a center for environmentally progressive thought and energy regulations, the expanded SFMOMA had to comply with the rigorous building standards of San Francisco's Green Building Code. Adopted in 2008, these requirements apply to newly constructed residential and commercial buildings and major renovations of existing buildings.

FORM THE DESIGN TEAM

Working with the cross-disciplinary museum team, SFMOMA's architecture firm Snøhetta managed the design process and engaged sustainability consultants Atelier Ten and local architecture firm Esherick, Homsey, Dodge, and Davis (EHDD) to spearhead LEED coordination. The engineering firm Taylor Engineering and commercial lighting design consultants Arup identified two critical areas of collaborative exploration and study for the relatively mild

Left: The living wall. Image published in *Studies in Conservation* (63, sup 1, 242-250), courtesy of SFMOMA.

Above: SFMOMA view of original and new construction. View from Metreon (4th Flr). 2018. Image by rocor/flickr. Licensed under CC BY-NC 2.0. Original location HERE.

climate of the San Francisco Bay Area: environmental conditioning guidelines for the museum and LED (light emitting diodes) lighting options for the galleries, study rooms and storage vaults.

DEVELOP AND SOCIALIZE THE PROPOSAL

SFMOMA considered HVAC controls to be an essential feature of the expansion for two reasons. First, for 60 years from 1935 to 1995, SFMOMA operated in a civic building without relative humidity (RH) controls. Staff at all levels had experienced the untoward effects of fluctuating temperature and RH on the collection. Second, to operate in 2018 without climate control sanctioned by the museum sector would put the traveling exhibitions program in jeopardy. With this in mind, the design team reviewed the conservation literature on museum climates. Next, conservation staff consulted with the Bizot Group and conducted a survey of colleagues who had completed museum construction projects within the last five years.

SFMOMA engaged in three stages of peer review to assess the building design team's recommendations. In 2012, the museum hosted a one-day Sustainability Roundtable. Following that meeting, the proposed guideline was presented for peer review at the Climate Control Standards: Fact or Fallacy roundtable held at the 2012 American Institute for Conservation (AIC) Annual Meeting where the ASHRAE Class A category was approved as the basis for a new museum climate guideline. Finally, this ASHRAE Class A category was ratified as an acceptable solution by the American Association of Museum Directors (AAMD) in 2013.

HEATING, VENTILATION, AND AIR-CONDITIONING

Taylor Engineering's innovative system played an important role in achieving many LEED system credits. First, the centralized adiabatic system reduces significantly the energy consumption compared to previous zone-controlled steam humidification methods. Furthermore, additional engineering features that enhance the building's energy performance include: using optimized fan wall arrays that turn fans on and off based on the static demands, shutting down air during unoccupied hours while monitoring the desired temperature and humidity parameters and starting back up if needed; redeploying existing equipment when possible; and adopting new, water-efficient fixtures.

A 230 m2 cool and cold storage vault for color photography exists within the museum envelope. It is a two-zone vault that preserves the photographs in the collection while also providing the ready access upon which artists, curators, scholars, and students rely. While the preservation benefits of an even colder vault are fully acknowledged, colder conditions are neither cost effective nor energy efficient for a collection in such high use as SFMOMA's. Human processes for accessing the collection have been designed to keep energy draw to a minimum. To accomplish this SFMOMA staff has developed a plan for the cold vault whereby the storage space is accessed only three days per week. This plan minimizes fluctuations in temperature and therefore extends the usable life of the photography collection while also limiting unnecessary energy draw.

MUSEUM ILLUMINATION AND SOLID-STATE LIGHTING

SFMOMA worked with Snøhetta and Arup to construct a complete full-scale gallery mock-up, including floors, walls, ceiling details, and all of the short-listed LED lighting options under consideration. Select works from the SFMOMA collection were installed within this mock gallery for viewing to build broad interdepartmental consensus around the LED lighting option that provided the optimal balance between aesthetic qualities of viewing, long-term preservation of artworks, and overall energy efficient design.

The LED fixture selected for use throughout the building is LSI Lumelex 2044. The color temperature is 3000 K with a color rendering index over 90 which delivers a quality of

SFMOMA staff and consultants viewing LED lighting in the museum's mock-up gallery. Image published in *Studies in Conservation* (63, sup 1, 242-250), courtesy of SFMOMA.

Natural lighting in the Atrium. Image published in *Studies in Conservation* (63, sup 1, 242-250), courtesy of SFMOMA.

light, color temperature, stability, and ease of use. In photography galleries, fixtures were customized at the track head to be able to adjust the output from 100% down to 10%. This provides great control and flexibility when multiple light levels are called for in the same gallery, even on the same wall. The new LSI fixtures include a variety of reflectors and lenses to shape and manipulate the beam spread.

Natural light floods the office floors as both an energy-efficient and highly agreeable light source. San Francisco's Mediterranean daylight selectively augments gallery lighting throughout the building. In the Botta atrium, inspired by a lively populated Italian piazza, the light funnels from the top of the turret, through its enormous circular skylight. A set of LED fixtures are placed ad hoc on the roof to guarantee even illumination to large works that are usually installed on the walls by the main staircase or suspended above the entrance. The fourth and fifth floors have the capacity for daylighting through a series of diagonal skylights. In the new building, gallery windows and skylights are equipped with block-out and solar shades to moderate the light intensity on the artworks. These shades are computer controlled based on time of day or light detected.

ADDITIONAL ENERGY-SAVING MEASURES

A living wall, the largest public vertical garden of its kind in the country, was designed as a subtly monochromatic green mosaic made of 19,442 plants from 38 different species, including 21 native plant species found in East Bay Regional Parks and nearby Mount Tamalpais. These native plants used on the living wall and on other areas of the project are locally sourced and help keep water use low. Water savings are manifest in other ways as well. Stormwater is reused for toilet flushing, and low-flow fixtures are specified throughout. Stormwater is used for irrigation of the living wall and is also re-circulated within the wall system. These systems all contribute to the 60% decrease in potable water use in the new building for visitors and staff.

Fire-resistant glass fibre-reinforced polyester resin composite with a polymer concrete face coat was used in the US for the first time as exterior cladding on SFMOMA. The new exterior façade is not just lightweight and sculptural, it is also a highly sophisticated energy efficient building envelope that helps minimize energy use. The fiber-reinforced polymer panels were cast using an expanded polystyrene foam mold, which is not only an economical and recyclable material, but also served as the perfect handling cradle for the protection and safe installation of each panel. The reduced weight required less structural steel than a façade made of heavier materials such as stone, concrete, or masonry.

COMMISSIONING, STAFF TRAINING & EVALUATION

In winter 2015, the City of San Francisco granted the temporary certificates of occupancy to the museum to allow

staff to move into the building and to launch the six-month art installation plan for the roughly 1500 artworks on display on six gallery floors for the official opening in May 2016. Art was installed only after two critical conditions were met: the climate was recorded at the established parameters of temperature and RH and the security system was fully activated. New staff and security guards were also trained to oversee the artworks during installation.

Although frenetic, these challenging months were an invaluable bonding experience for the teams who continue to collaborate to operate the museum.

Building engineers have had to work closely with Taylor Engineering to understand the mechanical infrastructure. They have also worked closely with the programmers who developed the software to monitor internal climate readings. In turn, SFMOMA building engineers have been teachers to a range of museum staff, primarily conservators, to ensure that their knowledge of building conditions is disseminated to collections stewards across the museum.

SFMOMA's compliance with San Francisco's Green Building Code was confirmed in summer 2017. In the first operational year of the expanded SFMOMA, there was a 34% reduction in electricity and 44% reduction in gas used per unit area, as compared with the museum in 2012–2013 when the building had a 50% lower footprint. Likewise, the overall energy use intensity of the building is 37% less. Despite having a larger, more intense program with new cold vaults for color photography, the museum uses significantly less energy per unit area.

Existing methods for evaluating energy efficiency within the fields of architecture and engineering have led the museum to seek corollary means of conducting an evaluation of the building as an edifice for cultural collections. Enlisting expert sustainability evaluators to customize an assessment action plan that will serve as a model for the cultural heritage sector is the work that is presently underway at the new SFMOMA.

Read the full paper and citations in *Studies in Conservation* (63, sup 1, 242-250) as part of the 2018 IIC Congress in Turin pre-prints. IIC members have FREE access HERE.

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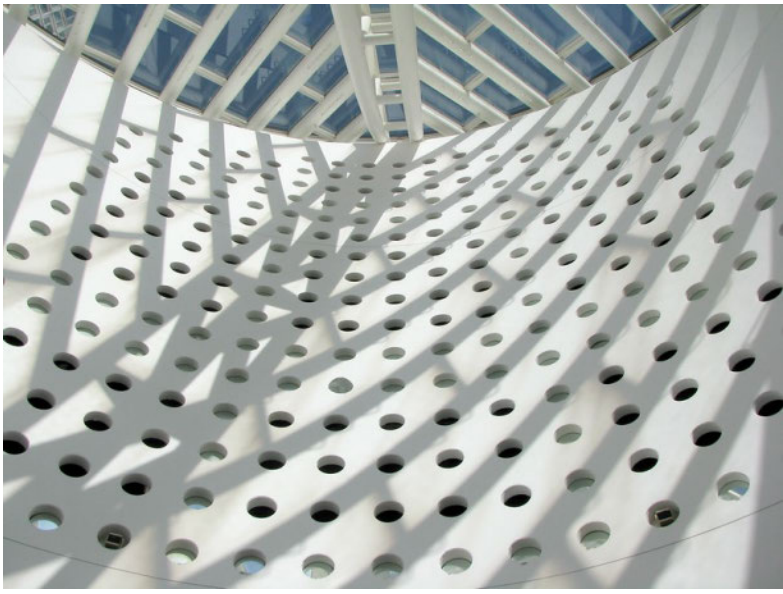
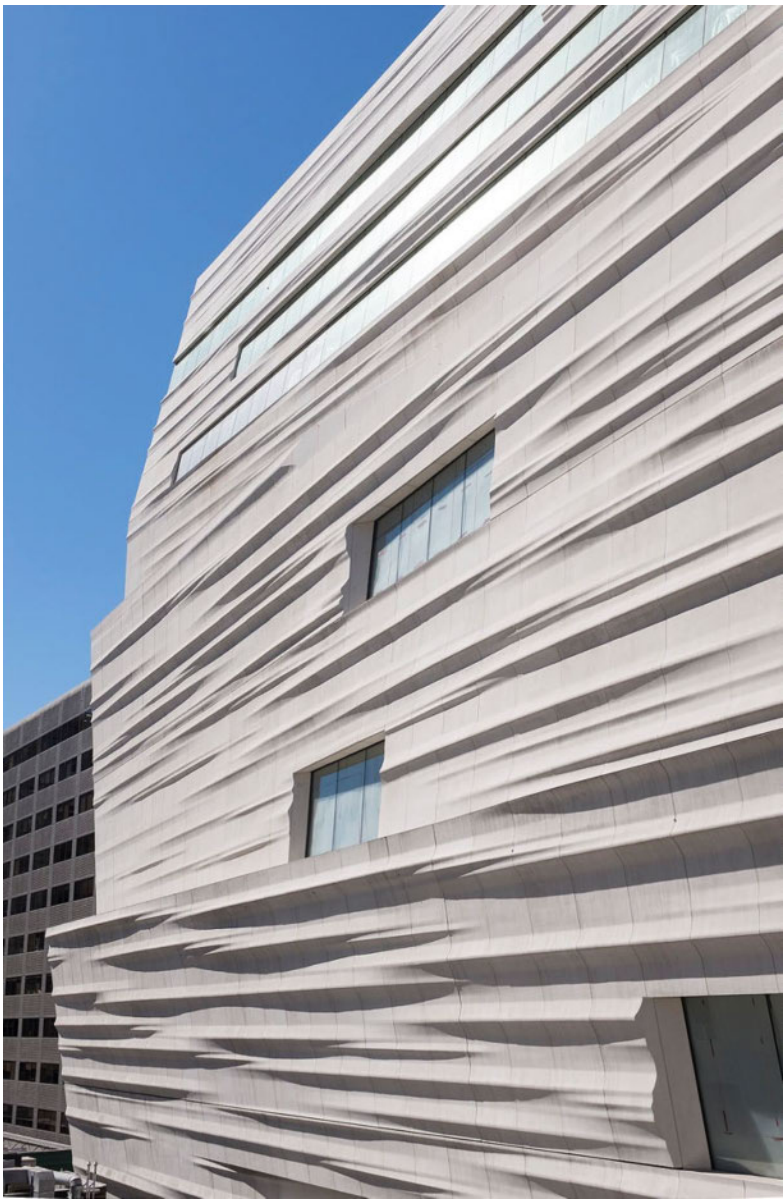
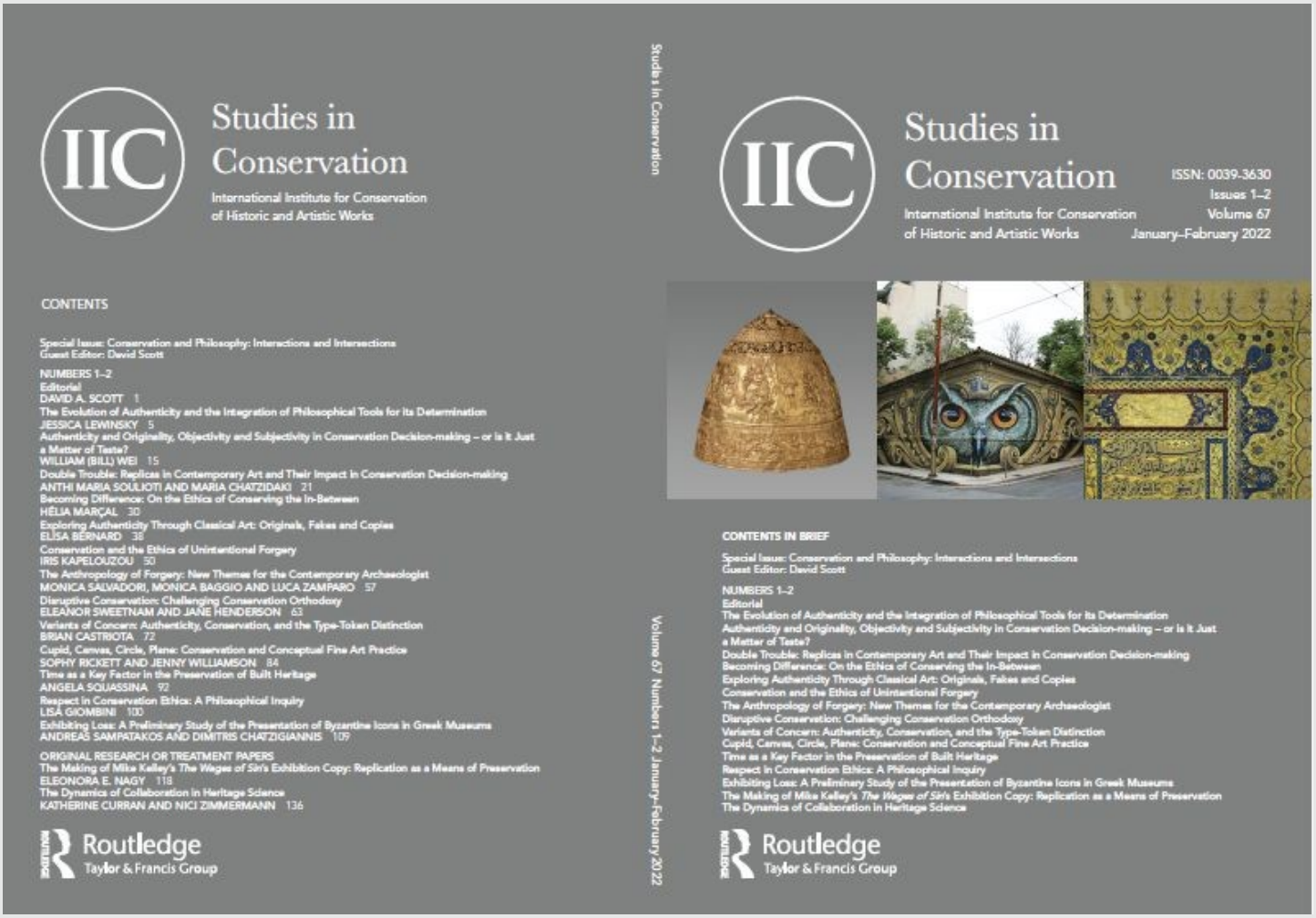




Top: SFMOMA atrium skylight. Image by rocor/flickr. Licensed under CC BY-NC 2.0. Original location HERE

Bottom: The building façade. Image published in *Studies in Conservation* (63, sup 1, 242-250), courtesy of SFMOMA.



Conservation and Philosophy: Interactions and Intersections

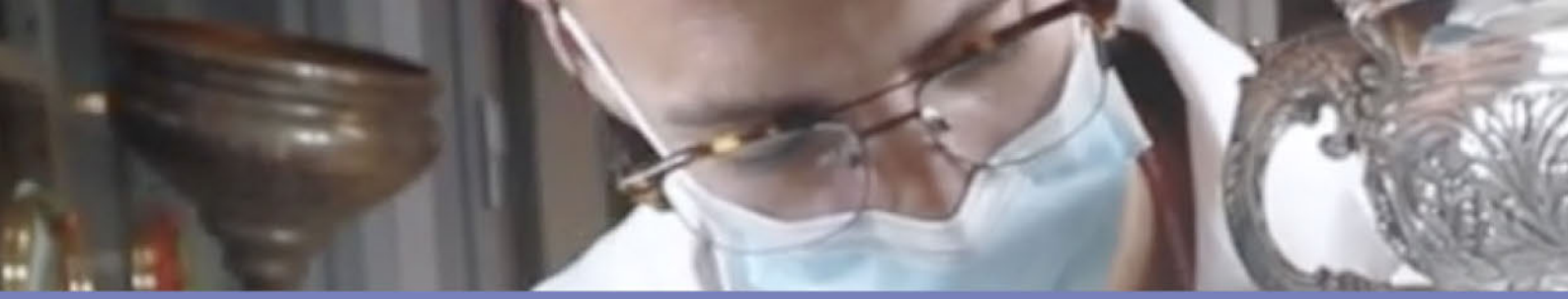
Special Issue of *Studies in Conservation* Vol 67, 2022, 1-2

IIC members can now read the latest issue of Studies in Conservation. This special issue captures the essence of the virtual event Conservation and Philosophy, organised by IIC's special interest group for authenticity.

The IIC virtual conference on *Conservation and Philosophy: Intersections and Interactions* was held over two days on 26–27 November 2020, based in Hastings, UK, while Covid-19 forced us all to work remotely. Its aim was to draw together the disparate threads of our conservation heritage and some of the more philosophical issues, with various contributors speaking to this diverse subject matter, followed by online discussion after each session.

Our speakers took up the themes of museum display and interpretation, audience and reception. One of the topics was the role of copies and replicas, from 'double trouble', as the title of one paper has it, to the status of classical art copies. That subject leads naturally to considerations of forgery that are the subject of some of the papers. Values-based conservation decision-making adds substance to both the participatory notion of audiences and points to how the profession can better incorporate these voices into the discussion, which was the subject of another of the presented papers. The diachronic aspects of conservation, as well as the new subjectivism of conservation ethics proposed by some, are relevant subjects for debate.

Not all of the papers presented could be published in this special issue of *Studies in Conservation*, nor the discussions. IIC members can access the recorded presentations for all papers at https://iiconservation-community.org/resources.



IIC 2022 Keck Award –

nominations by **Monday 9 May 2022**, (5pm BST)

We are now inviting nominations for the 2022 Keck Award.

£2500 cash prize, awarded at our Wellington Congress.

Promoting public understanding, storytelling, and appreciation of conservation, including within the digital space, is an increasingly important way to inform, inspire, and contextualise conservation work - especially during the COVID-19 pandemic with extended periods of lockdown.

The IIC Keck Award was generously endowed by Sheldon and Caroline Keck to commemorate their shared lives of distinguished achievement in conservation. The award is presented every two years at the IIC Congress to the individual or group who has, in the opinion of IIC Council, contributed most towards promoting public understanding of conservation and engagement with the accomplishments of the conservation profession.

The award consists of a certificate and a prize of £2500, which will be presented online at the next biennial IIC Wellington Congress 2022, 5 – 9 September 2022, on the topic of **Conservation and Change: Adaptation, Response and Leadership.**

Details of previous award winners can be found here on the **IIC website**.

We are now inviting nominations for the 2022 Keck Award. If you would like to propose a project, whether your own work, institution or organisation, or the work of others, please send your nomination to the IIC office (email) to arrive by **Monday 9 May 2022 (5pm BST)**.

The nomination should include the name, job title and professional address of the individual (or of all the partners in a group project) and should include the following:

- a statement of between 500 and 1000 words describing the nominee's public outreach and engagement activities
- two or three images in support of this statement
- an outline of what supporting material, such as publications, websites, videos, or evidence of media coverage, is available (shortlisted nominations may be asked to supply these at a later date).

Please send your proposal to **iic@iiconservation.org** with the words **'Keck Award'** in the subject line.

Special note: the winning nomination will be asked to supply a 5-minute recording celebrating the project and award, to be shown during the Closing Ceremony of the Congress.

Call for Nominations

2016 Keck Award winner

Natural History Museum

Blue Whale Project

In September 2015, the Natural History Museum's conservation team began the work of checking, cleaning and dismantling a 25 metre long, 4.5 tonne blue whale skeleton for redisplay. This was also an opportunity to promote the museum's conservation work, with pop up conservation studios, talks and lectures, social media and a documentary film.

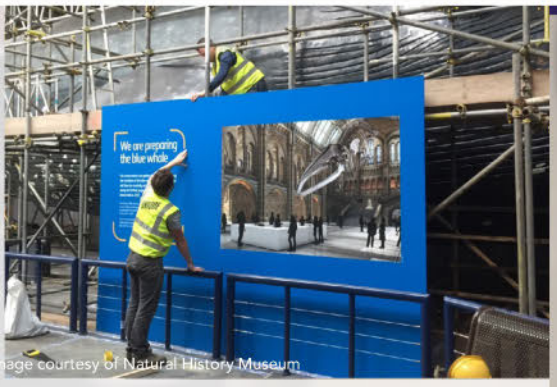


Image courtesy of Natural History Museum


Image courtesy of Niguliste Museum / Art Museum of Estonia / Estonian Academy of Arts

2018 Keck Award winner

Niguliste Museum / Art Museum of Estonia / Estonian Academy of Arts

Rode Altarpiece In Focus: the conservation and technical analysis of the altarpiece of the high altar of St. Nicholas´ Church in Tallinn (1478–1481)

The double-winged retable, completed in the workshop of the famous Lübeck master Hermen Rode, is one of the most grand and best preserved examples of late medieval Hanseatic art in Europe. More than forty saints and biblical figures are depicted.

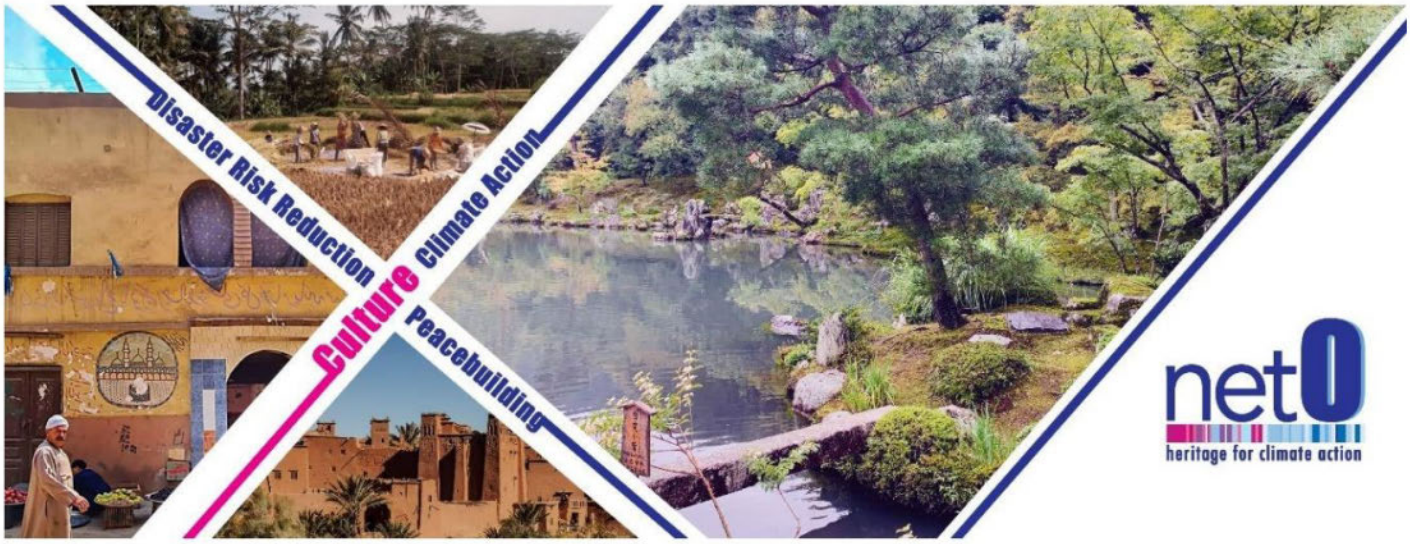
2020 Keck Award winner

Sport E Lisboa

The Storage, Conservation and Restoration Department (RCR), Sport Lisboa e Benfica Cultural Heritage in Portugal

RCR's mission is to ensure the management, conservation and restoration of the collections of Sport Lisboa e Benfica, but it has also led a remarkable outreach programme, including guided tours and events for schools and a strong social media presence which has brought the world of conservation to a large audience.


Image courtesy of Sport E Lisboa



Net Zero: Heritage for Climate Action

Building on our collaboration and with your continued valuable support for the Climate.Culture.Peace initiative, FAR-First Aid and Resilience for Cultural Heritage in Times of Crisis, a flagship Programme of ICCROM, is pleased to invite project proposals for its next multi-level capacity development project Net Zero: Heritage for Climate Action.

Net Zero is an 18-month project (July 2022 to 31 December 2023) which aims to enhance risk reduction and coping capacities of vulnerable heritage communities. It sets to implement field projects at **five innovation sites**, in **five risk-prone countries**, using heritage to mitigate climate change, as well as reduce the risks of disasters and conflicts. The field experience will feed into an **international training** of change agents and community leaders. A **final international symposium** and **publication** will act as catalysts to **inform policy** and **expand the outreach** of the project by sharing the know-how on heritage for climate action in **25-30 countries** suffering from acute environmental stresses.

Conceived and designed by ICCROM's FAR Programme, with the support of the Swedish Postcode Foundation, the project envisages cascading capacity development in four phases:

Phase 1: Situation Analysis and Data Gathering (July – December 2022)
Phase 2: 4-week in-person workshop (February 2023)
Phase 3: Project implementation at five innovation sites (March – August 2023)
Phase 4: Final symposium and publication (November 2023)

Proposals are invited from institutions and organizations which are highly motivated and have worked on successfully implementing projects on cultural heritage safeguard, sustainable development, disaster risk reduction and/or climate action. Additionally, we encourage applications from organizations working in regions suffering from acute environmental stresses, visible in the form of frequent extreme hazard events and/or climate-driven conflicts.

To be considered for selection, we invite you to read the full call for proposals and share your project ideas by filling in the **application form attached to this email and submit it to:** far_programme@iccrom.org.

In support of your application, you may share maps, documents and photos via WeTransfer or Google Drive. Please keep in mind that the deadline to submit a proposal is **Saturday 7 May 2022**.

To read more about the Project: https://www.iccrom.org/news/net-zero-heritage-climate-action
To read the full Call for Proposals: https://www.iccrom.org/news/net-zero-heritage-climate-action-call-proposals-now-open-2022%E2%80%932023

Notice of Elections to IIC Council at the 2022 Annual General Meeting

IIC holds an Annual General Meeting which every IIC Fellow, Honorary Fellow, Individual member and student member is invited to attend. The Annual General Meeting is to allow Council (IIC's charity trustees) to explain their management of the Institute to the members and it also provides members with an opportunity to ask questions before voting on the business items on the agenda, and to elect, or re-elect, members of Council to run the Institute for the next twelve months.

The next AGM will be held online and in London (venue to be confirmed) on **Thursday 26th May 2022 at 6pm (BST).** A scope of works for each of the Director/Chair roles is available to view below; there are 7 positions for election by the membership:

President*
Secretary General*
Director, Chair of Fellowships Committee
Director, Chair of Awards and Grants Committee
Director, Chair of Professional Development and Standards Committee
Director, Chair of Emerging Professionals Committee
Director, Ordinary Member of Council

**Please note the incumbent President (Julian Bickersteth) and Secretary General (Jane Henderson) will stand for re-election.*

ELIGIBILITY

IIC is an international body and continually seeks to represent an international variety of regions, cultures and disciplines on Council.

All IIC Council positions are for an initial term of three years' duration and when elected each individual will be a trustee of a charity, and a director of a Company limited by guarantee, registered in England & Wales. Therefore all candidates must declare that they are eligible to be a Trustee and Director of IIC, and are able to comply with regulations as detailed here.

You do not necessarily need to be an IIC Fellow to be on IIC's Council, each position identifies on the scope of work, whether being a Fellow of IIC is a requirement for the role.

WHY STAND FOR ELECTION TO COUNCIL?

As a member of IIC's Council you will take an active role in shaping and promoting the aims and activities of IIC at a time of important changes and help IIC to fufill its purpose of enabling, educating and recogising excellence in the international heritage conservation community.

HOW TO STAND FOR ELECTION

IIC's new Articles of Association were approved at an Extraordinary General Meeting (EGM) in January 2022. All nominations will be reviewed by the Talent and Participation Committee.

There is no formal nomination form. The following information should be sent by email addressed to **Jane Henderson, Secretary General,** Chair of the Talent and Participation Committee or if standing for the Secretary General role nominations must be addressed to **Diane Gwilt, Vice Chair of the Talent and Participation Committee,** and sent by email to: iic@iiconservation.org - to arrive at the IIC office by no later than **18th April 2022 (midday BST)** and should include (1) a short manifesto (250 words maximum) relating to the role, (2) curriculum vitae (C.V.) and (3) a reference or statement of support.

IIC notices are sent out electronically and published on the IIC web-site. If a member requires a paper copy of the notice please contact the IIC Office via email: iic@iiconservation.org. Further contact details are included on the IIC website HERE.

New Talent & Participation Committee

IIC is delighted to announce the launch of the Talent and Participation (T&P) Committee who will help IIC to ensure that we bring in and benefit from the broadest pool of talent in our work on council and across our committees.

With the changes approved to IIC's Articles at the Extraordinary General Meeting (EGM) in January 2022, the new committee will be chaired by the Secretary General, Jane Henderson, who commented, "the T&P committee already has a huge task ahead but one that we are looking forward to. We hope to expand the reach, diversity and expertise of Council over the next few years as the committee becomes established, but for now we are delighted to welcome the following colleagues who will join myself and Helen Griffiths from Council at the first meeting in April".

PROPOSED COMMITTEE MEMBERS

- **Professor Jane Henderson,** IIC Secretary General (Chair of the Talent and Participation Committee)
- **Helen Griffiths,** IIC Council
- **Diane Gwilt** BSc(Hons), FIIC, Keeper Collection Services at Amgueddfa Cymru, National Museum Wales (ACNMW) (Vice Chair)
- **Mariana Escamilla Martinez**, paintings conservator at Studio Redivivus in The Hague.
- **Beatriz Haspo**, FIIC, Collections Officer Library of Congress, US Collections Management Division, Preservation Directorate.
- **Charlotte Hoffman,** PhD candidate 'Changing Frames' at the University of Konstanz & State Academy of Fine Arts Stuttgart.
- **Angléica Isa,** Museum Conservator Pachacamac Museum, Ministry of Culture of Peru, Lima.
- **MaryJo Lelveld,** FIIC, Manager Conservation at the National Gallery of Victoria, Australia.
- **Nerys Rudder,** Collections Officer 'Our Town Hall Project Manchester City'.
- **Fang Zheng,** Masters Student in Taiwan, Conservation of Paper-Based Cultural Relics and Oriental Painting.

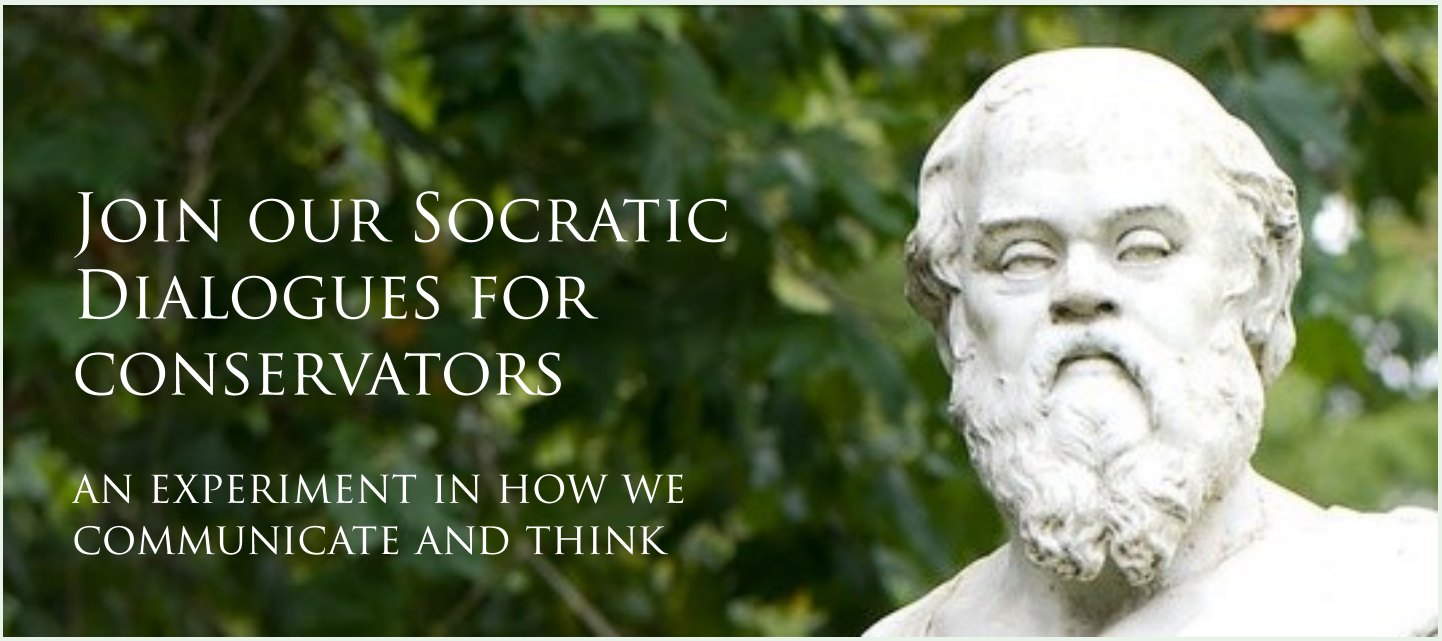
BE PART OF THE T&P COMMITTEE - OPEN APPLICATION

Members (students, early career, individuals and Fellows) from around the world are welcome to participate and apply to be on the T&P Committee at any time. If you wish to be part of the Committee, please forward your details by email to the Secretary General, Jane Henderson via iic@iiconservation.org

The members of the #ClimateHeritage Network proudly present their Annual Report for 2021. We're proud to be a partner in this work and are pleased to announce IIC President Julian Bickersteth featured in the report (starting on page 8). Read on to discover more about mobilising culture for climate action.

ACCESS THE REPORT HERE.

Earth Day has taken place every 22 April since 1970 and is credited by many for inspiring the modern environmental movement. It started in the US with 20 million people protesting against issues such as polluted rivers, oil spills and air pollution, and their actions led to several new laws being passed (www.earthday.org). Heritage conservation colleagues around the world will be celebrating #EarthDay on social media by sharing and highlighting projects, resources, institutions, and individuals that inspire us. Stay tuned for more information soon!



A series of events for 2022-23, beginning on 27 April
Free and exclusive to IIC Student and Early Career members
Sign up for the first event here.

Not an IIC Student or Early Career member? Explore your joining options here, including discounts by country.
As a student, or someone beginning a professional career in conservation, you will recently have been exposed to the many concepts in conservation ethics—in forms ranging from lectures, discussion groups and workshops to conservation studio experience.

You have become aware that issues such as minimal treatment, original appearance, respect for an object, retouching and value, are subject to often heated debate. You will also know that thinking about conservation ethics is in a constant state of flux. However it can still be difficult to find the time to reflect on what you have learned and experienced without feeling like you are being judged by your colleagues or the faculty.

"The creation of a free space requires active participation and discipline—with the goal to listen to one another."
In order to provide free space for you to think about your future role in conservation, IIC is offering a series of so-called Socratic Dialogues to help you reflect on a number of important issues in conservation and conservation ethics.

TAKE PART IN OUR SOCRATIC DIALOGUE EVENT

The Socratic dialogue series will consist of five dialogues spread over one school year. Each dialogue will be conducted in English. Depending on the particular format, the dialogues will last between two and three hours and will be conducted on-line. The starting times will depend on the geographic location of the international participants.

The first dialogue is scheduled for Wednesday, 27 April 2022.

COURSE LEADER: DR BILL WEI

The series is led by Dr Bill Wei, a senior conservation scientist (retired) in the Cultural Heritage Laboratory of the Cultural Heritage Agency of the Netherlands (RCE). He conducts research into the effects of cleaning and treatments of objects on their appearance and viewers' perception, as well as the effect of vibrations and mechanical stresses on the condition of fragile works of art and cultural heritage. A major area of interest is how conservation decisions are influenced by the differing perception of objects by art historians, conservation scientists, conservators, curators, directors and other collections staff.

Dr. Wei has trained as a Socratic dialogue moderator and has organized over 50 dialogues over the past eleven years.
We do hope you decide to join us for a stimulating opportunity to stretch and challenge how you think, alongside other Student and Early Career IIC members.

If you can't attend the first event, but would like to participate in the others, please register your interest or email Ellie Sweetnam at ellie.sweetnam@iiconservation.org.

Lo Stato dell'Arte 20

13-15 October 2022
Palazzo GIL sede dell'Assessorato al Turismo e alla Cultura della Regione Molise, Campobasso (Italy)

CALL FOR ABSTRACT deadline 30th of April 2022
More information and registration HERE.

IGIIC
GRUPPO ITALIANO
INTERNATIONAL INSTITUTE
FOR CONSERVATION

IGIIC, the IIC Italian Group, is a reference organization for the exchange of data and experiences in the field of conservation of cultural heritage and is aimed at conservators, supervisors, architects, operators in the museum sector, monuments, archaeology, scientific researchers from the academic world and specialized laboratories as well as all professionals and students who want to deepen and keep up-to-date on issues related to conservation.

During this three-day conference, we will discuss bio restoration, design and intervention problems, diagnostics, research and applied studies, preventive conservation, cultural heritage in emergencies, ethics and sustainability in the conservation of cultural heritage.

The conference will also highlight the heritage of Molise with a presentation of interventions undertaken on the cultural heritage of the hosting region.

THEMATIC AREAS
Bio restoration (microorganisms, principles, laboratory paths, application cases of bio cleaning and bio consolidation); design and intervention problems; diagnostics, research and applied studies; preventive conservation; cultural heritage in emergency; ethics and sustainability in the conservation of cultural heritage

IGIIC Staff Association

Fellowship Corner

Michelle Berry currently splits her time between managing the secretariat for the Australian Institute for the Conservation of Cultural Material and her role as senior conservator at the Tasmanian Museum and Art Gallery in Hobart, Tasmania. Trained as an objects conservator in the 1980's, Michelle joined Museums Victoria where she was heavily involved in the redevelopment of the Melbourne Museum and the relocation of the museum's extensive collections to the new museum. Working on archaeological sites in Australia and overseas, she has spent four seasons in Antarctica working on the Mawson's Huts historic site in the Australian Antarctic Territory. For the past 12 years, Michelle has lived and worked in Tasmania as a private conservator providing conservation services for MONA and other cultural organisations. She recently joined the Tasmanian Museum and Art Gallery as senior objects conservator.

Andrew Honey, after training at Camberwell and West Dean colleges, joined the Bodleian Library's conservation section in 1998 as book conservator. Since 2011 he has been responsible for major projects, research and teaching in addition to complex book conservation treatments. Andrew is recognized for his expertise in the study, conservation and promotion of rare books and manuscripts in research collections. His research combines conservation with the material aspects of rare books, and he has lectured and published on parchment, paper, bindings, conservation techniques and the history of book repair. In 2022 Andrew became a member of the University of Oxford's English Faculty, and he teaches the materiality of rare books to students of the University. Andrew was accredited by the Institute of Conservation in 2005 and elected a fellow of the Society of Antiquaries of London in 2019. In 2019 he was appointed conservation inspector to the Mappa Mundi Trust.

Michelle Berry, FIIC, is senior objects conservator at the Tasmanian Museum and Art Gallery. Image courtesy of Michelle Berry.

IIC Fellow Andrew Honey is conservation inspector to the Mappa Mundi Trust. Image courtesy of Andrew Honey

Meet Our Trustees

David Saunders joined IIC soon after arriving at the scientific department of the National Gallery, London (NG) to work under Garry Thomson on preventive conservation research and to develop imaging methods to detect colour change in paintings. This represented something of a career change, from postdoctoral university chemistry teaching to pursuing an interest in its application to preserving works of art, following a scary interview by the president, future president and future vice-president of IIC.

Service to IIC was tacitly expected at the NG and, having become one of the—then four—editors of *Studies in Conservation* in 1990, he was elected a Fellow of IIC in 1993 and sat on the technical committee for the IIC Ottawa Congress on preventive conservation in 1994. After stepping down as an editor of *Studies in Conservation* in 2009, he has been one of the editors for the preprints of the 2010, 2016, 2020 and 2022 IIC Congresses and served on several more Congress technical committees including that for Wellington 2022. He was elected to the IIC Council in 2001, serving two terms as an ordinary member, becoming its first director of publications from 2004-2009, a vice-president in 2013-2018 and from 2018 its first director of membership.

Part of his research at the NG focused on the effects of the museum environment on painting materials, with a particular interest in deterioration resulting from exposure to light or ultraviolet radiation—the unexpected result of which was that David found himself responsible for setting up the lighting installations for temporary exhibitions and part of the architectural team for the Sainsbury Wing extension to the Gallery. The other research strand complemented these studies of light-induced colour change through the development of then state-of-the-art (now quaintly antiquated) image processing methods to detect alterations to the colour and surface structure of paintings. Much of this work was conducted through a series of European Community-funded collaborative research projects that helped to build international contacts and networks.

David left the NG in 2005 to become keeper of conservation and scientific research at the British Museum (BM) where he led a department of 70+ conservators and scientists, setting conservation and research strategy and coordinating the department's contribution to national and international exhibition and training programmes. He also established a programme of research fellowships with the Mellon Foundation and launched and edited the BM *Technical Research Bulletin*. During his time as head of department, he was involved in designing, equipping and then transferring the entire department to new studios and laboratories that brought everyone under one roof for the first time.

Now an honorary research fellow at the BM, David has returned to his interests in non-invasive analysis and preventive conservation research, teaching (including a visiting professorship at NYU in 2018) and writing on these subjects. As a guest scholar at the Getty Conservation Institute (GCI) in 2015–2016 and the inaugural Getty/Rothschild Fellow at the GCI and Waddesdon Manor in 2017, he researched and wrote *Museum Lighting: A Guide for Conservators and Curators* (Getty Publications, 2020).

David Saunders became IIC's first director of membership in 2018. Image courtesy of David Saunders.

Green Conservation Tips

By Michael-Ichqit Gurgenidze

During conservation treatments we do our best to help the object. However, in doing so, we often neglect the environment—the world beyond our laboratory. That is why it is important to be as green as possible during the process.

My bachelor's degree thesis project (which includes research and conservation-restoration work carried out on a graphic series created in 1963) was at the same time my first green conservation project, including the implementation of environmentally friendly approaches and proper waste management in the Academy. As for the green-focused aspects of the conservation project, the mission was set: minimization of waste including using local products, reusable tools and biodegradable materials; sorting accumulated waste and turning organic waste into compost. This is where my deep interest in sustainable practices started, and I decided to look for tips that do not require much effort but are, at the same time, quite effective.

I would like to start with composting; this is especially applicable for paper and book conservation laboratories. Compost is a mixture of ingredients used to fertilize and improve the soil. It is commonly prepared by decomposing plant and food waste and recycling organic materials. To put it simply compost must contain two ingredients: carbon (browns) and nitrogen (greens).

Biodegradable residue from the laboratory (e.g. used swabs, blotting paper, etc.), which is the "brown" part of compost, can be shredded. Shredding it into small pieces will greatly catalyze the decay, speeding up the process. The brown compost is then mixed with the "green" component (e.g. grass, tea bags, vegetable and fruit scraps) and placed inside the compost bin. It is normally recommended that the mixture should maintain 40-60% relative humidity (source: www.carryoncomposting.com), good aeration and needs to be stirred from time to time. After approximately three months, it will turn into an organic, natural fertilizer—a nutrient rich substance that can be used to enrich our soil, sustaining future growth.

Top: Compost bin with organic waste. Image by Michael-Ichqit Gurgenidze

Bottom: Accumulated waste during conservation-restoration treatments. Image by Michael-Ichqit Gurgenidze

Bottom left: Composting process. Poster created by Michael-Ichqit Gurgenidze

There are so many options for both buying and making a low-cost compost bin. In my case (for my bachelor's thesis project) my bin was made from a used plastic jar, which had holes drilled into the sides to provide good aeration and drainage. I placed the jar directly on the ground, away from the direct sunlight. If you have a small space, and the smell of compost becomes a problem, there is a simple solution: increase the brown component of the waste in relation to the green, from 1:1 to 3:1.

Paper conservation-restoration is a specialty in our field in which the dominant medium is organic material, and the main materials and tools used in their conservation, being compatible with the object, are biodegradable and consequently compostable.

Other simple steps and tips are:

1. We can **reject the plastic or pre-made cotton swabs** and replace them with wooden sticks. Another alternative is **using reusable/washable swabs**. There are several brands on the market, generally best used to apply water-based cleaning solutions.

2. The **water used for the purposes of testing and cleaning can be discharged into the soil** outside our laboratory instead of pouring it down the drain into the sewer system. If the water is mildly acidic or close to neutral (e.g. pH 6), it will not be harmful for the environment. Otherwise, liquids with high acidity must be neutralized. Slaked lime (calcium hydroxide) or baking soda (sodium bicarbonate) can be used for this purpose before putting this water into the environment.

3. When testing certain gels, sometimes it is recommended to wear gloves for protection. Perhaps **invest in rapidly decomposing gloves**, such as Eco Gloves (I recommend cutting them into small fragments before placing them inside the compost bin). Pure latex gloves are technically considered to be made of biodegradable material because they are produced (mostly) of natural rubber. However, to the fact that we could not find a clearly defined degradation time, we avoid using these gloves.

4. Instead of nitrile or latex gloves, you can **use cotton or fabric gloves** during the re-touching process, as they are washable and can be used for a much longer period of time.

6. **Old nitrile gloves can be cut into rings and used in place of a rubber band** (e.g. to tie hand-made weights. Fig. 4). Also, you can use the **glove finger tips to keep brushes from drying out** during short pauses in work (source: Waste and Materials, vol. I, KiCulture).

8. **One pH test strip is equal to two.** During my project I had to check the pH levels of different gels and only later realized that I was using a lot of test strips. With clean, dry scissors (to prevent contamination) it is possible to cut pH strips into two pieces.

5. You can reduce waste by **storing water-based adhesives in syringes.** The lack of air exposure means less microbial and fungal growth meaning the adhesives will last longer (source: Kate Seymour).

7. Do not throw away **blunt scalpel blades**; these **can be sharpened** with a whetstone.

9. In some cases (when shipping objects or for short-term transportation) it is possible to **replace plastic packaging with environmentally friendly materials**; try using shredded cardboard or paper instead of plastic air cushions or foam.

10. **Use reusable textile masks instead of disposable ones** if a dust mask is needed during dry cleaning. Along with everything else, the pandemic has led to excess medical waste, with disposable masks being one of the largest offenders.

Old nitrile glove cut and used as a rubber band. Image by Michael-Ichqit Gurgenidze

11. **Look inside the trash bin** and see what you are going to throw away. Ask yourself, can any of this be reused for other purposes? or is it is possible to create less waste during future conservation-restoration treatments? You will be surprised how often can you find an alternative solution if you really want to.

I would recommend this article from museumsforfuture.org: "10 simple actions conservators can take in support of the Fridays for Future movement". The article lists a few useful resources to help you find more reliable information on green solutions in the conservation-restoration field.

We may individually take seemingly small steps, but while these are small steps, taken by many people they make a difference.

Old nitrile glove used to protect brush from drying. Image by Michael-Ichqit Gurgenidze.

Michael-Ichqit Gurgenidze has a bachelor's degree in restoration-conservation of fine arts from Tbilisi State Academy of Arts, Georgia (2021) and started his master's degree in wall painting and stone restoration-conservation at the same university. He has worked on local archeological excavations; participated in lab-based tests and volunteered at the laboratory of the National Archives of Estonia. He recently participated in urgent conservation-restoration interventions on XVI-century murals in the main church of the Gelati Monastery.

Climate change: conservation education is key to this agenda

By Marina Herriges

I cannot express how delighted I am to see this special issue about sustainability with so many remarkable contributions. In response to heading in this challenging direction, we have been confronting our professional status quo. Most importantly, we are generating debate about the subject, including everyone in the discussion, creating awareness and considering possible solutions.

For this issue I opted to focus the content of the column on another subject that I am very interested in: conservation education. I strongly believe that education is key to addressing climate change. Here I am referring not only to formal education, but also to the responsibility we, as professionals, have towards others who are coming into the profession from formal training, work experience, apprenticeship or any other perspective. I also include our responsibility for the communities we inhabit. There are so many ways we can share and facilitate knowledge as well as learn from other perspectives.

The question that has been on my mind is: What kind of education do we want? We of course need to learn practical conservation skills, but I believe we need more professionals who are also critical thinkers, who are keen on challenging the status quo, willing to share their knowledge and who keep actively learning.

I am involved as a research assistant on a project which involves sustainability and conservation education; it takes place at the University of Glasgow. This project is called "Embedding environmental sustainability for active learning and student engagement in textile conservation", with Karen Thompson ACR as the principal investigator and funded by the Learning and Teaching Development Fund, University of Glasgow. The project has been a wonderful opportunity to experience first hand the co-creation of content with the students. It is rewarding to observe the students as they gain confidence in identifying problems within climate change. They use critical thinking and creativity to develop solutions and integrate them into their conservation practices. But this project is more than building knowledge and expertise in integrating climate change solutions to conservation; the students learn to be actively engaged with the profession, identify issues and bring different experiences to build relevant knowledge.

In this issue I invited four educators from around the world to give their views on the relationship between conservation education and climate change. Short introductions: **Fiona Graham** is a lecturer at Queen´s University in Ontario, Canada where she teaches preventive conservation; **Ruahidy Lombert** is an art conservation and restoration lecturer at the Universidad Autónoma de Santo Domingo in Dominican Republic; **Nicole Tse** is a senior lecturer at The Grimwade Centre for Cultural Materials Conservation, The University of Melbourne in Australia; and **Justine Wuebold** is a research associate in the Embedding Sustainability in Conservation Education Initiative at the UCLA/Getty Program in the Conservation of Cultural Heritage.

"We take advantage of our geographic condition to generate clean energy through a system of 1,209 solar panels that contribute to 50% of the energy consumption of the institution since its installation in 2018." Ruahidy Lombert. Image of the Archivo Centro León Jimenes solar panels (Top view) 2018. Image courtesy of Ruahidy Lombert/ Centro León.

All four bring different perspectives to the subject, not only due to their professional backgrounds but also due to the areas of the globe where they are based. In the end, each offers tips for how to embed climate change into conservation education.

Do get in touch if you have something to add to the conversation. I am very keen on hearing from our readers.

What is the importance of environmental sustainability in conservation?

Fiona Graham: As human beings, conservators have a moral responsibility to keep our planet liveable. Actions taken as part of conservation practice should further this goal rather than contribute to environmental degradation.

Ruahidy Lombert: There is a logical bridge between the preservation of cultural heritage and sustainable environmental development. This bridge leads to the promotion and strengthening of strategies and policies, ensuring their transmission to present and future generations for their knowledge and enjoyment. By sharing the achievements and experiences of scientists and technicians we will produce suitable practices and strategies that respect the environment. Conservators must take into account the developments and innovations in this field. This is not only a technological issue but also a social, structural and economic issue that challenges our status quo.

Headshot of Fiona Graham. Image by Joseph Choi.

Ruahidy Lombert. Image courtesy of Ruahidy Lombert.

Nicole Tse: [Environmental sustainability is] absolutely necessary; conservation is all about sustainability, and the two are intrinsically linked. When we conserve something, we are supporting a living community's access and connection to culture while the materials alone are embodied energy. These are sustainable actions symbolic of the four pillars: social, cultural, environmental and economic sustainability. As conservation is about people, culture, identity and connections, our work naturally supports communities, their citizens and our changing world. World challenges such as climate change, environmental uncertainties, disasters, human displacement, migration and contested histories are factors that concern us all and in which conservation has a role. This means engaging in big-picture discussions, sharing our knowledge to support discussions about identity and using our skills to provide access to material culture are critical actions.

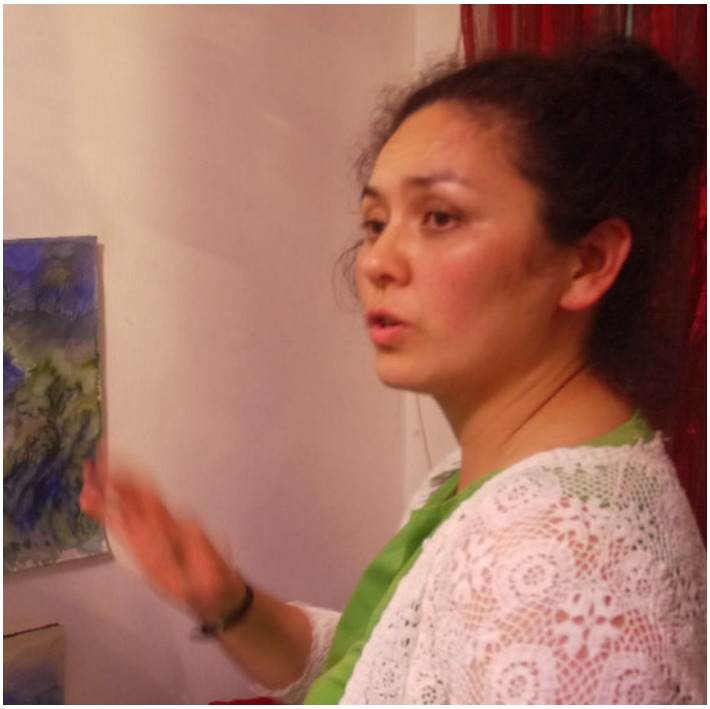
Justine Wuebold: Despite our diversity, every culture has its roots in nature. In this way caring for culture is akin to caring for our planet. Climate change is no longer looming on the horizon but is present in all of our lives. One cannot go about their professional lives ignoring the impact conservation of cultural heritage has on the planet, especially with this new normal we face of changing weather patterns and seasons of destruction. Sooner rather than later, conservators will be called upon for their resilience and adaptability in conserving heritage for highly vulnerable regions and communities. I believe every job is a climate job, but conservators can play an essential role with training in both scientific analysis and the humanities to build bridges between disciplines and foster dialogue between communities.

How can embedding environmental sustainability in conservation training contribute to the wider profession?

Fiona Graham: For conservators to make better choices for the environment, our training should include learning about the environmental impact of preventive conservation and conservation treatment decisions as well as the impact of these measures on the material characteristics and intangible values of heritage objects and on the degree to which institutions can meet their public mandates. Working within this context will benefit the conservation profession as well as the planet since it promotes the perception that we are part of the solution rather than a group with a separate agenda.

Ruahidy Lombert: Universities can encourage research in the field of conservation science to identify common problems and develop initiatives that contribute to the formulation of new substances, products and the design of equipment. This allows a sustainable relationship with the environment, adopting a more responsible and considerate approach to the environment. This also strengthens and improves the links between conservation science and climate science for an interdisciplinary approach.

Nicole Tse: Although environmental sustainability has been a major focus for conservation globally, I have always approached sustainability from a more inclusive point of view. It has always seemed anomalous not to do so and to single out environmental sustainability alone. I think this makes sense given that conservation is about people, values and cul-



Nicole Tse. Image courtesy of Nicole Tse.

Justine Wuebold, portrait #11 (2017). Image by Heather Powell.

ture, and that every decision made—or action taken—is grounded by situated contexts. So, anything we do in conservation to support sustainability agendas and actions should likewise be based on the relationships between the social, cultural, economic and environmental; otherwise we are operating in isolation.

Justine Wuebold: I see this shift in focus in the classroom as a way to rethink our systems and meet new challenges the field is facing. By embedding sustainable practices and perspectives into the program, students will carry practical, holistic and adaptable skills into their institutions and private practices. They will feel empowered to make ethical and cost-saving decisions by sharing a common understanding and language in working with facilities managers, sustainability officers and other specialists in building and environmental sustainability. Sustainability is naturally a very social field, so it also promotes collaborative efforts, respect for the perspectives of co-workers in allied professions and the sharing of knowledge to rethink and redesign antiquated systems.

How do you approach environmental sustainability in your programme?

Fiona Graham: Within our program, I am responsible for introducing conservation students to foundational concepts such as the value of conservation, the role of conservators and conservation scientists, conservation ethics and for

teaching preventive conservation. Environmental sustainability considerations have crept into my teaching over the years—starting with the obvious carbon emission impacts of environmental guidelines, lighting systems and building design—and have made their way into all aspects of conservation theory and practice. In the main assignment for my course, students are asked to consider environmental, cultural and economic sustainability when making recommendations for improving preservation conditions at a fictional museum. At one point I assumed that having a stand-alone seminar on sustainability would also be crucial, but current research shows that integrating sustainability into the usual topics is a more effective approach.

Ruahidy Lombert: This issue has become an increasingly relevant concern for the conservation of cultural heritage training. Explaining the harmfulness and the risk derived from the use of certain products, including their effects on health and the environment, is part of the content that I address together with my students. Committing to the sustainable reuse of materials, toxic substances and the processes adopted to promote the conservation and preservation of heritage must be a shared responsibility for all of us who aspire to protect the planet from climate change.

Nicole Tse: We embed sustainable thinking in all subjects. It has been more straightforward to realise environmentally sustainable actions in the program through our lab-based subjects. Mitigation strategies such as energy and waste reduction; material re-use and recycling; green chemical use and the circular economy of conservation materials, their production, use and impact are examined through doing waste audits, setting up their own sustainable goals, moving towards greener chemicals and mapping material pipelines. More challenging are adaptive strategies that embrace the cultural, social and economic sustainable impacts, but our two field-based subjects—one in remote Australia taught by Indigenous Gija Elders from the Warmun community and one in the Philippines—really draw out these issues into practice. In both cases, we are able to examine cultural materials held outside the major collecting institutions and in small communities, to expand context, provide new insights and consider the impact of conservation more broadly.

Justine Wuebold: The program started its sustainability journey by evaluating the lab spaces to make sustainable improvements, involving students in reporting on problems that can be addressed. Ki Culture's Caitlin Southwick was invited to give a summer workshop on sustainability to provide an overview of the topic as a separate module. Then the program was awarded a National Endowment for the Humanities grant to explore ways of embedding sustainability into the course curriculum, which is how I was hired to investigate possible avenues for integrating these concepts. My research emphasized the need for programs to integrate sustainability throughout courses, rather than as a separate module, for a consistent reminder of how it impacts all aspects of conservation. We are including key competencies of sustainability education, such as systems thinking, future thinking, and traditional knowledge as part of the interactive exercises and assignments in conservation courses and as foundational concepts.

"My research emphasized the need for programs to integrate sustainability throughout courses, rather than as a separate module, for a consistent reminder of how it impacts all aspects of conservation."

Marina Herriges works as a textile conservator at Textile Conservation Limited in Bristol, UK. She holds an MPhil in textile conservation from the University of Glasgow. She currently researches embedding environmental sustainability in conservation education at the Kelvin Centre for Conservation and Cultural Heritage Research at the University of Glasgow. Marina has worked in a range of different heritage and conservation organizations in Brazil, Portugal, Spain and the United Kingdom.

Having an impact: Environmental sustainability in the heritage sector

Icon News, October 2021, issue 96

By Marina Herriges

Inspired by COP26, the Institute of Conservation (Icon) released a special issue of Icon News about environmental sustainability, showcasing different actions to tackle climate change among its members.

Sarah Crofts, Icon´s chief executive, highlighted the Institute's strategy to address and impact climate change in the very first pages of the magazine. Moving to digital platforms, reducing the amount of printed paper and teaming up with other organizations such as Fit for Future are some of the efforts introduced by the Institution. Sarah also highlighted the most recent and exciting development with the launch of Icon´s Environmental Sustainability Network (Icon ESN) including more than 250 members supporting the network.

The articles in the special issue present an interesting range of different initiatives on how to include environmentally sustainable practices in conservation. Hannah Sutherland wrote on behalf of the Victoria and Albert Museum and presented a pilot project on recycling calico. Addressing circular economy, they have been working with the Paper Foundation to find alternatives which turn calico scraps into paper.

Helen Wilson ACR from the National Archives wrote about her studies to develop a climate change risk report which helped her to engage with the subject personally and professionally. Helen explained how the report supported the development of an environmental sustainability action plan. This action plan has been informing their Collection Care Department's preventive conservation work plan. She also highlighted the importance of developing international partnerships to demonstrate their commitment to tackling climate change.

The National Galleries of Scotland presented activities that were inspired by the UN Climate Change Conference. Isobel Griffin ACR, head of conservation at NGS, described some of the activities. Their Climate Statement and Emergency Response Plan is organized in three areas of commitment: engaging and inspiring, playing our part to achieve Net Zero and protecting our world-class collection. I found it very interesting to read about how this plan requires each department to contribute to their activities, getting all the employees involved in the process. Isobel also mentioned collaborations among Scottish organizations and funding opportunities that the activities enabled the NGS to be engaged with. Dr Miriam Wright and Dr Scott Allan Orr of the University College London (UCL) Institute for Sustainable Heritage presented ways to improve sustainability in the laboratory. They gave tips and examples on how to become greener and also presented the Laboratory Efficiency Assessment Framework (LEAF) which is a tool to improve laboratory sustainability and efficiency. It is worth checking out if you have a laboratory.

Lorraine Finch ACR introduced her "Low Cost or no Cost Environmental Sustainability Tips for Workplace" compilation. Lorraine presented a helpful hands-on example to be applied to conservation studios.

The British Library Green Network was also showcased by its creator Morgan Lirette. Morgan talked about the origin of the network and building professional confidence through environmental sustainability.

I also had the opportunity to write an article telling a little bit about my initial research on environmental sustainability and conservation. In this article I show some of my finds regarding conservation being environmentally friendly or not, the importance of the conservation educational context and some practical tips on becoming more environmentally sustainable.

This *Icon News* issue brings a wide range of different perspectives into the climate change debate. It is a great effort in encouraging more discussions within the profession, showing conservation professionals that we can also do something and develop these efforts further. The more professionals talk about climate change and making a change, the more relevant our profession becomes to the wider community. I am very pleased to see lots of different efforts emerging from different organizations and places around the world.

Greener Solvents In Conservation

Review by Bianca Gonçalves

"Green does not mean new". Did you know you may already have a greener solution in your cupboard? SiC's Greener Solvents handbook provides step-by-step instructions for adopting greener solvents in your practice, and it's easier than you might imagine.

Sustainability in Conservation's (SiC) *Greener Solvents* research project provides accessible resources to disseminate greener solvent use solutions. The research is summarized in a handbook that is available to our community, free of charge, on the SiC website. At the same time, the authors provide an open discussion around the needs of our profession and make suggestions for further research. Sustainability in Conservation is a non-profit organization founded to bring environmental awareness to our profession.

The book consists of three sections, each written by different experts and edited by Gwendoline R. Fife. In chapter 1, considerations regarding greener solvents and the term itself, are explained. The term "green" is relatively new in the field of conservation, and it can be quite subjective and confusing to define. In this chapter the authors point out what the field can focus on and what tools can help make these solvents greener (e.g. green chemistry, Life Cycle Assessments, environmental and health safety).

Chapter 2 looks at the state of solvents in our industry. Aline Assumpção and Lucile Pourret provide information on how solvents came to be, what regulations exist, what knowledge has been gained and how they have been used in conservation and restoration. Throughout the chapter the authors compare studies on the toxicity of solvents and the regulations issued by governments over the years which have clearly been inadequate considering the severity of the problem. At the end of the chapter, the authors appeal for the proper use and disposal of personal protective equipment (PPE).

The premise of chapter 3 is a practical guide to finding better solutions in situations where the use of organic solvents is the best (or only) option. Gwendoline emphasizes that one of the most common mistakes is that we, as conservators, often associate solvents only with cleaning, while they are used in many other situations (e.g., varnishing). The guide in this chapter will help you identify alternatives (ideally already available in the studio) that are easy and timesaving. Questions like, "what do we really need to replace?", "how do we find a greener replacement?" and "how do we apply it safely in our work?" are answered in a didactic and simple way.

Conservators can no longer ignore the fact that the environment and conservation are interdependent. In fact, according to UNESCO, cultural diversity is as necessary as

[1] Conference of Youth summits are associated with COP summit events

[2] Conference of the Parties: recurring meetings that include the 197 nations who, in 1992, agreed to a new environmental pact dubbed the United Nations Framework Convention on Climate Change

Image of the book cover.
Image by Bianca Gonçalves

biological diversity in the realm of life. However, a more sustainable practice can feel daunting, unattainable or at odds with current standard practices in the field. In the conservation of paintings, cleaning is one of the most toxic and harmful treatments to the environment and our health. The use of solvents in our daily practice without proper protection and disposal poses a problem not only for ourselves but also for our planet.

It is with this in mind that this manual was formulated. The goal was not to find an ideal solution to this problem (because one does not yet exist) nor was it to convince conservators to prioritize sustainability and less toxicity over the stability of the artwork. What the authors were trying to articulate in this handbook is that sometimes the solutions are right in front of us; we just need to rethink and reformulate our approaches before we arrive at a solution. It is important to be aware of the materials, quantities, solutions and alternatives we use to quantify the impact on our health and climate.

In fact, for a long time, our research in conservation and restoration science focused on finding the most compatible solutions for the artefact materials without considering the possible problems for the user let alone those for the environment. Today the negative health and safety effects of solvents are better known, and more precautions are being taken to mitigate this problem. As the authors explain, defining a better solution involves not only the properties of the solvent itself, but also the environmental friendliness of its production processes, the health effects of human exposure and its impact on the environment.

Analysing all these factors can be complicated and time-consuming. The means presented in this guide are a mixture of tools we already use (e.g: Tea's triangle, Hansen Solubility Parameters, emulsions, gels and different physical applications) and tools in use by the industry at large (LCA, CHEM21 guide). In other words, no new products or solutions are presented. Nonetheless, as described in the manual, it is important to point out that while these are not the ideal solutions, they are what we have to work with at the moment.

Lastly, I would like to highlight chapter 2 regarding the history of green solvents in conservation. The authors have made an interesting comparison between what has been learned over the years about the toxicity of solvents and the lack of government regulations. It is interesting to note that past scientists have explained the cumulative effects of solvents (e.g. Rachel Carson in her book *Silent Spring*, 1962), and yet regulations to protect health and the environment from the risks of these chemicals did not come into effect until 2007 (REACH directive).

We see a lot of activists in the world talking about climate change and how governments are not taking this crisis into account, or if they are, they are not taking action. There is COY after COY[1] and COP after COP[2]… In 2021, the diminution of climate crises was clearly expressed by G20 leaders when they congregated in Rome to toss a coin into the Fontana di Trevi instead of taking decisive action. A famous analogy that Greta Thunberg used a few years ago illustrates this situation perfectly: "When your house is on fire, you don't wait another 10, 20 or 30 years before calling the fire department". Well, our house is on fire. The new film *Don't Look Up* is another haunting example of how we handle emergencies: we turn a blind eye to the more distant long-term problem and instead focus on what would bring more immediate jobs and money to the population.

The fact is, it has taken decades to get clear information on solvent use, and misinformation still exists (and is also often labelled "green") which further complicates the matter. As mentioned, many times throughout this book, green does not mean that the solvents we use are non-toxic. As long as the regulations are not set and clear, we art conservators can only work "greener" since we don't have the 100% green solution yet. This manual is undoubtedly important in promoting the development and use of green solvents in our profession as well as further research on the topic.

Bianca Gonçalves is a paintings conservator currently working as a freelancer in the Netherlands, Belgium and Brazil. She graduated from the Polytechnic Institute of Tomar and La Cambre (Brussels) in 2017. Her final thesis focused on researching less toxic approaches to cleaning acrylics, reinforcing her interest in sustainability and green chemistry.

The Energy Ki Book

A step-by-step guide to reducing your carbon footprint

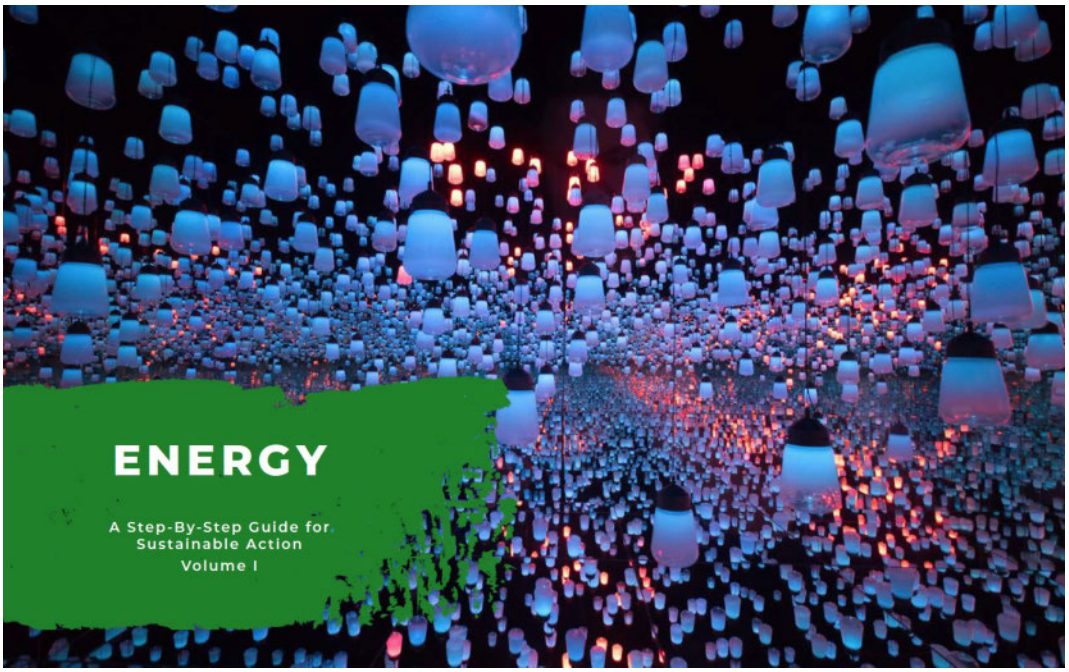
Review by Sarah Coggins

The Energy Ki Book is one in a series of online books from Ki Culture, an organisation which offers a subscription-based platform providing information and mentorship to professionals in the art world on the subject of sustainability. The Energy Ki Book provides information on how to reduce energy consumption, use energy more efficiently, switch to renewable energy and offset residual emissions.

In writing this review, I used an electronic version of the *Energy Ki Book*, and one of my favourite aspects was the book's integrated links to webpages of interest. It took me a good while to read the entire book as I kept getting distracted by links that sent me down enjoyable rabbit holes. Links that I found particularly useful include Julie's Bicycle, an article by the Image Permanence Institute (IPI) and the Philips lighting website.

In working to improve my own sustainability in the past, I have found it difficult to find information that is pitched correctly; much is either too vague or too specific. *The Energy Ki Book* has a few pages introducing sustainability while also providing good, nitty-gritty details that I find useful in my role managing environmental control systems and lighting in a museum. I found it reassuring on reading the book that understanding our energy consumption as a first step was the correct one.

Another practical and useful tool in the book was the guide to building a baseline for a building's energy consumption. This is measured in Kwh/square metre (which I was able to calculate after slowly working through the book and its many links). I am far from finalising a calculation of the carbon footprint for my museum, but this book has helped me take a step in the right direction and is incredibly useful in illustrating these concepts to museum colleagues. Additionally, the integrated links in the section on climate control have sparked valuable discussions between my colleagues and me about the environmental parameters that we have set in different areas of our museum. Learning about digital emissions was a revelation and not an aspect of sustainability that I had previously considered. Who knew that loading the average website uses the same amount of energy as boiling a kettle for a cup of tea?



Energy (left) and *Waste & Materials* (right) guide publication cover images. Courtesy of Ki Culture.

The content of the book provides the reader with a variety of ideas for implementation leading to quick wins, short-term and long-term projects. It has a breezy, friendly writing style that gives the reader the tools to start small or be as ambitious as they want.

The *Energy Ki Book* is a primer for the Ki Culture subscription. As such, many of the links in the book are to sign up for this service, and there are several mentions of "ki coaches"—mentors available with a subscription. The *Energy Ki Book* has certainly been valuable in giving me new avenues to explore and in reassuring my colleagues and me that we are laying down the right groundwork for further discussion and action on the topic of sustainability within our organisation.

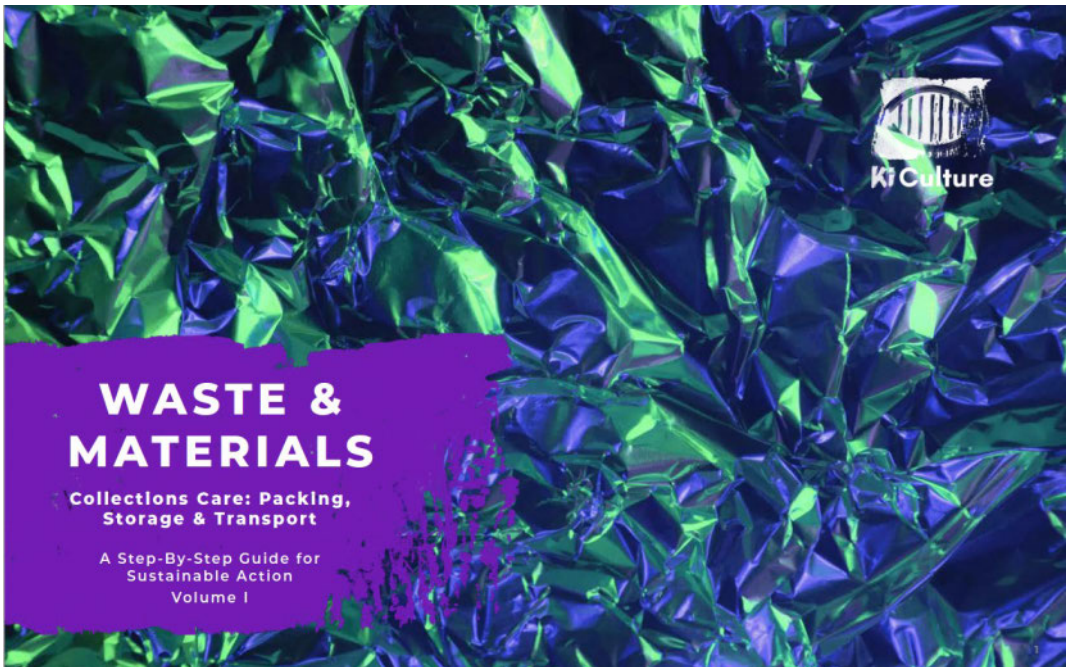
Ki Culture—Waste and Materials

Review by Kinga Brückman de Renstrom

Don't you love to crack bubble wrap? Well, maybe you shouldn't.

Today we understand, more than ever, that waste is a major global problem. To fight it we must pay attention to how we dispose of unwanted things, but even more importantly which products to buy in the first place and how to use them efficiently. Although shunning products for packing, protection, conservation or exposition of art objects is obviously not possible in the cultural sector, reasonable strategies towards sustainability can help improve the situation and fight against excessive waste production.

The Ki Book *Waste and Materials* proposes big and small measures for people in the heritage field to reduce waste on a personal and institutional level. First of all, the publication recaps on the principles of sustainable thinking, best expressed in the rule of 5 R's: refuse, reduce, reuse, repurpose and, only as a final option, recycle. The authors point out how important it is to put off the moment when an item goes in the recycling bin, not to mention the mixed waste bin. Thus, the book focuses on using a product to its full potential. Divided into categories—gloves, plastic wraps, foams, tapes and cardboard to name a few—the products are labelled with information about their composition, how they are used and what "sustainability cons and pros" each one of them presents. Greener alternatives are offered for some obviously non-eco-friendly materials, such as the notorious bubble wrap or the infamous polystyrene.



Interestingly, you might find that a critical look at the items we use most can genuinely improve the quality of your work. For instance, it is often better to evade the grasp of nitrile gloves and embrace a cotton or bamboo fibre pair as they might be more suitable for the task. Think also of the financial benefits – producing too much waste is simply a waste of money.

The layout of the book is clear and casual, and the writing style is light and direct. A user-friendly ensemble of 66 pages is enlivened

by vivid and informative photographs. The text, grouped in concise paragraphs, is accompanied by sections of Ki Facts, Ki Vision statements, or Ki Tips. The latter will surely thrill any DIY enthusiast, as many of the tips are tutorials on how to make something yourself from scraps of various materials, giving them a new life.

The reader is provided with links to manufacturer websites for the described products, where one can immediately learn more about the products and, for example, check the availability of the offer in their own country. There is also a lot of information on emerging recycling programmes which you can get involved in. Other links provide valuable background information for further reading. In this way the book signals nuanced issues and successfully avoids falling into over-simplifications that sometimes arise when ecology becomes commercial.

Lastly, strategies and guidance for institutions wanting to cut down waste are not forgotten in the Ki Book. The final section is entirely dedicated to waste auditing, analysing and reporting and communicating about sustainability amongst workers. "But I'm still a student", you might think. Well, it is never too early to introduce good habits to generate less waste. As a student and aspiring conservator, it is good to know the material options out there and to be ensured of the importance of creativity, cooperation, individual action and also in reducing waste.

The Social Sustainability Ki Book
A Step-by-Step Guide for Sustainable Action

Review by Roos van der Helm

"Systemic change doesn't usually happen through one revolutionary event. Instead, it comes about collectively as a result of many small actions adding up."

How do we make our museums more suited for society today and in the future? Ki Culture inspires us to take action with this short, pamphlet-styled guide to social sustainability. The booklet itself is easy to read, offering both small and large changes museums can make to become increasingly inclusive. But what does this mean?

The first step to social sustainability that the Ki guide offers, is to make your museum accessible to everyone. Accessibility consists of far more than just easy-to-reach, reasonable pricing. There are many barriers visitors may face before they go to a museum; people have to feel welcome, they have to feel like they belong. To make your museum a welcome place for all, take everyone and everything into consideration, not only considering the subject of your exhibitions, but also the narrative of the texts and the museum's marketing strategies.

Social Sustainability guide publication cover image. Courtesy of Ki Culture.

The second step consists of changing the work environment inside of the museum. The guide notes that it is important to hire a diverse group of people so your team is able to look at the output of your museum from many different perspectives. Museums who have already taken this course of action include the Van Gogh Museum in Amsterdam. The Van Gogh Museum works with a group of young individuals who come from diverse backgrounds. This group, called the Beeldbrekers (ReFramers), are there to broaden the Museum's outlook so Van Gogh's story stays relevant to everyone in today's society.

The third point, the decolonizing and recontextualising of museums and their collections, is one of the most talked about subjects in the museum world today. The Ki guide mentions that this is not an easy task. A good place to start is to incorporate the perspective of the subjects in your exhibitions. Don't limit yourself to isolated academic research; talk to people. By incorporating stories from the culture, community or artists you are displaying, your exhibition will not only be more accurate, but will also be much more meaningful.

Sustainability is, of course, impossible without thinking about the environment. That is why, in the fourth step to social sustainability, the Ki guide describes ways to encourage your community to be conscious of environmental sustainability and to practice it as a museum. Lastly, the booklet reminds us that we are part of the change and that we should keep changing and learning to keep up with this ever-developing society.

Being a cultural heritage student at the Reinwardt Academy, I have seen my fair share of publications about inclusivity, sustainability and diversity. I must say, I believe this Ki guide does an excellent job explaining most challenges that museums and cultural organisations face when dealing with these subjects. The booklet is filled with a large number of links for further reading, making this information accessible to everyone. While this publication presents a great overview of everything you could do to make your museum more socially sustainable, it does not go in depth on any of the topics covered (outside of the provided links). Of course, this is only the first publication by Ki on the topic, and I can definitely say that I look forward for more to come.

Sarah Coggins is an accredited conservator with a background in preventive conservation. She is the conservation engineer at the Mary Rose Museum in Portsmouth, UK where she closely monitors the environment and movement of the Tudor ship's hull.

Kinga Brückman de Renstrom is a student at the Faculty of Conservation and Restoration of Works of Art at the Academy of Fine Arts in Krakow.

Roos van der Helm is in her graduating year of the Bachelor Cultural Heritage (Reinwardt academy, Amsterdam). She wrote her dissertation on the use of provenance research to identify stolen artworks, and is currently interning at Art Salvage NL in preventive conservation and collection management.

Reflect and Revive – Ruminations on the Clmate.Culture.Peace Conference

By Anuja Mukherjee and Bhasha Shah

Climate.Culture.Peace, a five-day virtual conference organized by IC-CROM, brought together 55 partner institutions from 33 countries, over 150 contributions from 56 countries and almost 1,200 participants from 110 countries. Not only were these numbers impressive, but the knowledge shared, experience gained and overall impact of this conference will surely be a milestone in the emerging discourse of culture as the missing link in global climate action.

Both the visible effects of adverse climatic events on tangible cultural heritage, as well as the repercussions for intangible cultural practices, were highlighted through the presentations from different parts of the world making it clear that these experiences and losses are indeed global. On the other hand, culture was also credited with holding the key to climate change mitigation helping to unlock the strengths of humanity to fight for survival and progress. Traditional knowledge and practices have been re-discovered and re-invented as effective prevention, mitigation and adaptation tools against the climate crisis. The primary role of the local community in deliberation and implementation of these solutions was discussed. These communities have always been at the forefront of the impact and are the best suited to be the decision makers and first responders, supported by research and national—as well as international—policies, actions and organizations rather than just being directed. Culture also serves as a unifying force to bring people together, giving them a cause, helping them understand the intricacies and working towards a common and positive outcome of a liveable future. For example, a case study from Morocco demonstrated how music as an integrating factor ultimately led to the adoption of sustainable practices and significant steps in reducing adverse effects of unregulated tourism activities.

The workshop and youth forum highlighted certain aspects which validated our experience and the case study we presented at the conference. One of the workshops, "Every place has a climate story", talked about how important it is to notice the effect of climate change even in a region not covered by research and statistical data. The idea of balancing the past and present to ensure a resilient future and the vital role of youth and young professionals to present the science of climate change in an accessible yet interesting manner to bring about necessary action were discussed in the youth forum.

Our film "Climate and Culture – Aiming to restore the fine balance", presented as part of the panel, "Adaptation in Action", is a case study of The City Palace Museum, Udaipur, India. The city, marked by hills and lakes, has a favourable climate setting, and the Museum is situated in a 450-year-old royal palace complex located strategically on a hilltop. The macro setting of the Palace along with the micro elements in its architecture—such as lime-based thick walls, open courtyard spaces in the complex, etc.—ensure naturally cooler interiors and proper ventilation. This has helped in maintaining ambient conditions within the Museum and in preserving the collection.

The changes in precipitation patterns observed in recent years have adversely affected the heritage structure and the collection in the form of water seepage, staining, bio deterioration and overall high humidity inside the galleries and storage spaces. This appears to be an outcome of climate change, a conclusion not based on any research data but on an accumulation of practical experiences over the years.

Top: The City Palace Museum in Udaipur, India

Bottom right: *Climate and culture—Aiming to restore 'the fine balance'* film presentation by Anuja and Bhasha. Click on the image or HERE to watch the video.

Bottom left: Water seepage on walls—a threat to the artefacts displayed nearby

All images courtesy of The City Palace Museum, Udaipur ©MMCF

Left: Innovative storage and ventilation system adopted at the City Palace Museum, Udaipur. **Right:** Traditional lime plastering technique—Araish—still practiced at the City Palace Museum, Udaipur. *All images courtesy of The City Palace Museum, Udaipur ©MMCF*

The Museum has taken steps to tackle these problems by waterproofing terraces and implementing innovative storage solutions focussing on reducing financial and environmental costs. Traditional practices of the region have been revived to solve present day problems in the heritage structure so as to preserve it for the coming years.

In the conference several case studies, which demonstrated use of sustainable and innovative systems and materials to overcome challenges due to climate change (including a presentation from Turkey, "The green canopy design", to solve heat and carbon emission issues), were relatable to our efforts. Another remarkable project—presented by The University of Applied Sciences and Arts of Southern Switzerland (SUPSI) to develop a methodology for maintenance operations in built heritage focussing on background data, assessment, planning, execution and update—inspired us to develop a similar methodology for our organisation.

"Hopescape", a colourful word cloud activity during the conference, displayed the ideas and vision of the participants for the future of their heritage. The overall thoughts of the participants showed positivity and eagerness to work towards a collective peace for the world, which can be attained only through our combined efforts.

A powerful film screened in one of the panels of the conference talked about the philosophy of "World of We, Not Me", as is followed by Australia's first inhabitants, which is really the need of the hour for all of us.

Anuja Mukherjee completed her masters in conservation from National Museum Institute of History of Art, Conservation and Museology (New Delhi). She also received training in Vienna, London and Belfast. She has worked with private organisations and assisted freelance art conservators for various conservation projects. Since 2017 she has worked as an art conservator at The City Palace Museum, Maharana of Mewar Charitable Foundation (MMCF) in Udaipur.

Bhasha Shah completed her masters in art conservation from National Museum Institute of History of Art, Conservation and Museology (New Delhi). She received additional training at the Institute of Conservation, University of Vienna. She has been working as an art conservator at The City Palace Museum, Maharana of Mewar Charitable Foundation (MMCF) in Udaipur since 2017.

Sustainable Preservation Environmental Management Training Opportunities

By Christopher Cameron and Kelly Krish

In an effort to mitigate climate change, governments around the world have begun to implement new sustainability laws and limitations to greenhouse gas emissions. For many office buildings and industrial facilities, there are a number of strategies that can be implemented, some of which date back to the energy crisis of the 1970s. However, changes to the environment that are meant to save energy cannot be implemented in cultural institutions without special considerations to prevent damage to collections. To implement energy-saving strategies successfully in collecting institutions, staff must understand the relationships between the facility, mechanical systems, and collections.

The Image Permanence Institute (IPI), a research center at Rochester Institute of Technology in Rochester, New York, has been a leader in research about sustainable preservation environmental management in collecting institutions for over two decades. IPI research, resources, tools, and services aim to help collecting institutions achieve an optimal preservation environment, one that provides the best possible collections environment using the least amount of energy. IPI's environmental consulting focuses on a team approach that includes collections and mechanical system specialists working with both collections and facilities staff in collecting institutions to meet sustainable preservation goals. Preventive conservation specialist, Kelly Krish, and sustainable preservation specialist, Christopher Cameron lead IPI environmental consulting projects. Kelly is a LEED Green Associate with a master's in conservation, and Christopher is a Certified Energy Manager (CEM) who is an experienced facilities manager trained in HVAC and mechanical systems.

In 2017 IPI published *IPI's Methodology for Implementing Sustainable Energy-Saving Strategies for Collections Environments*, which provides step-by-step guidance on how to conduct risk-managed studies for implementing energy-saving strategies in collecting institutions. The methodologies themselves are informed by many years of laboratory and field-based research on environmental management in collections spaces, and the preparation of the publication was supported by a grant from the Institute of Museum and Library Services. Subsequent funding from the National Endowment for the Humanities in 2019-2021 allowed IPI to produce a series of workshops based on the publication's content to train institutional teams on sustainable environmental management.

Since then IPI has continued to develop additional training opportunities that further incorporate new options for sustainable practices. A new workshop, "Implementing Sustainable Energy-Saving Strategies in Cultural Institutions," was taught by Ms. Krish and Mr. Cameron February 16th and 17th, 2022 in New York City at the Museum of Chinese in America. The workshop was designed to teach representatives from cultural institutions to look holistically at their collection spaces and identify potential ways to reduce their carbon footprint.

Through presentations and hands-on activities, the group discussed how to perform assessments of facilities and HVAC systems. The building envelope—particularly

IPI's Methodology for:

Implementing Sustainable Energy-Saving Strategies

in collections environments

IPI IMAGE PERMANENCE INSTITUTE R·I·T

Funded by the Institute of Museum and Library Services, National Leadership Grants Program

elements like insulation, vapor barriers, air breaks, and gaps—plays a role not only in protecting a collection but also in determining a room's ability to hold environmental conditions. Participants were taught the fundamentals of understanding how air flows through an HVAC system and how such systems condition the air for spaces. Using this information, participants are shown numerous examples of data analysis to better understand energy consumption of mechanical systems and how to recognize ways to reduce energy usage.

At the conclusion of the workshop, attendees were taught how to implement a number of sustainable energy-saving strategies. The strategies ranged from passive environmental management to creating a better environment for collections through changes in lighting, system shutdowns, and seasonal setpoints. The number of strategies that can be employed in a given institution is influenced by the design of the facility and HVAC system. Some institutions can only implement one or two strategies while others can stack strategies to compound the savings. Field experience has shown that, while each institution's solutions will be tailored to its unique circumstances, there are always multiple ways to advance both preservation and sustainability goals in every institution.

After attending one of IPI's sustainability workshops last year, one institutional team was able to successfully implement a number of energy-saving strategies at their facility. After six months of successfully employing the strategies, the institute concluded that they were saving an estimated £6,000 per year ($7,944 US) per air handling unit. With multiple air handling units in the facility, the total energy savings per year could be significantly increased if the strategies can be implemented on additional units. In addition to the benefits of energy reduction, they were able to improve the preservation quality of the environment as well.

The reduction of energy consumption in a collecting institution has a ripple effect that positively touches multiple facets of the institution, including the ability to achieve mission critical activities, such as the preservation of collections, in a more sustainable manner.

Additional information and resources to assist sustainable preservation environmental management in collecting institutions are available at IPI's website including *IPI's Methodology for: Implementing Sustainable Energy-Saving Strategies in Collections Environments*. (*Methodology* publication cover image featured on opposite page, courtesy of the Image Permanence Institute,)

Kelly McCauley Krish, preventive conservation specialist, joined IPI in 2016 and provides information and guidance on preventive conservation, particularly best practices for sustainable environmental management through outreach and consulting projects. Her current research interests include pollution monitoring and mold prevention. Kelly is a LEED Green Associate and was a recipient of the 2021 Champion of Sustainability award from RIT.

Christopher Cameron, Certified Energy Manager (CEM), is a sustainable preservation specialist and joined IPI in 2013 and frequently consults with collecting institutions to provide advice on managing and operating mechanical systems to achieve the best possible preservation of collections with the least possible consumption of energy. Christopher was a recipient of the 2021 Champion of Sustainability award from RIT.

Environmental impact in the field of Cultural Heritage

Why not consider sustainability in your next treatment proposal for a work of art? Evaluation and mitigation proposal

By Giancarlo Ranalli

Climate change is a global phenomenon. Today we, both as researchers in the scientific field and as restorers engaged in the recovery of altered works of art, contribute to the environmental impact by using natural resources such as water, energy, materials and by producing entropy—heat, waste, CO_2.

As conservators and restorers of works of art, is nothing off-limits to us? Are we morally free to use anything at our disposal without prior analysis of the possible negative impacts that might result from our actions? Without any evaluation of materials or diagnostics via analytical methods?

These questions bring to the forefront the ambiguity and hypocrisy—the double face—of science. The downstream environmental impact and implications of research projects in the scientific field are not sufficiently addressed even when the results are made public (through publications, conferences, patents, etc.). Any analysis showing related environmental impact, whether it be upstream, simultaneous or downstream, is generally omitted. There is an even greater lack of calculation and quantification of potential, desirable or necessary environmental reliefs as forms of mitigation.

I propose we make an effort to include in our reports and project proposals an assessment of the equivalent CO_2 emissions released into the environment due to the conservation activities proposed for works of art. This should not be seen merely as a way to make peace with or do penance for our actions, but to quantify, recognize and then "pay for" these actions with measures that mitigate the negative environmental impact of our work once it is finished. However, even if some environmental compensation is possible after the fact, measures to reduce our impact should be taken into consideration beforehand, in the drafting of the protocols to be followed.

Among these measures, the calculation of the quantity of CO_2 emitted and CO_2 equivalents carry great significance for the entire process. For example, the total CO_2 emissions equivalent for a treatment, once calculated, could be converted into a number of new plants to be planted in developing countries. These activities must involve specialists in various fields including climate change scholars, technologists, chemists, biologists, economists and restorers/conservators of works of art for our cultural heritage.

Giancarlo Ranalli (ranalli@unimol.it) is a PhD full professor in agricultural – environmental microbiology in the Bioscience and Territory Department, Università degli Studi del Molise, Italy. Since 2000, he has been a pioneer in bio-cleaning and bio-restoration processes for works of art. Patent (2007) Process for the bio-cleaning of the surface of objects of various chemical natures and buildings. WO2007119258 (A2).

Announcements

Due to the rapidly evolving situation regarding Covid-19, many event details are changing. We are trying to update these listings as much as we can, but readers should contact event organizers directly for the most up-to-date information on specific events, conferences, workshops, etc. Thank you, from the IIC Communications Team.

CALLS FOR PAPERS

EAS Virtual Student Symposium (VSS)
20 May 2022
Online
Abstract submission deadline: 13 May 2022
For more information visit: https://eas.org/2022/?p=6886

Silk Road Textiles Under the Microscope (IASSRT)
20-21 October 2022
Online (Zoom)
Abstract submission deadline: 15 June 2022
For more information visit: http://iassrt.iidos.cn/detail/iassrt_news/237.html

EAS: Eastern Analytical Symposium
14-16 November 2022
New Jersey, USA
Oral abstract submission deadline: 6 May 2022
Poster abstract submission deadline: 5 September 2022
For more information visit: https://eas.org/2022/?page_id=2348

CFP: Objects, Pathways, and Afterlives: Tracing Material Cultures in Early America
20-22 April 2023
The Huntington, San Marino, CA (USA)
Abstracts due: 15 May 2022
For more information email: objectspathwaysafterlives@huntington.org

13th Baltic States Restorers' Triennial Meeting
16-19 May 2023
Riga, Latvia
Submissions deadline: 10 April 2022
For more information visit: https://www.iiconservation.org/content/13th-baltic-states-restorers-triennial-meeting-changes-challenges-achievements

ICOM-CC 20th Triennial Conference Working towards a Sustainable Past
18-22 September 2023
Valencia, Spain
Paper submissions due: 8 April 2022
For more information visit: https://www.icom-cc2023.org/

Photomechanical Prints: History, Technology, Aesthetics, and Use
30 October-3 November 2023
Washington DC (USA)
Paper submissions will be due October 2022
For more information visit: https://www.iiconservation.org/content/photomechanical-prints-history-technology-aesthetics-and-use

CONFERENCES, SYMPOSIUMS

Operation Night Watch Symposium: Technological Innovations and Scientific Results
11-14 April 2022
Online
For more information visit: https://www.rijksmuseum.nl/en/whats-on/lectures-symposiums/operation-night-watch#msdynttrid=tmJjYBOnqVZjbxuqxOHQ5EINOucHYqcvb4iF4I1GjxEs

The Wonder of Wood: Decorative inlay and Marquetry in Europe and America, 1600-1900
26-28 April 2022
Winterthur Museum and Philadelphia Museum of Art, USA
For more information visit: https://www.winterthur.org/calendar/the-wonder-of-wood-conference/?utm_medium=eblast&utm_source=winterthur&utm_campaign=wonder_wood_conference_2022&utm_content=multi_link&utm_term=17975&vgo_ee=6q0Hn98o6rlM3mavcQo8KQ%3D%3D

Computational approaches for technical imaging in cultural heritage (7th IP4AI meeting)
27-29 April 2022
Online
For more information visit: https://art-ict.github.io/artict/Conference.html

50th AIC Annual Meeting: Reflecting on the Past—Imagining the Future
13-18 May 2022
Los Angeles, USA
For more information visit: https://www.culturalheritage.org/events/annual-meeting/current-meeting

Bridget Riley Symposium
14 May 2022
Yale Center for British Art, New Haven, CT (USA)
Find more information here: https://www.iiconservation.org/content/bridget-riley-symposium

Nano-Systems: Research and Applications on Cultural Heritage
16 May 2022
Online and in person, Caparica, Portugal
For more information visit: https://www.dcr.fct.unl.pt/eventos/2022/01/nano-systems-research-and-applications-cultural-heritage-16th-may-2022

22nd Cambridge Heritage Symposium
Heritage Pasts and Presents in Flux
19-20 May 2022
McDonald Institute for Archaeological Research, University of Cambridge (UK)
For more information visit: https://www.heritage.arch.cam.ac.uk/events/annual-symposia/chs22-confronting-uncertainty

AAM 2022 Annual Meeting & Museum Expo
19-22 May 2022
Boston, USA
For more information visit: https://annualmeeting.aam-us.org/

22nd Conservator-Restorers' Professional Meeting Slovenia
23 May 2022
Posavje Museum, Brezice, Slovenia
For more information visit: https://www.iiconservation.org/content/22nd-conservator-restorers%E2%80%99-professional-meeting-slovenia

Paper Trails Symposium
25-27 May 2022
Tomar, Portugal
For more information visit: http://www.papertrails.techneart.ipt.pt/en/simposio/

Canadian Association for Conservation of Cultural Property (CAC) 47th Conference
26-28 May 2022
Hamilton, Ontario, Canada
For more information visit: https://www.cac-accr.ca/our-conferences/

Terra 2021 13th World Congress on Earthen Architectural Heritage
7-10 June 2022
Santa Fe, New Mexico, USA
For more information visit: https://na.eventscloud.com/website/8033/

Inaugural Conference of Conservation Science Education Online (CSEO)
14-16 June 2022
Virtual
For more information visit: https://www.queensu.ca/art/conservation-science-education-online-inaugural-conference

SBMK-dag: Contemporary Art: Who Shares?
16 June 2022
De Pont, Tilburg, Netherlands
For more information visit: https://www.sbmk.nl/nl/nl/activiteiten/SBMKdag-CAWS

5th International Conference on Innovation in Art Research and Technology (InArt 2022)
28 June-1 July 2022
Paris
Further information found here: https://inart2022.sciencesconf.org/

26th ICOM General Conference
20-28 August 2022
Prague
For more information visit: https://prague2022.icom.museum/

28th EAA Annual Meeting
31 August-3 September 2022
Budapest, Hungary
For more information visit: https://www.e-a-a.org/eaa2022

IIC Wellington Congress 2022
5-9 September 2022
Wellington, Aotearoa News Zealand (and Online)
For more information visit: https://www.iiconservation.org/content/call-abstracts-iic-wellington-congress-2022

Metal 2022
5-9 September 2022
Helsinki, Finland
For more information visit: https://metal2022.paper-flow.com/default.aspx?ReturnUrl=%2f or contact: admin.metal2022@paper-flow.com

2nd Colour Photography and Film Conference
15-16 September 2022
Florence, Italy
For more information visit: https://www.iiconservation.org/content/2nd-colour-photography-and-film-conference

15th ICOM-CC Wet Organic Archaeological Materials Conference (WOAM)
19-23 September 2022
Kazan, Republic of Tatarstan
For more information visit: www.conference-service.com/ICOM-CC-WOAM2022

2022 ICOM-CC Glass & Ceramics Interim Meeting
Recent Advances in Glass and Ceramics Conservation
9-11 November 2022
Lisbon, Portugal / Online
For more information visit: https://eventos.fct.unl.pt/icomcc_gc_2022

MUTEC: International Trade Fair for Museums and Exhibition Technology
24-26 November 2022

Leipzig, Germany
For more information visit: https://www.mutec.de/en/visit/visitor-information/

Semi-synthetic and Synthetic Textile Materials in Fashion, Design and Art
ICOM-CC Textiles and Modern Material and Contemporary Art Working Groups Joint Interim Meeting
January 2023
Virtual
For more information visit (call for papers coming soon): https://www.facebook.com/icomccmodernmaterialscontemporaryart/

Photochemical Prints: History, Technology, Aesthetics, and Use (FAIC)
30 October-4 November 2023
Washington DC, USA
For more information contact: learning@culturalheritage.org

COURSES, WORKSHOPS

ICOM: Creating Meaningful and Inclusive Museum Practices
4-Week course requiring 5 hours/week
Online
For more information visit: https://www.futurelearn.com/courses/meaningful-inclusive-museum-practices

IAP Hazards in Collections
6-7 April 2022
Online
For more information visit: https://academicprojects.co.uk/courses/hazards-in-collections-4/

Practical Science for Conservators VIII: The Art of Py-GC/MS and the Joy of Cooking
8 April 2022
GCI/Online
For more information and zoom link: https://www.iiconservation.org/content/online-workshop-practical-science-conservators-viii-art-py-gcms-and-joy-cooking

IAP Printmaking Techniques
26-27 April 2022
Online
For more information visit: https://academicprojects.co.uk/courses/printmaking-techniques/

It's About Time! Workshops in Time-based Art Conservation
Art With A Plug: Introduction to Electricity and Electronics
6, 13, 21 May 2022
Online
For more information visit: https://www.iiconservation.org/content/its-about-time-workshops-time-based-media-art-conservation

Agar Spray: New applications of rigid gel for the treatment of large surfaces
9-10 May 2022
Palazzo Butera, Palermo, Italy
For more information contact: ambragiordano@yahoo.it

Metal and Composite Threads in Textiles Workshop
8-10 June 2022
Cleveland, Ohio (USA)
Deadline: 15 February 2022
For more information visit: https://learning.culturalheritage.org/p/metal-threads

IAEA Workshop on Innovative Approaches of Accelerator Science and Technology for Sustainable Heritage Management
13-16 june 2022
IAEA Headquarters, Vienna, Austria
For more information visit: https://nucleus.iaea.org/sites/accelerators/Pages/Accelerators4Heritage.aspx

Workshop on Asian Papers and Their Applications in Paper Conservation
2022 (tentative)
The British Library, London, UK
For more information visit: https://www.minahsong.com/workshop

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POST A JOB THROUGH IIC

It is free for everyone to post a job at our standard tier and get noticed by thousands of conservators and heritage scientists who visit the IIC site.

Featured listings are £100 or FREE to IIC Institutional Members. These will appear at the top of our job listings, will also be promoted on social media, and will now be featured in News in Conservation. If you would like a featured listing, simply tick the appropriate box on our job listing form and we will be in touch to arrange payment. If you have any queries, do contact us at: office@iiconservation.org

News In Conservation

INTERNATIONAL INSTITUTE FOR CONSERVATION OF HISTORIC AND ARTISTIC WORKS

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IIC, 3 Birdcage Walk, Westminister, London SW1H 9JJ. Email: iic@iiconservation.org www.iiconservation.org

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