Imprint

Publisher

> International Association of Book and Paper Conservators / Internationale Arbeitsgemeinschaft der Archiv, Bibliotheks und Graphikrestauratoren (IADA) e.V.

Editing

> Aurelie Martin, Ligatus Research Centre, University of the Arts, London, United Kingdom
> Adrienne Bell, Folger Shakespeare Library, Washington D.C., USA (language editing)
> Alberto Campagnolo, University of Udine, Italy

Technical Committee

> Aurelie Martin (coordination), Ligatus Research Centre, University of the Arts, London, United Kingdom
> Alberto Campagnolo, University of Udine, Italy
> Dionysia Christoforou, Rijksmuseum, Amsterdam, The Netherlands
> Marzena Ciechańska, Academy of Fine Arts, Warsaw, Poland
> Dorota Dzik-Kruszelnicka, Academy of Fine Arts, Warsaw, Poland
> Jasna Malešič, National and University Library, Ljubljana, Slovenia
> Sonja Schwoll, The National Archives, Richmond, United Kingdom
> Michal Sofer, London, United Kingdom
> Bas Van Velzen, University of Amsterdam, The Netherlands
> Birgit Vinther Hansen, National Library of Denmark, Copenhagen, Denmark

Layout Design

> Verlag und Redaktionsbüro Dr. Wolfgang Seidel, Stuttgart, Germany
> Birgit Reissland, Amsterdam, The Netherlands
> Kevin Cilurzo, Luzern, Switzerland
> Congress logo design: Aurelie Martin

Print

> Digital printing in Warsaw
  https://www.druk24h.pl

© by IADA e.V. 2019
Dear Congress Participants!

Witamy w Warszawie!

IADA welcomes you in the fervent city of Warsaw for its XIVth International Congress. Warsaw, the capital of Poland, is an impressive city that well represents the spirit of the Conservation of Cultural Heritage. It has been described as a phoenix rising from the ashes, because of its capacity to resurrect from the spoils of its troublesome past, its resilience, and respect for history.

We are excited to welcome more than 400 participants coming from 39 countries near and afar. Special thanks go to the local organizing committee for all the hard work that went into organizing this big event, Magdalena Grenda-Kurmanow, Monika Supruniuk, Marta Stawirska, Zuzanna Rozwadowska, Paulina Miasik, Sylwia Poplawksa, Piotr Poplawski and Wojtek Komorowski. In addition, we want to officially acknowledge the work and support of our collaborators in this initiative: the Faculty of Conservation and Restoration of Works of Art, at the Academy of Fine Arts in Warsaw (Wydział Konserwacji i Restauracji Dzieł Sztuki Akademii Sztuk Pięknychw Warszawie), with the special role of its Dean, Marzena Ciechańska, and The Foundation for Polish-German Cooperation (Die Stiftung für deutsch-polnische Zusammenarbeit).

We are looking forward to four days packed with interesting talks and to meeting and talking to as many of you as we can. The congress offers a rich program with presenters coming from more than fifteen countries, as far as Japan and the USA. We have more than sixty presentations, short talks, and posters on a diverse range of topics covering paper and book conservation and theory of conservation, collection care and collection and risk management, analysis and surveys, decision-making, art-technological studies and materials, as well as ethical considerations and practical developments. On Thursday morning, the IADA General Members Meeting will be held: there are many decisions to be made and we are looking forward to receiving input and opinions from the members.

During the congress, lunch will be offered by IADA to provide you with deserved nourishment, but also to give you plenty of space and time to network and check out and talk with the exhibitors, whom we want to thank for their presence and support. In the same way, we express our warmest thanks to all the sponsors.

We hope you will join us for the Friday activities, which were carefully planned and organized by local colleagues and we want to thank them for their time and effort. We also hope that you will have the time to enjoy your stay in such a culture-rich city. Warsaw offers a diverse cultural scene, brimming with impressive architecture, outstanding collections, outdoor spaces, and a superb selection of culinary delights. The very place that has opened its doors to us as our conference venue, POLIN The Museum of the History of Polish Jews, is listed among the top ten things to visit in this energetic city! Standing in the centre of the former Jewish Ghetto of WWII, POLIN is an interactive and vibrant museum and a cultural centre. Within walking distance you’ll also find a plethora of cultural venues. If music strikes your cords, Frédéric Chopin, Poland’s famous composer, is celebrated throughout the city: listen to his music pressing the button on the many black benches, attend concerts, visit the Chopin Museum. Science is celebrated at the stylish Copernicus Science Centre. Breathtaking views can be enjoyed from the top of the Palace of Culture and Science and from the stunning roof garden of the Warsaw University Library.

Enjoy the conference, enjoy the company, enjoy the city, and please stop us to say hello!

IADA board
Sponsors

DEFFNER UND JOHANN
https://www.deffner-johann.de

TRU VUE
https://tru-vue.com

BESKID PLUS Archival storage products for libraries, museums and archives
http://beskidplus.com.pl

PRESERVATION TECHNOLOGIES
https://ptlp.com/en

KREMER PIGMENTE
https://www.kremer-pigmente.com/de

ANTI-REFLECTIVE ACRYLIC AND GLASS SOLUTIONS
For Protection & Display of Cultural Heritage and Fine Art Collections

Optium Museum Acrylic® | UltraVue® Laminated Glass

FOR USE IN A RANGE OF APPLICATIONS:
VITRINES • GLASS DISPLAY CASES • CABINET DOORS • WALL NICHES
BOX FRAMES • STAND-OFFS • TRADITIONAL FRAMING

For samples or questions, visit tru-vue.com/museums-collections or contact fineart@tru-vue.com.

ANTI-REFLECTIVE | ABRASION RESISTANT | CONSERVATION GRADE UV PROTECTION | COLOR NEUTRAL | SAFETY & SECURITY

Tru Vue® and UltraVue® are registered trademarks of Tru Vue, Inc., McHenry, IL, USA. © 2018 Copyright Tru Vue, Inc. All rights reserved.
Since 1880.

deffner & Johann

Conservation Supplies
All relevant materials, tools & equipment.

www.deffner-johann.com
Worldwide shipping.

BESKID®
Archival storage products for libraries, museums and archives

airvelope®
breathable hybrid enclosures

Innovative hybrid enclosures which combine best qualities of two different materials: the front cover is made of perfectly transparent and chemically inert Melinex polyester, whereas the material used for the back cover is breathable, acid-free paper or paperboard, or neutral cotton paper. No adhesives are used to produce our hybrid enclosures; the two materials are sealed by means of ultrasonic sealing technology.

ISO 16245 A  ISO 9706  PAT

www.beskidplus.com

New

Our unique sealing method guarantees high durability of the seams.

English Customer Service +48 508 758 366  www.en.beskidplus.com  info@beskidplus.com

PHU BESKID PLUS sp.j., Roman Tyma, Janusz Cybouch, Bertosz Tyma

Towarowa 3, 43-400, Poland
## Vendors

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTIMET</td>
<td><a href="https://www.altimet.fr">https://www.altimet.fr</a></td>
</tr>
<tr>
<td>ARCHETYPE PUBLICATIONS</td>
<td><a href="https://archetype.co.uk">https://archetype.co.uk</a></td>
</tr>
<tr>
<td>BESKID PLUS Archival storage products for libraries, museums and archives</td>
<td><a href="http://beskidplus.com.pl">http://beskidplus.com.pl</a></td>
</tr>
<tr>
<td>CEIBA</td>
<td><a href="https://www.ceiba.pl">https://www.ceiba.pl</a></td>
</tr>
<tr>
<td>CXD CONSERVATION BY DESIGN</td>
<td><a href="http://www.cxdinternational.com">www.cxdinternational.com</a></td>
</tr>
<tr>
<td>DEFFNER UND JOHANN</td>
<td><a href="https://www.deffner-johann.de">https://www.deffner-johann.de</a></td>
</tr>
<tr>
<td>GANGOLF ULBRICHT WERKSTATT FÜR PAPIER</td>
<td><a href="http://papiergangolfulbricht.de/en">http://papiergangolfulbricht.de/en</a></td>
</tr>
<tr>
<td>GMW Supplies and Equipment for paper conservators</td>
<td><a href="https://gmw-shop.de/en">https://gmw-shop.de/en</a></td>
</tr>
<tr>
<td>HEWIT &amp; SONS LTD LEATHER MANUFACTURERS</td>
<td><a href="https://www.hewit.com">https://www.hewit.com</a></td>
</tr>
<tr>
<td>HIROMI PAPER</td>
<td><a href="https://hiromipaper.com">https://hiromipaper.com</a></td>
</tr>
<tr>
<td>JAPICO</td>
<td><a href="https://japico-shop.eu">https://japico-shop.eu</a></td>
</tr>
<tr>
<td>KLUG CONSERVATION</td>
<td><a href="https://www.klug-conservation.com">https://www.klug-conservation.com</a></td>
</tr>
<tr>
<td>MORIKI PAPER</td>
<td><a href="https://morikipaper.com">https://morikipaper.com</a></td>
</tr>
<tr>
<td>SET BARTLOMIEJ PANKOWSKI</td>
<td><a href="http://www.panko.pl/en">www.panko.pl/en</a></td>
</tr>
<tr>
<td>PRESERVATION TECHNOLOGIES</td>
<td><a href="https://ptlp.com/en">https://ptlp.com/en</a></td>
</tr>
<tr>
<td>SCHEMPP Conservation services for archives, libraries and collections</td>
<td><a href="https://www.schempp.de">https://www.schempp.de</a></td>
</tr>
<tr>
<td>TRU VUE</td>
<td><a href="https://tru-vue.com">https://tru-vue.com</a></td>
</tr>
<tr>
<td>Content</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td></td>
</tr>
<tr>
<td>Imprint</td>
<td></td>
</tr>
<tr>
<td>IADA Board: Dear Congress Participants!</td>
<td>1</td>
</tr>
<tr>
<td>Sponsors: Monday – Thursday</td>
<td>2</td>
</tr>
<tr>
<td>Vendors: Monday – Thursday</td>
<td>4</td>
</tr>
<tr>
<td>Content</td>
<td>7</td>
</tr>
<tr>
<td>Program: Sunday, 22 September 2019</td>
<td>9</td>
</tr>
<tr>
<td>&gt; Early registration</td>
<td></td>
</tr>
<tr>
<td>Program: Monday, 23 September 2019</td>
<td>9</td>
</tr>
<tr>
<td>&gt; Abstracts</td>
<td></td>
</tr>
<tr>
<td>Program: Tuesday, 24 September 2019</td>
<td>31</td>
</tr>
<tr>
<td>&gt; Abstracts</td>
<td></td>
</tr>
<tr>
<td>Program: Wednesday, 25 September 2019</td>
<td>49</td>
</tr>
<tr>
<td>&gt; Abstracts</td>
<td></td>
</tr>
<tr>
<td>Program: Thursday, 26 September 2019</td>
<td>67</td>
</tr>
<tr>
<td>&gt; Abstracts</td>
<td></td>
</tr>
<tr>
<td>Posters</td>
<td>81</td>
</tr>
<tr>
<td>&gt; Abstracts</td>
<td></td>
</tr>
<tr>
<td>Tours: Friday, 27 September 2019</td>
<td>91</td>
</tr>
<tr>
<td>Index of names</td>
<td>97</td>
</tr>
<tr>
<td>IADA Congress Event Map</td>
<td>inside back cover</td>
</tr>
</tbody>
</table>
## Program

**SUNDAY, 22 September 2019**

- **15:00 – 17:00** Early Registration
  
  POLIN Museum of the History of Polish Jews, 6 Mordechaja Anielewicza St., 00-157 Warsaw

**MONDAY, 23 September 2019**

- **08:00 – 09:45** Registration with coffee
- **10:00 – 10:30** Welcome
  
  - Director of the Polin Museum
  - Marzenna Ciechan, Dean of the Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw
  - Renate Mesmer, President of IADA

  **10:30 – 11:50** Lectures (15 min)
  
  - Cristina Duran-Casablancas et al. (NL, UK): Linking the pieces: Systems modeling for decision support in preservation management p 10
  - Hilde Schalkx et al. (NL): UPAA for architectural drawings: Breathing new life into a tried and true survey method p 11
  - Fenna Yola Tykwer (AT): Creating a new tool for museums practice: Digital documentation models for books, documents, graphics and photography p 12
  - Ulla Begvad Kejer et al. (DK): Teaching machines to think like conservators: Improving decision making in strategic preservation planning through machine learning algorithms p 13

  **11:50 – 13:00** Lunch break

  **13:00 – 14:20** Lectures (15 min)
  
  - Andra Danila, Julia Owczarska and Cristina Duran (NL): Revisiting Collection Surveys: Notes from a small-scale customised survey at the Amsterdam City Archives p 14
  - Meagen Smith (UK): Surveys show the way: How surveys are helping Parliamentary Archives prepare to move p 15
  - Marie Vest et al. (DK): Strategy for long term storage at the Royal Danish Library: Lessons learnt from a national storage facility building project p 16

  **14:20 – 15:10** Short Lectures (5 min)
  
  - Takayuki Okayama et al. (JP): A Paper strengthening method combined with mass deacidification: Applicability of fine cellulose fibre coating with vacuum drying p 18
  - Małgorzata Pronobis-Gajdzis and Karolina Komsta-Slawińska (PL): From volume to book collection, from restoration to conservation: The conservation project as a model for decisionmaking p 19
  - Maren Dümmler (DE): How to become a stamp counterfeiter? Identify forgery on stamps - an insight report p 20
  - Agata Mendys and Agnieszka Marecka (PL): Investigation of pastel paintings: Potential and limitations of hyperspectral imagining in noninvasive study of painting layers p 21
  - Ivona Jablonska (PL): From the Age of Kings to the Second World War and today: The fascinating story of the Gniezno archive - applying modern research technologies in the conservation of the oldest Polish wax seals and parchments p 22
  - Patricia Engel (DE): Conservation treatment of Affandi’s ‘Three Beggars’ p 23
  - Stefania Signorello (UK): Colour and Healing - Wellcome Collection’s Pharmacy of Colour p 24

  **15:10 – 15:50** Coffee break

  **15:50 – 17:10** Lectures (15 min)
  
  - Irene Brückle et al. (CH, DE): Pressure-sensitive tape removal revisited p 25
  - Selina Dieter et al. (DE): Reducing local waterstains on large objects: Weighing options including rigid gels p 27
  - Jolanta Czuczko et al. (PL): Do not touch! Complex cleaning treatment of an oversized hand-drawn map from the 17th century using gellan gum p 28
In the last decade major contributions have been made to assist archives and libraries with preservation planning. To further support institutions with decision making, we are linking the information and research results available in one single tool that uses simulation techniques to compare the effect of different preservation decisions during the lifetime of the collections, regarding preservation, access and costs (Fig 1).

On the one hand, the tool approaches preservation management not as single, independent measures but as a process that is part of a complex system. Therefore, the tool also includes inputs related to other functions that are closely linked to preservation, such as acquisition, access and use. On the other hand, the tool is developed linking information that is already available: from models developed in experimental settings (e.g. damage-functions) to figures on operational costs, energy consumption or number of requests in the reading room.

In this paper we show how simulation modelling can be used as a learning laboratory to explore “what-if” scenarios, for instance, the effect of delaying the decision of deacidification (Fig 2). The scalability of the model also allows to explore the whole or just one part of the system, for example to investigate at what point a decrease of visitors in the reading room can be expected resulting in a reduction in physical use of the collections.

By linking the pieces together, the tool seeks to find the potential synergies as well unintended consequences of decisions which otherwise might have not been identified.

*1 Contacting author: Amsterdam City Archives, Amsterdam, NL.
Tel: +31.202.111676, Mobile: +31.619.997994,
Email: c.duran@amsterdam.nl

2 Institute for Sustainable Heritage, University College London, London, UK

3 Nationaal Archive, The Hague, NL

4 Helicon Conservation Support, NL

Fig 1: Snapshot of the tool under construction, including part of the model, panel control and outputs

Fig 2: Effect of different preservation options on the percentage of brittle papier in an acidic collection.
The Universal Procedure for Archive Assessment (UPAA) is a widely used sampling and assessment method for surveying archival collections. The UPAA is often used as a management tool indicating what part of a collection is inaccessible due to its physical condition. However, the original UPAA survey does not provide the necessary details to determine an appropriate treatment plan and consequent cost of conservation.

In 2018, Het Nieuwe Instituut in Rotterdam, one of the largest architectural collections in the world, received funding from Metamorfoze, the Netherlands’ national programme for the preservation of paper heritage, to improve the UPAA, using its own collection as a case-study.

The result is an improved procedure that focuses specifically on architectural drawings and building plans.

The improved procedure gives a better understanding of the extent of damage as well as an insight into what is needed to make a collection fit for storage, handling or digitisation. To help users make a consistent damage assessment, the improved UPAA procedure will be accompanied by a Damage Atlas for Architectural Drawings (Figs 1 and 2).

When used alongside existing tools for risk assessment and significance/value assessment, the new UPAA can help to set priorities. And because the outcome of a UPAA survey can be directly translated into conservation costs, it can present a powerful argument when applying for funding.

*1 Contacting author: Hoogduin Papierrestauratoren, Delft, NL.
Tel: +31.15.2574464, Mobile: +31.6.23493032, Email: schalkx@atelierhoogduin.nl

*2 General Manager Heritage Department, Het Nieuwe Instituut, Rotterdam, NL

---

**Fig 1**: Folds typical for architectural drawings (© Hilde Schalkx)

**Fig 2**: Curling architectural drawings (© Hilde Schalkx)
Object documentation has a long history from analogue paper-based documents in the past to digital applications for tablet computer today. The use of tablet computers abbreviates the process of object documenting, because it is possible to use the photo feature in combination with a smart pen as tools for a detailed digital damage mapping on the screen (Fig 1). The creation of condition reports with a documentation application is faster and more professional than ever before, especially in case of working with it during installations of exhibitions with many (undocumented) loans of private owners. The Universalmuseum Joanneum has decided to generate its own application for tablet computers (Fig 2). One reason was the fact that the commercial applications on the market do not cover all kinds of objects the Universalmuseum Joanneum still has in its collections. Another reason was the missing option for long-term storage of generated data files in these cloud-based applications. There is always only the possibility to work with former generated condition reports in an active way based on an existing contract with the provider of the application tool. In case of termination the museum will lose the option to work in the generated condition reports, only the static pdf file of the created condition report will stay in property of the museum. The lecture will deliver insight into the difficulties and moments of success during the working process of creating the application. The developed documentation models for books, documents, graphics and photography will be introduced to the public.

* Contacting author: Universalmuseum Joanneum, Graz, AT. Mobile: +43.316.80179876, Email: fenna-yola.tykwer@museum-joanneum.at, tykwer@gmx.ch, restaurierung@museum-joanneum.at

---

**Fenna Yola Tykwer**

Creating a New Tool for Museums Practice

Digital Documentation Models for Books, Documents, Graphics and Photography

---

Fig 1: Life application of digital condition reporting (© UMI)

Fig 2: The picture shows the photo function with damage mapping tool of the application on the display of an iPad (© Fenna Yola Tykwer)
A Danish Research group is looking into the use of machine learning to improve the preservation of cultural heritage. Our hypothesis is that we can utilize machine learning to improve the analysis of preservation related data, thereby creating a better basis for decision making and preservation planning in archives, libraries and museums.

Machine learning is the science of enabling computers to learn without being directly programmed. It applies algorithms – a kind of recipe for solving mathematical problems – that are trained on existing data, and then used to make predictions for new datasets. For example, machine learning is used to support diagnosis of diseases in medicine.

Development of preservation strategies for cultural heritage objects requires deep insight into the interactions between the materiality of objects, and the way the surrounding environment affects the chemical and physical degradation (Fig 1). Likewise, it requires a good understanding of the social, political and economic context in which the actual preservation planning takes place – the significance of the objects, who the stakeholders are, and intended use scenarios. Finally, it requires solid knowledge about the utility and costs of possible preservation efforts.

In order to strengthen this complex analysis of multiple data sources (Fig 2), we want to bring in machine learning, and explore how it can help improve decision making related to the preservation of cultural heritage.

As the project is in its upstart phase, we hope this presentation will enable us to reach out to potential collaborators and organisations holding relevant data.

*1 Contacting author: Royal Danish Library, Copenhagen, DK. Mobile: +45.9132.4858, Email: ubk@kb.dk

2 Royal Danish Library, Copenhagen, DK

3 The Royal Danish Academy of Fine Arts, Schools of Architecture, Design and Conservation, Copenhagen, DK
In 2018, the digitisation of notarial archives from Stadsarchief Amsterdam came to a halt when it was discovered that some document bundles were sewn together with thread ties (Figs 1 and 2). These threads went directly through the page rather than through the fold and were assumed to disrupt the scanning process. The simplest solution would entail indiscriminately removing all ties. However, to avoid the loss of historical evidence, the archive management chose to determine the extent of the problem before making a decision. To that end, we carried out a survey aimed at gathering quantitative information on the interference of the ties with digitisation. The survey consisted of two parts: the sampling, which we conducted following the UPAA (Universal Procedure for Archive Assessment); and the assessment designed by conservator Cristina Duran.

The quality of the sampling determines the reliability of the results, so it is important to define a consistent method for this first step. Although for us, the UPAA systematic sampling guidelines proved valuable, we have discovered that this method is not widely known. The scarcity of publications on UPAA and other sampling methods might inhibit the use of surveys as conservation tools. Our presentation aims to rekindle interest and foster knowledge circulation within the field.

Heritage collections face unique problems that cannot always be solved by looking at the big picture. Our project has shown that small-scale surveys can considerably help in formulating informed solutions for such unique problems if the assessment stage is customised to answer specific questions. We propose that surveys be frequently used as flexible tools to support decision-making with reliable statistical data.
The Parliamentary Archives must move over 6+ million items from the Palace of Westminster. We don’t know to where nor when we will move. However, we are already planning and preparing. A number of surveys are serving as an important data set on which to base our planning and decision making for collection risk management, preservation and conservation.

The values derived from our surveys include:

- Identify repackaging requirements prior to a move
- Uncover unknown/lost items (Fig 1)
- Improve staff’s collection knowledge
- Reassure us that we know what we have
- Develop fast statistics (x boxes / oldest item / largest item)
- Identify conservation requirements
- Identify cataloguing requirements
- Build team

Our high-level survey (Fig 2) lasted six weeks using six Collection Care people plus five assistants from the wider Archives. Results showed:

- 176,000 units to be moved i.e. boxes, volumes, rolls
- 36,000 items needing rehousing for transit or preservation
- 13,000 items require conservation cleaning
- 5,323 containers require enhanced cataloguing
- 3,000 require some level of conservation repair

Our Original Acts pilot survey lasted 75 hours using two Collection Care people to document the condition and diameter size of 10% of our collection. Results showed:

- The optimal set of box sizes
- Expansion rates for future storage configurations
- Statistics for the boxing procurement process
- Work protocols for measurement outsourcing

Before completing these surveys, we really didn’t understand how to structure and prioritise our activities for move preparation. We now know where we need to focus our attention and effort to mitigate collection risks during relocation.

* Contacting author: Parliamentary Archives, London, UK. Tel: +44.207.2196843, Email: smithmc@parliament.uk

Meagen Smith*

Surveys Show the Way

How Surveys are Helping Parliamentary Archives Prepare to Move

Fig 1: Discovering an unexpected item in our archive (© Meagen Smith)

Fig 2: Example of high level survey (© Meagen Smith)
In Denmark a joint storage facility between the Royal Danish Library and The National Museum is being built with an anticipated opening in 2021. In total, it will cover around 30,000 m² of multi-purpose storage for cultural heritage. The library alone will gain more than 100 running shelf kilometres, which together with existing storage facilities; will allow the library to preserve all collections of national importance for the long term.

The new facility will be divided into different climate zones to accommodate various types of library materials, and to make future operation of the facility as sustainable as possible. To lower the overall energy consumption, the facility will include sections with passive climate control for the more stable library collections, and sections with conventional mechanical air conditioning for cold storage of more sensitive collections, such as acid paper (Fig 1), cellulose nitrate, and acetate negatives (Fig 2).

During the planning phase, a team of conservators, engineers, and developers have discussed the specifications of the climate zones intensively. They have analysed possible scenarios based on current standards and recommendations for storing archive and library materials, life expectancy models, as well as calculations of energy consumption at different environmental settings. As a result, the selected climate zones represent a good compromise between the longevity of the collections and the overall sustainability of the facility.

The new storage facility will enable the Royal Danish Library to strengthen its preservation strategy for preventive measures in a balanced manner. In addition to optimizing storage conditions, the strategy is supplemented with traditional conservation measures such as housing, conservation, binding, digitisation and appropriate handling at more individual and specific levels.

*1 Contacting author: Royal Danish Library, Department Preservation, Copenhagen, DK.
Tel: +45.91.324752, Email: mav@kb.dk

Marie Vest*1, Birgit Vinther Hansen1 and Tine Rauff1

Strategy for Long Term Storage at the Royal Danish Library
Lessons Learnt from a National Storage Facility Building Project

Fig 1: Acidic paper housed in low quality envelopes and under inappropriate climate conditions (© Royal Danish Library)

Fig 2: Acetate negatives stored under inappropriate climate conditions (© Royal Danish Library)
There are over 10 million items in the collections of the National Library of Poland in over 70 storage rooms in two buildings. After reorganization in 2008, the microbiological laboratory of the National Library of Poland introduced regular air and objects sampling. Filtration paper impress (Fig 1), dry swab and modified AMP/ATP sampling as well as impact sampling of the air are the basis for evaluation of microbiological condition of the library objects, storage, conservation and reading rooms (Fig 2). This paper presents an overview of the results from a decade 2009-2018 of sampling (including the list of genera of the isolated moulds) as well as case studies including relocation of the collections and evaluation of a new disinfection method. The results of atmospheric air (background levels) analyses (on average approx. 1300 samples per year) based on incubation of microorganisms are unique not only in Poland.

The microbiological control and evaluation of the objects, collections and storage rooms is a very important part of preservation policy for both acquiring and safekeeping of the collections. We share our experience during a one day training session for the employees of archives, libraries and museums of Poland. It is also a part of conservation education at the Faculty of Conservation and Restoration of Works of Arts of the Academy of Fine Arts in Warsaw.

1 Contacting author: National Library of Poland, Institute for Conservation of Library Collections, al. Niepodległości 213, 02-086 Warsaw, PL.
Email: b.zerek@bn.org.pl
2 Academy of Fine Arts, Faculty for Conservation and Restoration of Works of Arts, Wybrzeże Kosciuszkowskie 37, 00-379 Warsaw, PL

Fig 1: Impress sampling with Whatman filter paper (© Jakub Piechal)
Fig 2: ATP sampling with kikkoman® Lumitester PD-20 (© Jakub Piechal)
A Paper Strengthening Method Combined with Mass Deacidification

Applicability of Fine Cellulose Fiber Coating with Vacuum Drying

Deacidification of acidic papers is useful as a way of slowing down the rate of paper deterioration but it does nothing to strengthen paper and it does not make paper sufficiently durable for long-term perusal. Therefore, an appropriate method of mass strengthening of paper must be developed to address the issue.

In this paper, fine cellulose fibers (FCF) coating was performed along with the vacuum drying after deacidification treatments such as the dry ammonia-ethylene oxide (DAE) process and the Bookkeeper (BK) process for strengthening degraded acidic papers. FCF were mechanically prepared by using the aqueous counter collision (ACC) treatment and then coated on to both sides of wet degraded papers. Text can still be read even when the newsprint is coated with FCF (Fig 1).

For a degraded wood-free paper coated with 2.1-2.4 g/m² of FCF, we observed increases in tear resistance and tensile strength just after the treatment. Tear resistance of the FCF-coated paper deacidified by the DAE process showed approximately 1.3 times that of the uncoat paper (Fig 2).

The presence of FCF on the paper surface enhanced the interaction of cellulose fibers by filling the empty spaces of the paper surface between fibers, helping to create a better bonding area. Vacuum drying at 40°C was effective to increase tear resistance of the degraded paper after the FCF coating, compared with other drying methods. Strength properties of the FCF-coated paper has been controlled by the deacidification processes during artificial aging test to present long-term stability.

*1 Contacting author: Tokyo University of Agriculture and Technology, Fuchu, Tokyo 183-8538, JP.
Tel: +81.42.3675173, Mobile: +81.80.56587494, Email: okayama@cc.tuat.ac.jp

2 Hirose Paper MFG. Co., Ltd., Tosa, Kochi 781-1103, JP

3 National Museum of Ethnology, Suita, Osaka 565-8511, JP
Over the course of the 20th and 21st century, the conservation and restoration of historic codices evolved significantly. Gradually, from the field of craftsmanship, it has become a science-based profession. Moreover, for centuries, the usable nature of books conditioned all repair treatments, as well as later conservation.

Nowadays, the status of historic books has become more complex. Awareness of the fact that historic codices are the vehicle for use of many other attributes is increasing and preserving them is an obligation.

This presents the conservator-restorer with difficult tasks: what scope of interventions into historic structure should be performed and preservation of which volumes need to be prioritized? Tools that would help resolve that problems have been sought for years.

The aim of this presentation is to introduce the ‘conservation project’, a tool as much as a model for decision-making in the field of conservation and restoration of historic codices. The tool consists of two integral elements: conservation researches and value assessment. This proposed method was tested in the single volume conservation project e.g. ‘Codex Aureus Gnesnensis’, in the historic collection conservation project, e.g. ‘Polish Karaims’, as well as in the historic library conservation project (PAN) (Figs 1 and 2).
In summer 2017, I received an exciting request: Mr. Hulymans from “Bund philatelistischer Prüfer e.V. (BPP)” (Philatelist examiner/searchers) asked me about my interest relating to a collaboration. The purpose of the project was to help the philatelic searchers to identify forgery (manipulation for valorisation). First, we had a look at several very impressive “restorations” that were nearly impossible to find, then he explained to me his idea: if people understand how these works are done and where you have to pay your attention on, they have a better background to identify the artifice.

My task was now, to become a professional counterfeiter! I added edges, recreated perforated edges and tried to make one intact from two damaged stamps (Figs 1 and 2). All individual operations were obliged to a very detailed documentation. Beyond that, you find prominent literature: Max Schweidler describes in the middle of the 20th century in his book “restoration of copper engravings” also the handling of stamps.

I tried a lot of different techniques: objects were complemented with pulp, stamps were split and laminated with new paper, edges recreated how Schweidler has recommended. The results could get used for exercises and were examined by searchers from BPP. Simple analytical methods (grazing light, transmitted light, UV-Light) were compared in view of their applicability to distinguish “paper-manipulation” — as the searchers say.

Especially the perfect material for additions was very hard to find. Finally, the best result was achieved with papers from other, comparable stamps — for example the unprinted edges of several stamps were cut off and shredded to paper pulp. The task is very unusual for a restorer but the intensive occupation with special methods and the shifted perspective was enriching for daily routine.

* Contacting author: Neuwied, DE.
Tel: +49.175.5690962, Email: info@duemmler-restaurierung.de
Analytical techniques based on reflectance spectroscopy, due to their non-invasive character are adequate methods for the analysis of fragile works of art such as pastel paintings. The extension of single-point reflection spectroscopy into hyperspectral imaging (HSI), combined with a chemometric approach is a powerful tool that opens new possibilities in the area of art investigations. HSI is a versatile method widely used in the cultural heritage field, mostly as an aid for the identification of pigments, organic dyes and binders, the analysis of synthetic as well as natural polymers or the detection of cracks on paint layers.

In the presented study, HSI was used (Fig 1) in the visible and near infrared spectral region to investigate ‘Study of a small girl for the “Polonia” stained-glass’ by Stanisław Wyspiański (Fig 2), one of the most famous artists from the modernist period in Polish visual arts.

Studies were performed to identify pastels composition, distribution of particular pigments and to recognize areas where the same pastel sticks were used. Data was analyzed using several algorithms, such as Minimum Noise Fraction, k-means clustering and Spectral Angle Mapper.

The results were compared to those obtained by macro X-ray fluorescence spectroscopy (MA-XRF) surface scanning, supported by additional point analyses. The presented work gives a foundation for further studies that will combine several non-invasive analytical techniques. Obtained results will create a complex database gathering comprehensive information on selected objects.

*1 Contacting author: National Museum in Kraków, Kraków, PL.
Email: amendys@gmail.com

2 Jan Matejko Academy of Fine Arts, Kraków, PL.
Tel: +48.299.6292 ext. 11, Mobile: +48.503.939729,
Email: amarecka@asp.krakow.pl

Fig 1: Diagram of the experimental setup (© Agata Mendys)

Fig 2: Stanisław Wyspiański ‘Study of a small girl for the “Polonia” stained-glass’ (© Piotr Frączek) and distribution of two selected pigments as determined by Spectral Angle Mapper algorithm using HSI data (© Agata Mendys)
Gniezno, the original capital of Poland, holds the oldest and the most valuable collection of wax seals and parchment documents in Poland.

Its Archdiocesan collection contains approx. 1200 unique relics of Polish written history dating between XII-XIX centuries. The documents, issued by royal and religious offices, are of immense significance as they trace the formation of the state, law and culture in Poland. Until recently the documents were stored in the nearby Gniezno Cathedral.

Damages and losses, including many irreversible ones, occurred both because of inadequate storage conditions and during transport of the archive in times of numerous wars and invasions between XI-XVII and the Second World War. Today, the state of the wax seals can be described as very bad due to a number of physicochemical and biological issues including fungi infections and insect infestation.

Our research aimed to investigate the techniques of making wax seals and the reasons behind the damages and also to evaluate the current storage conditions. We have taken a multidisciplinary approach with archivists, chemists, physicists and microbiologists providing scientific research in the form of Scanning Electron Microscopy with energy dispersive X-ray spectroscopy SEM-EDX, Gas Chromatography with Mass spectroscopy GC-MS, Microfadometry MFT, MacroXRF, and microbiological quality. Some of the work was made possible thanks to the Polish Consortium for Research on Cultural Heritage E-RIHS.

Furthermore, conservation of selected archival objects was carried out (Figs 1 and 2) and storage methods were devised through new protective acid-free packaging of appropriate archival quality.

Fig 1: XVI century parchment document with wax seals from the Gniezno Archdiocesan Archive (© Ivona Jablonskaja)

Fig 2: Close-up of a fragmented wax seal (© Ivona Jablonskaja)
Affandi (1907-1990) is one of the most important contemporary Indonesian artists; he did a lot of political work against colonialism and re-occupation by the Dutch and then went to India, Europe, USA and other places. Affandi left oil paintings on canvas, paintings on silk and wooden panels, sculptures and works of art on various sorts of paper. He even designed a museum for his paintings. One of his most important works is the “Three Beggars”, an aquarelle/gouache on paper.

The conservation included comprehensive research into the individual history of the painting, its political background, Affandi’s situation around the period of its creation, his general approach towards decay and conservation of art, the handling of death in Indonesian culture, the reception of his paintings then and today, the particular climate conditions in the tropical area and in the Museum Affandi, attack by pests and moulds, the design of exhibitions of the painting made by Affandi himself and by later generations and the paper he used for the “Three Beggars”.

Results: we achieved a fruitful Austrian-Indonesian cooperation through the conservation of the “Three Beggars” and developed an important Asian/European contribution into the conservation theory.

Conclusion: While Europe is more and more understood as a whole, this step outside our region has enriched our professional knowledge.

Recommendation: some of the newly developed ideas fit well for the preservation of cultural heritage in non-tropical countries and should be further discussed.

Contacting author: European Research Centre for Book and Paper Conservation-Restoration, Zentrum für Kulturgüterschutz, Department für Bauen und Umwelt, University for Continuing Education, Krems, Dr.-Karl-Dorrek-Str. 30, 3500 Krems, AT. Email: patricia.engel@donau-uni.ac.at
This talk focuses on the creation of a display that pulled together conservation, collection, exhibition, health, outreach and advocacy. In institutions, conservators rarely get the chance to engage with the public directly with their knowledge of the collection and research. But working as a conservator in an institution that promotes health and wellbeing gave me the input to explore how, for centuries, substances that have been used as pigments to create the most beautiful collections’ masterpieces were also used in cosmetics and medicines, often causing severe illnesses.

‘Pharmacy of Colour’ won a Wellcome Trust award in 2017 and was pushed forward as a totally independent project within the Wellcome Collection building. The show opened in July 2018. It was project managed by a conservator and involved the interaction with numerous teams (library curatorial, digital content, marketing, facilities, AV, photographers, communications, etc.) and external individuals (artists, scientists, medical historians, transport agents, etc).

Pharmacy of Colour, as per its initial idea, became an interactive space re-creating a real-life historical pharmacy, repurposing an existing cabinet used previously for a modern display (Fig 1). In the cabinet’s openable drawers (Fig 2), visitors could find rocks and facts about the healing properties attributed to metals in the past; pharmacy bottles containing various pigments and herbs were on the shelves; and alongside the cabinet, a screen showed pigment making processes and how they were used for manuscripts - the video was filmed entirely in the Wellcome Collection conservation studio. Talks given by historians/archivists, conservators and heritage scientists accompanied the Collection.

* The video of the project “The artist and the doctor” will be shown during the break after this talk and is available online at this address: https://www.youtube.com/watch?v=_uD3Gj38k8

* Contacting author: Stefania Signorello, Wellcome Collection, 183 Euston Road, London NW1 2BE, UK.
  Tel: +44.207.6118375, Mobile: +44.794.9200617, Email: s.signorello@wellcome.ac.uk

Fig 1: Pharmacy of Colour display in Wellcome Gallery space (© Wellcome Collection)

Fig 1: Close-up of the Pharmacy (© Wellcome Collection)
The main conservation problem of pressure-sensitive tapes concerns their removal from paper objects. Rubber- or acrylic-based adhesives (containing plasticizers, fillers, etc.) undergo well-researched oxidation stages that usually result in the eventual adhesive migration into the paper. This is often accompanied by blocking of inter-fiber pores which transparentizes the paper and media. Removing adhesive thus lodged inside the paper inevitably requires swelling and dissolving the adhesive and removing it either by capillary action affected by a poulticing medium or by vacuum pressure effected through a porous “suction disk” connected to a high-pressure vacuum pump.

A new model of a device (Fig 1) is portable and therefore can be shared among conservation labs. This makes tape adhesive removal by vacuum pressure, a highly controllable and efficient way of generating suction flow through paper, more readily available.

An effective work strategy includes adhesive solubility and substrate sensitivity testing choosing from a selected range of organic solvents that ideally interact strongly only with the solute (the adhesive) and not with the paper and media. It benefits from the parametrization of solvents developed for paint substrates, in which solvents are grouped according to their molecular structure and the resulting intra- and intermolecular bonds they can form. This supports strategic solvent selection and creates a better understanding of the unproportional behavior of solvent mixtures.

The main steps in conducting tape removal involving the device and solvent parametrization are explained (Fig 2), focusing mainly on the possible side effects of solvent use on papers.

Leonie Müller¹, Annine Wöllner², Stefan Zumbühl³, Julia Schultz¹, Ute Henniges¹ and Irene Brückle*¹

Pressure-Sensitive Tape Removal Revisited

Fig 1: Suction device with pump (bottom) and suction disk set into table surface under portable fume extraction unit (top edge) (© I. Brückle)

Fig 2: Suction device in use showing adhesive removal first by solvent delivery with a pipette (left) in the center of the adhesive followed by brush application (right) along the borders (© M. Röhrle)

¹ Contacting author: State Academy of Art and Design, Stuttgart, DE. Email: irene.brueckle@abk-stuttgart.de
² Freelance conservator in Berlin. Email: info@anninewoellner.de
³ Forschung, Konservierung und Restaurierung, Hochschule der Künste Bern, CH. Email: stefan.zumbuehl@hkb.bfh.ch
This project explores the concept of optical clearing (transparentizing) of repair tissues, with the goal of achieving sturdy repairs on translucent substrates without dramatically increasing the opacity of treated areas.

The term “optical clearing” is borrowed from the fields of biology and medical research; it refers to the process of rendering biological tissues transparent through the application of clearing agents, which minimize the scattering of light and allow greater visibility for microscopy and imaging.

This concept is applied to conservation repair tissues, with the goal of determining a coating to serve dual functions: optical clearing agent and reactivatable adhesive. A selection of adhesives familiar to paper conservation was tested for their transparentizing effects on a variety of repair tissues, including traditional Japanese papers and nanocellulose papers. Acrylic adhesives proved to be the most effective clearing agents, clearing some tissues by over 90% of their original opacity (Fig 1). High-density papers (gampi and nanocellulose) were the most effectively cleared.

The technique is compared to other mending methods in terms of their effect on substrate opacity. Optically cleared tissue (OCT) was found to cause the smallest opacity increase (Fig 2).

The aging characteristics of OCT are considered alongside an aging test under varying light exposures. The coated tissues were found to be acceptably stable in terms of color-change and opacity within the tests' parameters. Reversibility is also considered: aged repairs made with OCT were found to be easily removed from substrates via swelling with rigid gels.

Fig 1: BC Tissue shown over a black background at 140x magnification. The left side is uncoated; the right side has been optically cleared with Plextol B500 (© 2017 Roger S. Williams)

Fig 2: Samples of BC Tissue applied to a modern glassine using five different methods. Samples in the rightmost column (#5) were optically cleared with Plextol B500 and applied with a tacking iron (© 2017 Roger S. Williams)
Reducing local stains on large-sized paper objects requires weighing the pros and cons of a local treatment vs. an overall treatment, providing both are deemed possible. This issue was studied in connection with a treatment case involving an aquatint by Keith Haring.

The print “Medusa Head” (140 x 250 cm) was printed 1986 at Niels Borch Jensen Editions, Copenhagen, on Hahnemühle machine-made paper (300 gr./sqm). It had suffered water damage while being mounted in, and in contact with, a wooden frame. This resulted in severe stains along one of the edges, partly because coloured products were carried from the frame into the print margins (Fig 1). The disturbing staining is strictly local but diminishes the aesthetic value of the starkly black and white print.

To analyse the different treatment possibilities, sized and unsized machine-made white sample papers were produced with similar water stains and artificially aged (Fig 2). They then underwent treatments involving, for reference, established suction table and immersion, which were then compared to the currently still experimental methods involving rigid gels as well as different aqueous solutions. The samples were evaluated before and after artificial ageing to study the effectiveness and any long-term side effects that might arise from local treatment compared to an overall treatment.

On the basis of the still ongoing testing phase (Sept. 2018), the resulting decision and treatment of the water stains in the Keith Haring aquatint will be presented.

Email: dieter.selina@web.de, ute.henniges@abk-stuttgart.de, irene.brueckle@abk-stuttgart.de
A hand-drawn map of the Duchy of Pless from the collection of the State Archive in Katowice is one of the most valuable Silesian cartographic artefacts. This unique large-sized (approx. 2.5x3.0m) topographical depiction was created in 1636 by Andreas Hindenburg. The map soon became heavily used, usually as proof in settling border disputes. By the beginning of the 18th century it was already severely damaged. Time and again, the degraded fragments were repaired and reconstructed, whereas the infills were adhered to the cloth backing and not to the paper support. The map has not survived in its entirety; the losses affect 20% of the original surface. It was also divided into 13 gores. The object is in extremely poor condition. Accumulation of dirt is enormous, paper and canvas degraded by used media: pigments with copper and iron-gall ink (Figure 1).

It is necessary to remove the degradation products, contaminated adhesives, reactive iron(II) ions and copper ions from the degraded pigments, to de-acidify paper and cloth, and to consolidate the support and media.

A methodology developed based on using rigid gellan gel allows to conduct several steps of the treatment simultaneously. It allows substances to be removed in the desired direction and to prevent their re-deposition in the structure of an object. Moreover, it facilitates a careful manipulation of an object and prevents displacement of small fragments. The effects of gellan gum can also be modified by adding enzymes (removing deposits of glue) and deacidification agents (Figure 2). Instrumental analyses (XRF, FTIR) of chemical compositions of gels allow to monitor the treatment and assess its effectiveness.

**Do not Touch!**

Complex Cleaning Treatment of an Oversized Hand-Drawn Map from the 17th Century Using Gellan Gum

---

Jolanta Czuczko, Dorota Jutrzenka-Supryn and Karolina Komsta-Sławinska

A methodology developed based on using rigid gellan gel allows to conduct several steps of the treatment simultaneously. It allows substances to be removed in the desired direction and to prevent their re-deposition in the structure of an object. Moreover, it facilitates a careful manipulation of an object and prevents displacement of small fragments. The effects of gellan gum can also be modified by adding enzymes (removing deposits of glue) and deacidification agents (Figure 2). Instrumental analyses (XRF, FTIR) of chemical compositions of gels allow to monitor the treatment and assess its effectiveness.

---

**Fig 1:** A close-up of the map, condition before conservation treatment (© J. Czuczko)

**Fig 2:** A close-up of the map during treatment: A. Gellan gum before application to the object, B. Used gellan gum after absorbing the discoloration from the object (© J. Czuczko)
### Tuesday, 24 September 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presentations</th>
</tr>
</thead>
</table>
| 09:00 – 10:20 | Lectures (15 min)    | > Caroline Duroselle-Melish et al. (US): Balancing Act: Conservation and Curation at the Folger Shakespeare Library p 32  
> Anne Downey (US): Bench Conservator + Manager = Analog Tools You Need Now! p 33  
> Ingrid Kohl (DE): Quality Management in Preservation: Possible Pathways using the example of the Brandenburg State Archive p 34  
> Anthi Soulioti (UK): Bargaining Bench Time: When managerial tasks overshadow the conservator’s desire for hands-on practice p 35 |
| 10:20 – 11:00 | Coffee break          |                                                                              |
| 11:00 – 12:20 | Lectures (15 min)    | > Weronika Liszewska (PL): Which Fibre for Parchment Leafcasting? Comprehensive comparison of calfskin and goatskin parchment fibres and their possibilities for the conservation of historic parchments p 36  
> Tomasz Koziel (PL): Electrostatic cleaning of objects on paper base p 37  
> Salvador Muñoz Viñas (SP): The pleural system: A tool for paper flattening and lining p 38  
> Edith Greuter and Alexandra Nederlof (NL): Paying it forward: Customizing an existing method related to flattening architectural drawings to fit our purpose and passing it on! p 39 |
| 12:20 – 13:00 | Lunch break           |                                                                              |
| 13:00 – 14:40 | Poster session        |                                                                              |
| 14:40 – 16:00 | Lectures (15 min)    | > Grzegorz Nehring et al. (DE, PL): What should we take into account in the characterization of iron-gall ink by means of X-ray fluorescence? p 40  
> Isabelle Chavanne et al. (FR): Flooded IGI manuscripts: About the migration risks after a disaster p 41  
> Oulfa Belhadj et al. (FR): XRF analysis of IGI manuscripts: What is simple, what is not p 42  
> Anna Lagerqvist et al. (FR, SE): The ink of queen Christina and her peers: Experiences from a Collaborative Study p 43 |
| 16:00 – 16:40 | Coffee break          |                                                                              |
| 16:40 – 18:00 | Lectures (15 min)    | > Bor Kolar Bačnik et al. (IT, SI): Non-aqueous stabilization of Verdigris on model papers p 44  
> Emily M. K. Müller et al. (DE, US): Converting discolored lead white: Effect of hydrogen peroxide on the paper substrate p 45  
> Ute Henniges et al. (DE): Survey on Bleaching: What are current practices? p 46  
> Laura Völkel et al. (AT, DE): The role of paper surface damages in nanocellulose stabilization p 47 |
| 19:00       | Evening reception     | The Academy of Fine Arts, Faculty of Sculpture and Stage Design, Wybrzeże Kościuszkowskie 39, 00-379 Warsaw |
Why do conservators and curators often complain about each other? In this talk, Folger conservators and curators discuss the integrated way they approach research, preservation, treatment, exhibition work and a building renovation.

Cross-departmental work has become more important than ever. New challenges and opportunities for our collection make us rethink the skills necessary to succeed: are the traditional skills in conservation and curation still valid and capable of dealing with different stakeholders, interests and agendas which are outside of our control?

We are regularly faced with challenges when making decisions about how to choose between competing and sometimes incompatible priorities or how decisions made today may impact future research needs, many of which are currently unknown.

Through a few case studies, we will show the ways in which we continue to learn more about the possibilities for collaborative work and discuss what’s at stake in preserving, digitizing and exhibiting books, manuscripts and other collection items in the Folger collections (Figs 1 and 2).

---

*1 Contacting author: The Folger Shakespeare Library, 201 E Capitol St SE, Washington, DC 20003, US. Email: rmesmer@folger.edu, hwolfe@folger.edu, cdmelish@folger.edu

---

Fig 1: Folger STC 22273 Fo.1 no. 75, Image by R.B. Toth Associates/Equipoise Imaging

Fig 2: Sampling for Folger project *Dustbunny*
Most of us came to our profession because we find joy in learning intimately about an object through the process of rendering it whole. Yet now, many in our field are experiencing the crunch of static funding compounded by the burden of additional responsibilities. So, while managing staff and attending to preventive conservation needs of our collections, we must also continue to produce a high volume of bench-work ourselves. To bridge these worlds, each of which require vastly different skills and types of focus, the author has tested a number of systems over the years for expanding productivity while wearing several hats as the head of a conservation department in a special collections library. Initially having invested a number of years in using digital technology to bolster efficiency (Fig 1), she has ultimately found that selectively decreasing or eliminating the use of some forms of technology has, surprisingly, increased efficiency as she manages staff, volunteers, and interns. One key system discussed by the author is the Bullet Journal® Method (Fig 2). This paper presents effective use of this method, as well as other analog tools that boost not only management and conservation treatment performance, but also deepen work life fulfilment.

* Contacting author: American Philosophical Society, Philadelphia, Pennsylvania, US. Tel: +1.215.4403412, Mobile: +1.215.3279972, Email: adowney@amphilsoc.org
The work of restorers is in a state of flux. Those who once did the practical work of restoration and preservation are now not only preservation managers, but also quality managers. Using the example of the Brandenburg Main State Archive it will be examined to which extent quality management can be implemented in procedures of preservation (methods) and if there are any benefits to be gained. The implementation of tools of the quality management system DIN EN ISO 9001:2015 is particularly well suited to help structure preservation methods because it is very process oriented. In this methodology the main focus is on planning, structuring and describing all of the sub-processes assisted by all involved interest groups. With the implementation of a process landscape (Fig 1), commonly used in quality management, in which all relevant preservation processes and the requirements of the quality management norm are comprised, a transparent and efficient structure of all relevant preservation processes of an archive can be achieved. The structure of the process for “Restoration on demand” for the Brandenburg Main State Archive will be presented as an example for the process development based on the quality management system DIN EN ISO 9001:2015. By using norm compliance standards and the resulting analysis and continual improvements and further development of preservation processes, one can therefore insure the sustainable quality of all the conversation and preservation measures. By visualizing (Fig 2) and describing all sub-processes, all procedures can be executed in the same manner. This leads to enhanced effectivity, increased method quality and therefore an increase in user satisfaction. The implementation of the quality management system DIN EN ISO 9001:2015 can achieve profound increased efficiency, especially between the conflicting priorities of limited resources and the increasing need for conservation and preservation.

* Contacting author: Hocksteinweg 3, 14165 Berlin, DE. Email: kohl.ingrid@web.de

Ingrid Kohl*

Quality Management in Preservation
Possible Pathways Using the Example of the Brandenburg State Archive

Fig 1: Graphic presentation of the potential process landscape of the Brandenburg State Archive (© Ingrid Kohl)

Fig 2: Graphic presentation of the process overview of restoration on demand (ROD) for reading room. It’s been shown the initiator, the involved parties, the resources and the results of the process
There is a tendency in current conservation jobs to shift the focus of the conservator from practical, hands-on tasks to more administrative tasks. These tasks usually involve helping with outreach activities of the institution; training assistants, colleagues and volunteers in handling objects of the collection; transporting objects (Fig 1); general housekeeping (Fig 2).

The tendency can be observed in the increase of administrative classes that are ever growing in population in the conservation courses’ curriculums. There is also an increase in demand of management related skills in job applications, with the decrease in demand of manual dexterity skills. The unexpected consequence of this change could be proven counter-productive.

Conservators often find themselves in the position of being asked to sacrifice their attention to the treatment of objects in favor of the middle manager tasks. This paper discusses the possible reasons behind this tendency, such as the fact that there are not many opportunities for promotion in this profession, thus making management the next logical step. It also attempts to explain why conservators might have developed through their work the ideal mind-frame to excel as managers. Lastly, it explores some methods and techniques to overcome this challenge and “earn” bench work time, while highlighting the importance of a good balance between the two.

* Contacting author: Royal College of Physicians, London, UK.
Mobile: +44.7547.993782, Email: egg_anthaki@hotmail.com

Anthi Soulioti*

Bargaining Bench Time
When Managerial Tasks Overshadow the Conservator’s Desire for Hands-On Practice

Fig 1: Signing off supplies’ deliveries (© Octavia Lanvender)
Fig 2: Transporting objects in crates (© Octavia Lanvender)
Different methods of parchment leafcasting have been used since the 1970s and there are some studies available that verify them on the theoretical and practical level. Direct "wet" leafcasting with the use of fibrous pulp is mostly avoided for repairing dry "reconstituted parchment". In any case the choice of parchment fibres is one of the crucial decisions to be made. This study aimed to compare the properties of fibres obtained from different sources, primarily calfskin and goatskin parchment fibres – as the parchment fibres for leafcasting have not been previously differentiated by animal species. The research was performed using optical and mechanical tests, as well as DSC, FTIR, HPLC and SEM-EDS (Fig 1), and included artificial ageing by xenon lamp and in a climatic chamber. The results indicated that the fibres form leafcasted specimens with significantly different physical properties and ageing stability. In general, goatskin fibre leafcasted specimens feature greater strength and higher stability. "Hide powder" yielded the worse results in terms of optical stability. The tests showed that the diversification of parchment material by animal species is reasonable, but should be considered very carefully.

The fibres might be used in many different ways, but the content of water in the fibre suspension usually affects their structure and makes them more translucent and gelatinized. To prevent negative effects, some additives have been previously used. This study proposed and examined new methods of leafcasting based on an alcohol/water solution with reduced water content, which seems to give better results in maintaining the parchment fibre structure (Fig 2). The additives of paper fibres was also considered in the tests. Some practical conservation cases are presented, in regards to the structure heterogeneity and the complexity of the degradation processes of historic parchments.

* Contacting author: Faculty of the Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw, PL. Tel: +48.607.330865, Email: werlis@asp.waw.pl

Fig 1: Image of goatskin fibres obtained using SEM (© W. Liszewska) Fig 2: Fragment of a manuscript folio before conservation (top) and during leafcasting with the use of the developed methods (© W. Liszewska)
Surface cleaning is an important stage of the conservation treatment. One of the possible methods is electrostatic cleaning. The selected tools were chosen for testing: HR-250 roller (blue variety) (Fig 1), synthetic foils (e.g. Mylar) (Fig 2), natural and synthetic brushes. We present the technique used for their application, as well as the advantages, some limitations and drawbacks. The most important aim of the use of electrostatic method was especially the opportunity to remove fungal contaminants (hyphae, conidial apparatus, spores). For this reason, the electrostatic cleaning is a form of “passive disinfection”. Also the small size residues after application of different tools / materials / substances by conservators-restorers may be successfully removed. Examples of such residues are powder erasers or dust. Particular attention was paid to the special role of the treatment in saving paper objects, a dielectric material.

During our investigations the processes of cleaning were controlled by measurements with the electrostatic field meter (Trek Model FFL-22 CE). It was concluded that after use of synthetic foils it is necessary to discharge static charges. Very important are also the first minutes after the treatment in which the cleaned objects have a tendency to accumulate contaminants from the environment (in particular the dust). The relative humidity (RH) plays an important role during cleaning too, as dry air, unlike a more humid environment, allows to accumulate a lot of static charges.

The author emphasised simplicity, low costs and effectiveness of the electrostatic cleaning. It may be applied on paper objects in situ and ex situ.

* Contacting author: Nicolaus Copernicus University, Department of Paper and Leather Conservation, ul. Sienkiewicza 30/32, 87-100 Toruń, PL
Email: tk@umk.pl
The ‘pleural system’ is a tool that has been developed and tested in recent years at our studio. It allows for the safe and convenient flattening and lining of delicate or large paper artifacts with water-based treatments and adhesives.

The system works by creating a vacuum between a plastic layer and a flat working surface. The paper sheet is placed between working surface and the plastic layer, and the vacuum is applied and controlled through sensors embedded in the working surface. The conservator can easily program the main parameters involved in the process, such as the pressure range or the frequency or direction of the air extraction. The software allows the system to work in different modes, including a mode that speeds up the drying of the sheet while under pressure, thus reducing the number of times that blotters have to be replaced, or even eliminating the need to use blotters altogether.

The pleural system allows, among other things, the use of proven, non-toxic and easily reversible water-based adhesives for lining oversize, torn sheets (Fig 1); or for the gentle flattening of fragile, distorted artifacts while visually monitoring the process (Fig 2). In summary, it makes the treatment of large, torn or fragile artifacts made of paper, cardboard or parchment more convenient and, most importantly, much safer than traditional techniques.

Fig 1: A late 19th c. map on the pleural system’s working surface. It was weak and fragmented, which made it very difficult, even risky, to flatten and reinforce using traditional techniques (© S. Muñoz Viñas)

Fig 2: A 19th c. drawing as it dries in the pleural system. The system allows the conservator to check the alignment of the fragments during the lining and flattening process (© S. Muñoz Viñas)
A rather unexpected request to treat and rehouse two large collections of large format drawings before digitization in a very limited time frame called for inventiveness, but why invent something new if colleagues have done that already, especially when they’ve published about it?

The two collections chosen for digitization contained 6600 architectural drawings and 700 stained glass window design drawings of diverse materials like transparent paper, photographic reproductions and original pencil or charcoal drawings on thicker paper. The project consisted of surface cleaning, flattening, mending tears and rehousing. The publication “Paper Line Light” by Eva Gluck et. al. published by the Akademie der Künste, Berlin (2012) offered a well thought out flattening method and workflow, but the comparison with our situation was not easy to make for two crucial reasons: time and money.

A studio visit to the City Archives of Amsterdam, where paper conservator Jochem Kamps had translated the workflow of this publication to his specific needs and studio, gave good insight into how one can adjust the described treatment and inspired us to do the same for this project. The materials we used for flattening are different from our German colleagues: SMS (spun-bound melt-blown) polypropylene non-woven fabric (Hydrofobe) as an economical replacement for Gore-tex® and Paraprint OL 60 capillary non-woven fabric as a source of moisture in the double sided sandwich.

This presentation gives a detailed description of the project, the developed method of flattening, materials used, rehousing solutions and practical experience. Furthermore, it’s a “thank you” to all colleagues who share their knowledge and experience by sharing ours.

Edith Greuter*1 and Alexandra Nederlof2

Paying it Forward
Customizing an Existing Method Related to Flattening Architectural Drawings – to Fit Our Purpose and Passing it on!

*1 Contacting author: Erfgoed Leiden en Omstreken, Leiden, NL. Tel: +31.71.5164941, Mobile: +31.6.18889579, Email: e.greuter@erfgoedleiden.nl
2 Nederlof Papierrestauratie, Santpoort-Noord, NL

Fig 1: Bundles of rolled up architectural drawings in the Van der Heijden architectural agency collection (© Edith Greuter)

Fig 2: Unrolling a drawing in the moisture sandwich of SMS polypropylene non-woven fabric as an economical replacement for Gore-tex®, blotter paper and Paraprint OL 60 capillary non-woven fabric (© E. Greuter)
The earliest known recipes for iron gall inks include four basic ingredients: oak galls – pathological growths of oak leaves; metal salts – usually referred to as vitriol; a binder such as gum Arabic; and water. The final product differs in the elemental composition due to the multitude of recipes as well as differences within the composition of the ink’s ingredients. Nowadays, based on the qualitative and semi-quantitative evaluation of X-ray fluorescence data, it is possible to distinguish inks on the basis of the so-called fingerprint model. The first goal of our study was to determine to what extent the type of XRF spectrometer affects the quality of the ink evaluation. We tested two types of spectrometers, semi-stationary machines equipped with polycapillary focusing optics and a handheld spectrometer with a diaphragm collimator and a relatively big interaction spot.

The second goal was to address the issue of whether the ink composition might be affected by storage in a metal container (Fig 1). The presentation will discuss the role of the spectrometer type in the evaluation of a thin layer material such as ink (Fig 2).

We have also learned that the iron-gall ink composition might depend on the type of vessel in which ink was being stored.
The water sensitivity of iron-gall inks raises specific conservation issues in cases of water flooding. Freezing is an "emergency" option that stops fungi growth. Freeze-drying enables defrosting without additional impact of liquid water, but this option requires specific equipment that is not always available. Also defrosting is often undertaken with limited means, by allowing the object to rise to ambient temperature. This work aims at anticipating the risk of ink migration during such a process.

This risk is reduced if the manuscript has been immersed: former works showed that lixiviation of soluble products takes 30-45 minutes, a duration far below the time necessary to intervene. Therefore, additional ink migration during defrosting appears unlikely. Things are quite different when the document remained above the water level i.e. at approximately 100% RH. To get a better insight into kinetic aspects, we followed halo formations versus time on original value-less documents exposed at 100% RH (Fig 1). The duration of approximately 1-2 days appeared necessary for completion of brown products migration giving evidence that the delay of intervention is critical.

This information influenced the decision to perform a post-disaster treatment on a manuscript that remained above the water level for 4-5 days before being frozen (Fig 2). Since the risk of additional migrations was limited, the manuscript was simply defrosted by exposure to ambient conditions. The conservation report then highlighted ink corrosion and obvious ink migrations provoked by the flooding which finally motivated the application of a phytate treatment.

*1 Contacting author: Centre de Recherche sur la Conservation, Paris, FR. Tel: +33.1.40795303, Email: veronique.rouchon@mnhn.fr

2 Institut national du Patrimoine, Aubervilliers, FR

Isabelle Chavanne¹,², Oulfa Belhadj¹ and Véronique Rouchon¹*

Flooded IGI Manuscripts
About the Migration Risks after a Disaster
X-ray fluorescence is a proven method to measure elemental compositions of solid samples. It is extensively used on manuscripts. As it is a highly sensitive method, it is effective in the detection of elements that are characteristic of ink composition. These elements originate from the different components used in ink preparation: vitriol brings sulphur and metals (Fe, Zn, Cu, etc.), gum Arabic and gallnuts extracts mostly bring calcium, potassium and magnesium. Quantifying the amount of these elements may improve the characterisation of the ink composition, but can be complicated because of X-ray absorption by the sample that lowers the level of the detected signal. This work focuses on specific cases where absorption is negligible, thus enabling data quantification via a simple calibration method.

Using this approach, the vitriol used in the ink making was analysed on a set of thirteen archival manuscripts originating from the same city of Chartres, France. These manuscripts were made on paper and parchment (Fig 1), around 1380, by numerous hands working in five different institutions. Despite the variety of scribes, the measured vitriol fingerprints were remarkably similar over approximately a decade (Fig 2), indicating (i) a common supplier for ink/vitriol and/or (ii) the constitution of a relatively large stock (Reserve?) of ink by one institution. These measures suggest that a common inkwell was probably available beside the registers and used by all. They confirm that the scribes had, at this period, a limited autonomy in the materials chosen for writing.

*1 Contacting author: Centre de Recherche sur la Conservation, Paris, FR. Tel: +33.1.40795303, Email: veronique.rouchon@mnhn.fr
2 DYPAC, Université Versailles Saint Quentin, Versailles, FR
The Ink of Queen Christina and Her Peers
Experiences from a Collaborative Study

In early 2018 a collaboration was initiated between the Swedish National Archives and the Swedish National Heritage Board, with the purpose of examining the possibility to correlate specific iron-gall ink compositions to their different origins in terms of author, geographical location and year – as well as degree of ink corrosion.

Among the nearly 800 shelf kilometres of documents, the Swedish National Archives houses the so-called Azzolino collection. The approximately 4500 documents of this collection contain texts and letters written from, to and about the Swedish Queen Christina, principally during the second half of the 17th century, when she had abdicated from the Swedish throne, converted to Catholicism and moved to Rome. The majority of the documents are written on paper using iron gall ink as a medium and displaying varying degrees of ink corrosion.

Using micro-XRF (Fig 1), analyses have been carried out on a selection of documents from different origins and representative of different phenomena of degradation. The results from the analyses indicate a considerable variation in compositional possibilities yet leaving some clues to potentially discernible patterns (Fig 2). Of these results, as well as lessons learnt, and experiences shared, we hope to speak to you in Warsaw 2019.

*1 Contacting author: Swedish National Archives, Stockholm, SE.
Tel: +46.10.4767114, Mobile: +46.70.2208298,
Email: anna.lagerqvist@riksarkivet.se

2 Swedish National Archives, Stockholm, SE.
Email: thea.winther@riksarkivet.se

3 Swedish National Heritage Board, Visby, SE

4 Centre de Recherche sur la Conservation, Paris, FR
The research focuses on the green pigment verdigris. It was often used in the period from antiquity through the Middle Ages, Renaissance and Baroque. Verdigris was the most vibrant green available until the 19th century and can often be seen in illuminations, book illustrations and maps. Chemically copper acetate, known as the most reactive and unstable of all the copper pigments, often aging to a dark brown or black.

Due to its corrosive effects on paper and darkening, many important documents, paintings and maps are in danger.

The aim of the research was to evaluate existing stabilization treatments for these documents and propose new ones, in order to enable conservators to use superior ones.

The effect of several commercially available non-aqueous deacidification agents on paper samples containing verdigris was studied, as well as newly developed dispersion of nano calcium carbonate in combination with antioxidant tetrabutylammonium bromide (TBABr).

Measurements such as pH, color, tensile strength and degree of polymerization were performed on the samples (Figs 1 and 2) in order to evaluate the efficiency of the treatments during accelerated ageing.

The results indicate degradation due to acid hydrolysis does not seem to play a significant role during the ageing of paper containing model verdigris and that oxidative decay is the main culprit of the decay. For this reason, the method described here, which involves the use of TBABr, was better than the ones available on the market, as they focus on acidic degradation of paper, which is a problem in the case of many pigments and inks but not verdigris.
Lead white was most popular for highlighting in works of art on paper. Its darkening results from chemical reactions with atmospheric hydrogen sulfide (H2S). The motion of sulfuric gases, paper topography, paint composition and thickness influence the appearance of the darkened pigment. Historic conversion treatments recommended the application of hydrogen peroxide (HP) which is still used today. Side effects are known (Fig 1).

We evaluated the side-effects of a HP treatment using different HP concentrations, application forms and repetition on both paint and paper after accelerated aging. A model paper HP-sensitized by iron impregnation, featuring darkened lead white lines, underwent conversion with aqueous HP solutions in gaseous, gel and liquid form, and mixed with ether. Treatment results were evaluated visually (VIS, UV, microscope), by scanning electron microscopy, and in cross-section. HP volatile emission was quantified indirectly by a gas test instrument (X-am®5100, Dräger).

All brush applications altered paint surface topography, whereas gaseous treatment caused only minor changes. Gel achieved an even conversion, coupled with a consolidation effect but caused severe changes in paint topography. Depending on the intensity of HP contact, model papers showed variable degrees of browning depending on responsivity (Fig 2), confirming historically observed side effects. Masked gaseous application achieved the best results regarding undesired HP migration. Volatile HP emission was still detectable after three hours when applied directly onto paper substrate.

We conclude that selecting an appropriate HP treatment strategy requires, besides choice of application method, consideration of paper composition and the fact that HP volatiles linger in the substrate.

Emily M. K. Müller*1, Ute Henniges1, Georg Josef Dietz2, Gregory D. Smith3 and Irene Brückle1

Converting Discolored Lead White
Effect of Hydrogen Peroxide on the Paper Substrate

*1 Contacting author: Stuttgart State Academy of Art and Design, Stuttgart, DE.
Email: emilymueller91@hotmail.de, ute.henniges@abk-stuttgart.de, irene.brueckle@abk-stuttgart.de
2 Kupferstichkabinett Berlin, Staatliche Museen zu Berlin, Berlin, DE.
Email: g.dietz@smb.spk-berlin.de
3 Indianapolis Museum of Art at Newfields, Indianapolis, IN, US.
Email: gdsmith@discovernewfields.org

Fig 1: Abraham Bloemaert, Magdalene kneeling at the Crucifix, drawing on paper showing brown stains caused by HP in areas surrounding heightening (© Kupferstichkabinett, Staatliche Museen zu Berlin, KdZ 225/ D. Katz)

Fig 2: Lead white samples on iron-contaminated paper (P1) and gelatin-sized paper (P2) after different conversion treatment methods and after accelerated aging, showing gaseous migration effects of HP (© E. Müller)
As part of our ongoing work on bleaching, we wanted to formalize associated continuous feedback and learn if and how paper conservators perform bleaching of paper today. We set out to explore what our colleagues in different countries thought about the necessity of bleaching and how their treatments look like with respect to the type of objects they do/do not bleach, the choice of bleaching agent and treatment sequences.

To answer these questions, we designed a survey form and circulated it via the Conservation Distribution List and other professional networks. The survey consisted of multiple-choice questions, but we encouraged participants to leave comments and observations on specific bleaching treatments in an open text option. Anonymity of the 272 respondents was preserved.

More than half of the respondents do not consider bleaching as their regular activity. Those respondents had only access to a limited number of follow-up questions. The remaining 40% of the participants who bleach on a regular basis predominantly treat black-and-white prints (Fig 1). They prefer hydrogen peroxide, light bleaching and sodium borohydride (Fig 2); very few use other agents in their practice.

In conclusion, bleaching plays an important, but not a dominant role in paper conservation practice today. Those who do bleach often tend to apply well-introduced bleaching agents and take care of pre- and post-bleaching treatments. The results speak of an overall high level of awareness concerning potential negative aspects of bleaching and a careful approach in view of its limitations.

*1 Contacting author: State Academy of Art and Design, Stuttgart, DE. Emails: ute.henniges@abk-stuttgart.de, dieter.selina@web.de, irene.brueckle@abk-stuttgart.de

Ute Henniges1*, Selina Dieter1 and Irene Brückle1
Survey on Bleaching
What are Current Practices?

Fig 1: When asked what kind of objects were bleached, almost all participants who bleach regularly treat black-and-white prints (99%). Bleaching archival materials or paper in books is less frequently performed

Fig 2: With respect to the type of the preferred bleaching agents, most participants chose hydrogen peroxide, light and sodium borohydride (multiple choice possible)
There is an increasing interest in the application of nano-scale celluloses in the paper conservation field. One approach comprises the stabilization of damaged papers with aqueous suspensions of nanocelluloses. The treatment results in the formation of fiber networks and films on the surface of the historical papers.

If nanocelluloses are applied to papers damaged by ink-corrosion or by fire, i.e., when the papers exhibit a modified surface, adhesion properties change and may become challenging.

A combination of physical deterioration and endogenous chemical degradation of cellulose cause severe changes as compared to the original structure of cellulose also resulting in changes of paper morphology. For fire induced damages, hydrophobic surface areas adjacent to hydrophilic spots are observed (Fig 1). Hence, water absorbency differs depending on the degree of damage.

In order to develop a treatment for such surfaces with nanofibrillated cellulose and to subsequently stabilize the paper, we have investigated the surface properties of papers damaged by fire or iron-gall ink in more detail. Analyses with atomic force microscopy (AFM) allows the investigation of surface roughness and together with scanning electron microscopy (SEM), a comparative surface characterization is possible. The damaged surfaces are more accessible due to removal of smaller fibrils (Fig 2). Changes in the molecular structure were analyzed by molar mass distribution using SEC-MALLS. A cross-linking behaviour could be observed in relation to damage severity in burned papers. Strongly damaged areas exhibit a decreased contact angle due to the opening of the porous structure, eventually such samples also become insoluble for molar mass analysis due to extreme changes in chemical composition.

The results of this study allow for better treatment design when using nanocellulose suspensions, and suggestions for modifications of the nanocellulose can be deduced.

1 Contacting author: Herzogin Anna Amalia Bibliothek – Klassik Stiftung Weimar, Weimar, DE. Tel: +49.3643.545531, Email: laura.voelkel@klassik-stiftung.de / laura.voelkel@boku.ac.at
2 Montanuniversitaet Leoben, Institute of Physics, Leoben, AT
3 University of Natural Resources and Life Sciences, Institute of Chemistry of Renewables, Vienna, AT
4 University of Natural Resources and Life Sciences, Institute of Wood Technology and Renewable Materials, Tulln, AT

Fig 1: Rag paper damaged by heat, where the bright areas are more hydrophobic than the black areas (© L. Völkel, BOKU Vienna)

Fig 2: SEM picture of the burned paper – the overview shows a rough and open surface with more fragmented fibre material than for an undamaged surface (© M. Beaumont, L. Völkel, BOKU Vienna)
### Program

**WEDNESDAY, 25 September 2019**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>09:00 – 10:20</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td></td>
<td>Leila Sauvage et al. (CA, FR): The Handmade Blue Paper Project: An Interdisciplinary Low-Tech Approach to Studying Material Culture p 50</td>
</tr>
<tr>
<td></td>
<td>Frederike Leffelaar and Gabriëlle Beentjes (NL): Curl, crack or stick: Postage stamps and the risks of fluctuating RH p 51</td>
</tr>
<tr>
<td></td>
<td>Eliza Jacobi and Karin Scheper (NL): Pith paintings: Old repairs and a new conservation approach p 52</td>
</tr>
<tr>
<td></td>
<td>Emma Turner (UK): The Challenge of Conserving Marco Ricci’s Paintings on Leather p 53</td>
</tr>
<tr>
<td>10:20 – 11:00</td>
<td>Coffee break</td>
</tr>
<tr>
<td>11:00 – 12:20</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td></td>
<td>Aafke Weller and Mette Peters (NL): The Animator’s Archive: A whole new set of preservation challenges p 54</td>
</tr>
<tr>
<td></td>
<td>Joanna Kosek et al. (UK): Facing challenging treatments: Making decisions p 55</td>
</tr>
<tr>
<td></td>
<td>Christa Hofmann et al. (AT, IT, DK, PT, UK, US): The Vienna Genesis: Conservation and Storage of a Late Antique Manuscript p 56</td>
</tr>
<tr>
<td></td>
<td>Christin Rosse et al. (PL): Looking for authenticity: Preservation of the paper-based objects from the former German Nazi concentration and extermination camp KL Auschwitz-Birkenau p 57</td>
</tr>
<tr>
<td>12:20 – 13:00</td>
<td>Lunch break</td>
</tr>
<tr>
<td>13:00 – 14:00</td>
<td>Vendor session</td>
</tr>
<tr>
<td>14:40 – 15:20</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td></td>
<td>Agnieszka Marecka (PL): A Database for Pastel Paintings: A project of collecting results of research of pastels from the turn of the 19th and 20th c., based on the works by Leon Wyczółkowski, Stanisław Wyspianski and Wojciech Weiss p 58</td>
</tr>
<tr>
<td></td>
<td>Marie Kern et al. (DE): From Wine to Print: Experimental reconstruction of a historical Frankfurt Black intaglio printing ink p 59</td>
</tr>
<tr>
<td></td>
<td>Antje Penz and Georg Josel Dietz (DE): Drawing with Rembrandt: Material and technique in Rembrandts’ workshop p 60</td>
</tr>
<tr>
<td></td>
<td>Maria Krämer and Irene Brückle (DE): Newly identified albums with drawings from the Piranesi workshop at the Staatliche Kunsthalle Karlsruhe: Technology, history, preservation p 61</td>
</tr>
<tr>
<td>15:20 – 16:00</td>
<td>Coffee break</td>
</tr>
<tr>
<td>16:00 – 17:20</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td></td>
<td>Jasna Malešič et al. (SI): Evaluation of deacidification treatments on lignocellulosic paper: The use of nano- and micro-particles dispersions p 62</td>
</tr>
<tr>
<td></td>
<td>Marc Holly et al. (DE): Interaction of paper with synthetic dyes: Developing conservation strategies for textile sample books p 63</td>
</tr>
<tr>
<td></td>
<td>Benjamin Kirschner et al. (DE): Light emitting diodes (LED): A new source of radiation for light bleaching of paper p 64</td>
</tr>
</tbody>
</table>
Despite progress made in studying drawing media, supports are often loosely characterised as “parchment” or “paper” and, in the case of paper, by colour: “off-white”, “grey”, “blue”, etc. These descriptions are subjective and of limited use since the information such papers encode cannot be used comparatively to establish meaningful relationships between drawing supports.

In 2016, three conservators, a papermaker and a dyer began to investigate handmade blue paper. This paper will outline the interdisciplinary research methodology developed, with the aim of encouraging fuller characterisations of these papers.

Lacking substantial technical literature and analytical findings, this research began from visual assessments of the historical materials using non-invasive and photographic tools (Fig 1). Conservators gathered a corpus of blue papers, classifying them according to physical characteristics and function.

Reconstructions were undertaken at the Moulin du Verger (France). A skilled dyer prepared woad- and indigo-based blue rag fibres. The experienced papermaker formed sheets of the desired thickness, fibre furnish and distribution, look-through and surface texture, sizing and surface coating (Fig 2). The practise has enhanced understanding of interrelationships between papermaker, dyer and the rag trade before the industrial era. Comparison of blue supports with textual evidence will facilitate better comprehension of the historical significance of blue paper and enrich drawings scholarship.

In addition, this project has developed a Blue Paper Sampler to facilitate comparisons of blue papers across collections and in publications. Progress is enhanced by yearly workshops, where professionals can bring their own research questions for experimentation.

Leila Sauvage*1, Thea Burns2, Jacques Bréjoux3, Nadine Dumain3 and Philippe Chazelle4

The Handmade Blue Paper Project
An Interdisciplinary Low-Tech Approach to Studying Material Culture

Fig 1: Macrophotograph showing the complex mixture of fibres in a historical blue paper (Muse, R. Carriera, pastel, ca. 1690-1740, RP-T-2009-114) – Hirox digital microscope, x35 (© Rijksmuseum)

Fig 2: Blue paper sheet reconstructions being hung for drying at the Moulin du Verger (© L. Sauvage)

*1 Contacting author: Rijksmuseum, Amsterdam, NL. Tel: +31.652841418, Mobile: +33.603024473, Email: leila.sauvage@gmail.com
2 Independent scholar, Kingston, CA
3 Paper mill Moulin du Verger, Puymoyen, FR
4 Ecole Nationale Supérieure d’Art, Limoges, FR
The Noord-Hollands Archief in Haarlem and the National Archives of the Netherlands became the proud custodians of large, important stamp collections a few years ago. Postage stamps differ from regular archival collections, as they represent a monetary value which influences conservation issues. Damage to the gum layer or to the perforation, or a change of format, may result in considerable and therefore unacceptable loss of value.

Both of these stamp collections are regularly consulted by researchers, for whom digital copies are unsatisfactory. Therefore boxes and folders with sheets or single stamps are transported from the repository to the reading room. This implies a change of climate, most often from the 45-50% RH of the repository to a lower, or higher, RH in the reading room. The sheets of stamps react immediately: they start curling (Figs 1 and 2).

Our research focuses on a risk assessment of this phenomenon. What exactly happens, why does this happen and do we need to worry about it? There is not a lot of conservation literature on this subject, so we will study the literature focused on the production and the components of stamps to try to understand their particular behaviour. We will also try to analyse what happens with single stamps and full sheets at different RH and what the effect of fluctuations in RH is on their mechanical stability.

Based on the literature and practical research we hope to be able to provide recommendations for the safe storage and consultation of stamps.

*1 Contacting author: Noord-Hollands Archief, Haarlem, NL. Tel: +31.23.2172762, Email: frederike.leffelaar@noord-hollandsarchief.nl
*2 Nationaal Archief, Den Haag, NL. Tel: +31.65.5267854, Email: gabrielle.beentjes@nationaalarchief.nl
In 2018, the Leiden University Libraries (UBL) started the conservation of a collection of paintings on pith paper. The objects – an album of paintings and 7 loose leaves depicting fishes, flowers, and two figures – are part of the A.P.H. Hotz Collection, a Dutch businessman (1855-1930) who worked and lived in Persia, in the UBL since 1935.

The paintings were in poor condition (Fig 1). All of them suffered water damage. They had many tears, missing pieces and in some cases were cockling. The support paper was weak and torn. Various reasons motivated the conservation project, one being the opportunity to gain practical knowledge of this material, since so little information about the treatment of pith paintings is available.

This paper will address the repair methods chosen. These include the use of Japanese paper and MC, very light humidification to flatten the objects and make them suitable for their new housing, and the completion of the damaged blue silk borders with new cotton-silk fabric. A new mounting was developed for safe housing, exhibition and study in the future, which respects the original presentation of the paintings.

In addition, some surprising discoveries were made. We observed clear traces from the cutting of the pith on its surface, as well as many crude repairs, carried out prior to painting, on the verso sides (Fig 2). We explore the question of who conducted these repairs, the sheet makers or the artists, as we found mends consisting of pieces of pith but also — more surprisingly — pieces of mica.

---

**Fig 1:** Before Conservation, Pith painting Or. 27.133
(© University Library Leiden)

**Fig 2:** Different kinds of historic repairs on the verso Or. 27.133
(© University Library Leiden)
The Challenge of Conserving Marco Ricci’s Paintings on Leather

A group of eight highly unusual paintings by the artist Marco Ricci were treated for the Royal Collection’s 2017 exhibition ‘Canaletto and the Art of Venice’. The paintings, still presented in their original 18th Century frames, are particularly unusual due to Ricci’s choice of materials (Fig 1). The artworks are made using a brown dyed leather support, with an opaque, rapidly layered, paint. There is extremely little precedent for dyed leather being the support for a finished painting, and very sparse material exists in terms of conservation literature or case study. The Royal Collection’s group of 32 Ricci paintings in this format, believed to be the largest single group, therefore provide a unique opportunity to research an unfamiliar combination of materials that display an inherent instability.

Investigation into consolidation materials suitable for both the paint medium and the leather has been a primary focus of the continuing project (Fig 2), requiring cross-specialism conservation research and dialogue. Beyond this, every treatment has had to acknowledge the collection context of the Ricci’s – namely that they are part of an active decoration scheme within the royal residences. Within the residential spaces, regulated control cannot be maintained over temperature, light and humidity; therefore improved methods of framing, within their original frames, is a fundamental treatment objective.

The Ricci paintings remain a stimulating project, both in conservation terms and for researching an under-studied, innovative, Venetian artist. It is hoped that cross-discipline discussion of current treatment will further dialogue and research, acting as reference for other works posing similar challenges.

* Contacting author: Royal Collection Trust, Windsor Castle, Windsor, UK. Tel: Tel: +44.1753.868286 ext. 2318. Mobile: +447895 269603, Email: emma.turner@rct.uk
The Eye Filmmuseum in Amsterdam holds a unique collection of archives of Dutch animators and animation studios. Besides film, photographs and documents, these archives contain thousands of animation drawings and cels (thin sheets of cellulose acetate), each containing an image depicting a moment in time in the animated sequence. Most of this artwork was made between 1970 and 2000; a period in which animators experimented with a wide variety of both traditional and modern materials such as gouache, Indian ink, marker ink, modern paints, adhesive tapes and foils (Figs 1 and 2).

We know very little about how these combinations of different materials age and respond to various storage conditions. Yet, given the inherent instability of cellulose acetate, a general urgency to act is felt throughout the conservation community. Together with their large numbers and the tendency of these objects to elude traditional categories, animation artwork presents a whole new set of preservation challenges.

Animation artwork preservation is still largely uncharted territory. With the research project Materials in Motion, we made a mark in time and brought all the different actors (conservators, curators, archivists, researchers, animators and conservation scientists) together to share their experience, develop a common research agenda, forge collaborations and find ways to raise awareness.

With an international benchmark and an international expert meeting held in Amsterdam in November 2018, Materials in Motion gave an impetus for what might become a whole new branch of archival preservation. In this presentation we will give you the lie of the land.

*1 Contacting author: Eye Filmmuseum, Amsterdam, NL.
Mobile: +31.6.45458880, Email: aafkeweller@eyefilm.nl

Fig 1: Cels used in the film "Keep on Turning" (1972) by J. Verbeek and K. Wiertz. Acrylic paint, self-adhesive foil and marker ink on cellulose acetate. 300 mm (diameter) (© Collection Eye Filmmuseum, the Netherlands)

Fig 2: Animation artwork used in the film "Holy Smoke" (2000) by Monique Renault. Tape, inkjet print and coloured pencil on paper. 295 x 230 mm (w x h) (© Collection Eye Filmmuseum, the Netherlands)
Taking examples of technically challenging treatments undertaken at the British Museum in recent years this talk reviews various issues relating to decision-making and treatment execution and reflects on specific approaches by East Asian and Western conservators. These treatments involved iconic and important pictorial art such as the Admonitions Scroll (BM OA 1903,0408.0,1), a series of very damaged Chinese scroll paintings, Albrecht Dürer’s Triumphal Arch (BM PD E, 5.1) (Fig 1), Michelangelo’s cartoon Epifania (BM PD 1895,0915.518) and a selection of paintings treated as part of the Collaborative Project for Conservation of Japanese Paintings in the British Museum together with the Association for the Conservation of National Treasures (ACNT) in Japan (Fig 2). The talk reports on the approach to testing and risk assessments, treatment methodology and discussion with other colleagues in deciding treatments. Treatments themselves are informed by standards, codes of ethics set by professional bodies, and government agencies and may be complemented or juxtaposed by ‘schools’ of know-how. The talk explores these, as well as the importance of training and succession of skills to ensure staff have sound professional judgment to perform complex treatments. All the above projects have confirmed the importance of the back-up provided by a well-established studio and staff passing on experience from generation to generation.

*1 Contacting author: British Museum, London, UK.
Tel: +44.207.3238502, Mobile: +44.795.2237646, Email: jkosek@britishmuseum.org
2 Association for Conservation of National Treasures, Oka Bokkodo, Kyoto, Japan
3 British Museum, London, UK
The Vienna Genesis is a fragmentary late antique Greek manuscript written on purple parchment with silver ink. 48 miniatures illustrate the text of the book of Genesis. A research project at the Austrian National Library investigated the parchment, the purple dye, the silver inks and the pigments of the miniatures. The results formed the base for decisions on conservation and storage. Degradation of the silver inks has rendered the parchment folios very fragile. The purple dye of the parchment proves to be orcein based and light sensitive. Former interventions, which reflect the development of conservation, have left their marks on the precious manuscript. The results of material analysis and the options for conservation and storage were discussed with all project partners and additional experts. The aim of the treatments chosen was to stabilise the condition of inks, miniatures and parchment while preserving the manuscript and its history as authentic as possible. Loose areas in the text and the parchment were secured with small bridges of remoistenable tissue (Fig 1). Endangered parts of the miniatures were locally consolidated with sturgeon glue. The storage solution was chosen with the aim of strictly limited access to the authentic original. Each folio is stored in folders of Japanese paper and a sink mat which is individually adjusted to the dimensions (Fig 2). High resolution images, a new facsimile edition and a book on the research project will allow further study of this rare example of late antique book culture.

Christa Hofmann*1, Sophie Rabitsch1, Junko Sonderegger1, Jiri Vnoucek2, Abigail Quandt3, Maurizio Aceto4, Martina Griesser5, Maria J. Melo6 and Matthew Collins7

The Vienna Genesis
Conservation and Storage
of a Late Antique Manuscript

*1 Contacting author: Austrian National Library, Conservation Department, Vienna, AT. Tel: +43.1.53410.322, Email: christa.hofmann@onb.ac.at
2 Preservation Department, Danish National Library, Copenhagen, DK
4 Dipartimento di Scienze e Innovazione, Università degli Studi del Piemonte Orientale, Alessandria, IT
5 Conservation Science Department, Kunsthistorisches Museum Wien, Vienna, AT
6 Department of Conservation and Restoration, LAQV-Requimte, Faculty of Sciences and Technology, New University Lisbon, Caparica, PT
7 Department of Archaeology, University of York, York, UK
The Auschwitz-Birkenau State Museum and Memorial conservation laboratories provide the preservation/conservation of considerable collections that consist of multi-farious objects. The objects are made of all kinds of materials, in terms of quality and types, which have been available or produced during the early 20th century. The purpose of this paper is to disclose the conservation particulars of paper-based or partially paper-based objects.

A huge part of being a conservation specialist, besides having the knowledge of how something technically should be done, is holding the authority of deciding upon the direction in which the conservation treatment itself should go. Often it is we who bear the weight of that decision. We decide which stain should stay and which one should be removed. The work is being conducted so that there will be no obliteration of the history from the objects and the interference in the original matter of the historic item is as minimal as possible (Fig 1).

Even though some objects were made of similar materials, have similar shapes and construction and were produced with the same purpose in mind, they require different treatments. Their history was different and that history will determine the manner and direction in which the conservation treatment will be conducted, as the impact of history is enormous in our work.

This paper will provide a better understanding of everyday challenges concerning the conservation/preservation of paper-based items in The Auschwitz-Birkenau State Museum and Memorial by practical examples of camp letters, maps, works of art, suitcases (Fig 2) and baskets.

*1 Contacting author: Państwowe Muzeum Auschwitz-Birkenau, Oświęcim, PL.
Email: christin.rosse@gmail.com, nel.jastrzebiowska@auschwitz.org, marta.swieton@auschwitz.org
Polish museums hold a significant collection of pastel paintings. Despite this, there is no easily accessible information about their technological aspects and inventory data.

This PhD research project on pastel paintings allowed the creation of a preliminary database gathering comprehensive information on the pastels used by three of the most prominent Polish pastellists (Fig 1). It includes the results of analytical research conducted on 58 paintings, focusing on the collections at the National Museum in Krakow and the Wojciech Weiss Foundation Museum. The conducted examinations (FTIR, SEM-EDS, microfado-metry, MA-XRF (shown on Fig 2), Herzberg and Graff C reagents, UV, IR and VIS photography, and microchemical methods) created a wide spectrum of data with particular emphasis on the technology and typology of supports, on types of fillers and binders of paint layers and on selected pastel sticks that came from painters’ workshops.

Information was gathered into a table with each object referenced separately. This enabled preliminary comparison determining correlations and similarities among them. The catalogue also contains macrophotography of details and basic inventory data as well as reporting the type of support and construction based on in situ observations.

This database is intended to provide an insight into material composition and can serve as a preliminary complement to information about the technological, research and conservation facets. Its results may also help in risk analysis by assessing sensitivity to light, defining preservation strategies, sharing collections, aiding preventive conservation, and as a source of comparison in assessing authenticity of works of art.

* Contacting author: Jan Matejko Academy of Fine Arts, Kraków, PL.
  Tel: +48.299.6292 ext. 11, Mobile: +48.503.939729,
  Email: amarecka@asp.krakow.pl

Fig 1: Leon Wyczółkowski, Portrait of Maria Przybyłko-Potocka. Results of MA-XRF, and VIS, IR, and UV photography (© Piotr Fr czek, MA-XFR Michal Płotek)

Fig 2: Leon Wyczółkowski, Portrait of Maria Przybyłko-Potocka. Results of SEM-EDS analysis, macro, microphotography and fiber identification (© Agnieszka Marecka)
Historical intaglio printing ink was usually composed of simple materials – carbon-based pigment, oil-based binder, optional additives – but it met highly specific requirements to make a good impression of an intaglio printing plate. According to 17th- to 19th-century sources, “Frankfurt Black” – made of charred lees of wine – was preferred above other charcoal pigments. It disappeared around 1900. No known samples of dry pigment survive. Frankfurt Black was reconstructed and made into ink, to compare its properties and printed appearance to modern intaglio ink.

Dried wine lees (Fig 1) were charred according to historical sources at different temperatures to determine ideal charring conditions. The produced pigments were ground with oil varnishes, prepared according to Abraham Bosse’s 17th-century manual on etching and engraving. Reconstructed Frankfurt Black was compared to hand-ground inks made with regular plant charcoal (vine black) and Japanese ‘Kashu’ (white wine lees black), and modern commercial bone black printing ink. Impressions were made from an etched plate. Special attention was paid to colour, contrast and clarity of lines and details in the proofs. The different pigments yielded hues ranging from warm brown to deep black (Fig 2). In contrast to vine black ink, Frankfurt Black ink provided a good impression of all but the finest lines which were not as clearly defined as in the print made with contemporary ink. Generally, it displayed the properties described in the sources: deep dark colour and a soft texture. Hand-ground ink resembled the modern inks. The study illustrates how much the choice and manufacture of historical ink constituents could affect the final appearance of an etching or engraving.
The Kupferstichkabinett Berlin holds a collection of more than 200 drawings which were once attributed to Rembrandt. Art historical research led to a reassessment, appointing the majority of these drawings to students and assistants of the master (Fig 1). Fifty-five works are still thought of as Rembrandt originals (Fig 2).

By studying this representative collection of "rembrandtesque" drawings systematically, we aimed to broaden the knowledge about materials used and techniques applied in Rembrandts’ workshop. Until now, little research on that topic has been done.

Visual examination under reflected, raking and UV-light, frequently supported by a stereomicroscope, was combined with research into art technology sources and performed in close cooperation with the curator. For a selection of 45 drawings IR-reflection was applied. To characterize the paper and identify watermarks a light-table was used.

There is extensive knowledge about the paper Rembrandt used for his prints. We can now point out that there are indeed overlaps in paper use for printing and drawing in his workshop.

Secondly we found that although students would mainly work with the same material as Rembrandt, some dissimilarities within the collection are evident. While Rembrandt also used dry media (graphite, chalk, silverpoint) almost all students’ drawings are executed with pen or brush in ink. Also, preliminary sketches were found on just a few drawings which are nowadays attributed to students or assistants, never with Rembrandt originals. Further it seems that parchment, non-european or cheaper wrapping paper were not of any significance for students, as it was definitely for Rembrandt. They almost exclusively used white, fine, high-quality imported paper and occasionally colored them, as did Rembrandt.

Finally we found that an often postulated idea of a quick, spontaneous drawing process must be reconsidered. In fact students and Rembrandt intensely revised their works, using different inks (iron-gall ink, carbon-based ink, bister), scraping details or applying white pigment in highly differentiated ways.

Supplementary analytical methods would have helped to further distinguish between materials, especially with inks. However we have seen that valuable, detailed and extensive knowledge can be accumulated and evaluated with equipment available in many conservation ateliers.

*1 Contacting author: Kupferstichkabinett, Staatliche Museen zu Berlin, DE. Tel: +49.03.266424232, Email: a.penz@smb.spk-berlin.de

Antje Penz*1 and Georg Josef Dietz*1

Drawing with Rembrandt
Material and Technique in Rembrandts’ Workshop

Fig 1: Drawing “Die Beschneidung” by an unknown student of Rembrandt from around 1645, pen and brown ink, wash in brown and black ink, brush and white pigment (© bpk / Kupferstichkabinett, SMB / Jörg P. Anders)

Fig 2: Drawing by Rembrandt “Interieur mit geschlachteten Ochsen” from around 1655, pen and brown ink, wash in brown, brush and white pigment (© bpk / Kupferstichkabinett, SMB / Jörg P. Anders)
Around 300 drawings contained in two large landscape format albums from the estate of the south-western German architect Friedrich Weinbrenner (1766-1826) were spectacularly re-identified as stemming from the workshop of the Italian architect, etcher and dealer in antiquities Giovanni Battista Piranesi (1720-1778). They are the study objects of an interdisciplinary research project at the Kunsthalle Karlsruhe, Germany. The drawings executed in red and black chalk, graphite and various inks on mostly Italian paper were contained in the albums undisturbed and still show many traces of use in the industrious 18th-century etching workshop (Fig 1) as well as later on in Weinbrenner’s school for architects. The conservators’ work focuses on the art-technological study of the materials used, retracing the origin, handling and storing of the drawings. This includes the documentation of paper, watermarks and drawing materials with the help of raking and transmitted light (Fig 2), reflected-light microscopy, fibre optic reflectance spectroscopy and the interpretation of the visual evidence. The many observations on individual drawings help to gain insight on workshop procedures, spread of the drawings to different collections and are essential to evaluate an optimal solution for accessing the drawings for study and future storage, taking the preservation requirements of the drawings into account as well as the historical integrity of the albums.

*1 Contacting author: paper conservator for the Piranesi project at the Staatliche Kunsthalle Karlsruhe, DE.
Email: kraemer.papierrestaurierung@googlemail.com,
kraemer@kunsthalle-karlsruhe.de

2 State Academy of Art and Design, Stuttgart, DE.
Email: irene.brueckle@abk-stuttgart.de
Deacidification is one of the widely recognized conservation treatments for increasing the longevity of acidic paper, produced from the second half of the 19th century until the end of the 20th century. Several different deacidification solutions/dispersions are in use today. During the past twenty years, nanotechnologies have been increasingly introduced to the deacidification of paper artifacts.

The items which would benefit the most from single-item non-aqueous deacidification in paper conservation workshops are the manuscripts or works of art on modern paper with low pH values, produced on lignocellulosic paper with a wide variety of water sensitive inks, pigments or dyes.

Therefore, the aim of the work was to evaluate the effect of various commercially available dispersions of nano calcium hydroxide, Bookkeeper deacidification spray, and to provide a dispersion for stabilization of acidic lignocellulosic paper based on calcium carbonate nanoparticles.

In order to assess the stability of lignocellulosic paper, the measurements of color stability, molecular weight, pH value and alkaline reserve were performed. The results indicate that all treatments decrease degradation of paper during accelerated thermal ageing; however, nano calcium hydroxide containing treatment affects color stability of the paper (Fig 1), most probably due to high pH imposed by the treatment (Fig 2).

**Fig 1:** Color changes (DL*, Da* and Db* representing ΔL*, Δa*, Δb* and ΔE*) of the paper samples after 14 days of accelerated thermal ageing in respect to the untreated (U), unaged sample.

**Fig 2:** pH values of paper samples (P1 and P2) before (U) and after deacidification.

---

**Evaluation of Deacidification Treatment on Lignocellulosic Paper**

The Use of Nano- and Micro-Particles Dispersions

Jasna Malešić¹, Mariša Kadivec² and Matjaž Kunaver³

---

¹ Contacting author: National and university library, Ljubljana, SI. Tel: +386.1.2001212, Mobile: +386.31.202096, Email: jasna.malesic@nuk.uni-lj.si

² University of Ljubljana, Faculty of chemistry and chemical technology, Ljubljana, SI

³ National institute of chemistry, Ljubljana, SI
In many sample books a discolouration of paper when in contact with textile samples can be observed. The study of this phenomena was the topic of the main authors master thesis at the Cologne Institute of Conservation Sciences, TH Köln.

It deals with the interaction of paper and early synthetic dyes on textile sample books of five dyestuff companies from the mid-19th to early 20th century (Figs 1 and 2. These books document the wide range of early synthetic dyes, their making, supply and use.

In order to develop adequate conservation strategies, it was necessary to gain a deeper knowledge on the materials and the observed alteration. No relevant published research on this topic exists yet. This work will provide the first step to find suitable conservation strategies for this group of sample books.

A multi-level strategy was developed to study these phenomena. Non-Invasive visual analysis was used, followed by minimally invasive instrumental analytics, applying e.g. FTIR-ATR, XRF, SEM-EDX.

The third attempt was the reconstruction of the dyed textile samples, based on the historic sources followed by accelerated ageing in contact with paper to simulate different parameter of this phenomenon.

Two different reactions are observed. The largest group shows a brownish discoloration and is probably caused by oxidative degradation of the Cellulose. A smaller group of dyes is assumed to migrate into the paper without any measurable damage. Conservation Guidelines based on this study will also be presented and discussed.

*1 Contacting author: Hochschule Niederrhein, Krefeld, DE. Email: marc.holly@hs-niederrhein.de

2 Cologne Institute of Conservation Sciences, TH Köln, DE

Marc Holly*1,2, Robert Fuchs2 and Anne Sicken2

Interaction of Paper with Synthetic Dyes
Developing Conservation Strategies for Textile Sample Books

Fig 1: Brownish discoloration due to Anilin Black Dye (Reserve print with Indigo) with Paper (© Holly)

Fig 2: Different reaction of dyed textile Samples with paper (© Holly)
Light Emitting Diodes (LED)
A New Source of Radiation for Light Bleaching of Paper

Light emitting diodes offer a variety of beneficial properties for aqueous light bleaching of paper. They allow a more intense and controlled exposure while eliminating several negative side effects of other commonly used light sources. Due to their low heat emission and lack of UV radiation, the LED can be placed closer to the object than any other light source; this multiplies the light intensity on the paper and thereby accelerates the bleaching process.

The present investigation evaluates the properties of high-performance LED of the Nichia E21 series for the application in light bleaching treatments of paper. The chosen system features 64 dimmable high-performance LED with a colour temperature of 4000 K and a maximum luminous flux of 31,140 lm. These were installed in a test device of 30x30 cm (Fig 1). Several naturally aged print from the 18th - to the 20th century, showing a variety of types of discolouration, were chosen for treatment. They were immersion washed and then bleached with the LED test device in an immersion bath (dilute calcium hydroxide, pH=9) for up to 4h. The treatment solution was renewed every 30 min and the decrease in pH was monitored. The paper colour was measured before and after treatment with a spectrophotometer in CIELAB. The brightening was evaluated by optical examination (Fig 2) and validated by the colour difference (∆E).

The results, combined with cellulose analysis executed in a previous project, illustrate the great potential of LED in reducing discolouration of paper and underline their advantages as new light bleaching method.

*1 Contacting author: Philadelphia PA, US, and Stuttgart, DE.
Email: bk.paperconservation@gmail.com

2 State Academy of Art and Design, Stuttgart, DE.
Email: irene.brueckle@abk-stuttgart.de, ute.henniges@abk-stuttgart.de
Paper conservators have had some concerns about the suitability of the synthetic resin Aquazol in their field. Its solubility in a wide range of solvents however makes it interesting for the treatment of water sensitive objects where starch paste and other water based adhesives can’t be used. The test series discussed in this paper was undertaken to investigate Aquazol in terms of its hygroscopicity and possible discoloration, as well as its practical working properties, reversibility and the choice of solvents.

Since previous tests on Aquazol were performed on films on glass slides, this study focuses on the interaction between the adhesive and different types of paper. Differences between the three Aquazol types 50, 200 and 500 were also looked into. Procedures included spectrophotometry and tensile strength tests before and after artificial aging, moisture uptake and stickiness at different levels of relative humidity and possibilities of removal.

As a conclusion, Aquazol seems to be a niche product for transparent papers. The working as well as the aging properties turned out best when used on very smooth papers where the adhesive won’t penetrate very much. Discolorations seem to depend not only on the type of paper, but also on the batch of Aquazol. Hygroscopicity and stickiness become problematic at high humidity levels over 75%.

These basic empirical tests performed on paper samples provide an idea of how Aquazol could be used. Actual treatment options are still to be determined using test objects.

* Contacting author: Staatliche Kunstsammlungen Dresden – Kupferstick-Kabinett, DE.
Tel: +49.351.49143218, Mobile: +49.171.7969402,
Email: johanna.ziegler@skd.museum
### Thursday, 26 September 2019

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 – 10:30</td>
<td>General Members Meeting</td>
</tr>
<tr>
<td>10:30 – 11:00</td>
<td>Coffee break</td>
</tr>
<tr>
<td>11:00 – 12:20</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td>12:20 – 13:30</td>
<td>Lunch break</td>
</tr>
<tr>
<td>13:30 – 14:50</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td>14:50 – 15:30</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>15:30 – 16:30</td>
<td>Lectures (15 min)</td>
</tr>
<tr>
<td></td>
<td>- Megumi Mizumura (UK): Innovative Adaption: Journeys from traditional Japan to the West p 76</td>
</tr>
<tr>
<td></td>
<td>- Iben Bak Christensen (DK): Metamorphosis: Or how to eat an elephant p 77</td>
</tr>
<tr>
<td></td>
<td>- Lisa Dittmann and Friederike Hennig (CH): Conservation with social impact: The interdisciplinary conservation project at University Library Basel and the Bürgerspital Basel p 78</td>
</tr>
<tr>
<td>16:30 – 17:30</td>
<td>Closing Remarks</td>
</tr>
</tbody>
</table>
This paper focuses on the conservation treatment of one of the three extant Hebrew illuminated manuscripts of Maimonides’ Guide of the Perplexed. Our exemplar, written in Ashkenazi script and copied in 1349, went through a series of historical events which affected its conservation history. In 1630, during the sack of Mantua, it was probably vandalized, and part of the 16th-century leather cover was torn off from the spine and the boards. Considering these events, the conservation treatment aimed to preserve both the material evidence left on the codex by history (Fig 1).

Notwithstanding the appalling conditions of the manuscript, especially in its cover, we made the peculiar choice not to restore the missing spine and the losses in the leather binding. This course of action was taken after a serious evaluation of all the material, historical, aesthetical, and fruition-related aspects involved.

The leather and the slotted alum-tawed cords were dehydrated, powdery, and weak, and needed to be consolidated. Treating degraded leather without altering its appearance and elasticity has always been one of the greatest conservation challenges. In our case, the consolidating material chosen for the treatment was a newly synthetized nano-collagen, developed in a joint research carried out by ICRCPAL and Università Tor Vergata - Fondazione INUIT, and tested on laboratory samples (Bicchieri et al. 2018). The amazing results of the application of nano-collagen on the 16th-century leather cover will be presented and discussed (Fig 2).

*1 Contacting author: ICRCPAL, Via Milano 76, 00184 Rome, IT. Email: marialuisa.riccardi@beniculturali.it, ms.filippini@yahoo.it, luluvardaro@hotmail.com, bb.costantini@gmail.com
Woven fabrics commonly referred to as ‘aerocotton’ and ‘aerolinen’ are frequently used in the conservation of books, and are valued for their strength and flexibility. Although textiles have a long history in the production and repair of books, aerocottons and aerolinens are relatively recent materials adopted from early aircraft production. In 2007 the main supplier of these woven fabrics to the UK conservation community ceased production, and new producers started supplying a range of woven fabrics under the labels of ‘aerocotton’ and ‘aerolinen’. Understanding the strength, composition and longevity of repair materials is central to conservation practice and this investigation tested two aerolinens and two aerocottons alongside the discontinued aerocotton to quantify the relative strengths of the fabrics (Fig 1). Each fabric was tested before and after laundering, and in three directions (warp, weft, and bias). The tests conducted measured mass per unit area, thickness, sett, tensile strength, folding endurance and dimensional change. In tensile strength tests the bias-cut fabrics were weakest but extended the most, whilst those cut in the weft direction were strongest. The aerocottons lasted longest in terms of folding endurance and the samples cut on the bias were the fastest to break (Fig 2). The dimensional change tests showed that washing affected the aerolinens more than the aerocottons, and that across all fabrics there was a greater amount of shrinkage in the warp direction. It is hoped that these results will provide concrete information to guide conservators in the preparation and use of aerocottons and aerolinens.

*1 Contacting author: Oxford Conservation Consortium, Oxford, UK. Tel: +44.1865.271520, Email: celia.bockmuehl@magd.ox.ac.uk
2 Bodleian Libraries, Oxford, UK
3 Defence and Security Accelerator, Salisbury, UK
4 Cranfield University, Shrivenham, UK

Celia R. Bockmuehl*1, N. Tomkins1, J. Keiding2, D.J. Carr3, R. Critchley4 and A. Peare4

Woven Fabrics in Book Conservation
An Investigation into the Properties of Aerolinen and Aerocotton

* Fig 1: Preparation of the aerocotton samples (© OCC)

Fig 2: Break of Friebe aerocotton cut on the bias after fold endurance test (© OCC)
Yuhui Liu*

Precise Heat-Transfer in Conservation Treatment
New Approach to Removing Old Mending Glued with Protein-Based Adhesives in Manuscripts and Rare Books

Old mends in bound manuscripts and rare books can cause distortions on pages or new tears right beside the repairs due to stiffness and inflexibility. Sometimes it may also interfere with readability when text and illustrations are covered. Detaching old repairs glued with protein-based adhesives often require a combination of moisture and heat. Not only is a uniform and accurate heat application difficult to be achieved, but the accessibility to the working area is also restricted when the mends are glued close to the spine fold of a bound volume.

This study aims to introduce a new heat transfer method for removing old mends glued with proteinaceous adhesives through an innovative heating device – the IMAT heater (Intelligent Mobile Accurate Thermo-Electrical Device), which was developed by the EU-funded IMAT Research Project. The device is a flexible, ultrathin heat transfer mat based on carbon nanotubes (CNTs), which features a rapid thermal response, a precisely controllable and stable heat regulation as well as a uniform heat distribution. Owing to its various optional sizes, air permeability and transparency, different needs of specific applications can be met. Furthermore, the mat is ideal when the accessibility to the working area is restricted due to its slim profile and flexibility (Fig 1). Experiments with applications and evaluation of different hydrogels and Gore-Tex sandwiches combined with the IMAT mat were performed. A considerable temperature-related optimization for conservation treatment was verified; an optimal working pattern of combining heat transfer with moisture introduction is suggested for future conservation work (Fig 2).

* Contacting author: Institute of Conservation and Restoration (IBR) of the Bavarian State Library, Munich, DE. Email: yuhui.liu@gmx.de

Fig 1: In-situ treatment of detaching an old mending paper in an incunable with a limited opening angle of less than 90° using a 2mm thick agarose gel and the IMAT heater (© BSB/IBR)

Fig 2: Schematic diagrams of different arrangements of humidification sandwich with heat transfer (© Yuhui Liu)
The Vallardi Album is a valuable volume containing over 350 drawings by Andrea Appiani (1754-1817), an influential neoclassical Italian painter. The drawings were collected by Giuseppe Vallardi in 1820 and the album is currently part of the Historical Brera Academy Collection, in Milan.

Recently, a project aimed at the rediscovery and promotion of the Vallardi Album raised a number of issues related to its conservation and future use.

The critical condition of the large format album (560 x 720 x 105 mm) highlighted the main problems conservators have to face when dealing with such objects. On the one hand, the size of the volume and its weak construction caused most of the mechanical damages to the binding and the bookblock (Fig 1), while the inappropriate mounting techniques used throughout the centuries are responsible for many of the damages to the drawings. On the other hand, past restoration treatments and the reattachment of the sketches removed for temporary displays, or for their rearrangement within the book, have caused severe physical damage, as well as significant changes to the original format and sequence of the artworks (Fig 2).

In this paper we want to discuss the pros and cons of different mounting techniques, trying to focus on those able to guarantee a safe removal of the drawings from the volume, by trained or untrained staff, in the case of temporary exhibitions. We, in fact, believe this is a widespread issue, which is still to be addressed, particularly for those objects that need to preserve their historical and physical integrity.

Chiara Palandri*, Sara Mazzarino¹ and Laura Barzaghi¹

Conserving the Vallardi Album

Improving the Use and Access of an Historical Collection of Drawings

* Contacting author: Brera Fine Arts Academy in Milan, IT.
Chiara Palandri: Mobile: +39.349.4139980,
Email: chiara.palandri@nb.no
Sandra Mazzarino: Mobile: +39.333.1376110,
Email: sara.mazzarino@gmail.com
Laura Barzaghi: Mobile: +39.340.5374580,
Email: barzaghi-laura@libero.it

Fig 1: View from the spine of the binding: the volume has lost its cohesion and shows severe damages to the leather cover and the sewing structure (© Laura Barzaghi)

Fig 2: Effects of the removal and readhesion of the drawings: staining from the adhesive tapes, cuts on the paper support are only some of the damages visible throughout the volume (© Laura Barzaghi)
At the Swedish National Archives, the exact same editions of deacidified bound paper have been stored for 25 years with known environmental conditions and known methodology. In the late 80s and early 90s a project evaluating mass deacidification begun. The project had its emphasis on usage. The project is comprised of five sets of 41 objects/titles ranging from the 1830s to 1991 treated with four different mass deacidification methods plus one untreated control set (Figs 1 and 2). The project went under the name SNIFF and incorporated workshops where participants used their senses, browsing and sniffing their way through the samples as well as the control and giving them scores.

The existence of this material was brought to the attention of the preservation department while carrying out an interview project with personnel presented at IADA 2017 and an interest in investigating the material more closely arose. There is a clear optical difference between the samples 25 years later but how well does the deacidified material perform in comparison with that which is untreated? How do they compare to each other? This presentation describes the material and comparative analytical testing that has been carried out on a selection of the paper, including alkaline reserve and pH. Aspects of usage are also re-visited. The source material gives us answers about the condition today but, at the same time, opens new questions about authenticity in light of the last 25 years.

*1 Contacting author: Swedish National Archive, Stockholm, SE. Tel: +46.10.4767162, Mobile: +46.702.407546, Email: thea.winther@riksarkivet.se
Papyrus was the prevailing writing material in the ancient world. Nowadays the preserved documents offer most important insights in law, trade, literature or everyday life in ancient cultures.

But often these papyri are soiled, torn, carbonised or even glued together for mummy cartonnage. To make them accessible for research and to conserve them, suitable procedures are required. Different approaches have been chosen since the first papyrus finds. Many of them pose a challenge for conservators nowadays.

This paper reviews the development of papyrus conservation until today based on text sources. It starts in the 18th century when the first experiments were made to open the carbonised scrolls found in Herculaneum (Fig 1) and moves on to instructions given in the early 19th century. One focus is the first papyrus conservator Hugo Ibscher before zooming in on different developments in the second half of the 20th century.

Conservation methods particularly of the 20th century and recent years are examined within one collection using the example of the papyrus collection of the Bayerische Staatsbibliothek. The history of acquisition of the approximately 630 papyri and the different treatments (Fig 2) are reconstructed through archival material, conservation reports, publications and the papyri themselves.

* Contacting author: Staatliche Graphische Sammlung München, München, DE.
Mobile: +49 175 7124115, Email: kaiser_anna@outlook.de
In 1867, Jean-Auguste-Dominique Ingres (1780-1867) donated 4500 of his drawings to his birthplace, the city of Montauban, France. In his drawings, Ingres did not hesitate to investigate new techniques, using poor quality materials that were not intended to last. Moreover, his drawings were extensively handled or exhibited without control and many of them rapidly deteriorated. In 1946, the poor condition of the collection motivated a large project of restoration largely supervised by the newly created French Museum Inspection, based in Paris. This project is relatively well documented with correspondence, notes, committee reports and photographs. Since there was no institutional scientific expertise on paper conservation in France, the Fogg Art Museum at Harvard University, one of the leading institutions in conservation science at that time, was consulted. This work goes through all this documentation and recounts the set-up of French conservation policies. This project seems to be the starting point of a new thinking on conservation policies, largely inspired by the first ICOM meeting (Paris, 1948). A conservation committee was overseeing the restoration, following an innovative approach, banning workshop secrets, throwing bleaching treatments back into doubt, questioning the quality of materials and asking for open cooperation between paper restorers. Some drawings, obviously chemically treated at this period, were again examined and compared with available pictures taken before treatment (Fig 1). This approach questions the relevance of the options that were chosen at that time and gives some feedback on the long-term effect of chemical treatments (Fig 2).

Fig 1: Example of an index card with a picture taken before the drawing restoration (Ref 867 203, musée Ingres) (© Rouchon CRC)

Fig 2: Comparison of the current conservation state of an iron gall ink drawing (on the left) with a picture taken before restoration (on the right) (Ref 867 2303, musée Ingres) (© Rouchon CRC)
While strolling in libraries vaults, it is striking to see how many books that have undergone changes and alteration on their binding can be encountered. Most of these changes are usually concentrated on the back of the volumes – but while taking a closer look at it, their type, time period of realization and goals seems to be wide and not always obvious (Figs 1 and 2).

As these back alterations can be more or less damaged or result in an undesirable obscuring of the original elements of the binding and its decoration, the question of withdrawing them can occur while undertaking a conservation treatment, nevertheless this decision making cannot be taken without fully understanding their potential importance and value (of use, historical, aesthetic) in way to avoid possible loss of historical evidence.

Through a survey lead in the Bibliothèque Mazarine’s collections, this paper proposes to identify the various types of back alteration that can be encountered in the collection (from embellishment, updating of taste, marks of ownership to the more or less modern repairs), along with their potential importance for the history of collections (identify the provenance of a volume, draw a history of taste in bindings, have a testimony of early collection care in libraries) to finally provide a guide in decision making related to the choice to withdraw or not the back, along with practical consideration about the original binding itself, the possibility to regain the original appearance of the volume and in which circumstances this delicate operation is worth being initiated.

* Contacting author: Bibliothèque Mazarine, Paris, FR. Tel: +33.68.8657134, Email: alizee.lacourtiade@bibliothèque-mazarine.fr
This paper aims to fill in the gaps in our present knowledge of the use of Japanese paper and wheat starch paste in Western conservation.

Various grades of Japanese paper are used in Western conservation, whereas in Japan only high-quality traditional handmade paper is used for conservation. The limited information available in English about modern Japanese paper and the wide range of papers on the market has created confusion in the West. Conservators often select paper based on visual properties without considering manufacturing aspects which may affect quality.

To enable conservators to make appropriate choices for their purposes and their budgets, a standardised classification system of Japanese paper for Western conservation is proposed. The next stage is analysing the paper scientifically, using the results to develop the system.

Wheat starch paste used in Western conservation is different from paste prepared by Japanese conservators. Their labour intensive paste-making involves the ‘pasting’ phase, described as a continuation of gelatinisation and related to the development of viscosity.

An alternative method of preparing paste of this quality involves the use of an electronic saucemaker (Fig 1). The key to producing fully-gelatinised paste with this technique is high heat and continuous stirring, as in the traditional method. The paste is then diluted to the desired consistency, but it still provides strong adhesion.

The practice of applying paste to repair paper on a small hinoki wooden board was adapted from Japanese conservation (Fig 2). Excess moisture is absorbed into the wood, creating a very thin layer of paste on the repair paper. This provides the benefits of flexibility and reversibility.

* Contacting author: the British Museum, London, UK.
Tel: +44.20.73238348, Email: mmizumura@britishmuseum.org

Megumi Mizumura

Innovative Adaptation
Journeys from Traditional Japan to the West

Fig 1: Paste-making in a sauce maker (© Megumi Mizumura)

Fig 2: Pasting paper on a wooden board (© Megumi Mizumura)
Every year the Royal Library takes in donated collections, personal archives and manuscripts from authors, cultural personalities, organizations and interest groups. The material have until then been stored in attics, cellars and private homes. Some are very neatly organized and clean, others arrive in random order infested with mould and kept in plastic bags (Fig 1).

Before 2015 the responsibility of taking in new collections was in the hands of the different departments of the library - they all had different ways of doing it and not enough time to do the work connected with acquisitioning new material. More often than not, the collections sat in boxes for a very long time, and Preservation got involved too late.

The Department of Preservation sat out to create a common, multidisciplinary and standardized flow for the practical aspects of lock in new acquisition to the Library and prepare them for potential users. Our considerations included transport, sorting according to climate demands and size, sorting in topics, screening for conservation needs, digitizing, cataloguing etc. (Fig 2). We established common facilities to accommodate most kinds of collections and the various types of materials involved. As an important part of the work, we created and tested tools to organize the flow.

This paper describes the process of understanding the aspects of acquiring new collections, and our quest to find the full potential of having a common flow and for us as conservators to have screened everything that get locked in the library collections.

* Contacting author: Royal Danish Library, Copenhagen, DK. Tel: +45.3347.4747, Email: ibc@kb.dk

Iben Bak Christensen*

Metamorphosis
Or How to Eat an Elephant
In 2009, a conservation project was set up at University Library Basel. This talk briefly touches upon the conservation measures carried out on the damaged objects. Moreover, it focuses on a special feature of the project – the strong social impact:

Firstly, the conservation project is open to interns, thereby contributing to the training of future conservators (Fig 1). The work on valuable objects is linked with the impartment of basic conservation knowledge to the young generation.

In addition, the collaboration was established with Bürgerspital Basel, a social-medical enterprise. There a team of people with disabilities work under the supervision and guidance of a conservator and a work education instructor on the making of archival packaging material. The team also carries out dry cleaning and mould treatment of books (Fig 2).

Our talk aims to depict new perspectives of conservation work and shows the possibilities but also the limitations of the collaboration with social-medical enterprise.

We will explain how standardised and repetitive work can be well managed by people with disabilities. At the same time, new scopes of activity arise in the field of conservation: new jobs are provided for conservators developing concepts for conservation treatment, coordinating the conservation works and instructing and assisting the staff.

Our talk is an illustration of well-organised interdisciplinary work: If conservators, historians, bookbinders, work education instructors, interns and people with disabilities collaborate effectively, they are making a valuable social contribution as well as an additional benefit to our cultural heritage.

Contacting author: Universitätsbibliothek Basel, Basel, CH. Tel: +41.61.2073076. Email: lisa.dittmann@unibas.ch

Bürgerspital Basel, Basel, CH. Tel: +41.61.3267472, Email: f.hennig@buespi.ch

Lisa Dittmann*1 and Friederike Hennig²

Conservation with Social Impact

The Interdisciplinary Conservation Project at University Library Basel and the Bürger- spital Basel
Posters

THURSDAY, 26 September 2019

13:00 – 14:40 Poster session


> Suzanne Press and Sarah Dove: Together we Prevail: Conservation Treatment of ‘George Rowe at the Diggings near Ararat’. Watercolour with Graphite, Gouache, and Gum Arabic, C.1858 p 83

> Dorota Dzik-Kruszelnicka, Zofia Koss and Roman Stasiuk: Complicated?… Yet Simplified. Basic Tools and Common Sense in Art Technological Studies p 84

> Simone Ferraro, Maria Chiara Palandri and Laura Barzaghi: Conserving Parnassus. Preliminary Study for the Conservation of an Early Nineteenth Century Preparatory Cartoon by Andrea Appiani p 85

> Sandra Möller, Ute Henniges and Irene Brückle: Armenian Manuscripts in Antelias. Integrating Historic Damage in the Preservation Concept p 86

> Holly Smith ACR and Lora Angelova: Designs in Danger. A Variety of Approaches Needed to Repair a Collection of Victorian Design Registers at The National Archives, UK p 87

> Izabela Zając: Photo Albums from Polish Collections. Study of the Effect of Disinfection and Deacidification on Early Photographic Prints. Results of Research Project p 88
The entire conservation and restoration procedure on two large 19th-century ceiling paper medallions with a corresponding wooden frame of 160 cm in diameter, from the manor Mikšić from Saint Helena near Zagreb was performed at the Croatian Conservation Institute in 2016 at the Department of Paper and Leather. The procedure lasted for two years on these damaged medallions made in gouache on industrial paper additionally glued to the paper carrier and to the wooden planking of corresponding frame that was nailed through the paper carrier. Completing this project over a two-year period was a big challenge, but finding the appropriate solution for mounting the medallions in the corresponding frames was more demanding, especially because the mounting has to be reversible, simple and well suited to different materials. For efficiently mounting a medallion prototype was made and observed for 6 months under different climatic conditions.

The medallion prototype was circular in shape (Fig 1), painted with gouache and dry pastels on Japanese paper reinforced with new Japanese paper (Fig 2) and mounted on an acid-free cardboard with Japanese paper strips. On the entire back of the prototype and the wooden frame, magnets of equal strength were distributed, thus enabling the easy mounting of the prototype in the frame. In the framework of the activities of my Institution this type of installation was performed for the first time and proved to be effective, inexpensive, simple and suitable for other materials.

* Contacting author: Croatian Conservation Institute, Zagreb, HR. Mobile: +385.98.694161, Email: begic.majda@gmail.com

Majda Begić Jarić

Implementation of Prototype of Mounting

System for Circular Ceiling Paper Medallions from 19th Century

Fig 1: Circular shape of acid free cardboard of prototype
(© Croatian Conservation Institute)

Fig 2: Gouache on Japanese paper of prototype
(© Croatian Conservation Institute)
Together we Prevail

Conservation Treatment of ‘George Rowe at the Diggings near Ararat’, c. 1858

The treatment of a six foot wide watercolour by the British artist, George Rowe, titled ‘George Rowe At The Diggings Near Ararat’, c.1858 (Fig 1) was carried out by two experienced conservators. The size of this watercolour brought about this collaboration, with even more ‘excitement’, as we were accepting the work unseen from an Australian commercial dealer. The watercolour was significantly discoloured and solidly adhered to a thick cardboard backing board. We now know that Windsor & Newton, UK, were manufacturing Colossal Drawing Cartridge Papers from 1846. Five weeks was spent removing the two layers of board, as well as the last layer (whether a lining paper or not) from the verso of the support. Cyclododecane spray fixative was sprayed across the middle ground with melinex and paper pre cut stencils. Finally the successfully treated watercolour (Fig 2) was multi-hinged onto a rigid Tycore honey-comb panel prior to its return in a wooden shipping crate to Australia.

*Suzanne Press*1 and Sarah Dove*2

Together we Prevail

Conservation Treatment of ‘George Rowe at the Diggings near Ararat’, c. 1858

The treatment of a six foot wide watercolour by the British artist, George Rowe, titled ‘George Rowe At The Diggings Near Ararat’, c.1858 (Fig 1) was carried out by two experienced conservators. The size of this watercolour brought about this collaboration, with even more ‘excitement’, as we were accepting the work unseen from an Australian commercial dealer. The watercolour was significantly discoloured and solidly adhered to a thick cardboard backing board. We now know that Windsor & Newton, UK, were manufacturing Colossal Drawing Cartridge Papers from 1846. Five weeks was spent removing the two layers of board, as well as the last layer (whether a lining paper or not) from the verso of the support. Cyclododecane spray fixative was sprayed across the middle ground with melinex and paper pre cut stencils. Finally the successfully treated watercolour (Fig 2) was multi-hinged onto a rigid Tycore honey-comb panel prior to its return in a wooden shipping crate to Australia.

*1 Contacting author: Suzanne Press & Associates Ltd. (Established 1997), Georgian House, 10 Bury Street, #14, London SW1Y 6AA, UK. Email: paperpress7@gmail.com

2 Fine Art Conservation, LLC, 102 School Street, Mystic, CT 06355, US. Tel: +1.860.2872183, Email: sarahdove8@gmail.com

Fig 1: Before Treatment of “George Rowe at the Diggings Near Ararat”, shows the original condition with extensive stains

Fig 2: After Treatment of “George Rowe at the Diggings Near Ararat”, shows the work following conservation treatment and stain removal
Complicated?… Yet Simplified
Basic Tools and Common Sense in Art Technological Studies

The decorations of the Drawing Room in the White House, which constitute a part of the park and palace complex in the Royal Lazienki in Warsaw, were founded in 1775, at the request of King Stanislaw August. Being a unique representation of the chinoiserie phenomenon preserved in situ in Polish cultural heritage (Fig 1), they served as a subject of numerous studies in the field of art and technical art history as well as of conservation projects.

According to the Royal Inventory from 1783: [...] in the middle of the Three Walls, on two walls there are Chinese papers pasted down and varnished, and on the third major wall, oil painting on plaster and lacquered by Mr. Piersch. Are they…? As shown by the present study, this description, often repeated and well-established in general awareness over the years, does not entirely reflect the actual facts.

Aesthetically unified decoration, created to please the royal public, now required technical and technological diversification for conservation-restoration purposes. Three examined objects were identified as works of different origins, various chronological phases, also engaging a wide range of both western and eastern methods and materials (Fig 2).

The non-destructive examinations were involved: over-viewing in diffused and raking light (VIS), ultraviolet and visible ultraviolet luminescence (UV), infrared reflectography (IR) and microscopic observation. They serve as mid-steps to the most effective one - comparative analysis of the objects.

Surprisingly in this case, basic tools and common sense provided the best combination to ‘reveal the hidden’ and open up new contexts.

*1 Contacting author: Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw / National Museum, Warsaw, PL.
Tel: +48.22.6251252, Mobile: +48.605.128254,
Email: dodidzik@yahoo.com

2 Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw, PL

Fig 1: Drawing Room in the White House, aesthetically unified decoration in chinoiserie style (© Roman Stasiuk)

Fig 2: Diversification: selected details photographed at 36x magnification (© Zofia Koss, Dorota Dzik-Kruszelnicka)
The following research has been conducted within the preliminary studies for the conservation of a large format preparatory cartoon (Figs 1 and 2) for a fresco by the Neoclassical artist Andrea Appiani, part of the historic collections of the Academy of Fine Arts of Brera in Milan. This paper therefore tries to define the technical features of traditional Italian academic cartoons gathering information from historic description, as in the works of Cennino Cennini and Giovam Battista Armenini, direct accounts from one of his helpers Alessandro Chiesa who described specifically the process he applied to prepare them for Appiani, as well as technical descriptions from previous conservation processes undertaken by the OPD in Florence and private conservation laboratories.

The second part of the study concerns the techniques used in the past for the treatment of such complex objects, specifically concerning the entity of the intervention spanning from the least invasive, with just an aesthetic improvement of the object, through a partial relining to the most thorough structural and aesthetic treatment. Therefore, many current techniques described in literature and case studies are analysed to assess the advantages and drawbacks of each in order to define the most effective and satisfactory way of action.

---

*1 Contacting author: Academy of Fine Arts of Brera, Milan, IT.  
Tel: +39.331.7627259, Email: sim.fer.volt@gmail.com

Simone Ferraro*1, Maria Chiara Palandri1 and Laura Barzaghi1

Conserving Parnassus

Preliminary Study for the Conservation of an Early Nineteenth Century Preparatory Cartoon by Andrea Appiani

Fig 1: The cartoon of the Parnassus in its current state  
(© Laura Barzaghi)

Fig 2: Sampling of the adhesives used in the previous conservation for chemical analysis (© Simone Ferraro)
The Armenian manuscript collection at the Cilica Museum Antelias, Lebanon, which originated from the Great Catholicosate of Sis, today Kozan, Turkey, was rescued during the Armenian genocide in 1915. The manuscripts (10th–19th century) show significant damages that result from centuries of use, salvage and recently 20 years of exhibition display.

The conservation concept developed in discussion with the museum stakeholders was based on a survey in which codicological features of Armenian book structures as well as damages were recorded. Key was an approach in which the significant evidence of damage would be recognized as a potential carrier of values and be integrated in the overall long-term care plan. More than half of the manuscripts show pronounced changes caused by unsuitable book support during the long term exhibition with opening angles up to 180° (Fig 1), mechanical damages such as broken joints (Fig 2) and damaged sewing structures as well as issues caused by water, mould and insects.

At the same time, the codicological value of the manuscripts cannot be underestimated because of characteristic differences of Armenian to related Christian Near Eastern book structures which have not yet been thoroughly investigated.

The conservator has to rethink treatment choices for damaged book structures and to limit treatments to the minimum necessary to preserve the material integrity and to respect the status of these manuscripts as historic artifacts in a museum context. This has led to a concept which focuses mainly on the improvement of exhibition and storage conditions.

*1 Contacting author: Stuttgart State Academy of Art and Design, DE. Mobile: +49.176.21576266, Email: smoeller85@gmail.com

Sandra Möller*1, Ute Henniges1 and Irene Brückle1

Armenian Manuscripts in Antelias
Integrating Historic Damage in the Preservation Concept

Fig 1: Effect of opening (relaxation/creep), Cilicia Museum Beirut, Ms. Inv. No. 209 (© Sandra Möller)

Fig 2: Damaged joints of the leather covering (with blind tooled vertical lines) and typical Armenian raised endband, Cilicia Museum Beirut, Ms. Inv. No. 76 (© Sandra Möller)
The BT 43 Design Register volumes, held at the National Archives in London, offer a unique insight into Victorian design across several decades. These are large and complex stationary bindings with images of designs adhered into the textblocks. These designs take many forms, from drawings on tracing paper, photographs, textiles or even 3-dimensional objects, each with their own conservation and preservation issues (Fig 1).

This talk will outline one book conservator’s approach to tackling some of these issues: solutions spanning from the very simple and mechanical to the more complex and scientific.

One technique involved an enzyme-impregnated agar gel combined with heat, in order to release damaged and oversized tracing papers from their substrates (Fig 2). This technique presented a number of challenges when used on such a wide variety of different tracing papers. Time, weight and heat source were all adjusted to produce the best results. In some cases this worked well, although in others the technique was less effective.

Then followed the question of what to do with the extracted designs. Extracting the design to be stored separately from the album would require new storage facilities, and adjustments to the catalogue, but would result in a loss of context. A rehousing system was developed that would allow each design to be accessed with minimal handling whilst maintaining its context as part of an album. The solution worked well, balancing access, security and contextual significance.

*1 Contacting author: The National Archives, London, UK. Tel: +44.208.3922321, Mobile: +44.077.69600671, Email: holly.smith@nationalarchives.gov.uk

Holly Smith ACR*1 and Lora Angelova1

Designs in Danger

A Variety of Approaches Needed to Repair a Collection of Victorian Design Registers at The National Archives, UK

Fig 1: Damaged tracing paper from one of the design registers (© The National Archives)

Fig 2: An enzyme/agar gel being used to release a tracing paper from its substrate (© The National Archives)
Photo albums can be found in most archives, libraries and museum collections. Presently the photo albums from the National Science Centre in Poland (2014/13/D/HS2/02755) are in poor condition because of microbiological infection and physicochemical deterioration of the principal material – paper. The fundamental problem is the low pH of the paper base. There is currently a need for an analysis of the impact of disinfection and deacidification treatments on photographs, because the impact of these treatments on photo albums, i.e. books, is known.

As part of the research project [National Science Centre, Poland; 2014/13/D/HS2/02755], the effect of disinfection with the use of ethylene oxide and silver nanoparticles and deacidification with Bookkeeper and Neschen on early photographic techniques, i.e. salt paper, albumin, collodion, gelatin, was examined. The following parameters were to check the impact of these treatments on modern photo models: pH tests, $\Delta E$ (spectrophotometer) and breaking length (tensile tester).

The aim of the research was to determine the possibility of disinfection and deacidification of photographs pasted on photo albums, which cannot be removed for the duration of these treatments.
FRIDAY, 27 September 2019

Tours, visits and workshops

Thanks to our colleagues in Warsaw, we are able to offer a great variety of activities such as tours, visits and workshops in and around Warsaw. You will receive an email to select your Friday activity once you have registered. Please scan this QR code to view the map of the locations of all activities!

1 Visit of the Institute for Conservation of Library Collection, National Library of Poland

The visitors will have a unique opportunity to see four conservation units of the Institute: Atelier for Traditional Conservation, Atelier for Mass Conservation of Sheets, Atelier for Mass Conservation of Books, Atelier-Laboratory. Conservators of the Traditional Conservation unit perform traditional conservation and restoration processes, from minor repairs to full conservation treatment of the most valuable library objects e.g. before digitization. Conservators of the Mass Conservation of Sheets prepare the objects for mass deacidification in Neshen C-900 machine (Rückeburg Process) and perform all kinds of repair afterwards. Mass Conservation of Books operates the greatest Bookkeeper installation in Poland which has (apart from six vertical reactors) also a unique horizontal reactor for de-acidifying of folders with separate sheets. Conservators of the Atelier-Laboratory are focused on climate control, microbiological control of library objects and inside air of the storage rooms, reading and conservation rooms as well as physical and chemical analysis of the objects and air. There is also an ethylene-oxide disinfection disinfection chamber in the Laboratory and freeze-drying unit for flooded collections as well. With over forty conservators, restorers and bookbinders the Institute is the greatest unit for conservation of paper objects in Poland.

> Instructor: Conservators of the National Library
> Location: National Library of Poland, al. Niepodległości 13, 02-086 Warszawa
> Time: suggested 10:00 AM; approx. 90 minutes
> No. of Participants: 2 groups of 10 people each.
> Costs: free
> Meeting Point: Entrance B of the National Library (by the al. Niepodległości)
> Contact person: Bogdan Filip Zerek, Email: b.zerek@bn.org.pl

2 Tour of the National Film Archive – Audiovisual Institute (FIN)

We invite you for a guided tour through the Film Archive. You will visit the conservation and digitization departments as well as the film vaults and learn about our daily work with the oldest film collection on nitrate film stock and how films are indexed in our special database.

> Instructors: Paulina Haratyk, Rafael Auyso Mateo
> Location: FINA’s Film Archive, Chełmska 21/28, Warsaw
> Time: 11:00 AM – 2:00 PM
> No. of participants: max. 15
> Costs: free
> Meeting point: Chełmska 21
> Contact person: Paulina Haratyk, Email: Paulina.haratyk@fina.gov.pl, Monika Supruniuk, Monika.supruniuk@fina.gov.pl

3 Tour of the Conservation Studio and Storage Room Visit at the POLIN Museum of the History of Polish Jews

Participants of the XIVth IADA Congress are invited to have a look at the conservation studio and storage rooms of the POLIN Museum of the History of Polish Jews. The conservation department is responsible for the preservation, conservation, investigation and display of the Museum’s rich and varied collection, which contains over ten thousand artifacts related to Jewish heritage. It is made up of objects of unique artistic and historical value, including artworks, handcrafted artifacts which bear testimony to Jewish religion and culture. Memorabilia forms the largest part of the collection, including photographs, postcards, printed matter, ephemera, gramophone records, items of use and personal as well as historical documents. These items are often connected to incredible, moving stories told by those who donated them. We have been building our collection since 2006, by purchasing items but also – above all – through Memorabilia Collection Programs conducted in Poland and Israel. It is our task to ensure that they are safely stored, inventoried, conserved, exposed, digitized and annotated in order to serve current and future generations.

> Instructor: Erika Krzyczkowska-Roman, Dominika Wojciechowska, Senior & Junior paper conservators.
> Location: POLIN, Anielewicza 6, Conservation Lab, 00-157 Warszawa
4 Visit of the Paper Conservation Section at the National Museum in Warsaw

Presentation of our working space with a little bit of history. Some examples of different types of paper objects from the museum collections and our ways of working.

- **Instructor:** Museum conservator
- **Location:** National Museum in Warsaw, al. Jerozolimskie 3, 00-495 Warszawa, Paper Conservation Section
- **Time:** 12.00 AM – 1.00 PM (approx. 1 hour), only 1 tour
- **No. of Participants:** 15
- **Costs:** free
- **Meeting Point:** National Museum in Warsaw, al. Jerozolimskie 3, 00-495 Warszawa, Entrance for staff (first gate from de Gaulle roundabout) (11.45 AM)
- **Contact person:** Dorota Nowak, Email: DNowak@mnw.art.pl, Magdalena Borkowska, Email: mborkowska@mnw.art.pl

5 Sightseeing of the Faculty of Conservation

Faculty of Conservation and Restoration of Works of Art consists of 4 specializations: conservation of painting, conservation of sculpture, conservation of textiles and conservation of paper. Each specialization is specific and has its own atmosphere of studying – mostly because of the type of objects. During the trip of the Faculty the participants will have an opportunity to see conservation studios inside the building and will learn about some of the specifics of all specializations.

- **Guides:** Assistants and students of Faculty of Conservation and Restoration of Fine Arts, Academy of Fine Arts in Warsaw
- **Tour plan:** Sightseeing the building of the Faculty of Conservation and Restoration of Works of Art
- **Time:** 10.00 AM – 12.30 AM (approx. 1.5-2.5 hours)
- **No. of Participants:** 25
- **Costs:** free
- **Meeting Point:** Wybrzeże Kościuszkowskie 37 street, entrance of the Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw (9.45 AM)
- **Contact person:** Monika Supruniuk, Email: Monika.supruniuk@fina.gov.pl

6 Tour of the Conservation Study in the Warsaw Rising Museum

The Warsaw Rising Conservation Studio has been operating since 2004. We specialize in conservation and restoration of paper, prints, books, drawings, maps, photographs and small objects from the WWII period. We run conservation internships for students, annual bookbinding courses for adults as well as marbling and history classes for children aged 7-10. During the visit we will witness some typical conservation proceedings: a rust stain removal from original delicate blotting paper conspiracy documents together with composing an infill of the missing fragments from layers of Japanese blotting paper. Participants may also see our other current works.

- **Instructor:** Anna Grzechnik
- **Location:** Warsaw Rising Museum, ul. Grzybowska 79, 00-844 Warsaw, Building “C”, 2nd floor
- **Time:** 10:00 AM, approx. 1 hour
- **No. of Participants:** 10
- **Costs:** free
- **Meeting Point:** at the Conservation Studio, WRM
- **Contact person:** Anna Grzechnik, Email: agrzechnik1944.pl

7 Tour of Introligatornia Rozmus – Bookbinding and Conservation Workshop

Introligatornia Rozmus is a small private workshop. It is operating on both private and institutional market. We do a book conservation, Japanese woodblocks prints restoration as well as unique custom new bindings. Participants may see our current works (depend on current commissions), original ukyio-e workshop and machines that date at the beginning of the XXth century.

- **Instructor:** Tamara Oblamska-Rozmus, conservator-restorator of books, specialist book-binder
- **Location:** Introligatornia Rozmus, ul. Joteyki 20, 02-317 Warszawa
- **Time:** 9:00 AM – 9:45 AM, 45 minutes
- **No. of Participants:** max 10 persons
- **Costs:** free
- **Meeting Point:** at the workshop (Introligatornia Rozmus)
- **Contact person:** Tamara Oblamska-Rozmus, Email: tamaraoblamska@yahoo.co.uk

8 Tour: “A Warsaw you Don’t Know”

Participants will have an opportunity to see Warsaw from a different view. The sightseeing tour was planned to take you to places that are not well known. We will visit the Museum of Diving where various aquatic objects are stored. We will see the mysterious Museum of Doll’s Houses in the Palace of Culture. We will be able to see photographs of old Warsaw and the old World in Fotoplastykon. At the end of the tour we will learn something about a polish “national” product – vodka – in the Museum of Vodka we will have the opportunity to taste three of twelve kinds of this alcohol.
11 Microfading Tests

Microfading is a relatively new technique used in conservation science to evaluate light sensitivity of objects in a non-destructive way. The microfading tests (MFT) could be performed for nearly all classes of materials found in a museum or archive or library collections, and the method is particularly suited to study fugitive objects (works on paper – manuscripts, prints, watercolors; canvas paintings; textiles). Data obtained for a given object allows to rank it against light sensitivity standards, i.e. the ISO Blue Wool Standard, which are widely used reference materials for lightfastness. The microfading tests helps to adopt exhibition policies to actual data obtained for each tested object rather than use general assumptions which could be either to conservative (and unnecessarily limit viewers access to the object) or to optimistic (and lead to irreversible light-induced damage). During the workshop a state-of-the-art equipment for MFT would be available to participants. Following a short introduction to the accelerated ageing and color science several practical tests will be performed on-site with a full data evaluation and discussion. Participants are encouraged to bring a suspected light sensitive objects for testing.

- Location: Central Archives of Historical Records (Archiwum Główne Akt Dawnych, AGAD), Długa 7 Street, 00-263 Warszawa
- Time: 9.30 AM – 10.30 AM (approx. 1 hour)
- No. of Participants: 20
- Costs: free

> Meeting Point: building entrance
> Other: Participants are encouraged to bring their own samples for testing
> Contact person: Tomasz Łojewski, Email: lojewski@agh.edu.pl
12 Texture Imaging

Reflectance Transformation Imaging (RTI) - also known as Polynomi- 
al Texture Mapping (PTM) - is a computational imaging technique used to capture and visualise in an interactive manner specific features of the objects’ surface. PTM enables to re-light subjects’ surface from any direction and to enhance texture details which cannot be seen and captured with any other imaging methods or a naked eye. The method has found numerous implementations for the study and documentation of archival and museum objects - manuscripts on paper and parchment, book covers, dry-stamps, dry-point glosses, wax seals, clay tablets, various painted surfaces, metal and wood objects, corroded glass, coins. RTI/PTM images can be viewed, studied and annotated with the use of a dedicated freeware software (RTIViewer), as well as (with some restrictions compared to the previous) in a web browser window, thus allowing for a new dimension of library/archive/museum virtual visits. During the workshop, following presentation on PTM/RTI basics, several objects would be documented with the technique, using an automated illumination dome (35 cm in diameter) allowing also for multispectral imaging (UV/VIS/NIR). Participants are encouraged to bring their own objects for PTM/RTI imaging.

- Location: Central Archives of Historical Records (Archiwum Główne Akt Dawnych, AGAD), Długa 7 Street, 00-263 Warszawa
- Time: 11.00 AM – 12.00 AM (approx. 1 hour)
- No. of Participants: 20
- Costs: free
- Meeting Point: building entrance
- Other: Participants are encouraged to bring their own objects for RTI imaging
- Contact person: Tomasz Łojewski, Email: lojewski@agh.edu.pl

13 Visit and Workshop in the Conservation Studio of The Museum of Hunting and Horsemanship – Branch of the Royal Łazienki Museum in Warsaw

The Museum of Hunting and Horsemanship holds diversified collections. Apart from taxidermy and hunting trophies typical of natural history museums, the Museum of Hunting and Horsemanship houses also a carriage exhibition and a collection of horse equipment. Besides this, the Museum has a collection of crafts and art. – A conservator in such institution faces many challenges connected to varied nature of objects and diversity of materials from which they are made. Therefore, we would like to encourage participants to get to know the characteristics of conservator’s work in our Museum. We invite you to visit the exhibition and to take part in practical workshop on methods of conservation and restoration on taxidermy and materials like fur, feathers, bone, ivory and antler.

- Instructor: Lidia Męczyńska, Katarzyna Gustek
- Location: Museum of Hunting and Horsemanship, ul. Agrykola 1
- Time: 10.00 AM – 2.00 PM (approx. 3–4 hours)
- No. of Participants: 12 persons
- Costs: EUR 1.00
- Meeting Point: Museum of Hunting and Horsemanship, ul. Agrykola 1
- Contact person: Katarzyna Gustek, Email: katarzyna.gustek@lazienki-krolewskie.pl

14 RE-Cycling of Bathophenanthroline Indicators

Hidden Elemental Information Discovered...

We know that the presence of iron(II) ions which migrate into bathophenanthroline indicators change their color to magenta. Not only iron ions may migrate from historic inks to the indicators. Indicator papers which had been previously used for detection of iron(II) ions in written documents can be analyzed visually by observation of the color, they can also be investigated for their bulk elemental composition. – Let’s RE-cycle bathophenanthroline indicators and discover the variability of their elemental composition by using one of the most sensitive instrumental methods: Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS). This method offers multi-elemental character of measurements; possibilities to obtain information about trace, minor and major elements as well as observations of their distribution over the selected. The potential of LA-ICP-MS against the general requirements established for analysis of works of art and cultural heritage objects will be presented during the workshop devoted to mapping of selected elements distribution over the indicators which were in contact with historic documents. Experiments will be carried out by means of laser ablation set-up LSX-213 (CETAC) coupled with ICP-MS (Nexlon 300D, Perkin Elmer).

- Instructor: Barbara Wagner, PhD
- Location: Interdisciplinary Laboratory of Archaeometric Research, University of Warsaw, Zwicki i Wigury 101
- Time: 10.00 AM-2.00 PM (approx. 4 hours)
- No. of Participants: max. 6
- Costs: free
- Meeting Point: in front of Café Kawka in the building of CNBCh (The University of Warsaw Biological and Chemical Research Centre - CNBCh UW), Zwicki i Wigury 101, Warsaw
- Other: Participants are requested to take their own used indicators of iron-gall ink corrosion. Some used indicators will be also available for comparison in the lab.
- Contact person: Barbara Wagner, Email: barbog@chem.uw.edu.pl

15 Presentation: Application of Gas Chromatography – Mass Spectrometry for the Investigations of Historical Objects Made of Paper

Presentation of the applicability the gas chromatography mass spectrometry method for the measurements of the numerous volatile organic compounds emitted from paper made objects. The detection of paper degradation markers. Searching the information about the history of objects disfection. Investigating the active moulds on paper made objects.

- Instructor: Tomasz Sawoszczuk, Associate Professor, PhD, DSc
- Location: Interdisciplinary Laboratory of Archaeometric Research, University of Warsaw, Zwicki i Wigury 101
- Time: 9.00 AM – 9.45 AM (approx. 45min)
- No. of Participants: 6
- Costs: free
- Meeting Point: in front of Café Kawka in the building of CNBCh (The University of Warsaw Biological and Chemical Research Centre - CNBCh UW), Zwicki i Wigury 101, Warsaw.
- Contact person: Tomasz Sawoszczuk, Email: tomasz.sawoszczuk@uek.krakow.pl
Various grades of Japanese paper are used in Western conservation, whereas in Japan only high-quality traditional handmade paper is used for conservation. The limited information in English on modern Japanese paper and the wide range available has created confusion in the West. To enable conservators to make appropriate choices for their purposes and their budgets, a standardised classification system of Japanese paper for Western conservation is proposed. At the workshop a sample book of various Japanese papers is used to illustrate those grades for better understanding.

- Wheat starch paste commonly used in Western conservation is different from paste prepared by Japanese conservators. Their labour-intensive paste-making involves the ‘pasting’ phase, described as a continuation of gelatinisation and related to the development of viscosity. The talk includes an alternative method of preparing paste of this quality with the actual sample pastes. – The participants have a chance to use a wooden pasting board for pasting repair paper, a method adapted from Japanese conservation.

- Excess moisture of the paste is absorbed into the wood, leaving only a thin layer of paste on the repair paper. The workshop will provide the total understanding of Japanese paper, wheat starch paste and their applications.

> Instructor: Megumi Mizumura, Paper Conservator, the British Museum
> Location: Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw
> Time: 10.00 AM – 1.00 PM (approx. 3 hours, including a break)
> No. of Participants: Maximum 15 people
> Costs: 25 for a sample book of Japanese papers and a wooden pasting board for the participants to take back with him/her.
> Tools: Participants are asked to bring their own brush and tweezers for the workshop if possible.
> Contents:
  - Classification of Japanese Paper
  - Brief presentation on modern Japanese paper manufacture processes
  - The classification system of Japanese paper used in Western conservation
  - Discussion using a sample book of various Japanese papers
  - Wheat Starch Paste
  - Presentation of wheat starch paste
  - Try different paste (Japanese vs Western)
  - Wooden Pasting Board
  - Use a wooden pasting board for pasting repair paper with wheat starch paste
> Meeting Point: Wybrzeże Kościuszkowskie 37 street, entrance of the Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts (9.45 AM)
> Contact Person: Megumi Mizumura, Email: MMizumura@britishmuseum.org


**17 Demonstration of the “Moisture Sandwich” Used for the Conservation of Architectural and Design Drawings at Erfgoed Leiden en Omstreken**

Edith Greuter, Book and Paper Conservator at Erfgoed Leiden en Omstreken and Alexandra Nederlof, Paper Conservator at Nederlof Papierrestauratie will share their experience with a systematic approach for the flattening of architectural and design drawings. It is based on the publication “Paper Line Light” by Eva Glück et.al. published by the Akademie der Künste, Berlin 2012, but adjusted to fit the situation and the needs of their specific project at Erfgoed Leiden. The materials used for flattening are different from the Berlin project, for example SMS Hydrofobe (spunbound meliblown polypropylene non-woven fabric) as an economical replacement for Gore-tex® and Paraprint OL 60 capillary non-woven fabric as a source for moisture in the doublesided sandwich. – The demonstration consists of the making of a moisture sandwich used for the moistening of the rolled up drawings. The materials used in the sandwich and the drying stack will be shown and discussed. The effect of a single and a double layer of moisture on different types of paper can be seen. There’s ample space during the demonstration for questions, discussion and sharing of personal experience.

> Instructor: Edith Greuter and Alexandra Nederlof
> Location: Faculty of Conservation and Restoration of Works of Art., floor 1A, room
> Time: 9.30 AM – 12.30 AM (approx. 2,5-3 hours)
> No. of Participants: minimum 8 – maximum 15
> Costs: free
> Meeting Point: Wybrzeże Kościuszkowskie 37 street, entrance of the Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw (9.15 AM)
> Contact person: Edith Greuter, Email: e.greuter@erfgoedleiden.nl

**18 Practical Workshop: How to Prepare Handmade Decorative Window Mat?**

During the workshop participants will learn the methods of cutting and decorating perfect window mats with-out using any dedicated tools - only hands, rulers and paper knives. After a short practice they will learn how to make a decorating composition on their mats with ingres paper and hand-drawn lines. Knowledge presented during the workshop might be useful during matting and framing objects after the conservation treatments or preparing them for exhibitions.

> Instructor: Sylwia Popławska, MA; Grażyna Macander-Majkowska, MA (Senior Lecturer)
> Location: Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw, floor 2A, room 2.02
> Time: 9.00 AM – 12.00 AM (approx. 180 minutes)
> No. of Participants: 6
> Costs: free
> Meeting Point: Wybrzeże Kościuszkowskie 37 street, entrance of the Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw (8.45 AM)
> Contact person: Sylwia Popławska, Email: sylwia_poplaw ska@o2.pl

**19 Practical Workshop: European Historical Calligraphy**

Workshops will be about the art of European historical calligraphy and more precisely – about 3 oldest fonts: Uncial font (used in III-VIII century AD), Carolingian minuscule font (used in VIII-XII century) and Textura font (or Blackletter, used in XII-XVII century). During the first part of workshops (short one) participants will learn about the history of the fonts and about equipment used by historical scribes, such as quills, inks, wooden sticks etc. Also they will receive instructions about rules that are needed to write properly. Second part of workshops will be purely practical – to write, and write, and once more write beautiful letters. Workshops are prepared both for beginners and advanced participants.
20 Practical Workshop – Bookbinding Essentials: Sewing

This workshop will be focused on building basic bookbinding skills. Its goal is to let paper conservators go deeper into the bookbinding techniques in practice. During the workshop each participant is going to sew and bind their own 19th-century style book in simple few steps. Perfect candidate is a person who knows a lot about paper but not too much about bookbinding.

Instructor: Michal Kozurno
Location: Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw, floor 2A, room 2.02
Time: 11.30 AM – 5.30 PM (approx. 6 hours)
No. of Participants: 4
Costs: free
Meeting Point: Wybrzeże Kościuszkowskie 37 street, entrance of the Faculty of Conservation and Restoration of Works of Art, Academy of Fine Arts, Warsaw (11.15 AM)
Contact person: Michal Kozurno,
Email: michalkozurnok08@cybis.asp.waw.pl

21 Soft-Particle Cleaning Workshop

With the soft particle cleaning paper, parchment, seal, wood, varnish, metal, glass, and other kind of materials can be cleaned more thoroughly and gently than with common methods. With sponges, erasers and microfibers cloths you either dull the surface as a reaction of scratches or you are at risk of polishing it. Besides, you rub parts of the dirt between fibers and small pore, which means you have not clean your object entirely. Especially for filigree, fragile and brittle objects and materials the soft particle blasting is very suitable. Soft particle cleaning was developed and comprehensively tested for cleaning paper, archival objects, parchment etc. with selected cellulose grades at TH Cologne. Today a wider choice of blasting materials has proven to be successfully applied and the methodology is generally established across a broad range of materials and in almost all fields of conservation. The workshop will give you a short introduction in the technique and background, an overview of reference cases and examples that are already well known in conservation – with a strong focus on paper conservation. In addition, the participants can do hands-on cleaning tests on different materials and with various blasting grades.

Instructor: Maren Dümmler (M.A.)
Location: National Library of Poland, al. Niepodległości 213, 02-086 Warszawa
Time: 9.30 AM
No. of Participants: max 12
Costs: free
Meeting Point: Entrance B of the National Library (by the al. Niepodległosci)
Contact Person: Maren Dümmler,
Email: info@duemmler-restaurierung.de
<table>
<thead>
<tr>
<th>Name</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aceto, Maurizio</td>
<td>56</td>
</tr>
<tr>
<td>Angelova, Lora</td>
<td>81, 87</td>
</tr>
<tr>
<td>Ayuso Mateo, Rafael</td>
<td>91</td>
</tr>
<tr>
<td>Bak Christensen, Iben</td>
<td>67, 77</td>
</tr>
<tr>
<td>Barry, Caroline</td>
<td>55</td>
</tr>
<tr>
<td>Barzaghi, Laura</td>
<td>71, 81, 85</td>
</tr>
<tr>
<td>Beentjes, Gabriel</td>
<td>10, 49, 51</td>
</tr>
<tr>
<td>Begić Jarić, Majda</td>
<td>81, 82</td>
</tr>
<tr>
<td>Belhadj, Oulfa</td>
<td>31, 41, 42</td>
</tr>
<tr>
<td>Bockmuehl, Célia R.</td>
<td>67, 69</td>
</tr>
<tr>
<td>Borkowska, Magdalena</td>
<td>92, 94</td>
</tr>
<tr>
<td>Bréjoux, Jacques</td>
<td>50</td>
</tr>
<tr>
<td>Brückle, Irene</td>
<td>9, 25, 27, 46, 46, 49, 59, 61, 64, 81, 86</td>
</tr>
<tr>
<td>Burns, Thea</td>
<td>50</td>
</tr>
<tr>
<td>Carr, D. J.</td>
<td>69</td>
</tr>
<tr>
<td>Chavanne, Isabelle</td>
<td>31, 41</td>
</tr>
<tr>
<td>Chazelle, Philippe</td>
<td>50</td>
</tr>
<tr>
<td>Ciechańska, Marzena</td>
<td>1, 9</td>
</tr>
<tr>
<td>Collins, Matthew</td>
<td>56</td>
</tr>
<tr>
<td>Costantini, Barbara</td>
<td>68</td>
</tr>
<tr>
<td>Coural, Nathalie</td>
<td>74</td>
</tr>
<tr>
<td>Créchley, R.</td>
<td>69</td>
</tr>
<tr>
<td>Czibula, Caterina</td>
<td>47</td>
</tr>
<tr>
<td>Czuczko, Jolanta</td>
<td>9, 28</td>
</tr>
<tr>
<td>Daher, Céline</td>
<td>74</td>
</tr>
<tr>
<td>Danila, Andrea</td>
<td>9, 14</td>
</tr>
<tr>
<td>de Bruin, Gerrit</td>
<td>10</td>
</tr>
<tr>
<td>Denac, Mitja</td>
<td>44</td>
</tr>
<tr>
<td>Denion, Gaelle</td>
<td>42</td>
</tr>
<tr>
<td>Dessirrières, Lætitia</td>
<td>74</td>
</tr>
<tr>
<td>Dieter, Selina</td>
<td>9, 27, 46</td>
</tr>
<tr>
<td>Dietz, Georg Josef</td>
<td>45, 49, 60</td>
</tr>
<tr>
<td>Dittmann, Lisa</td>
<td>67, 78</td>
</tr>
<tr>
<td>Dove, Sarah</td>
<td>81, 83</td>
</tr>
<tr>
<td>Downey, Anne</td>
<td>31, 33</td>
</tr>
<tr>
<td>Dumain, Nadine</td>
<td>50</td>
</tr>
<tr>
<td>Dümmler, Maren</td>
<td>9, 20, 96</td>
</tr>
<tr>
<td>Duran-Casablancas, Cristina</td>
<td>9, 10</td>
</tr>
<tr>
<td>Duroselle-Melish, Caroline</td>
<td>31, 32</td>
</tr>
<tr>
<td>Dzik-Kruszelnicka, Dorota</td>
<td>81, 84</td>
</tr>
<tr>
<td>Ebel, Benjamin</td>
<td>93</td>
</tr>
<tr>
<td>Engel, Patricia</td>
<td>9, 23</td>
</tr>
<tr>
<td>Ferraro, Simone</td>
<td>81, 85</td>
</tr>
<tr>
<td>Filippinì, Marta Silvia</td>
<td>67, 68</td>
</tr>
<tr>
<td>Fries Markiewicz, Johanna</td>
<td>67, 72</td>
</tr>
<tr>
<td>Fuchs, Robert</td>
<td>63</td>
</tr>
<tr>
<td>Glück, Eva</td>
<td>95</td>
</tr>
<tr>
<td>Grau-Bové, Josef</td>
<td>10</td>
</tr>
<tr>
<td>Grenda-Kurmanow, Magdalena</td>
<td>1</td>
</tr>
<tr>
<td>Greuter, Edith</td>
<td>31, 39, 95</td>
</tr>
<tr>
<td>Griesser, Martina</td>
<td>56</td>
</tr>
<tr>
<td>Grzechniak, Anna</td>
<td>92</td>
</tr>
<tr>
<td>Gustek, Katarzyna</td>
<td>94</td>
</tr>
<tr>
<td>Hacke, Marei</td>
<td>43</td>
</tr>
<tr>
<td>Haratyk, Paulina</td>
<td>91</td>
</tr>
<tr>
<td>Hennig, Friederike</td>
<td>67, 78</td>
</tr>
<tr>
<td>Henniges, Ute</td>
<td>25, 27, 31, 45, 46, 64, 81, 86</td>
</tr>
<tr>
<td>Hofmann, Christa</td>
<td>49, 56</td>
</tr>
<tr>
<td>Holly, Marc</td>
<td>49, 63</td>
</tr>
<tr>
<td>Iwataro Oka, Yasuhiro</td>
<td>55</td>
</tr>
<tr>
<td>Jablonska, Ivona</td>
<td>9, 22</td>
</tr>
<tr>
<td>Jacobi, Eliza</td>
<td>49, 52</td>
</tr>
<tr>
<td>Jaśtrzębiowska, Nél</td>
<td>57</td>
</tr>
<tr>
<td>Jutrzenka-Supryn, Dorota</td>
<td>28</td>
</tr>
<tr>
<td>Kadivec, Mariša</td>
<td>62</td>
</tr>
<tr>
<td>Kaiser, Anna</td>
<td>67, 73</td>
</tr>
<tr>
<td>Keiding, J.</td>
<td>69</td>
</tr>
<tr>
<td>Kejser, Ulla Bøgvad</td>
<td>9, 13</td>
</tr>
<tr>
<td>Kern, Marie</td>
<td>49, 59</td>
</tr>
<tr>
<td>Kirschner, Benjamin</td>
<td>49, 64</td>
</tr>
<tr>
<td>Kohl, Ingrid</td>
<td>31, 34</td>
</tr>
<tr>
<td>Kolar Bačnik, Bor</td>
<td>31, 44</td>
</tr>
<tr>
<td>Kolar, Jana</td>
<td>44</td>
</tr>
<tr>
<td>Komorowski, Wojciech</td>
<td>1, 93</td>
</tr>
<tr>
<td>Komsta-Sławinska, Karolina</td>
<td>9, 19, 28</td>
</tr>
<tr>
<td>Kose, Ryota</td>
<td>18</td>
</tr>
<tr>
<td>Kosek, Joanna</td>
<td>49, 55</td>
</tr>
<tr>
<td>Koss, Zofja</td>
<td>81, 8</td>
</tr>
<tr>
<td>Kostadinovska, Maja</td>
<td>9, 23</td>
</tr>
<tr>
<td>Kozielec, Tomasz</td>
<td>31, 37</td>
</tr>
<tr>
<td>Kožurno, Michal</td>
<td>96</td>
</tr>
<tr>
<td>Krámer, Maria</td>
<td>49, 61</td>
</tr>
<tr>
<td>Krzyczkowska-Roman, Erika</td>
<td>91, 92</td>
</tr>
<tr>
<td>Kunaver, Matjaż</td>
<td>62</td>
</tr>
<tr>
<td>Kusunoki, Kyoko</td>
<td>55</td>
</tr>
<tr>
<td>Lacourtiaide, Alizée</td>
<td>67, 75</td>
</tr>
<tr>
<td>Lagerqvist, Anna</td>
<td>31, 43</td>
</tr>
<tr>
<td>Leffelaar, Frederike</td>
<td>49, 51</td>
</tr>
<tr>
<td>Liszewska, Weronika</td>
<td>31, 36</td>
</tr>
<tr>
<td>Liu, Yuhui</td>
<td>67, 70</td>
</tr>
<tr>
<td>Łojewski, Tomasz</td>
<td>93, 94</td>
</tr>
<tr>
<td>Macander-Majkowska, Grażyna</td>
<td>96</td>
</tr>
<tr>
<td>Malešič, Jasna</td>
<td>44, 49, 62</td>
</tr>
<tr>
<td>Marabini, Valentina</td>
<td>55</td>
</tr>
<tr>
<td>Marecka, Agnieszka</td>
<td>9, 21, 49, 58</td>
</tr>
<tr>
<td>Mazzarino, Sara</td>
<td>71</td>
</tr>
<tr>
<td>Męcynyńska, Lidia</td>
<td>94</td>
</tr>
<tr>
<td>Melo, Maria J.</td>
<td>56</td>
</tr>
<tr>
<td>Menders, Agata</td>
<td>9, 21</td>
</tr>
<tr>
<td>Mesmer, Renate</td>
<td>9, 32, 93</td>
</tr>
<tr>
<td>Miaśek, Paulina</td>
<td>1, 92</td>
</tr>
<tr>
<td>Miszczyk, Julia</td>
<td>93</td>
</tr>
<tr>
<td>Mizumura, Megumi</td>
<td>67, 76, 95</td>
</tr>
<tr>
<td>Möller, Sandra</td>
<td>81, 86</td>
</tr>
<tr>
<td>Mousavi, Behrang</td>
<td>11</td>
</tr>
<tr>
<td>Mozer, Alenka</td>
<td>44</td>
</tr>
<tr>
<td>Müller, Emily M. K.</td>
<td>31, 45</td>
</tr>
<tr>
<td>Müller, Jana</td>
<td>59</td>
</tr>
<tr>
<td>Müller, Leonie</td>
<td>25</td>
</tr>
<tr>
<td>Muñoz Viñas, Salvador</td>
<td>31, 38</td>
</tr>
<tr>
<td>Nederlof, Alexandra</td>
<td>39, 95</td>
</tr>
<tr>
<td>Nehring, Grzegorz</td>
<td>31, 40</td>
</tr>
<tr>
<td>Nowak, Dorota</td>
<td>92</td>
</tr>
<tr>
<td>Oblamska-Rozmus, Tamara</td>
<td>92, 93</td>
</tr>
<tr>
<td>Okayama, Takayuki</td>
<td>9, 18</td>
</tr>
</tbody>
</table>
## Index of names

<table>
<thead>
<tr>
<th>Name</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owczarska, Julia</td>
<td>9, 14</td>
</tr>
<tr>
<td>Palandri, Maria Chiara</td>
<td>67, 71, 81, 85</td>
</tr>
<tr>
<td>Peare, A.</td>
<td>69</td>
</tr>
<tr>
<td>Penz, Antje</td>
<td>49, 60</td>
</tr>
<tr>
<td>Peters, Mette</td>
<td>49, 54</td>
</tr>
<tr>
<td>Piechal, Jakub</td>
<td>17</td>
</tr>
<tr>
<td>Popławska, Sylwia</td>
<td>1, 95</td>
</tr>
<tr>
<td>Popławski, Piotr</td>
<td>1, 96</td>
</tr>
<tr>
<td>Potthast, Antje</td>
<td>47</td>
</tr>
<tr>
<td>Press, Suzanne</td>
<td>81, 83</td>
</tr>
<tr>
<td>Pronobis-Gajdzis, Małgorzata</td>
<td>9, 19, 40</td>
</tr>
<tr>
<td>Quandt, Abigail</td>
<td>56</td>
</tr>
<tr>
<td>Rabin, Ira</td>
<td>40</td>
</tr>
<tr>
<td>Rabitsch, Sophie</td>
<td>56</td>
</tr>
<tr>
<td>Rauff, Tine</td>
<td>16</td>
</tr>
<tr>
<td>Riccardi, Maria Luisa</td>
<td>68</td>
</tr>
<tr>
<td>Robinet, Laurianne</td>
<td>42</td>
</tr>
<tr>
<td>Rosse, Christin</td>
<td>49, 57</td>
</tr>
<tr>
<td>Rouchon, Véronique</td>
<td>41, 42, 43, 67, 74</td>
</tr>
<tr>
<td>Rozwadowska, Zuzanna</td>
<td>1</td>
</tr>
<tr>
<td>Ruffini, Nicolas</td>
<td>42</td>
</tr>
<tr>
<td>Ryhl, Svendsen-Morton</td>
<td>13</td>
</tr>
<tr>
<td>Sandström, Tom</td>
<td>43</td>
</tr>
<tr>
<td>Sauvage, Leila</td>
<td>49, 50</td>
</tr>
<tr>
<td>Sawoszczuk, Tomasz</td>
<td>94</td>
</tr>
<tr>
<td>Schalkx, Hilde</td>
<td>9, 11</td>
</tr>
<tr>
<td>Scheper, Karin</td>
<td>49, 52</td>
</tr>
<tr>
<td>Schultz, Julia</td>
<td>25</td>
</tr>
<tr>
<td>Seki, Masazumi</td>
<td>18</td>
</tr>
<tr>
<td>Sicken, Anne</td>
<td>63</td>
</tr>
<tr>
<td>Signorello, Stefania</td>
<td>9, 24</td>
</tr>
<tr>
<td>Smith, Gregory D.</td>
<td>45</td>
</tr>
<tr>
<td>Smith, Holly</td>
<td>81, 87</td>
</tr>
<tr>
<td>Smith, Meagan</td>
<td>9, 15</td>
</tr>
<tr>
<td>Sonderegger, Junko</td>
<td>56</td>
</tr>
<tr>
<td>Sonoda, Naoko</td>
<td>18</td>
</tr>
<tr>
<td>Sotiras, Matthias</td>
<td>55</td>
</tr>
<tr>
<td>Soulioti, Anithi</td>
<td>31, 35</td>
</tr>
<tr>
<td>Stasiuk, Roman</td>
<td>81, 84</td>
</tr>
<tr>
<td>Stawirska, Marta</td>
<td>1</td>
</tr>
<tr>
<td>Stijnman, Ad</td>
<td>59</td>
</tr>
<tr>
<td>Strič, Matija</td>
<td>10</td>
</tr>
<tr>
<td>Supruniuk, Monika</td>
<td>1, 91, 92</td>
</tr>
<tr>
<td>Świeton, Marta</td>
<td>57</td>
</tr>
<tr>
<td>Targowski, Piotr</td>
<td>40</td>
</tr>
<tr>
<td>Teichert, Christian</td>
<td>47</td>
</tr>
<tr>
<td>Tomkins, N.</td>
<td>69</td>
</tr>
<tr>
<td>Turner, Emma</td>
<td>49, 53</td>
</tr>
<tr>
<td>Tykwer, Fenna Yola</td>
<td>9, 12</td>
</tr>
<tr>
<td>Utsunomiya, Hayate</td>
<td>18</td>
</tr>
<tr>
<td>van der Burg, Jaap</td>
<td>10</td>
</tr>
<tr>
<td>Vardaro, Lucrezia</td>
<td>68</td>
</tr>
<tr>
<td>Vest, Marie</td>
<td>9, 16</td>
</tr>
<tr>
<td>Viguier-Dutheil, Florence</td>
<td>74</td>
</tr>
<tr>
<td>Vinther Hansen, Birgit</td>
<td>13, 16</td>
</tr>
<tr>
<td>Vnoucek, Jiri</td>
<td>56</td>
</tr>
<tr>
<td>Völkel, Laura</td>
<td>31, 47</td>
</tr>
<tr>
<td>Wagner, Barbara</td>
<td>94</td>
</tr>
<tr>
<td>Wasil, Joanna</td>
<td>17</td>
</tr>
<tr>
<td>Weiss, Carol</td>
<td>55</td>
</tr>
<tr>
<td>Weller, Aafke</td>
<td>11, 49, 54</td>
</tr>
<tr>
<td>Wieczorek, Maciej</td>
<td>17</td>
</tr>
<tr>
<td>Wiegand, Yvonne</td>
<td>59</td>
</tr>
<tr>
<td>Wilczak, Mariusz</td>
<td>17</td>
</tr>
<tr>
<td>Williams, Roger</td>
<td>9, 26</td>
</tr>
<tr>
<td>Winther, Thea</td>
<td>43, 67, 72</td>
</tr>
<tr>
<td>Wojciechowska, Dominika</td>
<td>91, 93</td>
</tr>
<tr>
<td>Wolfe, Heather</td>
<td>31, 32</td>
</tr>
<tr>
<td>Wöllner, Annine</td>
<td>25</td>
</tr>
<tr>
<td>Xiaon Qiu, Jin</td>
<td>55</td>
</tr>
<tr>
<td>Zająć, Izabela</td>
<td>81, 88</td>
</tr>
<tr>
<td>Zerek, Bogdan Filip</td>
<td>9, 17, 91</td>
</tr>
<tr>
<td>Ziegler, Johanna</td>
<td>49, 65</td>
</tr>
<tr>
<td>Zumbühl, Stefan</td>
<td>25</td>
</tr>
</tbody>
</table>
Congress Venue:
POLIN Museum of the History of Polish Jews,
6 Mordechaja Anielewicza St.,
00-157 Warsaw

Reception:
The Academy of Fine Arts,
Faculty of Sculpture and Stage Design
Wybreże Kościuszkowskie 39
00-379 Warsaw
paper
books
and so much more