



LEATHER AND RELATED MATERIALS WORKING GROUP NEWSLETTER 9 – MAY 2020

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Newsletter editors: Carole Dignard and Laurianne Robinet

FROM THE COORDINATOR

Dear members, dear colleagues,

In this very special period, where we have to stay home, when all events are being cancelled, and we have to rethink our way of doing things in different areas, we hope to find you all well. Here comes some leather news with this 9th newsletter of the Leather and Related Materials Working Group.

For this newsletter we are pleased to present a focus on the use of gels for the treatment of skin-based materials, with several articles showing different approaches in conservation.

This newsletter also reports on the 11th Interim Meeting of our Working Group which took place in Paris, France at the Musée du quai Branly – Jacques Chirac on June 6-7, 2019. This conference was organized by the Centre de Recherche sur la Conservation together with the Conservation department of the musée du quai Branly and the support from the school of conservation Institut National du Patrimoine (INP).

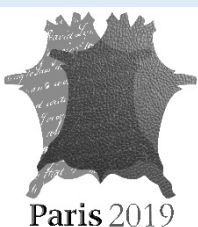
Thanks to the financial support of several institutions and professional networks, reduced registration fees and French-English simultaneous translation could be offered. As a result, the meeting was a real success and welcomed 105 participants coming from 15 countries, mostly from Europe, with many students and young professionals. The Interim meeting featured talks on a great diversity of skin-based materials, by a variety of professionals. We are grateful to Christopher Calnan, one of the conference participants, for giving a detailed review in this newsletter. But stay tuned, as the conference postprints are under way and will be posted in the near future to the ICOM-CC website.

As you are all aware, the 19th ICOM-CC Triennial Conference in Beijing has been postponed to April-May 2021. Nevertheless, all other activities of ICOM-CC continue according to schedule, thus the triennial conference preprints will be produced in 2020 and the ICOM-CC 2017-2020 triennium will still end in September 2020, meaning the election of the new WG coordinators and Directory Board will take place in September. Two papers have been selected for our Working Group for the Triennial conference and shall be available to members later this year.

Now I let you enjoy the newsletter !

Laurianne Robinet

Coordinator of the ICOM-CC Leather and Related Materials Working Group



REVIEW OF THE 11TH INTERIM MEETING OF THE ICOM-CC LEATHER & RELATED MATERIALS WORKING GROUP PARIS 6-7 JUNE 2019

Christopher Calnan, advisor National Trust, UK

Paris in the Spring- what could be a more attractive prospect for a Working Group Interim Meeting? It was clear that the City of Light was a popular destination from the outset, as the booking portal had to be closed after 2 days owing to the rush to sign up. The great surprise was that, in over 30 years of the Working Group's existence and given the great contribution that many French conservators have made to the group, this was the very first time that its meeting was held in France. This particular delegate was fortunate to get a place at a late stage thanks to a cancellation but only on condition that he write this review!

The venue was the Musée du quai Branly-Jacques Chirac, which may not be that familiar to museophiles as it was only opened in 2006 and is the most recent major new national museum in the capital. It is on the left bank of the Seine very close to the Eiffel Tower in the attractive 7th arrondissement. The museum is dedicated to the art and ethnography of indigenous cultures linked to France's colonial past (with the exception of the Arab world, which has its own Institut du Monde Arabe). The collection was formed from the amalgamation of the collections of MAAO or National Museum of the Arts of Africa and Oceania and that of the Musée de l'Homme.

The day before the start of the conference delegates had the opportunity to join a range of guided tours around some of the institutions involved with the Interim Meeting. I was not able to go on any of the tours and therefore report back as, with a few others from the conference, I had arranged to go on a private tour to one of the Paris ateliers still making gilt leather, a fascinating visit but outside the remit of this review.

The first day was split into three sessions: archaeological leather, scientific developments and skin/fur studies. The first of the archaeological leather talks was a collaborative presentation by **Céline Bonnot-Diconne, Dominique Benazeth and**

Florence Calament, its subject the conservation and study of a fascinating collection of Coptic shoes from the Louvre. It was followed by a fine case study by **Tuuli Kasso** on the use of eZooMS fingerprinting of a large collection of excavated leather shoes from the market place in Turku in Finland, and it highlighted the need to develop a pragmatic triage type selection for the processing of large quantities of leather finds. **Lucy Skinner** finished the session with a discussion of the methods used for the identification of animal species at the British Museum. The next session began with a talk on the impact of past conservation treatments on leather and parchment using MALDI-TOF MS to assess the level of collagen degradation given by Tuuli Kasso on behalf of **Patricia Engel**. This was followed by a presentation from **Marianne Odlyha** on the assessment of nanoparticle-based leather treatments by artificial ageing. I was not aware that nanoparticle technology could be applied to leather, as I thought it applications were mainly to stone, and I would be interested to see collaboration with leather conservators to evaluate these treatments. There was an innovative paper by **Gael Latour** looking at the application of non-destructive non-linear optical microscopy to quantify states of collagen degradation, an analysis normally carried out by DSC or the micro hot table methods. The microscopy results correlated very well with the later methods and this offers a new way of establishing condition where sampling is not possible. Another development in non-destructive skin analysis was presented by **Steffen Bock** from the Berlin Museum fur Naturkunde. Steffen showed that handheld XRF analysis can be used to identify different preparation methods for their skin collections which can then be used to target treatments and stabilisation of the skins.



Fig. 1: Participants in the conference room ©CRC

The final session carried on with the theme of skin collection conservation with papers on a methodology for rationalisation of collections and how knowledge of traditional fur and skin processes through experimental archaeology can be used to build up a reference collection and database profile of different techniques. In a case study it was shown how this can help to characterise prehistoric preserved skins. **Marina Hays** from the MET gave a thought-provoking presentation on the conservation of leather and fur in fashion garments, stressing how treatments from other disciplines can be applied to deal with conservation problems.



Fig. 2: Presentation by Stéphanie Elarbi and Elsa Debiesse ©CRC

There was an opportunity to visit the museum collections after a timely presentation from the host museum's **Stéphanie Elarbi**, who showed us some of the conservation challenges faced by her team. Then, for those fortunate enough to have a ticket, it was off to the quayside to embark on a Seine pleasure boat for a memorable reception and cruise. On a bright early evening we were taken upstream past the tragically scared but still magnificent cathedral of Notre Dame before looping round the Ile Saint-Louis to arrive back just in time for the illuminations of the Eiffel Tower.

The second day's presentations addressed gilt leather studies, new conservation approaches and a final session on technical history. **Eloy Koldeweij** gave a presentation on the archival research he has been involved with, which aims to build a comprehensive database of gilt leather conservation treatments in the Netherlands over the last 400 years. It was fascinating to hear what

can now be gleaned online from newly available digitised newspapers and periodicals, filling the gaps in information stored in formal archival records.

There was an interesting account of the origins of one of the core gilt leather '*Guadamecies*' collections in Madrid by **Felix de la Fuente Andres** and we had an illuminating talk from **Gabriele Hilsky and Margitta Hensel** on the latest phase of the very impressive 40-year project to restore gilt leather rooms of Moritzburg Castle. This was celebrated with a splendid exhibition in 2019 which I, together with the other members of the Gilt Leather Society board, was fortunate to see. **Céline Bonnot-Diconne** presented an interesting account of the history of the great set of five C17th gilt leather Old Testament tapestries from the Château du Lunéville; losses from fire, rediscovery and conservation. I found all of the gilt leather presentations of great interest but none more so than the talk by **Mara Nimmo** on the leather floor coverings in papal residences during the time of 15 pontiffs from 1600-1730. The paper drew on her work with **Mariabianca Paris** on the papal palace of Chigi over many years together with the fascinating details from the financial accounts of the *coramari* contained in a key manuscript from the state archives. It was a wonderful presentation which has thrown new light on the use and manufacture of a little understood material. The account of the complaints about the noise of the leather workers machine (similar to a 'trebuchet') made its only illustration in Mansoon's manuscript come alive!

The last session covered a wide range of topics from protocols developed to conserve a medieval manuscript from Lisbon by **Diana Avelar Pires**, to the major programme of anoxia treatment developed at our host museum presented by **Eleonore Kissel and Fabrice Sauvagnargues**. An innovative technique of filling losses on book bindings using coloured and textured acrylic fills was given by **Sarah Reidell** from Philadelphia. The technique clearly has applications for many other areas of conservation. **Franklin Pereira** gave an account of his long studies of incised decorative patterns found on Portuguese heavy hide covered high backed chairs and **Cristina Scribe and Caroline Solazzo** discussed the analytical work they have undertaken to try to categorise the different methods of making C11th-C15th gold and silver threads on gut membrane. They showed that it is

possible to differentiate metal thread production from different countries using protein analysis and various microscopy and spectroscopic techniques. The resulting grouping of samples under characteristic markers could then offer a way of predicting age and country of origin.



Fig. 3: Poster session in the main hall ©CRC

There were 15 posters set up in the main exhibition hall but, as there were so many people I wanted to catch-up with during the breaks, I regret that I only had time for a passing glance at them. I did manage to stop by two very interesting posters on gilt leather studies. The first was by **A R Con and the ICR** in Rome. They had developed an inventive way of characterising and reproducing punch marks using CAD software to convert images of marks into 3D designs. These, in turn, could be converted into actual punch tools using a 3D printer with Vat polymerisation technology.

The other poster which caught my eye was one on the dating of gilt leather by the **National Lab for Radiocarbon Dating at the Université Paris-Saclay**. The process used samples of lead white taken from two different gilt leathers from known periods. The results showed that there was a very good correlation between the age of the leather and the lead white, thus opening up a new avenue for dating gilt leather. Apologies to the authors of the other 12 poster presentations I wasn't able to review.

I thought that this was one of the working group's best interim meetings I had attended. It was marked by the quality and diversity of the presentations and by the planning and preparation that the organising committee and the hosting institution had put into making the two days run with such efficiency and interest for the attendees. The committee should also be commended for their success in securing generous sponsorship. Thanks are due in turn to the sponsors for allowing the delegate fees to be low relative to those of comparable conservation meetings. High fees can be a barrier to emerging members of the profession and it was very pleasing to see so many young French conservation students among the delegates. The bar has been set very high!

If you did not get a chance to come to the conference last June or if you just feel nostalgic of that nice time, you can still access the program, visualise the poster presented and see the photographs of the conference from the website: <https://leather2019.sciencesconf.org/>



Fig. 4: Conference participants for the group photo ©CRC

GELLAN GUM AND ITS USES IN TREATMENTS ON PARCHMENT AND RAWHIDE PART 1: INTRODUCTION

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A naturally occurring anionic polysaccharide, gellan gum can be purchased in powdered form and dispersed in an aqueous solution, then heated to hydrate and cooled to set into a rigid or semi-rigid hydrogel. It gels through a combination of physical entanglement and hydrogen bonding, with small amounts of mono- or divalent cations aiding in ordered gel formation.

There are two forms of the polymer commercially available. Low acyl gellan gum (LAGG) is a modified form of the polymer that forms a transparent, rigid gel. LAGG has featured heavily in recent conservation literature, particularly in paper conservation. Various reagents (chelating agents, enzymes, conductivity or pH adjusters, some water miscible solvents) can be added either before hydration, before setting, or absorbed in the gel after preparation, depending on the reagent properties. The gel is used for its moisture control properties, delivering localised or overall treatment to moisture-sensitive objects. LAGG is now fairly readily available from conservation suppliers. In the years since gellan gum was initially studied for conservation use, the market for the gum in food has exploded, and trade names have proliferated. While there were early comparisons of several types of LAGG¹, to the authors' knowledge, detailed comparisons have not been recently completed. Broadly, however there are two forms available on the market: clarified (filtered to remove cell residues and other insoluble components), and non-clarified². As clarified LAGGs can have fewer impurities, it is likely more suitable for conservation purposes.

The native form of the polymer, high acyl gellan gum (HAGG) forms an opaque, but highly flexible gel. Though more challenging to prepare (there is less of a temperature gap between the hydration temperature and the setting temperatures), the drape of HAGG shows promise for moisture control on artefacts that have a more highly topographical surface than paper. Though the low acyl gums

(LAGG) can achieve high levels of surface conformability (showing, for example, the indentations of ink lines from an intaglio print), light pressure is often needed to achieve this conformability; and, like squeezing a sponge, much of the localized moisture control is lost when pressure is applied. Because high acyl gums (HAGG) conform better than LAGGs to high surface topographies with minimal use of pressure, they are most useful as moisture control agents in these instances. The moisture control of both HAGG and LAGG can also be modified by varying casting thickness – thinner sheets of gel inherently carry less water. At present, HAGG is mostly available through molecular gastronomy suppliers, as it is used as texture modifier in food.

Reference

1. Iannuccelli, S. and S. Sotgiu, 'Wet Treatments of Works of Art on Paper with Rigid Gellan Gels', *The Book and Paper Group Annual*, 29 (2010), 25- 39 <https://cool.culturalheritage.org/coolaic/sg/bpg/annual/v29/bp29-04.pdf> (accessed April 28, 2020)
2. EFSA Panel on Food Additives and Nutrient Sources added to Food (ANS), 'Re-evaluation of gellan gum (E 418) as food additive', *EFSA Journal*, published June 20, 2018 <https://efsa.onlinelibrary.wiley.com/doi/full/10.2903/j.efsa.2018.5296> <https://doi.org/10.2903/j.efsa.2018.5296>

PART 2: HIGH ACYL GELLAN GUM (HAGG) IN PARCHMENT CONSERVATION¹

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¹The following text is a summary of a talk presented in the New Tools and Techniques: Let's Talk About Gels! session at AIC's 47th Annual Meeting, 2019. A formal paper is to be included in the forthcoming BPG Annual 38.

As discussed above, the water-soluble anionic polysaccharide known as gellan gum comes in two forms: the more commonly known low acyl gellan gum (LAGG), which is frequently used in paper conservation, and high acyl gellan gum (HAGG). The main difference is the naturally occurring presence or artificially induced absence of an acyl group that repeats on the polysaccharide chain. LAGG forms a

clear, rigid gel that is used in cleaning art on paper through both overall bathing and targeted stain reduction. The gel can be soaked in an organic solvent such as ethanol to replace some of the water in the gel, allowing for the delivery of solvent to the object. In contrast, HAGG is opaque, flexible, and rather elastic. Despite a high drape and soft texture, it maintains its structural integrity. This malleability is key to its success on uneven surfaces, as the softer gel is better able to make surface-to-surface contact that is required for the gels to function. HAGG can also accommodate solvent, though rather than soaking the made gel in solvent and replacing the water content through solvent exchange, solvent is added to the gel as it is cooked. This gel remains flexible even with a solvent component.

In the two following case studies, HAGG ([KELCOGEL® LT100](#)) was used in the treatment of parchment components of medieval manuscripts from the Walters Art Museum collection, both of which required the solubilizing of adhesive. Parchment, which is proteinaceous in content, is hygroscopic and very sensitive to moisture. Prolonged exposure to water can cause severe planar distortions, such as overall cockling, pleating, and shrinkage, and cause the membrane to become brittle and difficult to handle. Conservators who work with parchment typically rely on non-aqueous treatment strategies for adhesive reduction.

(1) Treatment of manuscript W.75, a 12th century missal in a 15th century binding made of beech wood boards, which were partially covered in leather. Two pieces of parchment were adhered over nearly the entire inner faces of the wooden boards as pastedowns. Each pastedown was a bifolium of manuscript waste, or two conjoined folios taken from the text of an older book. Both sides of the bifolia had writing in iron gall ink and rubrication in red lead. The bifolia needed to be removed from the wooden boards. When manuscript waste pastedowns are removed by lifting with a knife or spatula, skinning of the adhered surface of the parchment often occurs, and ink, paint, and the surface layer of the parchment are left behind in the adhesive residues. Microchemical tests indicated that the adhesive used to adhere these bifolia overall was animal glue with a starch component.

A 1% w/v HAGG gel made with 1:1 water and ethanol was determined to be the most effective in lifting the pastedowns (fig. 1). Pieces of gel were applied directly to the face of the parchment, humidifying the adhesive through the parchment. The flexible, soft texture of this gel ensured sufficient surface contact, which is necessary for the gel to function efficiently. Feeding the gel underneath a lifting edge of the parchment did not allow the humidity to reach the adhesive still adhering the parchment to the wood. After allowing the gel to sit on the parchment for about 5 minutes, the gel was removed and pieces of Hollytex and wool felt were placed on the humidified area with a weight on top. This allowed time for the adhesive to become softened while the parchment began to dry. After approximately 10 minutes, the weight, felt, and Hollytex were removed and the parchment could be lifted with a spatula.



Fig. 1: HAGG with ethanol was applied directly to the face of the parchment without a barrier layer. © Image courtesy of the Walters Art Museum, Baltimore.

(2) Treatment of manuscript W.14, an 11th century German gospel book that required complete disbinding. Several gels were tested in the removal of spine adhesive (fig. 2). Microchemical tests indicated that this adhesive was also a mixture of animal protein and starch. In this case, conductivity of the gel was adjusted to cause the adhesive to swell quickly. To boost the conductivity of the water gel, 0.05 g of sodium chloride was added to 1% w/v HAGG in deionized water with calcium acetate (0.4 g/L), bringing the conductivity up to about 2 mS/cm². Most of the spine adhesive was sufficiently soft after one application of gel, and could be gently scraped off with a small wooden spatula. This action was necessary to remove the adhesive because,

even though it was not very thick, it was still too much material for the gel to absorb via capillary action.



Fig. 2: The ability of HAGG to conform to the uneven book spine was instrumental to the success of the gel. © Image courtesy of the Walters Art Museum, Baltimore.

In conclusion, HAGG proved to be an effective means of delivering moisture to parchment in a controlled manner without adverse effects to the parchment such as cockling, allowing for the swelling and removal of a protein-based adhesive adhered to the parchment. Additives such as organic solvents and salts offer further control over moisture content, pH, and conductivity.

PART 3: GELLAN GUM INK REMOVAL TREATMENT ON A SNOWSHOE

Fiona Hernandez, Conservator, Museum of Vancouver

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The following treatment was completed while Fiona Hernandez was employed as conservator at Aanishchaaukamikw Cree Cultural Institute (2014-2016).

This treatment presents a case study of the use of gellan gum to conform to a 3-dimensional shape by adjusting the concentration and thickness of the gum to achieve desired cleaning characteristics.

A pair of snowshoes at the Aanishchaaukamikw Cree Cultural Institute were selected for treatment in preparation for exhibit. The traditional James Bay Cree snowshoes were made with a spruce wood frame, linen canvas frame coverings, and untanned moose skin strip webbing. The challenge in this treatment was to reduce a bright blue, water soluble ink stain across all the materials of the

snowshoe. The stain did not move by dry means, and any aqueous intervention tended to drive the stain to spread on the surface, or deeper into the fibres.

Because of the high transferability of the ink, gellan gum was chosen for treatment, due to its ability to release water in a controlled way and absorb stains through capillary action. We experimented with High Acyl (HAGG) and Low Acyl (LAGG) gellan gums (KELCOGEL® LT100 and KELCOGEL® CG-LA, respectively) in various concentrations and thicknesses to achieve cleaning while controlling moisture and desired surface cover.

Cleaning

Both HAGG and LAGG gels were equally effective in removing the ink. We observed that low concentrations of the gels (1% and 2% w/v), wicked up the ink more quickly, but left green tidelines beyond the area of the gel. High concentrations of the gels (3% and 4%) took longer to absorb the ink and did not clean as effectively. A 2.5% concentration was found to have maximum cleaning ability with minimal tidelines. It was used in applications of 6 hours. The tests also showed that the ink could be completely removed from the textile and wood sections but did not remove the ink from the moose hide strips as quickly (fig. 3-4).



Fig. 3: 2% LAGG gellan gum test on snowshoe (left), 2% HAGG gellan gum test on snowshoe (right).

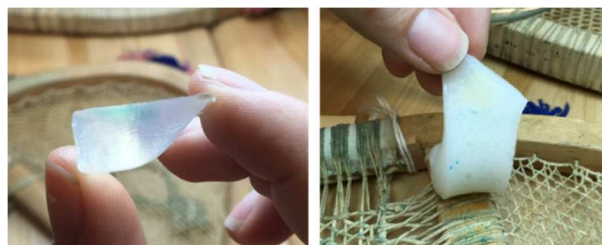


Fig. 4: LAGG gellan gum (left) and HAGG gellan gum (right) tests showing blue ink absorbed into the gel.

The HAGG gel was much more flexible than the LAGG gel and was therefore chosen for treatment. 2 cm thick samples of HAGG gel were created to treat the object; however, at this thickness the 2.5%

gel was not flexible enough to bend into some tight corners of the snowshoe (fig. 5 left). Therefore, a 1 cm thick sheet of gel was made to conform to tighter areas (fig. 5 right). At this thickness the gel tended to dry out within the 6-hour applications. This was mitigated by covering the object with plastic wrap while the gel was applied.



Fig. 5: 2 cm thick piece of 2.5% HAGG gel conforming to snowshoe shape (left), 1cm thick piece of 2.5% HAGG gel conforming to bend in snowshoe (right).

To minimize the risk of tidelines, the entire affected area was treated using a 1 cm thick sheet of HAGG gellan gum (fig. 6 left). One application of 6 hours removed the stain from the wood and canvas area. As stain reduction on hide was slower, multiple applications were prepared for the moose hide. However, after 2 general applications, the ink appeared to be spreading throughout the moose hide and creating a green halo, and further removal was not possible. Smaller soiled areas of the hide were cleaned with localized applications, and though transfer onto the gel was visible after every application (fig. 6 right), the stain on the snowshoes did not show much visual change.



Fig. 6: General application of the HAGG gel covered with plastic (left), localized application of the HAGG gel after 6 hrs (right).

Results

Generally, HAGG gellan gum was only partially effective in removing stains on the snowshoes in a controlled way (fig. 7). It was effective in removing the ink completely on wood and canvas elements (fig. 8); on the moose hide, however, the stain was not reduced substantially and created green halos

on some of the surrounding areas (fig. 7-8). It is possible that elements of the ink bonded to oilier parts of the hide and were not removable with water.



Fig. 7: Before (left) and after (right) treatment.



Fig. 8: Detail, before (left) and after (right) treatment: canvas and wood are completely clean, stain on hide only partly reduced.



Fig. 9: Detail, before (left) and after (right) treatment: wood is clean, green haloing of stain on hide

Conclusion

Gellan gum is a versatile material that creates new opportunities for aqueous cleaning of 3-dimensional objects. However, limitations exist and results can vary depending on the base material, as this case study shows: ink removal was successful on wood and textile components but much more limited on the rawhide skin. Though this treatment only used distilled water with the HAGG gel, further advancements in the use of this material, such as including ethanol in the gel at the time of preparation, could be useful to explore in future such treatments.

EVALUATION OF LEATHER CLEANING WITH RIGID GELS ON THE *FAUST'S BIBLE* FROM THE FRENCH CINÉMATÈQUE (PARIS): COMPARISON BETWEEN AGAROSE AND HWR/NANORESTORE GEL®

Sophie Rossato, Book and paper conservator, Paris Laurianne Robinet, Conservation scientist, CRC Agnès Lattuati-Derieux, Research scientist, C2RMF sophie.rossato@gmail.com

Introduction

For the past decades, experiments have been carried out to develop new cleaning methods for cultural heritage objects. Gels proved to be an innovative and efficient technique to solve dirt and stain issues on diverse material like textile or paper. However, not much has been done on leather, despite the many qualities of these gels: high retention of solvents/liquids, controlled spread /diffusion, low toxicity, ease-to-use and ease-to-adapt (viscosity, pH, conductivity, solvents).

Water-based gels can be adequate to remove water-soluble dirt/stains, especially on heavily degraded leather that do not tolerate water-based treatments that can cause irreversible denaturation of the material.



Fig. 1: Front cover of Faust's Bible (F.W. Murnau's movie)

Aim

During a master thesis on the conservation treatment of the Faust's Bible, a film prop used in the F. W. Murnau's movie, we observed salt and dirt/patina migrations on the surface of the leather book cover (Fig. 1). As the leather was degraded, we needed a gentle cleaning method. This study aimed to determine the effectiveness of water-based gels for cleaning water-soluble dirt identified as sodium

sulphate on the leather. Besides, it was necessary to keep intact the black carbon patina (water-soluble) applied intentionally on the book cover.

Materials

Two types of gels have been selected (Fig. 2):

- A physical gel (thermo-reversible): the agarose gel, a polysaccharide made up of D-galactose and 3,6-anhydro-L-galactose units. We made the hydrogel by an aqueous solution of agarose in deionised water, in a proportion of 5%. The mixture was heated in a *bain-marie* up to 90°C, and left to cool down to room temperature.

- A chemical gel: the Max-Dry/HWR gel from Nanorestore Gels(r), made up with the same material as contact lenses, namely poly (2-hydroxyethyl methacrylate) poly (vinyl pyrrolidone). These are not thermo-reversible. Both gels were bathed in deionised water at pH 5.

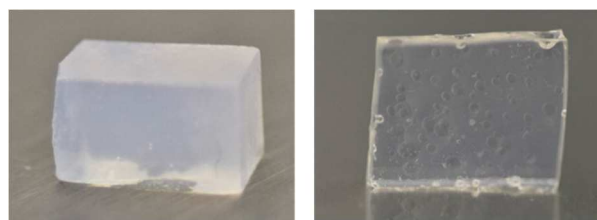


Fig. 2: Agarose gel (left), HWR/ Nanorestore gel® (right)

In order to select a suitable model leather for the tests, the characteristics of the object leather were identified. The leather was vegetable tanned and degraded, with a low shrinkage temperature of 38.2°C, and a pH of 3.85 (without strong acids).

Tests were carried out on naturally aged vegetable tanned leather, with similar properties as the Bible leather: pH, shrinkage temperature, and reactivity to water absorption.

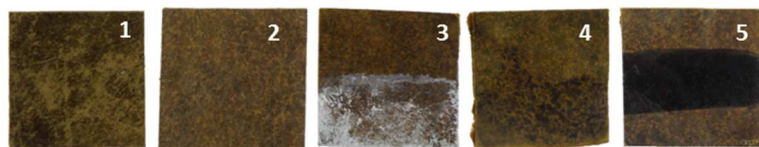


Fig. 3: Photograph of the different leather model samples

Square samples measuring 2.5 cm in length and width were split into 5 groups, each group for testing one parameter (Fig. 3):

- Group 1 and 2: leather alone
- Group 3: leather with salt efflorescence
- Group 4: leather with dark rings/tide lines
- Group 5: leather with carbon black patina

Experiments and results

The cleaning procedure was done by a direct application of the gel (1 cm square) on the surface of the leather (grain side). Different application duration were tested: 30 sec., 1, 2, 5, 10, 20 min. All samples were photographed before and after application and colorimetric measurements were carried out.

The first test was done on samples from group 1 and 2, and aimed to verify that gels do not create visible damages to the leather such as tide lines or darkening. The colour variation measured when a leather is consolidated with hydroxypropyl cellulose at 3% in ethanol and isopropanol was considered an acceptable colorimetric variation and used as a reference. Based on this experiment, 4 combinations showed the best results (Fig. 5):

- Agarose applied during 30 s and 1 min
- Max-Dry/HWR applied during 30 s and 1 min

The second test on samples from group 3 and 4 assessed the effectiveness of the gels to clean the tide lines and salt efflorescence. No change was obtained on tide lines, however, the 4 combinations gave excellent results for the removal of salt efflorescence (Fig. 5). The cleaning was significantly more homogenous with chemical gels.

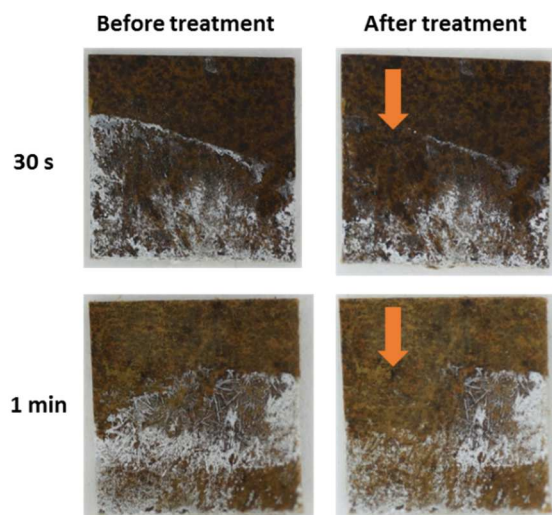


Fig. 5: Salt efflorescence cleaning on leather with chemical gel Max Dry/HWR[®] applied for 30 s and 1 min.

In order to verify that salts were removed and had not migrated into the leather, we weighed samples from group 3. The leather samples lost weight after treatment. The samples were then placed in a confined chamber with relative humidity cycling

between 30 % and 80 % at 20°C during 144h. No salt efflorescence reappeared.

After treatment, the pH of the gels was also measured. The pH had increased, from 5 to 7 (pH of sodium sulphate solution), suggesting that the sodium sulphate solution had migrated into the gel). We noted that chemical gels are easier to adjust than physical gels.

The innocuousness of the gels on the black carbon patina, was tested on the group 5 samples. No transfer of the patina was observed for all the samples tested.

Conclusion

Based on the series of tests, the chemical gel Max-Dry/HWR from Nanorestart Project applied for 30 seconds was selected, as it gave the best results with lower colorimetric change, homogenous cleaning and ease to adjust pH. The methodology was applied on the book cover's leather and colour measurements were recorded. The cleaning proved efficient and did not induce any additional stain to the leather (Fig. 6). Chemical gels Max-Dry/HWR represent a promising cleaning method for leather bookbindings as they have high solvent retention and can absorb dirt/salt efflorescence, without damaging the material or inducing surface changes.



Fig. 6: Front cover of Faust's Bible after treatment

Acknowledgment

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GILT LEATHER/GUADAMECI IN PORTUGAL: NEW RESEARCHES

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Since last year I've been adding new data in a future book on gilt leather in Portugal since the 12th century – a project started some 25 years back, and that was planned to be published in 1998 by the Ministry of Culture; the lack of funding postponed its print, as well as in a famous publisher, hence I left it open to new researches, added throughout the years.

On the practical side, the reproduction of the early 16th century mould-embossed gilt leather of the columns of the “Charola” of Tomar went quite well: the woodcarved mould, measuring 32 x 65 cm, allowed, after 3h of hand work, quite a beautiful piece, with the armilar sphere and gothic foliage in a structure of large braided counter-curved arches. I have used 2 coats of silver foil, now all waits for decision how to paint; the photos available are not that clear about this. Nevertheless, the ceiling wooden mould pattern (29 x 39 cm) proved to be too detailed; I've experimented on an 8 cm lily flower mould and the light embossing went fine; but the complete mould has 6.5 cm flowers and the sheepskin doesn't get their details well. These 2 reproductions will be for the referred book, but I also think of more detailed paragraphs, whether meant for an article or book.

The new documents of this year include the dowry of and shopping undertaken by the queen Catherine of Austria (sister of the Spanish king and Holy Roman Emperor Charles V, and spouse of the Portuguese King John III), thanks to the kindness of Annemarie Jordan; she has sent me her PhD thesis, centred on this queen. The long list of documents she cites and catalogues will surely prove to be a valuable resource in understanding the expansion of gilt leather at its apogee during the 16th century, not only the Portuguese production (with the national coat-of-arms), but also the demands from Seville and Cordoba (at least in 1525 and 1555, that I have considered in my book, published in 2017 in Spain).

In 1608 the palace of Lisbon Inquisition was restored, and the expenses were recorded; they included payments and at least names of two gilt leather masters involved in wall covering production. The Inquisition also recorded the new-Christians accused of Judaism, writing down their interiors' furnishings; again, few documents state gilt leather, few leather-covered trunks and even less upholstery. To be away of accusation, to keep a recognized status and earn a living, all took some craftsmen to require an “Inquisition familiar” document: the person had his relatives (until his grandparents) inspected, proved to be of clean blood and having no heretic connections, that is, no Jewish or Moorish blood or practices. Thus he became a “familiar” of the Inquisition: civilian, but having powers to accuse anyone of infidel rites. In the gilt leather trade I came across a family in Lisbon – two brothers gilt leather makers, their two sons, a son-in-law, and a grandson –, from 1608 until 1685, all demanding such document of purity.

Another new chapter is centred in Rodrigo Afonso, a gilt leather maker from Lisbon. In 1519 he is appointed as the craftsman of a daughter of the king Manuel (ruling Portugal and its new territories, reaching India and Brazil) and allowed by this king to carry 1.800 sheep skins from Lisbon to Évora (the court often shifted headquarters) – plenty of materials, and surely he wasn't working alone. In 1525 he is in Cordoba as “the gilt leather maker of the king [John the 3rd], neighbour from Lisbon”, buying wall covers, cushions and figurative altar fronts. In 1531, the king states he can ride a mule and carry a sword in the saddle, and in 1538 he's making cushions and floor platforms' covers for the queen, Catharine of Austria. In July 1544 he delivers an altar front to the queen; two months later, he's in Évora, receiving payments in wheat. In 1555 Rodrigo Afonso lives in Lisbon at the New Street of the Goldsmiths (after the 1755 earthquake, such road was called Aurea Street, nowadays Street of the Gold / Rua do Ouro), in downtown Lisbon and not far from the palaces of the kings, by the river side; it was a top business street of the imperial Lisbon. He has a young single female slave, named Briolanja, from Braga (350 km north), few months before owned by a seller of old clothing, leaving nearby. Considering that by 1519 he must already be a master – thus he was born by late 1480's –, aged at least 30 years old, by 1555 he was at least 65 years old, hence needing the help of a slave more than ever.

And slavery is another topic. In 2009 I had a book published, centred in a 1610 Inquisition trial of Lourenço da Costa, a Moorish slave from Granada, born in Seville and bought in Cordoba somewhere in 1578, when 10 years old; he came to Lisbon bought by a local gilt leather master, living in the Street of the Gilders /Rua dos Douradores (still existing, like many other ones, linked to crafts, including leather, like Correeiros/Leathercraftsmen and Shoemakers' streets, all in downtown Lisbon). A short article was published in [UK's Tool and Trades History Society Newsletter, no. 96 \(Spring 2007\)](#).

I wrote that, by late 16th century, it was still possible to travel to Spain and buy a slave; in fact, it was rather a common business. The main European slave trade was started by the Portuguese in the 15th century, when colonizing along the northern African coast. Lisbon, and also Seville, became the main slavery trade posts, providing slaves particularly to kings and wealthy nobility, but also to rich craftsmen, like textile and goldsmiths; few others, like rich tanners and shoemakers, also bought slaves, or a few also worked in such crafts expecting to learn a profession when allowed to buy their freedom later on. If Africans and black slaves were the majority – also exported to the new conquered territories of Brazil and South America-, Moors were included as well, particularly after the Islamic uprising in the former Granada sultanate lands, in 1568 – most probably, the parents of Lourenço da Costa were part of these ones.

The famous “Cordobanes and Guadamecies” book, published in 1955, does give data of a couple of slaves – with a mark on the face, done by a hot iron (seems a normal way to brand a slave, along with chains, like Lourenço had)–, but further research provided more data of slavery in the leather trades. Some of this new information was added in the gilt leather book, and most of it will go in another one: the Spanish version of the Moorish slave trial, which I expect to get sponsorship for the print once again from Cordoba's city council – it's so difficult to have a book published, as nowadays the publishers ask the writer to buy quite a large pack of his own books... I often wonder what will I do to get the thick and much illustrated gilt leather book to be printed ...

The Norwegian Guild of Spanish Leather visits Portugal

On Sunday, the 13th October, me and Ana met a group of 27 Norwegians at the castle of Guimarães – an emblematic place, pre-dating the formation of the kingdom of Portugal, in the 12th century. They had arrived the previous day, and were touring Portugal for one week. After a guided tour at the castle and local museum (which keeps gilt leather altar fronts and a British screen, all of the 18th century), we headed to the Leather River and Leather Street, the medieval places of tanning and currying hides and skins, where many pits can be seen, whether in the tiny streets or integrated in buildings, like the kindergarten and an University Research Centre.

The Norwegian Guild of Spanish Leather/Norge Gyllenlaerlaug was formed in 1992, having in aim to spread gilt leather as an art and craft, providing courses, exhibitions and diplomas for future masters. Of this visiting group, 25 women were involved in gilt leather making – a number surpassing the existing artists of Spain!

“Spanish Leather” is a common label of this art, but lacks clarity: the technique predates the formation of Spain, as it's an Iberian Islamic way of leather decoration. Cordoba (conquered in 1236) was the main city of its making (and exporting), but other Iberian cities – Madrid, Seville, Barcelona – also had workshops, as well as Lisbon, Évora and Coimbra.

St Crispin Day

On the 26th October, several dozens of Spanish artisans met in Silleda (near Santiago de Compostela), for a friendly meeting and the giving of the annual award “Corium Dominus Magister”; in its 3rd year, it was given to Jesús Lujo, a tanner from Sofan (A Coruña), once again recognizing the value of a life achievements for the leather trade.

Exhibition of leather art in Cordoba

After the presentations of “Each one sees what one knows” in Valladolid and Allariz, Juan Garcia Olmedo had another solo exhibition at The Living Library of al-Andalus / Biblioteca Viva de Al-Andalus (Palace of Bailío), in Cordoba, from the 10th December until the 30 January 2020. The artist has produced a video on these news series of pieces: https://www.youtube.com/watch?v=f_n_Xnhx1dE

WEBSITE

GILT LEATHER SOCIETY

<https://giltleathersociety.org/>

The website of the Gilt Leather Society was officially launched in September 2019 in Moritzburg castle.

The Gilt Leather Society aims to promote and disseminate knowledge, skill and care for gilt leather and gilt leather hangings in all their diversity. One of the primary goals of the society is to promote international exchange of knowledge.

It aims to develop further online accessibility of information about the history, technique and conservation of gilt leather.

The society aims to encourage a younger generation of both conservators and interior historians into the field. An important long-term goal is to build a database which gathers technical and art historical facts on gilt leather worldwide.

Other projected activities are the publication of a multilingual technical glossary on gilt leather, and a publication on preventive conservation, including the do's and don'ts regarding the conservation of gilt leather.

If you want to stay up to date and subscribe for all news and events from the society visit the website: <https://giltleathersociety.org/>

PUBLICATION

CUIR DORÉS, « CUIRS DE CORDOUE », un art européen

Author: Jean-Pierre Fournet

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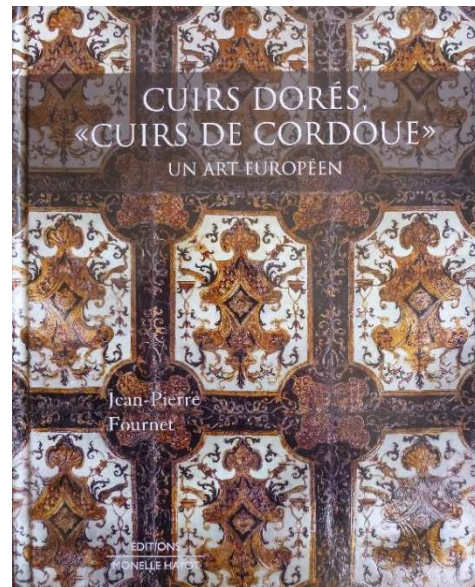
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Synopsis

Developed during the Middle Ages in the region of Cordoba, gilt leathers reached their pinnacle in 16th century in Spain. Highly appreciated and sought after from that time on by the courts and aristocracies of most European countries, the luxurious gilt leather wall-hangings largely contributed to decorate the interiors of the most sumptuous residences of the whole continent. In the 17th century, at the same time as Spanish production was in decline, more and more workshops were set up throughout the rest of Europe - Italy, the Netherlands, France and England in particular -, each country respecting the original manufacturing methods while giving special characteristics to its own products; this is how the famous embossed decorations made using the “repoussé” method appeared in the Netherlands. The craze for gilt leather continued everywhere over three centuries, from the 16th to the 18th century. In the second half of the 18th century, the fashion for gilt leather was over simultaneously throughout Europe, and by the beginning of the 19th century gilt leathers were even forgotten. Certainly, during the period of Eclecticism, there were attempts to bring these old decorations up to date, but these were only localized and ephemeral attempts; the techniques were no longer the same. Gilt leathers remained forgotten until the last decades of the 20th century. This work, based on bibliographical sources and especially on the decorations still preserved in France and abroad, retraces the largely unknown history, first Spanish and then European, of these sumptuous decorations and their evolution.

LEATHER COURSE

CUIR – Premiers gestes
LEATHER – First Actions

June 7-8, 2021

Location: HE-Arc Conservation-restauration,
Neuchâtel, Switzerland

Teacher: Céline Bonnot-Diconne, leather
conservator

Language: French

Course content

Day 1: Theory

Technological aspects, alteration and preventive
conservation:

- Leather/skin: definition, properties,
manufacturing techniques, vocabulary
- Leather/skin typology. Historic notions
- Alteration typology and causes
- Case studies: encountered problematic and
restoration examples
- Preventive conservation

Day 2: Practice

Workshop on leather mocks; initiation to first
conservation measures:

- Dust removal and cleaning
- Stabilisation
- Consolidation
- Gap filling

Public

Professional conservators specializing in historical
and ethnographic heritage

Full program and registration available from
[https://www.he-arc.ch/conservation-
restauration/formation-continue/cuir](https://www.he-arc.ch/conservation-restauration/formation-continue/cuir)

CALL FOR HOST VENUE

12TH INTERIM MEETING of the ICOM-CC Leather and Related Materials Working Group

We are looking for a venue to host the next *ICOM-
CC Leather and Related Materials Working Group
Interim meeting*.

The interim meeting is a very important event for
the leather conservation community that provides
a unique opportunity to meet and share with
colleagues about recent developments in the field.

These interim meetings can take any form and be of
any size. The dates are open, but the ideal period
would probably be in 2022.

If you are interested in welcoming such an event, or
would like to have more information on its
organisation, please do get in contact.
(laurianne.robinet@mnhn.fr)

Call for submission: 2021 Newsletter

Suggested items:

- * *Notes on new materials*
- * *Comments on old materials*
- * *Short notes on new ideas, tips and tools*
- * *Recent or ongoing projects*
- * *Courses and conferences*
- * *Recent publications including master thesis*
- * *News and updates*
- * *Anything else you can think of !*

Please send contributions to:
laurianne.robinet@mnhn.fr

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