THE INSTITUTE OF CONSERVATION

ICON TEXTILE GROUP SPRING FORUM 2026

Regeneration, Retreatability and Reflection: The Lifetimes of Textile Conservation

Celebrating 35 years of the Icon Textile Group

FRIDAY 17TH APRIL, THE WHITWORTH ART GALLERY

MANCHESTER

PREPRINTS

The Preprints of the Icon Textile Group 2026 Spring Forum were edited by the members of the Icon Textile Group:

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Cover image: Installation of baptismal gowns in the exhibition *Monomania*, 4 July – 14 September, 2025 at the Rijksmuseum, Amsterdam. Photo credits: © Rijksmuseum Amsterdam/Albertine Dijkema

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Foreword

When searching for a theme for the 2026 Textile Forum, which marks the 35th anniversary of the founding of the ICON Textile Group, I was struck by the idea that 35 years is approximately the working lifetime of a textile conservator. I began my training in textile conservation in 1992, just one year after the group was founded and I now find myself contemplating the closing years of my career. This thought resulted in the title for the forum being 'Regeneration, Retreatability and Reflection: The Lifetimes of Textile Conservation' and sees our presenters and authors in reflective mood.

The papers that were selected for this forum discuss how our practice has evolved over the last generation of conservators and evaluate our place as conservators in relation to our predecessors. Several of the papers are case studies that discuss the evaluation and reversal of past treatments, choosing what to reverse, what to retain and choosing new paths forward. Other papers discuss our changing attitude to the objects that we treat, specifically in relation to the retention of evidence of use and wear. A theme that is the subject of two costume exhibitions in 2026, both titled 'Worn', one at the Manchester Art Gallery and the other at the Rijksmuseum. Then there are papers that relate to our history of practice and to our working relationships with other fields of conservation.

I would like to thank our sponsors; The Textile Society, The TC Foundation, Conservation by Design International, and Dukeries Textiles and Fancy Goods for their very generous support. Their contributions to the forum allowed us to offer free registration for textile conservation students and emerging conservators.

Finally, I would like to thank everyone who has contributed to the 2026 Forum including our delegates and speakers who are joining us from around the world both in person and online. I would like to thank the members of the ICON Textile Group committee for their hard work in organizing the event, and the staff of the Whitworth Gallery and the University of Manchester for their patient help. I would particularly like to thank Eleanor Simcoe for joining the group to act as the preprint coordinator, liaising with the authors, organizing and formatting this publication in readiness for the Forum.

Joanne Hackett ACR

Chair of the ICON Textile Group

Textile Conservation Pasts & Futures: Changes & Challenges

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Abstract
This paper is a summary of a presentation given at the ICON Textile Group Spring Forum *Regeneration, Retreatability and Reflection: The Lifetimes of Textile Conservation*, 17 April 2026 in response to a challenge to reflect on changes observed during one conservation 'lifetime'. Key shifts are identified and discussed from a personal perspective of a conservator who has also worked as a curator, researcher and educator.

Introduction

Responding to the brief of what I have learnt during a lifetime as a conservator was in itself a big challenge. In what is obviously a personal perspective, I have chosen to explore changes which I have experienced. I'm sure others would identify other issues but I hope that mapping some of the key changes I have observed will be useful in identifying ways forward with current issues which are impacting our profession and to which we need to respond. Underpinning my reflections is a focus on the reality that things – in our case, textiles and dress - are physical links with the past and are valued differently in museums, in collections and in people's lives. Sometimes this value is expressed in personal or familial terms, sometimes financially (although this may be a chronic undervaluation), sometimes historically or evidentially and we need to find a way of engaging with these values, making them evident and sustaining them. As Clavir put it, these are the 'societal values that led conservators to hold their present ethical principles, values and beliefs' (1998: 1). Kopytoff's well-known model of object biography (1986) has become important in conservation thinking, steering interventions but as Eastop (2017) observed, 'Curatorial and conservation decisions tend to privilege certain stages in an object's biography over other stages', guiding how an intervention aims to sustain a particular physical manifestation in a specific context. So it seemed logical to identify myself as the 'object', as a conservator who has also been privileged to work as a curator, educator and researcher, and focus on Kopytoff's question: 'How does the thing's use change with its age, and what happens to it when it reaches the end of its usefulness?' (1986: 67).[1]

[1] I co-curated 'Stop the Rot' at York Castle Museum with Simon Cane, taking forward an idea proposed by Dr. Christopher Caple as well as guest-curating two exhibitions on early modern English embroidery at the Ashmolean Museum of Art and Archaeology, Oxford; Brooks, M. M. and Cane, S. F. 1994. Creating an exhibition on museum conservation: 'Stop the Rot', York Castle Museum. In: J. Sage, ed. *Exhibitions and Conservation*. Edinburgh: Scottish Society for Conservation and Restoration, 35-44; Brooks, M. M. 2014. 'Wrought very hard'. Ashmolean Museum exhibition of 17th century embroidery: 'The Eye of the Needle', *Country Life,* 13 August, 70-73.

Conservation and Reflection

Conservation practice has often been controversial, sometimes ambiguous and far from neutral (Sherring 2023). Richmond and Bracker urged the profession to undertake critical reflection and analyse the complex and multiple roles of conservation as 'a socially constructed activity with numerous public stakeholders' (2010: 18) in order to undertake meaningful dialogue within and beyond the profession. Conservation is a relatively young field. And it is probably fair to say that textile conservation came late to the table, problematized by a history of domestic care, gender and undervaluing in the cultural and financial senses although often revealing new insights into the history of textiles and dress and what these disclose about the people who made, used, wore, altered and discarded them.

Kohl and McCutcheon stress the importance of being 'aware of everyday "talk" and the role it plays in facilitating a more nuanced understanding of ourselves, our research, and the relationships between the two' (2015:758). I would extend that here to include conservation thinking and professional learning and acknowledge with gratitude all those colleagues, conservators and curators who have guided and challenged me and from whom I have learnt so much including, not least, excellent questions posed by students. I should also note I have learnt much from working with things, both individual items and collections.

Conservation Paradoxes

The essential paradox of conservation is that of preservation versus use, here understood in the broadest sense to include research, display and engagement in different contexts. As Cane observed 'Perhaps the biggest challenge that we face is balancing our need to use cultural material against our desire to preserve it. There is a balance to be struck and conservators can help to make sure that we use rather than consume the finite resource that is our cultural heritage' (2009: n.p).

In 1982 the then United Kingdom Institute for Conservation of Historic and Artistic Works (UKIC) formulated *Guidelines for Conservation Practice*. This used the idea of an object's 'true nature' as the central check for assessing the appropriateness of conservation interventions and how far these should go. 'True nature' pulled together ideas of an object's physical, historical and conceptual attributes, including alterations, as a single, theoretically objective, actuality but was to prove a challenge in a world alerted to the impact of different cultural perspectives. Defining 'true nature' became contested – what was it and how should it be understood? How could it be used as a meaningful framework for decision-making in conservation interventions? It disappeared from the 2020 Institute of Conservation's *Principles of Conservation* which notes the need for a 'thorough understanding of the item and its significance, including its tangible and intangible qualities' (ICON 2020). We are still grappling with the idea of 'significance'. What is this? How might it relate to integrity or authenticity? And how did this help when making decisions about what it was that should physically be preserved?

While these ideas were being debated, there was a general rethinking of the level of intervention which was appropriate with the recognition that interventions were themselves part of the object's biography (Peters 2002: 64). There was a shift in focus from the idea of a conservation treatment being reversible to that of minimum intervention and greater stress

on risk assessment and management (French 2024a: 20). Reversibility was always problematic where cleaning was concerned (Appelbaum 1987). As Ashley-Smith put it 'In theory nothing should ever be taken away (removal is nearly always irreversible)' (1982: 3). When a textile has been cleaned, it has been irreversibly changed although I suspect many of us probably have little bags of residues collected during surface cleaning and from wash baths tucked away. The practical realities of reversibility were recognised as this was reframed as 'removability or 're-treatability'. However modelled, there was certainly a shift to assessing risks and benefits and the most appropriate way of framing and delimiting a conservation intervention (Muñoz Viñas 2005: 188-191). The concept of minimum intervention, not least the difficulty of defining it, is also not without controversy. As Caple asked, 'The minimum intervention to achieve what?' (2000: 65). It is important to recognise that even a minimal intervention is not neutral: it changes an artefact, sometimes in response to stakeholder views or to museological interpretations (Villers 2004: 6). Nevertheless, this shift was highly significant and provided a new framework for defining how far a conservation intervention should go whilst, combined with ICON's *Ethical Principles*, embedded engagement with stakeholders. Significantly, the 'option of no action' was placed first of all (ICON 2020). This huge alteration in thinking and, potentially, practice was coupled with greater stress on explaining the reasons for making a decision (Henderson & Nakamoto 2016). Critical thinking clearly needs to be applied to all stages of treatment development and realised in highly skilled conservation.

Changes in Thinking & Practice

Different attitudes to soils, creases, wear and repair as evidence evolved alongside these changing approaches. It is worth noting that textile conservators have long engaged with these issues; for example, Finch (1996) discussed the significance of information revealed through conservation. Understanding of such accretions changed from seeing them as undesirable to testimonies of use. A different balance is now sought between valuing this as evidence versus potential present or future risk to the artefact's survival. Two current exhibitions celebrating just this evidence are indicative of this key shift in both curatorial and conservation approaches: *Worn: The Life within Clothes* (Manchester Art Gallery) and *Worn: Treasured Clothing* (Rijksmuseum).[2]

Orlofsky's and Trupin's key article (1993) argued that decision-making is contextual, never neutral but reflects what is valued. The approach to treatment of a rare Fifth Dynasty linen garment used as a funerary garment well illustrates changing attitudes to soils and creases. The curator and the conservator jointly decided to humidify rather than wet clean this garment to preserve the evidence of possible embalming residues and what they describe as 'natural' creasing (Hall & Barnett 1985). Clearly, there has been a change in thinking about cleaning (Eastop & Brooks 1996). The Textile Specialty Group Conservation Wiki (2026) notes: 'there are many reasons NOT to wet clean'. Whilst it remains an important treatment option, it is evaluated differently using different tools and methods to control risk: quite a change in one conservation lifetime.

New technological tools, including multispectral imaging, are now readily available (Haldane *et al*: 427). The revelations of textile conservation investigations and interventions can be

[2] https://manchesterartgallery.org/event/worn/; https://www.rijksmuseum.nl/en/press/press-releases/rijksmuseum-presents-worn-treasured-clothing

more detailed, more informed, more exciting and communicated more effectively to visitors and stakeholders. AI can enrich approaches to textile conservation thinking and practice. This may include enhanced mapping and non-invasive analysis to understand degradation, creating digital 'restorations', modelling behaviour of degraded textiles, interrogating the masses of published and visual information or telling new stories through VR enabled exhibitions. It is still important to remember that all these can inform decision-making but such decisions need to be made and acted on by trained specialists.

Wider Contexts

I well remember my feeling of relief when I first read the *Guidelines for the Conservation of Places of Cultural Significance*, aka *The Burra Charter* (1979) and the Nara *Document of Authenticity* (1994). Here were the connections I was looking for. Even though I had to extrapolate from place to object, these helped me reflect on why it was important to preserve the intangible and tangible 'collective memory of humanity' while the Nara *Document* in particular challenged 'conventional thinking in the conservation field … to bring greater respect for cultural and heritage diversity to conservation practice' (1994: 245). Also inspired by Clavir's work (2002), conservators were exploring how our work intersects with respect for originating communities as well as for their artefacts. This thinking seems to be reflected in the evolution of International Council of Museums' definition of the museum (ICOM 2022). The latest version still stresses the importance of collections and their conservation but frames these in a much broader social context. The idea of conservation going beyond technical preservation to making a contribution to communities and culture has developed: 'conservation will flourish best when conservation practice itself is understood by the public and policymakers alike as not just a means of 'fixing things', vital though that is, but as a means of creating cultural meaning' (Brooks 2011: 332).

Textile conservators are reflecting on their roles in the complex and often difficult processes of repatriation and decolonisation now going on in many UK museums. How do we participate in and contribute to the re-evaluation of textile and dress collections from colonialized contexts often acquired due to an unequal exploitative power balance (to put it mildly) – and how does our physical engagement with their reality inform understanding? The preservation of intangible cultural, social and spiritual meanings is acknowledged as impacting textile conservation practice and seen as being as important as material understanding, another legacy of the Nara *Document* (1994). This may involve working directly with source communities in treatment decisions as participatory practice and integrating indigenous preservation practices and perspectives (Atkinson *et al.* 2017). It may require letting go of some practices while safeguarding intangible and tangible aspects of the artefact and its multiple histories. We may directly be involved in addressing and redressing historical injustices in repatriation process. For example, I was recently privileged to work with conservator Te Kanawa preparing an 18th-century *pauku* (war cloak) for long-term loan from Durham University's Oriental Museum to Auckland Museum, *Aotearoa*/New Zealand. It will be cared for by *Te Aho Mutunga Kore*, the textile and fibre knowledge exchange centre for Māori and Pacific communities, with an active public programme under the guidance of a Māori curatorial team and *Taumata Māreikura*, the Museum's expert weavers advisory group (Durham University 2025).

The nature of collections has continued to evolve. Whilst textiles have long been political, artists are using them overtly to explore violence, imperialism, exclusion and women's lives. The Barbican/Stedelijk 2024/25 exhibition *Unravel: The Power and Politics of Textiles* used textiles 'to speak powerfully about intimate, everyday stories as well as wider socio-political narratives, teasing out these entangled concerns through a stitch, a knot, a braid, through the warp and the weft … to reveal ideas relating to gender, labour, value, ecology, ancestral knowledge, and histories of oppression, extraction and trade'(Barbican [2024]). While part of me was reeling with the power of the pieces, my conservation head was thinking about the need to understand, sustain and preserve these complex pieces. Our skill set has had to embrace and respond to such challenges (French 2004b).

Challenges

This is the background against which we are trying to convince visitors, directors and funders that what we do as conservators matters (Williams 2013). We have got much better at telling our stories. Textile conservators are quite brilliant at using social media to connect with their peers, audiences, museums and potential clients. Using these tools can effectively demonstrate how our work contributes as a 'public good': preserving histories, linking present, past and future and demonstrating that the material culture of those who may not have been valued in their lifetimes is valued now. Public engagement is recognised as a key part of conservators' activities and one which intrigues visitors who love to 'see behind the scenes' (Koutromanou 2015).

Sadly, this recognition does not seem to have translated into sustained funding for conservation although competitive project funding is available (Arts Council 2024). Many Local Authority museums are under huge financial pressures, resulting sometimes in closure, often in the loss of specialist staff posts. Conservation in general seems to be particularly liable to outsourcing. It is difficult get hard data on how this has impacted textile conservation posts but I suspect we have all observed and discussed this shift. Set alongside this are many thriving, professional independent textile conservation practices which are evidently fulfilling a major public need while providing vital pre-entry experience and internships to textile conservation students. To quote Cane (2009: n.p.) again: 'Collections are the primary asset of a museum and it makes sense to invest in their conservation. But as government policy has increased the emphasis on education, access and use, it seems to have diminished in equal measure in the areas of collections care and conservation … there has been a steady reduction in conservation provision in publicly funded museums and galleries.' We have to engage with the implications of this.

We are fortunate in textile conservation to be able to work with many skilled, committed volunteers. Volunteering can be a powerful way of engaging with communities and enhancing well-being as well as providing a vital route for those wanting to enter the sector to hone skills but we do have to ask whether museums are becoming over-reliant on volunteers. These may not be a sustainable resource in terms of recruitment, retention and expertise. The Association of Independent Museums estimated there were 4 volunteers for every employee and 38,900 volunteers in the UK independent museum sector in 2023 who contributed over half a million volunteer days, worth around £41 million (AIM 2024). It may not be a popular question but it is worth considering whether this is impacting the creation and retention of textile conservation posts.

This leads on to reflections about the accessibility of conservation programmes. We are probably all too familiar with the issues here – and I want to be clear I'm not criticising those delivering such programmes in any way. Post-graduate career entry has become the norm although there are other routes.[3] Entrants to conservation programmes have to satisfy a formidable roster of requirements (Brown 2012). From universities' perspectives, such courses are atypical and resource-intensive with high staff-student ratios; often popular with University bigwigs hosting important visitors, they tend to be unpopular with those doing the sums. Fees for courses without bursaries are a barrier, especially problematic when the profession is hoping to increase inclusivity and diversity (Francis 2021).

We also have to consider what museums are seeking from conservators. Conservators with expertise in preventive care may be seen as more 'useful' than specialist materials-based conservators. Preventive conservation is another area where there have been major changes. The sector has (hopefully) moved on from a sometimes over-rigid application of Thomson's environmental recommendations to risk-based decision-making (Staniforth 2014). The paradigm has changed from focusing on one object to the object in context, embedding concerns for environmental as well as collection care. Preventive conservation approaches now seek to integrate environmental sustainability, aiming to optimize energy use and reduce climate impact without harming collections. Material culture is a finite resource but even the best well-designed conservation intervention seems rather pointless when the planet on which the piece exists is itself threatened. Textile conservators have developed many practices embedding ecological conservation through green practices from non-toxic surfactants to reduced energy and water use while adopting circular economy approaches to managing waste (De Silva & Henderson 2011). Conservation programmes are integrating sustainability in learning and practice (Thompson & Herriges 2024). The United Nations set out the Sustainable Development Goals (SDGs) in 2015 although it took a surprisingly long time to embed heritage here - the International Council on Monuments & Sites did this six years later, although it is necessary to extrapolate their points to apply them to textile conservation (ICOMOS 2021).

Conservation Futures

As conservators, we engage with decay – we document it, analyse it and intellectually and practically work out a way of (temporarily) overcoming it for a defined context. So the idea of curated decay can be challenging (DeSilvey 2017) but this is an important question – it is not possible to 'save' everything. And that returns us to questions of value and decision-making: what are the priorities? And why?

Conservation is part of a world-wide community, essential 'for the well-being of society' (Brooks 2013). I do not consider we have reached the 'end of conservation', contrary to Muñoz Viñas's (2025) provocative proposition. My 'lifetime' as a conservation 'object' has seen a shift from more absolutist 'expert'-led approaches to more relativistic contextualization while striving to retain principles and practice which preserve tangible and intangible material heritage without which history disappears or is very different. I do agree with Muñoz-Viñas (2025) that conservation needs to be open to developing to meet the many needs of a changing world. For me, the joy of conservation is that it brings together

[3] Some business offer in-service training such as apprenticeships; see https://www.textileconservationworkshop.org/about.

thinking and doing while constantly re-evaluating and re-contextualising what it is we are doing and why. We work in a very mutable world and a sector under huge pressures. And it is heartening to read a new defence of conservation as meaning-making, framing conservators as first responders in a fragile world full of fragile things (Miller 2026). It is with this optimism that I hope these reflections have 'usefulness' as our profession continues to evolve.

Acknowledgements
I would like to thank the ICON Textiles Group for inviting me to give the keynote lecture at the ICON Textile Group Spring Forum *Regeneration, Retreatability and Reflection: The Lifetimes of Textile Conservation*, 17 April 2026.

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The Business of Legacy: Generational Change and the Realities of Succession

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Abstract
Taking on an established textile conservation studio may appear to be a golden opportunity, offering a fast-track to growth and profitability, reducing the risks of slow growth, heavy investment, and high financial uncertainty associated with a startup. The reality of taking over an established company is far more challenging than it may first appear. As well as the positive elements, one may inherit outdated operational systems and equipment that require significant investment to correct. In 2024 Hey, Grimshaw-Oliver and Shewry became directors of The Landi Company against the backdrop of a post-Covid-19 world and an economic downturn. Since then, they have modernised the studios, nurtured client relationships, and invested in marketing and rebranding, whilst maintaining Landi's wish that her name would continue.

Company profits were reinvested to modernise the studio to ensure its survival in today's market. External challenges such as inflation, reduced funding within the heritage sector, being female, working in the Arts, and working with textiles that are often perceived to hold little financial value, are considered within the context of textile conservation.

This paper will provide succession recommendations based on the experiences of Hey, Grimshaw-Oliver and Shewry, as well as an insight into the realities of taking on a private practice which may help others who are facing succession. In line with the forum's theme on generational change and legacy within conservation, it is hoped that the transition of The Landi Company to new directors can demonstrate that succession can be beneficial to the broader conservation profession.

Introduction

Running a private practice can be hugely rewarding, offering conservators the chance to work flexibly and build an interesting portfolio. This paper is a reflection on the succession of The Landi Company and the importance of legacy within conservation.

Now owned and run by Melinda Hey, Kelly Grimshaw-Oliver ACR and Louise Shewry, The Landi Company was established in 1992 by Sheila Landi, former Head of Textile Conservation at the V&A. Taking on an established textile conservation studio may appear to be a golden opportunity, offering a fast-track to growth and profitability thanks to the inheritance of immediate access to an established infrastructure, an existing customer base, trained staff,

and brand recognition. Taking over an existing business also reduces the risks of slow growth, heavy investment, high financial uncertainty and market risks associated with a startup. Yet the reality of taking over an established company is far more challenging than it may first appear. As well as the positive elements, one may inherit outdated operational systems and practices that require significant investment to correct, low staff morale, and clients remaining loyal to the former owner rather than the business itself. Whilst taking over an established conservation studio is challenging it does offer an opportunity for personal and professional growth.

Given the inherent challenges, why is succession so important? Anecdotally, the issue of succession has been a concern for private practitioners for at least a decade. Alison Lister ACR, Director of Textile Conservation Ltd., Bristol, has recently been discussing this issue, stating she has used profit sharing in the past to help staff feel more connected to the business, and has even considered changing to a co-operative business model but has found that many conservators do not aspire to being business owners.[4]

When a company ceases trading, or fails to be passed forward (i.e., fails to execute a succession plan, transfer ownership, or sell), its loss can create a domino effect, impacting suppliers, customers, and partners, and creating instability across the wider industry. Succession can support local economies by protecting jobs and can also signal company stability, ensuring continued customer trust in a company's viability. Within the conservation sector more specifically, it is not just a question of losing knowledge and experience if a company dissolves without successors. Some of the ramifications of succession failure include loss of documentation, project disruption, loss of expertise, and an impact on the wider community.

Professional ethical standards require rigorous documentation (condition surveys, work records, treatment reports and visual records), however these are often lost or separated from objects over time, especially if documentation is pre-digital or if objects have moved between collections. It is not uncommon for past clients to request further information about treatments that were undertaken 20 plus years ago, nor is it uncommon for other conservation professionals to enquire about past treatments. If a company is dissolved, what happens to that company's archives?

In terms of workflow, textile conservation is a slow-moving industry prioritising treatment quality over speed, meaning that some projects may take months or even years to complete. Succession failure can result in project disruption or place collections at risk by removing those who monitor their ongoing care.

Conservation as a profession is today taught at universities around the world. However, whilst a qualification in conservation provides the foundations of what it means to be a conservator, experience, mentorship and networking opportunities remain critical in ensuring an emerging conservator can transform theoretical knowledge into practical application and succeed within the industry. Landi (1992) wrote, "teaching in practical conservation, as in any other subject, is reciprocal", requiring a connection between student

[4] Email correspondence between The Landi Company Ltd. and Alison Lister ACR, January 2026.

and teacher. The loss of tacit knowledge when an experienced conservator fails to find and train up a successor to their business cannot be understated.

Shaping the Legacy

Sheila Landi played a key role in the development of conservation within the Victoria and Albert Museum and was a great advocate in raising awareness of the scientific and theoretical side of conservation. She, and members of her generation, were influential in moving conservation from a craft-based activity to the professional status it holds today. Landi formed The Landi Company Ltd. at the age of 65 largely as a retirement project. The fact that there was a company to pass forward 30 years later is testament to Landi's passion and commitment to the conservation profession. Over the years, numerous conservators were primed to take on the company, however Landi delayed retiring. Being a conservator defined her, and as she aged it became her *raison d'etre*, keeping her young at heart.

Unlike previous potential successors, neither Hey, Grimshaw-Oliver, nor Shewry originally planned on remaining with the company. The act of succession was an unplanned case of 'being in the right place at the right time'. Landi's advancing age and the Covid-19 pandemic resulted in Hey, Grimshaw-Oliver, and Shewry being the sole remaining employees and those in whom Landi placed her trust. It was fortunate that all three have had, from the outset, a shared vision for the company and its future, and even more so that they have proven to be the right mix of personalities and ambition to succeed at what, for any one individual, would have been an overwhelming task (Figure 1).

External Challenges

The economic challenges of taking over The Landi Company have been substantial and multi-faceted. Running a business in the UK has been difficult over the past 10 years, with Brexit, the Covid-19 pandemic and the cost-of-living crisis affecting the stability of businesses across many industries (Phelan 2025). Conservation can be considered a luxury service, and in times of economic challenge the company has seen an almost instantaneous decline in work across all clients, from individuals to larger organisations. As with many small businesses it is difficult to forecast future income further than six to nine months ahead, since forecasting beyond this window relies on predicting market shifts, customer behaviour and economic conditions which are inherently unstable.

Inflation rose from 0.9% in January 2021 to 3.35% by December 2025, peaking at 9.6% in October 2022, and remaining above 7.5% between April 2022 and May 2023. Based on ONS data, the resulting cumulative UK CPIH inflation from January 2021 to December 2025, driven by the high inflation between 2022 and 2023, is estimated to be above 20%.[5] In the face of resulting rising material costs, a cost-of-living crisis, and client requests for conservation treatments to be undertaken for unrealistic and financially unviable prices, The Landi Company has had to remain competitive, keeping prices in line with other conservation studios and ensuring it does not price itself out of the market.

A significant challenge when taking on an existing company can be having to adopt the existing business structure. Landi started the business as a post-retirement venture to

[5] Source: Office for National Statistics
https://www.ons.gov.uk/economy/inflationandpriceindices/bulletins/consumerpriceinflation/january2025

continue working in heritage. Whilst Landi considered the issue of succession, and took on several conservators with this in mind, the studio had no concrete succession plan. Landi (1992) noted that money was often short, accepting that it was "not only money which is unavailable, but technical support….leaving the conservator, usually female, to cope as she can". Landi took on projects that satisfied her curiosity, or that she felt would safeguard objects for future generations, often at a loss of income that was taken as personal sacrifice.

The studio inherited by Hey, Grimshaw-Oliver and Shewry had no business model to speak of and could not provide a sustainable income. The most significant and crucial change upon succession was the dissolution of the existing company, which, due to the way it had been incorporated, could not be restructured in a way that would allow it to be profitable. Behind the scenes a new company, The Landi Company Textile Conservation Ltd. was formed, whilst the public face of The Landi Company remained constant (Figure 2).

Figure 1. Louise Shewry, Melinda Hey, Sheila Landi and Kelly Grimshaw-Oliver, 2024. © The Landi Company Textile Conservation ltd.

Figure 2. Conservation treatments undertaken in Studio One, Kennel Yard © The Landi Company Textile Conservation ltd.

Whilst this is a discussion on taking over an existing company, from a financial perspective The Landi Company is effectively a new company. When starting a new business, turning consistent revenue into lasting profitability is not expected until the third or fourth year, by which time the business will have a stronger market presence, a more refined business model, and a solid customer base (Hecks 2024). This has certainly been true for The Landi Company; over the first three years net earnings were reinvested back into the company to fund growth in the form of new equipment, studio maintenance and marketing. It was not until year three that the company started to see excess profits that could be used to balance business security with personal financial needs.

Despite the numerous challenges that were presented by taking on The Landi Company, there were several benefits. First and foremost, inheriting the company's key asset, its network of clients. Secondly, the company's reputation. Having existed for 30 years prior to its succession, the company had solid connections with local clients who were familiar with Landi and her approach to conservation. In the first year of succession there was a period of adjustment, not only for the new directors but for its clients as well. To retain inherited clients, it was necessary to prioritise continuity; clients were contacted regarding the change of ownership and reassured that the company would continue to function as it had

previously, with any existing agreements honoured. Nearly all clients were understanding and excited about the future of the company.

The Landi Company needed to become profitable to survive. Over the last three years, prices have been adjusted incrementally to achieve this. Adjusting prices for existing clients is a delicate balance between increasing profitability and maintaining client loyalty. Expectations of treatment cost needed to be managed. Enhanced value and transparent communication through thorough explanation and extensive documentation helped to calm unease. Prices are now in line with those of the company's competitors; not only is the company's brand value maintained, but consistent pricing across the wider industry ensures the profession of conservation is not undervalued.

Icon's 2024 Conservation Salaries Survey revealed the average annual wages of a conservator were £30,389 (Early), £39,100 (Mid), and £48,103 (Senior), with Icon suggesting a slightly higher average wage of £32,000 (Early), £46,704 (Mid), and £52,000 (Senior) (Icon 2025). In private practice the average salary was £36,700. However, unlike institutions or large organisations, where there is the opportunity to move into management or senior roles, often there is an invisible salary cap for private practitioners regardless of number of years in practice due to high operational overheads, the labour-intensive nature of the work, and a limited market for services. There tends therefore, within private practice, to be a misalignment between qualifications and Icon's recommended salaries. Between Hey, Grimshaw-Oliver and Shewry, there are four Master's degrees, two Graduate Diplomas, and four undergraduate degrees. Grimshaw-Oliver has achieved Accreditation, Shewry is on the pathway, and Hey is looking to join the pathway next year. Yet, despite their achievements, the take home income of each company director has been at, or slightly above, the National Living Wage for the past five years (Figure 3).

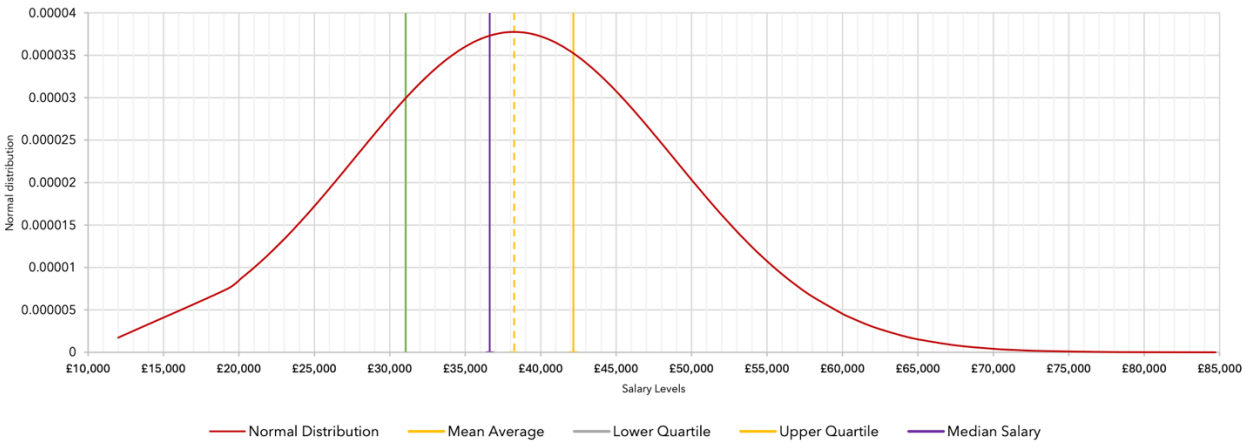

Figure 3. Overall average salary levels from Icon's Conservation Salaries Survey 2024. © Icon.

Internal (controllable) issues that come with taking on an existing company must be viewed in the context of broader (uncontrollable) market forces. This can inform change either to the company's processes or to the strategies the company uses to adjust to a changing market.

The heritage sector has been underfunded for years, with a £2.3bn loss of council spending on culture and leisure services in England since 2010/11 (Kendall Adams 2024). The UK

government has the lowest level spending on culture among the European nations, with local government revenue funding of culture and related services decreasing by 29% in Scotland, 40% in Wales and 48% in England between 2010 and 2022 (Ashton *et al.* 2024). Such funding cuts mean heritage institutions are frequently reliant on individual donors, grants, lottery funding and tax breaks. The Landi Company has seen this in real terms, with most museum and church projects requiring funding, which in turn means jobs may take many months, if not years, to come to fruition.

Additionally, the arts is notoriously an industry staffed by women on low wages; in 2024-2025 women made up 73.1% of employees in the lowest paid quarter yet only 58.1% of employees in the highest paid quarter (The Arts Council of England 2025). When a sector's senior positions favour men it leads to disparities in both pay and career progression for women, who then often have less influence on organisational strategies and policy decisions.

The division of art and craft in Western culture was not apparent until the Renaissance when, 'a hierarchy developed that saw fine art – with its masculine associations – prized over the craft of stitching' (Butchart 2018). This division increased with the academisation of the art world in the 18th century and the Royal Academy's introduction of a rule that banned needlework, alongside other "lesser" art forms, from admission into any exhibition. Formed in the 19th century, traditional Western art history constructs (by and for men), have identified art with wealth and power, valuing economic worth based on authorship. Art created by women has been considered of lower 'quality' and therefore of lesser value. Textiles, associated with domesticity and femininity, have long been labelled inferior to the 'high arts' (Chadwick 2002)

Given the inherent disadvantages of being female, working in the Arts sector, and working with objects that are, despite the illustrious history of textiles, often perceived to hold little financial value, the issue of income and profit for private practice textile conservation studios requires further consideration. These broader issues contribute to the challenges The Landi Company must overcome to ensure profitability and enhance credibility. To understand and address these challenges, it would be beneficial for Icon to survey private practitioner's fees across all specialisms, further dividing this by gender and region.

Practical Considerations

Reinvesting company profits to modernise the studio has allowed the company to provide more effective treatments with increased efficiency, ensuring the ability to work to client budgets as well as protecting employees and the company by meeting current health and safety standards.

Conservation studios must provide a space that can receive objects, a workspace for conservation treatments, maintain health and safety standards, and store conservation records (Henry 1992). Although The Landi Company's existing studio was technically fit-for-purpose, it was outdated.

The studio was created in the early 1990s, when many modern health and safety regulations were not in place. Amongst the materials and equipment inherited, several dangerous

and/or broken pieces of equipment were discovered which needed disposing of. Examples include outdated chemicals and a heated suction table which contained asbestos. The existing chemical storage required updating to flammable storage COSHH cabinets to ensure legal compliance. Tidying and disposal of obsolete equipment and materials which had accumulated over 30 years required skip hire and metal salvage, although where possible equipment was reused and repurposed. Simple things like redecorating the studios required scaffold hire and time away from income-generating jobs. All of these were hidden costs that may need to be considered when taking on an existing studio (Figure 4 and 5).

Figure 4 & 5.Shewry, Hey and Grimshaw-Oliver decorating The Landi Company Textile Conservation studio in 2023. © The Landi Company Textile Conservation ltd.

Since 2023 the studio has invested in large-scale equipment, including a 5m tapestry frame, a custom wash table, portable extraction unit and laboratory grade freezer, as well as smaller pieces of equipment including backpack vacuums, a tabletop vacuum, and a heavy-duty sewing machine. Purchasing new purpose-built equipment was crucial in modernising the studio to ensure it meets today's health and safety standards. These investments were at a sacrifice to a wage increase as without them, the studio would have been ill-equipped to compete in today's market.

Marketing and Brand Awareness

Marketing and branding were a crucial step when taking on the business; it presented Hey, Grimshaw-Oliver and Shewry to a new audience and allowed the company to soft launch a rebrand in a way that acknowledged the past and ensured control of the brand image.

Historically, marketing may not have played a significant role in the establishment of private practice studios. Work was often obtained purely through personal contact and by reputation. When The Landi Company was founded in the early 90's, there were only a handful of private practice studios spread across the country (approximately 14 or 15

according to the recollections of Ksynia Marko ACR, Textile and Carpet Conservator and Consultant, and Alison Lister ACR).[6] Many of these were individuals rather than studios with multiple employees. Marko notes an increase in private conservation studios in the late 1980's and early 1990's. Often, it seems, changes across the world of private practice have been spurred by institutional change. Lister suggests that Marko's move to the NT may have been the impetus behind several new ventures for Marko's ex-staff and that the TCC moves from Hampton Court Palace to Winchester then Glasgow also prompted several new businesses. Historic Royal Palaces also had a major restructuring around this time that resulted in a few people setting up on their own.[7]

As the generation of private practitioners who established themselves in the 90's nears retirement, any studio closure or succession will inevitably create opportunities for new ventures in an increasingly competitive market. Today, conservation is a competitive industry, with up to 100 new graduates entering the job market across all specialisms every year. From a private practice perspective, marketing is now crucial; it is a means of attracting prospective clients and employees, promoting the work of the company both within and outside industry circles, and, from a wider perspective, encouraging public engagement within heritage and conservation.

Marketing may be an expense that goes unnoticed by conservators within larger institutions, as it usually falls outside of a conservation department's budget. The Landi Company employed the help of an external marketing agency to develop a brand identity and marketing strategies; this helped The Landi Company to develop a Unique Selling Point, brand values, objectives, and communication pillars, providing a focus on what the business was offering and how to reach the target audience. Annual meetings with the agency ensure the company stays on track with its marketing strategy and identifies areas of opportunity (Figure 6 and 7).

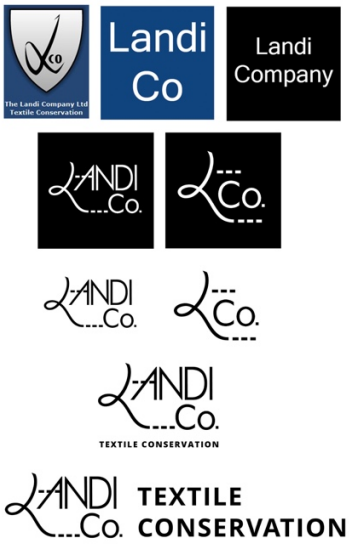

Figure 6. Evolution of The Landi Company logo. © The Landi Company Textile Conservation ltd.

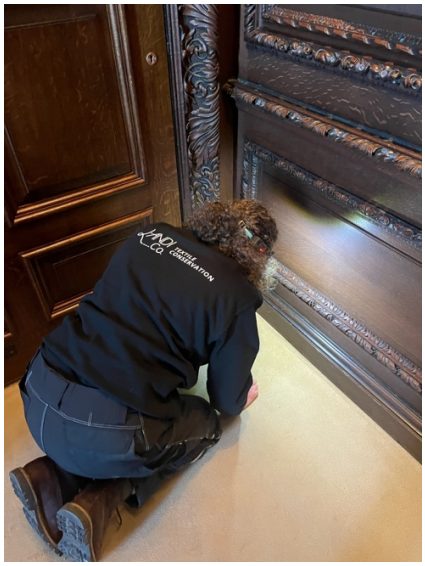

Figure 7. Hey undertaking site work in branded uniform. © The Landi Company Textile Conservation ltd.

[6] Email correspondence between The Landi Company Ltd. and Ksynia Marko ACR, January 2026.

[7] Email correspondence between The Landi Company Ltd. and Alison Lister ACR, January 2026.

The Landi Company had very little online presence which was advantageous in carving a new brand identity. The company now allocates an annual budget for marketing, with repeat advertisements in publications such as the Historic Houses Annual as well as trialling options such as magazine editorials. Several different methods of promoting the business have been tried and tested and there is no magic formula. Often print media sees little direct return but may be useful for brand perception. Direct advertising allows the company to target known clients with a specific message, but again the return is difficult to gauge. Finally, socials are an effective method for sharing information in real time, building online communities and networks, but may not translate into a financial return. Employing various approaches ensures the company reaches a broad audience. All marketing materials uphold and communicate the studio's values, and strategies are continually reviewed to assess progress and effectiveness.

Conclusion - Moving Forward

It is generally understood that around 50% of conservators work in private practice. As such, the continuity of the private sector is crucial to the profession, but how many of these private practitioners are considering their succession? Whilst every company is unique, a practical succession guide, effectively a list of 'dos and don'ts' based on experience and taken from the wider world of business practice, would be beneficial to potential successors and upcoming generations of conservators. Having information available to support emerging professionals may encourage them to take on an established conservation company.

Ultimately, sustaining a private conservation practice requires not only technical expertise, but also business acumen, business soft-skills, financial literacy, a willingness to engage with clients, and an ability to promote services and actively seek out new opportunities. It is important to remember that most people do not start with these skills, they are learned through experience, developed through training, or gained through contracted expertise.

Succession recommendations based on the experiences of Hey, Grimshaw-Oliver and Shewry:

- Create a succession plan. Decide on an exit strategy - whether that is to sell or pass forward to an outside party, sell or pass forward to an existing employee(s), or liquidate the business.
- Create an actionable timeline. Most business owners do not start thinking about succession until they are preparing for retirement. However, the best time to exit a business is when it is profitable and efficient. This is when the business is at its most attractive. Crafting an actionable exit strategy around this time frame is important.
- Undertake a thorough evaluation of the business. Consider the overall health of the business, including any improvements that may be required prior to handover.
- Identify the value of the business. What are the assets? What can be passed on to a successor? It is essential to be objective and assess the function and relevance of equipment and materials.
- Analyse the annual cash-flow pattern of the business. Understand who the company's main clients are and which of the jobs are most profitable.

- Collect and assimilate due diligence documentation, such as tax information, financials, codes of conduct, business memorandum, leases, external supplier accounts etc. and pass these forward.
- Compile a list of key roles and responsibilities within the company, create an onboarding and training plan for critical employees, assess the operation risk of losing key employees, and create a proactive career succession plan for priority roles to mitigate that risk.
- Identify a successor; have explicit conversations about this and avoid making assumptions. Once identified, introducing a successor will likely require a two-to-five-year lead time to ensure the candidate truly understands the company and continues the business in a way that maintains client stability. Change should not be rapid to ensure staff retention and solid internal working relationships. Consistency is key. Succession does not have to refer to an individual, if there is a strong team consider having more than one successor. Employee ownership can offer a solution, keeping the integrity of the business intact whilst passing the reins along to those who know it best.
- Communicate your business idea but accept that the successor may approach the business differently and this does not have to be a negative. If values are aligned, change can revitalise the business.
- Plan a client handover. Introduce existing clients to the successor so that they are aware of changes to the business and have the chance to build a relationship with the new team.

View a succession plan as an ever-changing document; exit plans can be impacted by evolving relationships, shifts in business and tax rules, and even unforeseeable global events such as the Covid-19 pandemic. Being able to be responsive to change is key. Ultimately, be prepared to step back when the time comes.

If the economic challenge of taking over a conservation studio had been known prior to starting the journey, would it have changed the decision to take the challenge on? Was the lack of preparedness, or going in blind, and 'learning on the job' optimal? Whilst it removed the risk of overwhelm, upon reflection, a lack of insight likely led to increased uncertainty, potential risk in decision-making, and may have resulted in unnecessary mistakes. However, on-the-job learning ensured an organic transition and an authentic brand evolution. Most importantly, experiential learning was an effective method of team building that likely ensured the company's survival. Navigating the challenges of succession fostered collaboration, trust and shared problem-solving allowing Hey, Grimshaw-Oliver and Shewry to better understand each other's strengths and weaknesses, improve communication, and create a supportive environment that enhanced resilience (Figure 8 and 9).

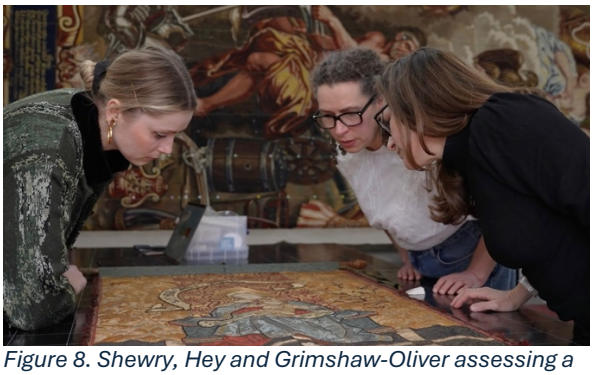

Figure 8. Shewry, Hey and Grimshaw-Oliver assessing a church textile in the studio. © The Landi Company Textile Conservation ltd.

Figure 9. Shewry, Hey and Grimshaw-Oliver working in Burghley House. © The Landi Company Textile Conservation ltd.

Landi's wish was that her name would continue, both through the work she carried out, and via the work and survival of The Landi Company. Working within conservation is a privilege; it can be challenging, diverse, engaging, meaningful, and rewarding. Private practitioners have agency to make their own choices, set their own goals, and influence their lives and circumstances, all in a profession that interests and excites them. It has been trickier than Hey, Grimshaw-Oliver and Shewry could have imagined but, despite the challenges faced, the studio has adapted, is thriving, and has big plans for future growth.

Authors

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Melinda Hey MA is a Textile Conservator and Director at The Landi Company, Burghley House Stamford. She completed the MA Conservation of Cultural Heritage with distinction at the University of Lincoln in 2019, following the completion of the Graduate Diploma Conservation Studies in 2016. Melinda also holds a degree in Fine Art Embroidery from the Manchester Metropolitan University. She currently serves as Vice Chair on the Private Practice committee.

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Adhesive and mesh vs linen support: Revisiting the pioneering conservation of an adhesive-treated tapestry

Elaine Owers & Maria Pardos-Mansilla
Textile Conservators, The National Trust, Norfolk

Abstract
The National Trust Textile Conservation Studio is currently undertaking the conservation of the first of the 'Story of Ulysses' tapestry set (Brussels, c1550-65). Witness to the history of Hardwick Hall since at least 1601, when this magnificent set of 8 tapestries were first recorded in their present position in the High Great Chamber, the tapestries have encountered a story of their own.

A recent survey highlighted dissimilarities in condition and approaches to previous interventions. The majority of the set is in a relatively stable condition, due to a sympathetic (but extensive) reweaving treatment in the late 20th C. While *The Discovery of Achilles by Ulysses* tapestry, is in an extremely vulnerable condition, with severe fading and large areas of weft loss throughout, resulting in loss of structural strength and clarity of design. In contrast to the rest of the set, and in addition to oil-paint retouching of the lettering in the mid-19th C, this tapestry had received a series of experimental adhesive treatments in the 1960s and 1970s.

The challenge was to revisit the failing previous conservation treatment, aiming to strengthen the tapestry structurally, while also providing better clarity of design and definition of colour, to improve consistency within the context of the set.

History of the Ulysses set

The Ulysses tapestries at Hardwick Hall represent the earliest, and most complete, surviving weavings of a series that remained popular throughout the seventeenth century. Acquired second hand, before 1572 at a cost of 17 shillings per Flemish ell, they may correspond to hangings mentioned in a 1586 legal dispute between Bess of Hardwick and the Earl of Shrewsbury, whose inheritance helped fund the new hall. The dimensions of the High Great Chamber appear intentionally planned to accommodate the set as part of the Elizabethan interior (Figure 1).[8]

Woven in Brussels between 1550–1565, the eight tapestries are woven in wool and silk at seven warps per centimetre. Each bears the Brussels city mark and makers' marks of Pieter van Aelst the younger, Niclaes Hellinck and a third unidentified weaver. This collaborative production was typical of tapestries made for the open market, enabling workshops to share

[8] Wyld, H. (2009) 'The Ulysses Tapestries at Hardwick Hall' unpublished.p.48

financial risk. Although the designer is unknown, stylistic evidence links the set to Michiel Coxcie (Wyld 2022, 34, 37).

By 1601, Hardwick's inventory records the tapestries in their current location. Their narrative celebrates the classical hero Ulysses, from a scene in his youth killing the boar to his homecoming, but in the High Great Chamber they serve a broader symbolic purpose. Arranged to centre his wife Penelope, they echo themes of female authority and virtue associated with Queen Elizabeth I and Bess of Hardwick. Borders featuring fruit garlands, allegorical figures, musical putti and Latin inscribed cartouches frame each scene.

One tapestry, *The Discovery of Achilles by Ulysses*, depicts Ulysses revealing Achilles disguised among the daughters of King Lycomedes. Achilles instinctively chooses weapons over feminine objects; a story derived from Ovid's Metamorphoses and later classical sources (Figure 2).

Figure 1. The High Great Chamber at Hardwick Hall, Derbyshire ©National Trust Images/Andreas von Einsiedel. The tapestry hangs to the right of the fireplace.

Figure 2. The Discovery of Achilles by Ulysses - Before Conservation ©National Trust/Pete Huggins

History of the care and repair of the set

The set has undergone multiple interventions. The earliest recorded is the 6th Duke of Devonshire's 19th century repainting of the faded cartouche lettering, using red brick paint directly applied onto the hanging tapestry.[9] This is evidenced by drips visible on the main field. Although seven of the eight tapestries were later extensively rewoven, traces of this overpaint remain on several tapestries. Archival records show continued concern for the condition of the set. In 1945, Duchess Evelyn warned of light damage and urged the use of curtains to prevent further fading.[10]

During the 1960s and 1970s, the National Trust sent all but one tapestry to specialist workshops, Maison Hamot in France and De Wit in Belgium. This restoration involved the

[9] Wyld, H. (2009) 'The Ulysses Tapestries at Hardwick Hall' unpublished.p.50

[10] Duchess Evelyn, Notes on the 6th Duke's Handbook, 1945.

significant reweaving of large areas of the main field and borders. The most extensive reconstruction occurring in the pale silk highlights and dark brown outlines of the figures.

The Discovery of Achilles by Ulysses followed a different path. Its deteriorated state led to its removal to the V&A Museum -responsible for the contents of the house at the time- where conservators were experimenting with a method of stabilising fragile tapestries using an adhesive coated synthetic mesh. The tapestry received this treatment in the 1960s, but concerns about its long-term stability prompted the treatment to be revised and repeated in the 1970s, with additional stitched support through the mesh.

An experimental adhesive method

Although no detailed records remain from the 1960s treatment, the adhesive is known to have been Vinamul® 6515, a copolymer of polyvinyl acetate and polyvinyl caprate. Applied without a lining, it left the tapestry stiff, unevenly adhered, and structurally compromised. By 1973, as well as large areas of bare warp, accumulations of powdered silk and dark wool fibres were reported as being caught between the tapestry and the coarse supporting mesh. Some areas had bonded well while others showed almost no adhesion.

Once again time and resources did not allow for traditional stitched support on linen. Conservators decided to remount the tapestry onto a newly prepared adhesive-coated mesh. While still supported on the old mesh, the tapestry was first washed in softened water and Lissapol NBD. Local applications of deionised water and methylated spirits allowed the old mesh to be gradually peeled away. Once removed, the entire reverse was sprayed with IMS (industrial methylated spirits) to dissolve remaining PVA residues.

A lighter terylene mesh was selected for the second adhesive treatment and dyed to minimise visual intrusion in areas where the tapestry's silk weft had been lost. The mesh was given three applications of adhesive on one side. The adhesive was an emulsion-based copolymer of vinyl acetate and vinyl maleate (Mowilith® DM5 and Mowilith® DMC2 [1:3] diluted in water [2:1]). This was more fluid on application and enabled more control when preparing the mesh. The tapestry was treated at the museum on a recently commissioned hot table with an overhead heated canopy. Warps were tensioned on rollers and long weft ends trimmed to 1.5 cm.

The 1970s treatment, carried out by Ksynia Marko, included structural stitching not used previously. A length of pre-shrunk linen was added along the top edge, to enable the stitching of long woven slits, while other slits were stitched through the mesh using linen thread. Loose warps were stabilised with small applications of PVA and a spatula iron. Additional couching stitches with polyester thread were added across fragile areas, and a lining was applied (Marko 1978, 26).

Rehung in May 1977, the tapestry was noted to appear grey, muted and visually inconsistent with the rewoven tapestries in the same set, largely due to extensive bare warp areas and the cumulative effects of adhesive based treatments. Despite these interventions, subsequent conservation reports from the 1980s onward document failures in the adhesive system.

A 2023 survey by the authors confirmed the advanced deterioration of the adhesive treated tapestry. The terylene mesh continued to offer some support, not because of the adhesive bond, but because of the additional stitching made through the mesh, holding loose warps in place and reinforcing slits. By now the tapestry was in urgent need of full conservation.

Revisiting the conservation of *The Discovery of Achilles by Ulysses*

The 2023 survey of *The Story of Ulysses* set highlighted the current condition of all the tapestries and the complex history of previous interventions. In addition to the failing 1970s treatment previously discussed, the fragile and unstable condition of *The Discovery of Achilles by Ulysses* included overall ingrained soiling, as well as severe light fading and discolouration, giving the tapestry a general greyish, low-contrast appearance. Extensive loss of silk and wool weft had left large areas of bare warp threads exposed, especially across the lower half of the tapestry. This combination of damage had resulted in general structural weakness and loss of clarity of design and brightness of colour (Figure 3).

Figure 3. Detail of silk and wool weft loss - Before Conservation ©National Trust/Pete Huggins

The other seven tapestries of the set were presumably in a similarly poor condition prior to their restoration by Maison Hamot and De Wit in the 1970s, when these damaged areas were cut out and replaced with sympathetic wool reweaves.

In June 2024, the conservation of *The Discovery of Achilles by Ulysses* finally began. The tapestry was deinstalled with the help of the highly experienced Hardwick Hall team. Working from a scaffolding tower, the tapestry was removed from display during which special attention was paid to potential distortions between the tapestry, the paint retouched lettering and the adhesive-coated support layer. The tapestry was packed for transport to the NT Textile Conservation Studio.

Preliminary conservation treatment

On arrival at the studio, the tapestry was thoroughly documented to record the condition and construction of both front and back. This was followed by the deconstruction of extraneous materials in preparation for the next stages of the treatment. The full cream cotton sateen lining, the Velcro on tape hanging mechanism and the coarse undyed linen

patch-stitched support, applied to the upper section of the tapestry during the 1970s treatment at the V&A, were removed. The stitching securing the turned side galloon edges was also released.

The removal of these modern elements allowed full inspection of the reverse, providing information regarding condition of the weave structure, length of weft ends and unfaded weft colours. Moreover, it also gave the opportunity to further understand the previous adhesive treatment, which used a total of nine vertically applied strips of dyed terylene mesh with areas of vertical cut lengths along the upper border.

The tapestry was then carefully and methodically surface cleaned using low suction vacuum cleaners with D-shaped, soft goat hair nozzles. Inspection of muslin vacuum test squares showed that the process had removed a considerable amount of surface soiling particles, loose fibres and degraded wool and silk dust.

Testing for treatment reversal

In preparation for reversal of the previous treatment, testing was conducted to establish the best solvent and method of removing the PVA-coated terylene mesh and adhesive residues. The 1970s conservation records indicate that the adhesive used was a solution of Mowilith® DM5 and Mowilith® DMC2 [1:3] diluted in water [2:1]; therefore, it was anticipated that polar solvents such as acetone and IMS (industrial methylated spirits) would be needed for treatment reversal (Mowlith® 1972).

A section of detached terylene mesh at the lower galloon was selected for the trials. Testing was conducted using direct and indirect solvent application methods. The direct method involved the use of a small amount of solvent applied directly to the mesh by a soft brush. While the indirect method consisted of the controlled application of solvent through a multilayer system, where lightly solvent-moistened blotting paper was applied to the mesh via an interlayer of Sympatex®(Marko 2020, 237-242).

Testing results determined that the use of acetone and the direct method were the more suitable option for treatment reversal (Table 1).[11] Acetone was chosen as the favoured solvent due to its effectiveness, fast evaporation rate and absence of staining or residual tacky deposits on the tapestry surface. Due to the deteriorating condition of the wool and silk fibres, all tested areas resulted in some level of fibre loss. However, it was observed that when using the direct method, adjoining areas benefited from the acetone vapour releasing the mesh with significantly less fibre loss.

Reversing the 1970s treatment

In order to reverse the previous conservation treatment, it was first necessary to unpick all existing support stitching securing the terylene mesh to the tapestry. Working from the reverse, the terylene mesh was gently and gradually released after brushing a small quantity of acetone over and/or under the surface of the mesh (Figure 4). It was important to lift the mesh carefully but rapidly after solvent application to avoid adhesive reactivation. As the procedure progressed, sections of released mesh - approximately 30cm^2 in size - were cut

[11] Tables can be found at the end of paper.

away. The treated area was then checked for any remaining support stitching that needed to be removed, and it was then vacuumed to collect loose fibres (Figure 5-6).

Figure 4. Brushing solvent onto the terylene mesh to release previous adhesive treatment ©National Trust/ Textile Conservation Studio

Figure 5. Terylene mesh with support stitching ©National Trust/ Textile Conservation Studio

Figure 6. Releasing terylene mesh behind cartouche lettering ©National Trust/Textile Conservation Studio

With the removal of the terylene mesh, the numerous areas of weakness and bare warps were exposed, leaving the tapestry too structurally unstable for safe handling. Consequently, lines of tacking stitches were applied to temporarily hold these areas of damage and to facilitate safe handling. The tapestry was then rolled to work on the next section, making sure the surface was not tacky before rolling.

Following the removal of the terylene mesh, the treatment continued with the removal of adhesive residues on the surface of the tapestry. While some of these residues were minimal, there were areas where the adhesive had saturated the weave structure presenting a rigid and darkened appearance, as well as clustering sections of bare warp threads together.

The procedure was based on similar treatments performed at the Textile Conservation Studio. Working systematically on sections of approximately 30cm^2, the tapestry was treated

by set intervals of flushing through with an Acetone:IMS [1:1] solution, absorbing the swelled adhesive with blotting paper and extracting excess solvent using a suction table.[12] The entire front of the tapestry was treated in this manner, avoiding any painted areas as these were to be treated separately after further trials.

Where persistent adhesive residues remained, the treatment was repeated on both sides using Acetone:IMS [1.5:1] solution. Strict Health and safety measures were followed at all times when using organic solvents, including establishing daily working regimes, use of appropriate PPE and air extraction (Figure 7; Marko 2020, 91-92).

Figure 7. Flushing the tapestry with solvents to remove adhesive residue using the suction table ©National Trust/Textile Conservation Studio

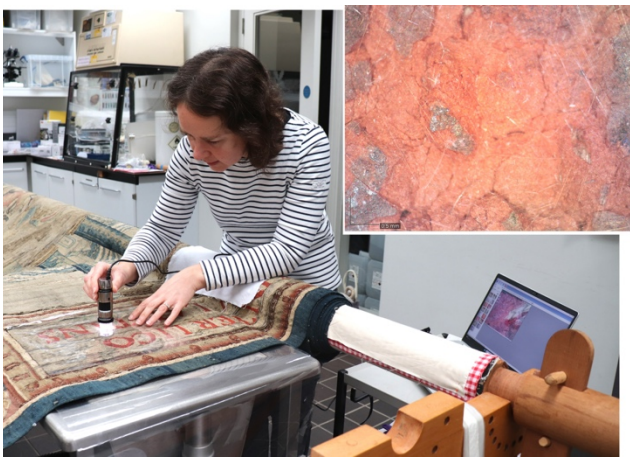

Figure 8. Macrophotography (Dinolite) of paint layer prior to adhesive residue removal ©National Trust/Textile Conservation Studio

Testing of the cartouche's painted lettering

The painted lettering required additional testing to understand not only the nature and condition of the paint but also its compatibility with the proposed treatment. The condition and appearance of the paint were examined under magnification and recorded by digital macrophotography (Dinolite) (Figure 8).

Selecting an inconspicuous paint drop, a small sample was taken for pigment and binder analysis. The sample was examined by Lincoln Conservation, using polarising light microscopy to identify the pigments and Fourier Transform Infrared (FTIR) analysis to determine the binder.[13] The results indicated that the retouch of the cartouche lettering was carried out using an oil-based paint, specifically Red Lead and Vermilion pigments bound in a drying oil, likely linseed oil.

The stability and compatibility of the painted elements were then tested for solvents and wet cleaning. The test consisted of applying the selected solvent or solution for a few

[12] A solution of Acetone:IMS [1:1] was used at this stage instead of Acetone only as the addition of IMS provides a more controlled procedure by reducing the evaporation rate.

[13] Sturgeon, C. (2025) "Paint analysis. 'The Discovery of Achilles by Ulysses' Tapestry, Hardwick Hall". Lincoln Conservation, University of Lincoln.

seconds using a damp cotton swab. Acetone, IMS, White Spirit, washing solution[14] and deionised water were tested in this manner, offering similar results: a small release of paint particles to the testing cotton swab.

The results of the test were concerning, especially in relation to the stability and reaction of the paint layer during the needed wet cleaning process. The results must be considered within the context of past interventions, including the fact that the tapestry had at this point been wet cleaned and treated with solvents several times in the last 50 years, and there was no evidence that the paint had produced any colour changes, migrations or staining. It was possible that the use of solvents and washing solutions during previous treatments could have weakened the bond structure between pigment and binder, and that the mechanical action of the swab helped to disturb the solvent-swollen paint layer with the subsequent removal of paint particles.

Moreover, method disparity between test and treatment had to be considered, as the use of the cotton swabs for the test did not replicate the methodology for adhesive removal and wet cleaning, both carried out under suction.

The use of a temporary protective or consolidant layer, such as Cyclododecane, Cyclomethicone D5 or Menthol, was considered, but in turn these offered the risk of change of appearance of the paint layer regarding colour, saturation and shine levels, staining, reversibility issues, reaction to washing solution and logistics for application prior to wet cleaning.

Further testing was undertaken to replicate the cleaning process at De Wit, and to closely monitor the behaviour of the paint during the trial, in order to ensure that the tapestry would successfully sustain the wet cleaning process.

The wet cleaning trial on the suction table provided favourable results; the weft was noticeably brighter and suppler, while the painted lettering had no visible changes, suggesting that the tapestry would be safely wet cleaned without the use of consolidants or a temporary protective layer for the painted elements.[15]

With the aim to scientifically quantify the change in appearance of the red paint during the wet cleaning trial, spectrophotometry analysis was undertaken using the hand-held Konica Minolta CM-2600D spectrophotometer (Table 2). Readings from two locations were taken before and after the wet cleaning trial using CIE Standard Illuminant D65 (D6500) which corresponds roughly to the average midday light.

[14] Dehypon LS54 & 1.3% SCMC in soft water washing solution

[15] The wet cleaning trial by suction table was carried out on a 20cm^2 section at the viewing left of the cartouche lettering using Dehypon LS54 & 1.3% SCMC in soft water. The procedure included pre-soaking, two cycles of washing without sponging or brushing. The section was rinsed in soft water, with the fifth and final rinse completed in deionised water. The suction was switched on at all times until the section was fully dried. The use of blotting paper and clean cotton cloths were used to help absorb excess moisture and speed drying time. Water samples taken ranged from light yellow to transparent.

The data collected was compared, and the difference between the colour (a* and b*, red to green and blue to yellow values respectively) and lightness (L*, 0-100) coordinates registered by the spectrophotometer before and after the trial were calculated. The data showed positive colourfastness results, with an overall but marginally darker and tonally richer paint colour, leaning towards a slightly redder and bluer colour scale. The results match the colour improvement visibly recognisable under the naked eye, with the section of tapestry tested appearing visually cleaner and of a richer, more vivid, paint colour.

Wet Cleaning

Colourfastness tests were carried out on selected silk and wool samples at the Textile Conservation Studio. Where possible, loose threads adhered to the terylene mesh were used; otherwise, samples were taken from the reverse of the tapestry. The tests showed no evidence of dye transfer or sensitivity to the washing solution.

In January 2025 the tapestry underwent wet cleaning at De Wit, Belgium, using aerosol suction. The recent removal of the adhesive-coated terylene mesh and the treatments previously undertaken at the V&A were discussed with Director Pierre Maes, to help inform the wet cleaning process. These historic interventions had locked dirt into the structure, contributing to the tapestry's characteristic grey appearance, particularly visible in the sky and faces. Examination of the removed mesh confirmed extensive fibre loss and showed that adhesive residues had remained tacky until recently.

Despite the tapestry's fragility, the extensive tacking stitches applied during earlier studio work, successfully maintained structural stability eliminating the need for adding a temporary protective net during cleaning. Studio testing had also confirmed that the overpainted lettering in the upper border was sufficiently stable to withstand wet cleaning without additional consolidation. The team discussed whether adjusting pH levels would be necessary; however, given the demonstrated paint stability, no additives were required. It was agreed that brush washing was considered effective for releasing residues from earlier treatments. Two types of synthetic brushes were used: soft brushes for fragile silk and areas of loss, and firmer brushes for the more structurally sound regions such as the faces and sky.

Water samples were collected at regular intervals while water and detergent were sprayed onto the tapestry. Inspection with the overhead camera confirmed that the paint layer effectively repelled the moisture. To compensate for the tapestry's weakened state, suction strength was increased with an additional motor. Water samples taken after brush washing showed a significant rise in particulate matter, indicating the release of embedded dirt. Rinsing continued for two and a half hours, followed by blotting and controlled drying under suction. No paint movement was detected.

The wet cleaning was successful, and the tapestry is much brighter, having released some of the ingrained dirt, particularly in the sky and faces. The tapestry is more supple and only limited fibre loss was observed. It is now possible to pass a needle through it enabling the detailed stitch repairs required for the next phase of conservation.

Reflecting on conservation practices

Over the past fifty years *The Discovery of Achilles by Ulysses* has experienced four wet cleaning treatments and two adhesive interventions, both later reversed with solvents. An

exceptional and intensive conservation history for a single tapestry. Many tapestries have been treated with a variety of adhesives, such as animal glue, shellac, latex and PVA, once seen as quick economical solutions. Their application often required cutting away weak areas and removing historic weft ends. Over time, these adhesives harden, discolour and become brittle, causing staining and structural failure.

The synthetic adhesives used in the early conservation ignored the tapestry's three-dimensional structure, leaving the front face unsupported. Even when modified and re-applied with a lighter adhesive mixture in the 1970s, the treatment left the tapestry stiff and structurally weakened, reliant on the extra stitched support for its longer-term stability. Modern conservation now favours reversible hand stitched linen scrim supports, which provide structural stability. Although labour intensive, stitching respects the woven structure and maintains aesthetic integrity.

Reversing earlier adhesive treatments demands controlled solvent use, strict ventilation, and comprehensive health and safety procedures. Full risk assessments define PPE and safe working methods, including respirators with independent air supplies, chemical-resistant gloves and protective clothing. All solvent work must be carried out under externally ventilated extraction, with levels monitored using Dräger detection tubes. Solvents must be stored in dedicated facilities, decanted into flame-safe containers, and disposed of via licensed waste services. Work hours should be limited to minimise exposure, extraction remaining active after treatment, and used absorbent materials must be left in a fume cupboard to off-gas safely. All of which is a costly and time-consuming process.

Past adhesive repairs create long-term complications, but they also prevented this tapestry from undergoing the extensive reweaving applied to the rest of the set. Those earlier restoration practices relied on removing large areas of deteriorated silk and wool and replacing them with new weaving in wool. Today, on viewing the set, the work blends well with the original weaving. The inevitable loss of original material meant that these irreversible methods were gradually abandoned as the conservation profession developed and ethics evolved. The Ulysses tapestries now serve as an important record of restoration practices of their time. Uniquely, *The Discovery of Achilles by Ulysses* survives without historic reweaving, offering an exceptional opportunity for conservators to make treatment decisions, without needing to integrate their work with previous repairs.

Next stages

The primary challenge in conserving this tapestry is re-establishing sufficient structural support so it can bear its own weight, whilst also considering its natural movement and vulnerability under environmental change. In addition, there is an aesthetic requirement to infill areas of loss and improve legibility of the design, allowing the tapestry to sit more comfortably within the context of the set. The tapestry was mounted on a tapestry frame for application of a linen scrim support and conservation stitching. Extensive stitching is required to infill large weft losses, and trials were undertaken to determine appropriate spacing and materials.

The challenge now remains to plan for the infilling of large areas of loss, through researching tapestries woven from the same set of cartoons and contacting other collections. Comparable sets survive at The Palace of the Grand Dukes of Lithuania, Schloss Herrnstein,

Austria and the Spanish Royal Collection. Due to the significant loss of design motifs in the borders, time has been spent onsite examining the other tapestries in the set. Tracings and photographs of matching motifs will be used as a guide for the interpretation of missing elements during conservation stitching.

Dye analysis and micro fading also form part of our planned ongoing scientific research. This work will take several years and will be the focus of future publications.

Acknowledgements
We would like to thank Ksynia Marko for her continued support, not only in writing this paper, but also for her dedication and enthusiasm for this challenging conservation project. We would also like to thank the National Trust project team, Helen Wyld, De Wit and Lincoln Conservation, all of whom have contributed to this project. Finally, thanks to The Royal Oak Foundation whose funding made this project possible.

Authors

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Maria Pardos-Mansilla completed her Textile and Paintings Conservation training in her native Spain, where she also obtained a master's degree in Heritage Diagnosis by UPO University (Seville). With 15 years of experience in the conservation field, she has worked for the Museum & Heritage sector and private practice in Spain, France and the UK. In 2022 she (re)joined the team at the NT Textile Conservation Studio in Norfolk. Having experience in the treatment of tapestries, carpets, historic interiors, costume and social history objects, she particularly enjoys the challenge of complex projects, working with fragile, mixed media and/or large-scale objects.

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Tables

Solvent testing for adhesive treatment reversal		
	Indirect Method	Direct Method
IMS	Results after ● 1.5min: no change ● 4min: slightly tacky ● 10min: tacky Solvent is ineffective in this method.	Solvent is moderately effective, enough to reactivate adhesive. Some soiling and adhesive present on blotting paper, with transfer of terylene mesh grid pattern. Adhesive is tacky on both sides of the mesh, tapestry not tacky. Some fibre loss on mesh.
IMS: Acetone [1:1]	Results after ● 1.5min: slightly tacky ● 4min: tacky ● 10min: tacky but more time needed for complete removal Solution is ineffective in this method.	Solution is effective, but less than Acetone only. It removes adhesive instead of just reactivate. Longer evaporation rate. Some soiling and adhesive present on blotting paper, with tideline and transfer of terylene mesh grid pattern. Adhesive is tacky on both sides of the mesh, feels soft to the touch. Tapestry not tacky. Terylene mesh dye removed by solution. Some fibre loss on mesh.
Acetone	Results after ● 1.5min: slightly tacky ● 4min: tacky ● 10min: tacky but more time needed for complete removal Solution is ineffective in this method.	Solution is effective, more than IMS:Acetone [1:1]. It removes adhesive well, faster to all solvents or solutions tested. Some soiling and adhesive present on blotting paper, without tideline and transfer of terylene mesh grid pattern, but less evident. Adhesive is tacky on both sides of the mesh, tapestry not tacky. Terylene mesh dye removed by solution. Some fibre loss on mesh.

Table 1: Testing of solvents for treatment reversal

Spectrophotometry before wet cleaning trial				
Date	Sample	Description	SCI Reading	SCE Reading
25/11/2024	Location 1, front. Upper viewing right	Red-brick paint	L*= +42.65 a*= +24.90 b*= +19.55	L*= +42.65 a*= +24.89 b*= +19.40
25/11/2024	Location 2, front. Upper viewing right	Red-brick paint	L*= +40.32 a*= +23.40 b*= +18.40	L*= +40.12 a*= +23.50 b*= +18.41
Spectrophotometry after wet cleaning trial				
Date	Sample	Description	SCI Reading	SCE Reading
26/11/2024	Location 1, front. Upper viewing right	Red-brick paint	L*= +38.77 a*= +25.44 b*= +19.40	L*= +38.76 a*= +25.46 b*= +19.28
26/11/2024	Location 2, front. Upper viewing right	Red-brick paint	L*= +37.80 a*= +25.79 b*= +18.08	L*= +37.63 a*= +25.86 b*= +18.05
Comparative spectrophotometry before and after wet cleaning trial				
Date	Sample	Description	SCI Reading	SCE Reading
26/11/2024	Location 1, front. Upper viewing right	Red-brick paint	L*= -3.88, darker a*= +0.54, redder b*= -0.15, bluer	L*= - 3.89, darker a*= + 0.57, redder b*= - 0.12
26/11/2024	Location 2, front. Upper viewing right	Red-brick paint	L*= -2.52, darker a*= +2.39, redder b*= -0.32, bluer	L*= - 2.49, darker a*= + 2.36, redder b*= -0.36, bluer
Notes				
Readings undertaken using the hand-held Konica Minolta CM-2600D spectrophotometer and CIE Standard Illuminant D65 (D6500). *SCI* and *SCE* refer to measurement modes used in spectrophotometry to assess colour and appearance. *Specular Component Included* or *SCI* includes both specular and diffuse reflections, providing a complete colour profile; while *Specular Component Excluded* or *SCE* excludes specular reflections, focusing solely on the scattered light. L*, a* and b* coordinates represent to Lightness level and colour hue where L* is Lightness, a* is Red to Green value and b* is Blue to Yellow value.				
Conclusions				
The data collected before and after the wet cleaning trial was compared. The data showed positive colourfastness results, with an overall but marginally darker and tonally richer paint colour, leaning towards a slightly redder and bluer colour scale. The results match the colour improvement visibly recognisable under the naked eye, with the section of tapestry tested appearing visually cleaner and of a richer, more vivid, paint colour.				

Table 2: Spectrophotometry readings before and after wet cleaning trials

Stains in the Spotlight: a Conservator's Concern

Marjolein Koek
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Abstract
This paper will look into the conservator's task in relation to ways of showing signs of use in costume collections on display. The theme of the upcoming costume display in the Rijksmuseum will be "Worn", traces of use. The display includes gowns, single bodices, and accessories such as shoes and purses. All showing the wearer's use, from wear and stains to repairs and mending.

An ethical concern for this kind of display is the way we -as conservators- want to show our collection to the audience. Usually, a museum shows costumes at their best. We try to reduce stains and camouflage damage within conservation limits. But not every object is an eye catcher or in a good condition, and traces of wear are often not pretty to look at. This means the educational context of this unusual costume display has to be clear. At the same time we want to emphasize the necessity of the care and conservation of these objects by conservators. Also, the practical mounting of such costumes on display asks for a different approach.

When preparing this kind of costume display these notions contribute to the conservator's considerations. It is not the first time the Rijksmuseum shows objects with signs of use in the spotlight. Did the ideas, approaches and methodology about caring for and showing the collection by conservators change within the last few decades? This paper will discuss the conservator's point of view on the level of ethical, educational, aesthetical and practical concerns.

Introduction

In 2026 the Rijksmuseum's dress display focuses on traces of wear and use, presented under the title *Worn*. The display includes gowns, single bodices, and accessories such as shoes and gloves. These all show the wearer's use, from wear and stains, to repairs and mending. This paper reflects on the conservator's role (and thinking) in relation to showing signs of use in dress collections on display. As conservators of the dress and textiles collections, we are responsible for the objects when they are displayed. To discuss the dilemmas a conservator may face when confronted with unconventional ways of exhibiting dress objects - such as in the *Worn* display - this article first considers the historical contexts in which textile objects have been presented at the Rijksmuseum. It then describes the selection of objects and the layout of the *Worn* exhibition. Finally, drawing on the specific educational context of this display, three case studies are examined to explore the ethical and practical concerns faced by the conservator, as well as the solutions developed in response.

Previous displays of dress and textiles in the Rijksmuseum

Throughout the long history of the Rijksmuseum, objects from the dress and textiles collection have always been exhibited. Before 1996, the dress collection was part of the permanent display in the museum. Currently, the permanent exhibition includes a number of different objects such as tapestries, furniture, and a few textile items illustrating historical events. Since the renovation of the museum in 2013, the dress collection has had a dedicated area in the Special Collections wing.

The temporary exhibitions have explored more specific themes from a historical dress perspective. Subjects have ranged from men's fashion in *Kleren maken de man* ('Clothing makes the man', 1994) and *Suit Yourself. Men's wear 1750–1850* (2025), to more thematic presentations such as *Jas aan!* ('Coat on!', 2013) and *Under/wear* (2023). Accessories have also formed the focus of several temporary exhibitions: *Chapeau, chapeaux* (1997), *Finishing Touches* (2002), and the online exhibition *Accessorize* (2008), which featured 250 objects.

In addition to exhibitions centred on dress history, the museum has also organized a number of displays focusing on specific materials and techniques. Lace, for example, has been the subject of six exhibitions, the earliest held in 1926 and the most recent in 2017.

Several exhibitions have highlighted dress and textile objects donated by private collectors. These include *Regenten in de kleren. De schenking Six* ('Regents in Clothing. The Donation Six', 2000), featuring garments from the Dutch patrician family Six family; *Couture!* (1999), presenting the 1920s fashion collection of Dutch collector Hans van Emmerik; and *De garderobe van mevrouw Brusse* (2015), which displayed the personal wardrobe of Gisele Urtebise-Brusse, including designs by Cristóbal Balenciaga, Coco Chanel and Christian Dior (Figure 1).

Figure 1: The display featuring De garderobe van mevrouw Brusse in the Special Collections. (photo credits: Rijksmuseum Amsterdam).

Figure 2: The silk maps dress in the exhibition Revolusi! Indonesia Independent. (photo credits: Rijksmuseum Amsterdam)

The Rijksmuseum has organized two major dress exhibitions in recent decades. In 2006, during the museum's renovation, the exhibition *Fashion DNA* was held in the Nieuwe Kerk in Amsterdam. This exhibition explored the body, identity, and the imagery conveyed by textile objects in the museum's collection. A decade later, in 2016, the museum presented *Catwalk. Fashion at the Rijksmuseum*, featuring over eighty costumes dating from 1625 to 1960. The exhibition's design offered visitors both an overview of, and deeper insight into, centuries of Dutch dress history.

All these exhibitions were focused on informing the public about Dutch national dress history, ranging from a chronological approach to more specific themes, or calling attention to private wardrobes. As conservators, we learn how to deal with display challenges concerning damage, stains, or alterations. We try to show these fashion-related objects in as perfect a state as possible, in which mounting plays a crucial role.

In addition to these more 'classic' exhibition approaches, the dress collection can also play a different, non-fashion-related role. An example of this is the exhibition *Revolusi! Indonesië onafhankelijk* ('Revolusi! Indonesia independent', 2022), about the history of the war for independence of Indonesia. In this display, a dress made of silk military surplus maps (inv.no. NG-2000-5) tells the story of Jeanne de Loos (1910-1973), survivor of a Japanese internment camp, who made this dress in Indonesia just one month after the end of the Second World War. Due to the textile shortages after the war, she constructed the dress out of silk maps used by military pilots. Jeanne de Loos wore this dress often; traces of use are clearly visible, for example, repairs in the hem of the skirt. The wish of the curator was not to pay too much attention to the shape of the dress, but more to the maker and wearer, and the material of the object. For this reason, the dress was not shown on a full body mannequin, but on a (padded) valet stand (Figure 2).

Another example of a different approach, is that of the exhibition *Monomania* (2025), curated by the Dutch artist Fiona Tan, which focused on her perspective regarding the emergence of psychiatry at the beginning of the 19th century. She used, among other objects connected to the subject, a collection of white baptismal gowns to create a hanging art installation. It represented an infamous infanticide incident, committed by a psychiatric patient. The white gowns evoked a feeling of innocence. To strengthen this effect, some of the gowns were washed to remove stains and yellowing (Figure 3).

Figure 3: The installation of the baptismal gowns in the exhibition Monomania. (photo credits: Rijksmuseum Amsterdam)

When we turn to the permanent display of the 17th century at the Rijksmuseum, there are more examples of dress objects shown in a different light. Here visitors can see the hat

(inv.no. NG-NM-7445) of Ernst Casimir van Nassau-Dietz (1573-1632), and the buff-coat of his son Hendrik Casimir I van Nassau-Dietz (1612-1640); both stadholders in the northern provinces of the Dutch Republic. Ernst Casimir, who was wearing the hat during the battle of Roermond in 1632, died from a gunshot wound to the head. Next to the hat, another object with a bullet hole is displayed. This is the buff-coat (inv.no. NG-NM-1100) worn by Hendrik Casimir, who also died by a gunshot wound on the battlefield during the 80 Year War, in 1640. Both objects represent historical events. They also illustrate proof of wear, which is clearly visible. The emphasis is placed on these marks, rather than their function as fashionable clothing worn by nobility in the 17th century.

The focus for both these examples was on stabilization and support. The hat is shown on a permanent mount; the bullet hole meets the eye of the visitor. The hole is not camouflaged, for obvious reasons. Another hole in the top of this hat is the result of pests. The dyed felt underneath this hole gives support and camouflages the lacunae. The buff-coat is shown on a simple bespoke mount made from stainless steel with a soft padding for the shoulders. Both the hat and buff-coat are in stable condition. Keeping in mind the museum climate and light standards, together with the appropriate support, they can be displayed this way permanently.

Another piece of clothing of Hendrik Casimir - his underpants (inv.no. NG-NM-1099) - is more often shown for another reason. They are part of the wardrobe that was believed to be worn by Hendrik Casimir when he was shot on the battlefield in 1640. The brown, brittle bloodstains and other bodily fluids are clearly visible on the top part. However, in the exhibition *Catwalk. Fashion in the Rijksmuseum* these undergarments were not shown because of its wearer or as an illustration of an historical event, but rather because of its rarity in the history of underwear (it is one of the earliest examples of preserved linen underwear) (Figure 4). In the display *Under/wear* in the Special Collections, the underpants were also shown for this reason. Of course, the bloodstains were not treated, otherwise the object would have lost its value for its other function: that of being part of the wardrobe of an historical figure. In both exhibits, the object was displayed hanging from its Fosshape® support. These underpants illustrate that one object can have multiple functions.

Figure 4: The underpants of Hendrik Casimir in Catwalk. Fashion at the Rijksmuseum. (photo credits: Rijksmuseum Amsterdam)

The new display *Worn* and the conservator's view

Worn, the new display composed by our curator of dress Vanessa Jones, specifically targets all signs of use in dress and accessories. This theme invites the visitors to look at dress in a different way. It is not the first time the Rijksmuseum has shown objects with attention to explicit traces of use in the spotlight. In 1998, there was an exhibition that was notable from a conservator's perspective, namely *De tand des tijds* ('Traces of time' 1998). Here, the subject was the ageing and deterioration of textiles. The aim of the exhibition was to show how textiles change due to all kinds of influences, ranging from wear to conservation. In addition, objects were used to briefly explain the possibilities for conservation treatments, and how ideas about conservation and restoration have changed in the 20th century. The difference between the exhibitions is that *Worn* is not about the material aspects of textiles and the conservation of museum objects, but above all about the aspect of wearing and using clothing.

The *Worn* display shows 13 costumes and 13 accessories ranging from the 18th century to the 1920s. The costume display case is divided into seven niches where the objects are grouped by their sign of use. For example, there is a niche for stains, one for repairs and another for alterations. The accessories are shown on shelves. When the focus is directed to the objects that are difficult to see, lenses (magnifying glasses) have been placed in front of the area to make it more manifest for the visitor.

Worn will be up for one year: the next change will be in March 2027. As well as the curator's criteria for choosing certain objects, the conservation studio also has a vote (or veto) on deciding which objects are suited to being displayed for one year. We consider the condition and material aspects of a costume, and also how much handling for mounting is needed for the display and for photography. If possible, we choose to select an object for a longer period rather than rotating it too often. Rotation means more handling and therefore more risk for (mechanical) damage to the object.

The chosen objects for *Worn* did not need conservation treatment. Most of them were stable enough to be on display, and the more fragile objects were already treated in the past. But deciding whether an object needed treatment was of course a different kind of approach, because the damage itself was now the topic of the display. The specific educational context of this unusual dress display is clarified to the public by text labels.

An ethical concern for this kind of display is the way conservators want to show the collection to the audience. Usually, a museum presents items of dress at their best. Conservators try to reduce stains and camouflage damage within conservation limits. However, not every object is an eye catcher or in a good condition, and traces of wear are often not pretty to look at. At the same time conservators want to emphasize the necessity of the care for and conservation of these objects. The stabilization of an object is more important than the aesthetical look. Also, the practical mounting of such costumes on display calls for a different approach, which can be shown by several examples.

Green Empire dress – stains

This dress (inv.no. BK-1998-94) (Figure 5 and 6) is a characteristic example of the Empire style, a fashion that emerged in the wake of the French Revolution and was strongly influenced by classical antiquity. Its high waistline, falling just below the bust, and long, narrow sleeves reflect the neoclassical aesthetic that dominated women's dress during this period. The gown is made of green silk satin with a linen lining. Along the hem, it is decorated with a gathered ribbon of the same green silk, adding subtle texture and refinement to the otherwise relatively simple silhouette typical of early nineteenth-century fashion.

Figure 5: Empire dress, anonymous, c. 1810, inv.no. BK-1998-94. (photo credits: Rijksmuseum Amsterdam)

Figure 6: Detail of Empire dress, with the armpit area. (photo credits: Rijksmuseum Amsterdam)

The dress was selected for display because of the visible stains under the armpits. These stains are most likely caused by the impregnation of an aqueous substance, presumably perspiration, which led to discoloration of the green silk. The affected areas show a yellowish to light brown mark with a distinct green tideline, a common phenomenon in historic textiles where moisture redistributes dyes and degradation products. Apart from an additional stain on the front of the skirt, the overall condition of the dress is good.

The dress was passed down within a family before being donated to the museum in 1998. Its provenance can be traced back to the late nineteenth century, when it was reportedly worn to dinner parties. This narrative of use highlights a central issue raised by the underarm stains. Without a strong and continuous provenance, it is impossible to determine exactly when the staining occurred or which wearer was responsible. The marks may date from its original period of use around 1800, or from its later nineteenth century re-wear.

In a different exhibition context, if the dress were displayed primarily for its stylistic importance within the history of fashion, a conservator might consider treatment options to reduce the visual impact of the stains. In this case, however, the discoloration forms part of

the object's biography, offering tangible evidence of bodily presence and use. A practical challenge arises in mounting the dress so that the stains are immediately visible to the viewer. The shoulder width of the garment does not allow the arm to be positioned at a natural angle that fully exposes the affected area. Therefore, the mannequin must be turned slightly to one side to reveal the stain clearly while maintaining a visually convincing and natural presentation. This subtle adjustment ensures that the narrative focus, the trace of wear, remains central without compromising the aesthetic integrity of the display.

Child's Empire dress – tears and mechanical wear

This Empire dress (inv.no. BK-1978-256) (Figure 7 and 8) dating from around 1810, is characterized by its high waistline and short sleeves. The fabric is an open weave cotton, through which an undergarment would originally have been visible. Floral embroidery decorates the centre of the skirt and the hem. The dress is very small in size and was most likely made for a child. Its provenance is unknown.

Figure 7: Empire dress, anonymous, c. 1810, inv.no. BK-1978-256, as seen from the back. (photo credits: Rijksmuseum Amsterdam)

Figure 8: Detail of Empire dress, with hooked tear. (photo credits: Rijksmuseum Amsterdam)

The dress was selected for the exhibition *Worn* because of the characteristic tears that testify to its intensive use. These damages make visible the vulnerability of such lightweight garments and the physical demands placed upon them. A practical issue concerned a tear in the back waist area. Initially, this damage was intended to be highlighted in the display. However, following the conservator's advice, it was decided to focus instead on a tear at the front of the dress. The waist construction requires a cord to be tightened in order to achieve the characteristic Empire silhouette. Tightening this cord causes the fabric to gather into pleats, making the tears in this area difficult to see. Leaving the cord untightened would compromise the silhouette and provide insufficient structural support on the mannequin. To balance historical accuracy and structural stability, the front tear was therefore chosen as the focal point.

Another decision concerned the missing undergarment. Given the transparency of the white open-weave fabric, the dress would originally have been worn over a separate underlayer. A large tear in the fabric makes this absence particularly visible. The question arose whether to reconstruct a historically appropriate undergarment in a colour consistent with early nineteenth-century fashion, or to opt for a practical display solution that would emphasize the damage most clearly. In keeping with the Rijksmuseum's practice, where reconstructions are generally avoided, the choice was made to construct a display undergarment in dark-grey silk satin. This colour provides strong contrast with the white fabric, ensuring that the tear is clearly visible to visitors. Dark grey was chosen instead of black (the colour of the mannequin's neck) to maintain the visual suggestion of an undergarment while distinguishing it subtly from the mannequin itself. Through these display decisions, the presentation prioritizes the visibility of wear and damage, aligning with the exhibition's focus on use, vulnerability, and the material traces of lived experience.

1920th evening dress – stains, alterations and mechanical wear

This 1920s evening dress (inv.no. BK-1973-369) is attributed to the French-Russian designer Erté (Romain de Tirtoff, 1892-1990), who was active as both a couturier and a graphic designer for the fashion magazine Harper's Bazaar. Around a hundred years ago, the dress was worn by Claire Jeanne Pollones, a member of high society in the governmental city of The Hague. The dress is a characteristic example of early Art Deco fashion. In this period, designers drew inspiration from non-Western cultures and favoured rich fabrics and luxurious materials. These characteristic elements are clearly visible here, which is why the dress was acquired by the Rijksmuseum in 1973 (Figure 9).

Figure 9: Evening dress, Erté, 1924, inv.no. BK-1973-369. (photo credits: Rijksmuseum Amsterdam)

Figure 10: The Erté evening dress as shown in the exhibition Catwalk. Fashion at the Rijksmuseum. (photo credits: Rijksmuseum Amsterdam)

It is made of silver lamé: the weft consists of silver-plated copper strips wrapped around a cotton core. The surface is decorated with glass beads and synthetic pearls in a combination of floral and geometric motifs. The low waist, straight silhouette and wide neckline typify the fashionable shape of the 1920s. The shoulders were altered in the past: the original shoulder straps had been concealed within the seams. During conservation treatment in 2014, this alteration was reversed, as reinstating the original strap construction came closest to Erté's intended design. The dress was not only selected for the *Worn* display because of this alteration, but also for mechanical damage to the silver lamé in the armpits and the stains on the front of the skirt.

Due to its fragility and weight, the dress cannot be displayed on a mannequin for an extended period. Instead, it is exhibited lying on a slanted board. The curator considers this dress a powerful example of how different forms of wear and alteration accumulate in a single object, giving it a prominent place in the exhibition.

The dress previously played an important role in the exhibition *Catwalk. Fashion at the Rijksmuseum* (Figure 10). There, it was presented in the room 'Silhouettes', where garments were selected to illustrate distinctive fashion shapes. Dramatic spotlighting emphasized the shimmering silver lamé and beadwork, while stains and mechanical damage remained barely visible. Today, the dress highlights a different narrative. It demonstrates how the function and meaning of an object can change over time: from a personal, fashionable garment to a museum object that testifies to wear, alteration and use.

Conclusion

Reflecting on the profession of a museum conservator was the specific motivation of the upcoming exhibition *Worn* at the Rijksmuseum. The display aims to present various forms of wear and tear in dress and accessories. The selected objects clearly reveal that they had lives of their own before being acquired by the museum. Through tears, stains, and repairs, the curator seeks to communicate that these garments function as tangible links to real people who lived in earlier times.

In this context, the conservator's task is not fundamentally different from that in more traditional displays. As in previous exhibitions at the Rijksmuseum, conservators have had to develop solutions that combine functional support with aesthetic presentation. What distinguishes *Worn* is the emphasis on visibility: garments must be mounted in such a way that signs of use—tears, mending, discoloration—are immediately perceptible to visitors. This requires practical reconsideration of display strategies, such as lighting, positioning, and support structures, to ensure that fragile textiles remain protected while their histories of wear remain legible. For a conservator, such a challenge adds a stimulating and reflective dimension to the profession.

In conclusion, the *Worn* dress display at the Rijksmuseum demonstrates how signs of use, stains, wear, repairs, and mending can deepen visitors' understanding of dress objects as lived and functional items rather than purely aesthetic artifacts. This approach places the conservator in a thoughtful and sometimes complex position, balancing the responsibility to preserve fragile textile objects with the interpretive value of presenting them in ways that

foreground their histories of use. By considering the broader history of dress display at the Rijksmuseum, the curatorial choices behind the selection and layout of *Worn*, and the ethical and practical questions raised in individual case studies, it becomes clear that conservation is not solely a technical discipline but also an interpretive practice. Ultimately, exhibiting wear does not diminish the value of dress collections; rather, it enriches public engagement and encourages conservators to negotiate carefully between preservation, authenticity, and storytelling in museum practice.

Please note: The Worn display will be installed in March 2026. At the time of writing, the exhibition had not yet been installed; therefore, no photographs of the display could be included in this paper. MK

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Soiling or Substantiation? Changing Perspectives on Laundering Finishes in Historic Dress

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Abstract
Changes in understanding and perception are an inherent part of the ever-evolving field of heritage conservation and often reflect changes in wider cultural values. The results of these perspective shifts are very evident in what materials conservators choose to identify during assessment and choose to remove or retain during object treatment. While this topic has previously been explored in terms of evidential soiling and past repairs and alterations, there has been little discussion about how changes in understanding and perception have and continue to alter our approaches to assessing and treating textiles with historic laundering finishes.

By tracking early textile conservation practices which built on and sometimes incorporated traditional household methods of textile care through to modern case studies where conservators have aimed to identify and preserve existing finishes in garments, this paper gives an overview of textile conservation's changing approaches to historic laundering finishes. It will consider how historic laundering residues can be viewed as indicators of use and care, evidence of material changes in laundering products and practices, and tangible documentation of generational knowledge related to traditional clothing care.

The latter portion of this paper outlines an ongoing research project to identify and characterize historic laundering materials that can appear as residues and finishes in textiles. The project aims to assist conservators, curators, and historians to better understand an object's history and use-life, and material culture; and help address the eternal conservation question: should this be removed

Introduction

Dress and textile historians and conservators have typically attributed the stiffer handle of some white goods, to be the result of the renewable or non-durable laundering finish starch.[16] However, literary research conducted as part of an MPhil dissertation at the Centre for Textile Conservation in 2021, as well as a preliminary study done at Queen's University (Canada) in 2019, found a much wider variety of materials used to impart stiff finishes to textiles (Zweifel and Majors 2019; Robinson, 2021). This research also indicated the historic

[16] White cellulosic textiles used for practical, decorative, and protective purposes. White goods include a wide variety of textiles including table linens, bedding, undergarments, and accessories like lace, caps, collars, and aprons. Their unifying features being that they underwent regularly laundering during their use-life; which was facilitated by their lack of dyes and therefore white colour.

use of a wide variety of cleaning materials as part of regular laundering and specific stain removal, which, as residues, could impact the long-term condition of textiles (Zweifel and Majors 2019, 334; Robinson 2021, 79).

While analysis and characterization of dyes, silk weighting, painted surfaces, and metallic threads have long been conducted in textile conservation, there has been very little research into finishes, historic laundering residues, and white goods in textile conservation (Timár-Balázsy and Eastop 1998; Oddy 2006, 435-436; Zweifel and Majors 2019; Robinson 2021, 21-30). Yet the identification of laundering residues and finishes in textiles can contribute to understanding the materials present in an object, how they deteriorate, and therefore how they may impact the overall condition of a textile.

In addition to this, identification of laundering residues and finishes gives evidence of their past care and use, allowing them to speak as primary sources of generational knowledge relating to textile and household care. The documentation and preservation of this knowledge is becoming increasingly pressing as modern textile cleaning and care methods continue to evolve, and those holding traditional laundering knowledge continue to age.

This paper provides an overview of existing textile conservation literature regarding traditional laundering materials and techniques and outlines how perception, understanding, and approaches to them have changed over the past 60-plus years of the profession.

Methodology

The overview given here covers a period of textile conservation literature spanning just over 60 years, from 1963, one year prior to the Textile Conservation conference held by the International Institute for Conservation (Leene 1972, 1) through to 2025. Based on its wide date range, and its on-going nature at the time of publication, this literature review should be considered thorough, but non-exhaustive. The literature has been separated loosely into four shorter time periods, to better illustrate the specific and wider trends within it: pre-1985, 1985-1995, 1996-2015, and 2015-2025. These date ranges correspond with the publication of some key texts, as well as with the emergence of new research and ethical discussions within the textile conservation profession.

It should also be noted that finishes in general, as well as laundering finishes and techniques have had very limited discussion within the profession (Timár-Balázsy and Eastop 1998, 101; Zweifel 2017, 37; Robinson 2021, 30). As such, this review focuses on major textile conservation publications, as well as a few specific and prominent articles which relate to the overall themes. This was done to better illustrate the wider views within the profession at different points in time and allows for the examination of when, if, and how laundering finishes and residues are considered in general in textile conservation publications.

The literature was initially approached with the intension of finding accounts of practical approaches to addressing laundering finishes and residues in textiles. To do this a selection of nine key words was used to check indexes and search within databases and digital documents. Abstracts for articles and chapters containing the words laundry, finish/es, residue, soap, starch, blue/bluing, borax, wash/washing, and iron/ironing were read, with hope of finding either practical or technical information. Due to the limited and scattered

information available in conservation literature on laundering finishes and residues, if the abstract indicated any type of potentially relevant information, the literature was read in more depth. In turn, references from within the selected literature were evaluated for further information and concepts based on the same keyword search and abstract analysis method.

Results of the Literature Review

A Profession Emerging: Pre-1985

Textile conservation began to emerge as a profession in the mid-20th C., with some of the earliest articles on the subject being published in the late 1950's and 1960's (Kite 2010; Eastop and Brooks 2011). Much of the early literature looks at the science of textiles and conservation. It describes new methods and techniques for treating textiles built on the foundation of tradition textile care methods; and the incorporation of new materials, like synthetic adhesives and fireproofing finishes, into treatments (Eastop and Brooks 2011; Leene 1972).

One such case study, authored by textile conservation pioneer Karen Finch, encompasses not only many of these themes, but also includes some insight into early textile conservation approaches to historic laundering finishes (Finch 1963). The article details the conservation of a child's dress which was intensively treated using a combination of traditional household laundering materials, including borax, oxalic acid, and ammonia, and a new material, polyvinyl alcohol (PVAl), to clean, whiten, and apply a starch-like finish to the dress (Finch 1963, 106). Many of these methods are considered too interventive and potentially damaging by current conservation standards, and Finch later expressed regrets about this particular treatment (Finch 1984); however, it highlights not only the intersection of traditional textile care and the emerging field of textile conservation, but the view that traditional laundering finishes were replaceable, either using traditional methods like starching, or new materials like PVAl.

The notion of replacing starch finishes in textiles that are removed with conservation wet cleaning remained part of the profession's practices to a greater and then lesser extent into the 1970's, as demonstrated in the writings of Rice (1972) and Finch and Putnam (1977). In his chapter "Principles of Fragile Textile Cleaning" in *Textile Conservation* (Leene 1972), Rice notes that finishing agents, special treatments, and surface effects should be identified alongside soiling types, their preservation should be considered before wet cleaning (Rice 1972, 32). He also notes that finishing, including the use of starch, as the last stage of conservation cleaning; though he discourages the use of cold-water-soluble and potato or corn starches, due to their tendency to yellow over time (Rice 1972, 71).

Finch and Putnam (1977, 52-54) also suggest the use of starch as a finishing treatment, though only in the case of historic textiles which are still occasionally in use, such as christening gowns or wedding veils. They recommend using it sparingly and washing the garment to remove the starch before it is returned to storage to prevent the starch damaging the fibres and the risks of starch acting as a pest attractant (Finch and Putnam 1977, 52). The writings of Rice and Finch and Putnam demonstrate an on-going approach of using some

traditional textile care methods, while also showing a greater awareness of the potential risks of these treatments and materials. They also provide evidence of an understanding of the value of laundering finishes as part of the unique character of a textile, while still treating them as an aspect which can be reapplied after treatment.

In addition to the practical approaches described above, ethical concerns regarding the starching or softening of textiles as part of conservation treatments began to be raised in the 1980's (Jedrzejewska 1980). A greater awareness of the potential impact of using traditional textile care techniques also occurred with the increased input of materials science to the field (Hofenk de Graaff 1982; Cains 1983). These developments would continue into the next major period of textile conservation publications.

Establishing the Profession: 1985-1990

By 1985 textile conservation had become a more established profession, one whose strong ties to materials and conservation sciences are evident in books like *The Textile Conservator's Manual* (Landi 1985) and other manual-style books of the mid-1980's (King 1985; Flury-Lemberg 1988). These books place greater emphasis than earlier works on the importance of materials identification, as well as careful testing to ensure compatibility of treatment approaches and materials with the object and the proposed treatment outcomes (Landi 1985, 31-32; King 1985, 188-189; Flury-Lemberg 1988, 19)

However, there appears to be some division regarding when and who should undertake materials testing with some firmly stating that testing should be done by scientists, not conservators, and only for the purposes of making good treatment choices (Landi 1985, 31-32, 50; Flury-Lemberg 1988, 19-20). These strongly expressed opinions indicate that a separation still existed between the field of practical textile conservation and that of materials and conservation sciences. Others, like King, appear to hold more flexible views and express enthusiasm for materials testing and identification by both scientists and conservators (1985). This interest is echoed in a conference article by Ellis and Gardiner (1988) detailing several simple reagent tests for finishes on textiles to assist conservators with materials identification. The inclusion of this information in a conference text suggests materials identification was of greater importance in practice than some of the major authors convey.

While Landi and Flury-Lemberg recommend only a cursory level of material identification, they do express in no-uncertain-terms that testing of all treatment aspects is required to determine the compatibility of treatments and materials in order to avoid altering or damaging a textile through "thoughtlessly applied" conservation treatments (Landi 1985, 13, 31-33; Flury-Lemberg 1988, 19-20); something to which King agrees with (1985, 188-189).

Wet cleaning treatments are consistently favoured across all three books, and there is some recognition of the irreversibility of cleaning treatments, wet cleaning in particular (Landi 1985, 13, 59; King 1985, 188-200; Flury-Lemberg 1988, 24-25, 30); and of how improperly applied cleaning can lead to changes in the character and interpretation of an object (Landi 1985, 13).

In both the original 1977 and updated 1985 versions of their book, Finch and Putnam (1985, 24-25) highlight the impact that irreversible treatments can have on the interpretation, future analysis, and perceived authenticity of an object in their discussion of the cleaning of a pair of 19th C. sailor's trousers. They deem the invasive wet cleaning used to remove tar stains from the trousers to be unethical by conservation standards in the 1980's (Finch and Putnam, 1985, 25). While they do not explicitly state when the trousers were treated, it is likely that it occurred around the same time as Finch's treatment of Mary Birch's dress (Finch 1963).

The materials and methods considered for wet cleaning, covered most in-depth by Landi and King, indicate a move away from some of the more damaging traditional cleaning methods sometimes used in earlier conservation treatments (Landi 1985, 70-74, 97; King 1985, 197-200). The technical information on these materials provided and the risks associated with using them for conservation cleaning, give insight into the possible impact they may have as residues from use-life laundering of the object. They also help clarify specific materials mentioned in 19th C. laundering literature, which often use now outdated chemical or colloquial names for some materials. Landi (1985, 37) also mentions that some conservators still use traditional surface cleaning methods such as applying Fuller's earth to absorb soiling, however she discourages this practice as it can leaves residual materials embedded in the textile.

The topic of textile finishes is more directly covered at this point than in earlier literature; however, the discussion focuses on dyes, and durable finishes, such as modern waterproofing, fireproofing, and crease resistance, applied during manufacturing, which not have been renewed as part of regular maintenance and care (Landi 1985, 14-17; King 169-186). King (1985, 175-176) does include "non-durable finishes" such as starch in their discussion, describing the deterioration and condition issues starch finishes can cause in textile, but does not discuss other types of historic stiffening agents such as gum Arabic. From the fragmented information found on non-durable traditional finishes it can be gathered they were no longer being regularly applied to textiles as part of conservation treatments (Landi 1985, 97; Finch and Putnam 1985, 44) but were still seen as replaceable characteristics of a textile (Landi 1985, 32).

Reflecting in the Profession: 1990-2015

Several long-standing textile conservation books were published in the 1990's and 2000's, including *Chemical Principles of Textile Conservation* (Timár-Balázsy and Eastop 1998) and *Textile Conservation: Advances in Practices* (Lennard and Ewer 2010). Both of these books demonstrate how much more integrated the relationship between practical textile conservation and materials and conservation sciences had become during this period, particularly compared with the views of Landi and Flury-Lemberg in the 1980's.

While *Chemical Principles* offers some technical information on the chemical and physical properties and deterioration of finishing materials and their impact on textiles, but the focus primarily remains on dyes and manufacturing finishes (Timár-Balázsy and Eastop 1998, 67-115). Some information on other finishes (primarily gums, starches, and resins) is included, though it largely looks at their role as adhesives (Timár-Balázsy and Eastop 1998, 116-127). In

terms of information on finishes and finishing materials Timár-Balázsy and Eastop comment on how little published information on textile finishes was available in the conservation literature (1998, 101); a statement which remains true.

Two other relevant books published during this period were Boersma's *Unravelling Textiles* (2007) and Oddy's *National Trust Manual of Housekeeping* (2006); the latter which offered a significant update on earlier editions (Sandwith and Stainton 1984 and 1991). While information on laundering and finishes remains scarce in Boersma's writing, there is brief mention of how finishes, including starch, can be damaging to textiles, yet can be an inherent part of the character of a textile. They also observe that in the past conservators would remove starch from garments and accessories before storage and then re-starch for display. They note that this practice had fallen out of use due to its invasive and damaging approach, and as the expertise required to traditionally starch items has started to die out (Boersma 2007, 95).

One update to the *Manual of Housekeeping* (2006), was a chapter on linens and whitework that provides further information about the use of starch in historic textile collections, as well as insights into the role of laundering historically in stately homes (Oddy 2006, 435-443). It was noted in this section that white goods, linens, and other frequently laundered textiles were 'surprisingly under-researched' (Oddy 2006, 435-436) yet they also 'bear witness to their use [and] past housekeeping' (Oddy 2006, 405). The lack of both conservation and curatorial research into white goods and historic laundering materials, demonstrates an oversight into the value of these objects and the information on past practices and use they retain.

The *Manual of Housekeeping* also provides instructions for conservation wet cleaning of white goods (Oddy 2006, 441-442) and describes historic laundering practices and materials including the use of starch, soap, and blueing (Oddy 2006, 412, 436-439). The potential for these materials to cause damage is discussed, primarily in the form of starch and other sizings acting as a food source for silverfish (Oddy 2006, 410, 437). The accumulation of dust and exposure to the surrounding environment from open display and resulting condition issues are also discussed (Oddy 2006, 436); which reflects the display methods used at many National Trust properties.

In addition to technical and practical information, there is a body of literature from this period which focuses heavily on reflection regarding approaches to object values, treatment, and the conservator's role in preservation. This long-running discourse appears to have been sparked by Orlofsky and Trupin's 1993 discussion of the impact of an object's ownership and intended purpose on the level and type of treatment undertaken (Orlofsky and Trupin 1993; Eastop, 1998).

Over the next 15 years, the dialogue expanded to include the idea of objects as primary sources of history (Finch 1996; Eastop and Brooks 1996; Eastop 1998; Windsor, 1999), the use-life evidence contained in soiling, staining and creasing (Eastop and Brooks 1996; Johansen 1999; Buenger 2000; Clayton *et al.* 2003), and how the treatment choices conservators make reflect their own social biases and constructs, as well as those of the

client and the object itself (Orlofsky and Trupin 1993; Brooks and Eastop 2006). This discourse also includes Eastop's exploration of the multiple histories held in objects (Eastop 2000, 17-28), which can be interpreted by conservators through the treatment and display of objects. The observations made in *Manual of Housekeeping* (2006) demonstrate how the traditional household care of textiles has not been considered a valuable part of an object's history; while Johansen's writing (1999) illustrates the value of documenting and preserving evidence of past care and maintenance of garments as part of their social and cultural history.

Many key articles in this discussion can be found in the anthologies *Changing Views of Textile Conservation* (Brooks and Eastop 2011) and *Textiles Revealed* (Brooks 2000). Lennard and Ewer's *Advances in Practice* (2010) offers further insight and reflection on the integration of material culture values into conservation treatment considerations and changing approaches to treatment as a result of these discussions and values. While the overall discussion focuses more on the conceptual than practical, it raises the important question of what is being conserved and why.

Advancing the Profession: 2015-2025

In recent years the updated second edition of *Textile Conservation: Advances in Practice*[17] (Lennard *et al.* 2024) and Brooks and Eastop's *Refashioning and Redress: Conserving and Displaying Dress* (2016) have continued the discussion of how stakeholder values, including those of conservators, impact the interpretation and treatment of textiles. *Advances in Practice 2* also notes the current emphasis on values-based conservation within the profession, which aims to understand the significance of an object through a combination of physical examination, historical research, and community consultation (Lennard *et al.* 2024, 73). It also recognizes the expansion and further inclusion of conservation science into practical textile conservation, as well as the inclusion of technical art history as part of conservation research (Lennard *et al.* 2024, 415-416). This persisting and evolving focus on the conceptual aspects of textile conservation the shift towards more in-depth understanding of objects and their individual histories, as well as what they can contribute more broadly to textile, cultural and social history. This has resulted in a greater publication of literature related to historic laundering materials in textiles.

In terms of technical information and practical conservation research, several articles looking at the identification of traditional laundering materials in textiles have been published in the past decade (Zweifel 2017; Zweifel and Majors, 2019; Rodríguez Salinas *et al.* 2020; Hellqvist 2025). Zweifel's work draws on historic technical literature and modern scientific analysis to look at condition phenomena in textiles (2017), and the identification of durable and non-durable finishing materials in historic clothing (Zweifel and Majors 2019).

Rodríguez Salinas, Proaño Gaibor and Ferrazza (2020) demonstrate how materials analysis, specifically the analysis of a textile finish can contribute to a more in-depth understanding of an object's history, as well as its materials and condition. The detection of a starch finish as well as a dye containing gallic tannins alongside localized discolouration, stiffness, distortion,

[17] Here after referred to as *Advances in Practice 2*.

and fibre loss (Rodríguez Salinas *et al.* 2020, 243-244), demonstrates that visible condition issues may correspond to invisible or minimally visible finishes and residues in a textile.

Hellqvist (2025) also uses scientific analysis to look for residues of traditional laundering materials, though in the context of determining if a specific surfactant is a viable 'green' alternative to synthetic detergents. The results of Fourier Transform Infrared spectroscopy (FTIR) analysis determined that soap residues remained detectable on the textiles even after repeated and thorough rinsing to remove them after washing (Hellqvist 2025, 62). This suggests that similar residues – remaining from their use-life care - could be detected on historic textiles.

The results of these studies demonstrate that it is possible to use scientific analysis to identify traditional finishes in historic clothing; as well as a recent interest in historic laundering methods and their long-term impact on textiles. While work on all these projects was done on a small-scale, they help to form the basis for new research into the identification and characterization of laundering residues and non-durable finishes in historic textiles. It is likely that the analysis of residues in historic textiles will continue to be of interest, as materials identification plays a key role in understanding what aspects of a textile are to be conserved or are considered part of its inherent character.

On-going Research

Building primarily on the work of Zweifel (2017) and Zweifel and Majors (2019) and supported by the results from Rodríguez Salinas, Proaño Gaibor and Ferrazza (2020) and Hellqvist (2025), on-going research is being conducted at the University of Lincoln on the identification of historic laundering residues and finishes. It looks at 19th C. garments and accessories (which would have been regularly laundered during their use-life) for evidence of laundering residues and finishes using minimally invasive techniques like FTIR, microscopy, and ultraviolet (UV) light examination.

In order to be able to compare FTIR spectra, a spectral database of known laundering materials is being created alongside a glossary of common historic laundering materials. The glossary will contain information on the chemical and physical properties, use and applications, and observations of ageing characteristics which can be used in conjunction with the spectral database or on its own to assist in identifying materials which may be present in historic textile white goods.

To build the FTIR database, surrogate samples of known materials are being prepared using 19th C. laundering practices. New materials will be analyzed as individual components and then as additions to cotton fabric. Following analysis of the new materials and surrogate samples, the aim is to artificially age the samples followed by further analysis with FTIR to record the aged characteristics of the materials. Characterization of the surrogate samples will also occur before and after the ageing process using visual and tactile observations, microscopy, and UV light; with the aim of exploring low-tech, non-destructive methods for analyzing textiles for specific laundering finishes which can be used by textile conservators in their practice.

Using the FTIR database, white goods from museum collections which have not undergone conservation wet cleaning will be analyzed to determine if laundering material residues can be positively identified in historic textiles. If so, they will be used to further characterize the appearance of laundering residues and finishes in historic textiles.

It is intended that the database and glossary will be made available online for use by conservators, historians, and conservation and materials scientists.

Conclusion

Through examination of the existing literature, it is clear that there is very little published information regarding laundering residues and finishes and their relationship to conservation practice, and that most of the practical identification and documentation of that information has occurred in the past decade. Based on this, it is clear that further research into the identification and characterization of laundering materials in textiles, as well as their deterioration and corresponding condition issues is needed.

This paper represents a portion of the literature review to be included in the final PhD dissertation outlined in the 'On-going Research' section. The final literature review aims to include sources of technical information on historic and traditional laundering materials, as well as continuing a systematic scan of textile conservation conference publications for relevant articles.

Existing research into silk weighting and dye analysis considered in tandem with concepts such as objects as primary sources with multiple histories give precedent for further research into laundering residues and finishes.

It is important that this research be conducted in the near future, before generational use and knowledge of the materials and process become further removed from active textile conservation professionals and textile historians. There is also scope to use the analytical format outlined for on-going PhD research at the University of Lincoln to help evaluate new and more sustainable surfactants for use in conservation.

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To Treat or Retreat? The Cleaning of a Late Second World War (1939-45) 'Irvin' Flight Jacket Previously Treated with Neatsfoot Oil

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Abstract
This poster focuses on the conservation of a Second World War (1939-45) 'Irvin' flight jacket, referencing issues of retreatability encountered with a previously applied leather dressing, neatsfoot oil. Despite more visually evident condition issues, the presence and removal of this oil became a central challenge of treatment.

Constructed from over forty panels of sheepskin, the jacket had been purchased as army surplus and seen wear as a motorcycle jacket and a prized commemorative garment, as well as spending periods in domestic storage. Throughout its almost eighty-year ownership the jacket was treated with neatsfoot oil, a traditional leather preservative made from cattle bones.

The aim of conservation was to return the jacket to a wearable condition; the fragile leather having torn in storage. The removal of excess neatsfoot oil was identified as a high priority. The leather was saturated, leaving oily residues on packing materials and surfaces and hampering further treatment. However, following solvent cleaning the jacket continued to deposit residues.

The application of a leather dressing, once recommended for conservation but now advised against, proved difficult to retreat to a sufficient level and problematised treatment. Through consideration of this conservation case study, as well as surrounding research, this poster will explore issues of retreatability relating to neatsfoot oil as a leather conservation treatment.

The Jacket

The object of this case study is a leather 'Irvin' flight jacket, dating from the latter years of Second World War (1939-45). The jacket body, sleeves and collar were made from forty-three panels of chrome tanned sheepskin leather, with a suspected polyacrylate finish (Sweeting 2015). The flesh side of the leather formed the jacket exterior, which was a dark brown in colour. Sympathetically coloured leather and cotton tapes overlayed the majority of external seams. The fleece side of the skin was turned to the inside, showing only at the cuffs, hem, and where the high, wide collar folded down. A (non-original) metal zip with a metal pull secured the jacket down the centre front. A partial leather belt and metal buckle were attached at the front hem, to tighten the fit of the lower jacket. Patch pockets with an angled flap and popper closure had been added to the lower front of the jacket.

The jacket was purchased by the owner's father as army surplus, from W.J. Bell & Son Tool Merchants, Lincoln, shortly after the war, and is thought not to have seen active service. Instead, it was routinely worn as a motorcycle jacket until 1956, and again from the early 1970's to mid-1980's. After a period in domestic storage, the owner began to wear the jacket to commemorative Second World War events, emphasizing its importance as an original garment of the period (Figure 1 and 2).[18]

Figure 1: Front view of the jacket, prior to treatment.

Figure 2: Back view of the jacket, prior to treatment.

Condition: Why Clean?

The overall aim of treatment was to return the jacket to wearable condition, addressing a range of condition issues, including tears and deterioration of the leather.
However, before structural condition issues could be addressed, in particular consolidation of the fragile, flaking leather surface, cleaning of the jacket exterior was required. Visually, the appearance of the jacket was marred by accretions of a dried, off-white substance, especially noticeable along the edges and in the surface texture of the seam tapes (Figure 3). The teeth of the zip were clogged with what was assumed to be the same substance, although corrosion had discoloured the accretions green (Ankersmit *et al.* 2015) (Figure 4). To the touch, the leather felt waxy and tacky, adhering dust and dirt. The jacket was, furthermore, seeping oily residues on to packing materials and surfaces. This was in contrast to the deterioration of the leather, which was more consistent with drying.

The owner confirmed that they had 'fed' the jacket with neatsfoot oil, a popularly recommended leather dressing, repeatedly throughout their custodianship.[19] The condition issues noted indicated that the dressing had been applied heavily and/or frequently. Maintaining the evidence of vernacular care of the jacket was felt to be at odds with the treatment aim. As such, cleaning became a linchpin for further treatment. The removal of the excess neatsfoot oil was important for managing deterioration, potential oxidation of the neatsfoot oil causing stiffening of the leather (CCI 2019) and compromising

[18] Correspondence (email) between Leach, A. and the object owner, 10 February 2025

[19] Correspondence (email) between Leach, A. and the object owner, 10 February 2025

consolidation, whilst also allowing for the creation of more stable storage conditions and enhancing aesthetic appearance.

Figure 3: Close up of accretions of neatsfoot oil caught in the seam tapes of the jacket, prior to treatment.

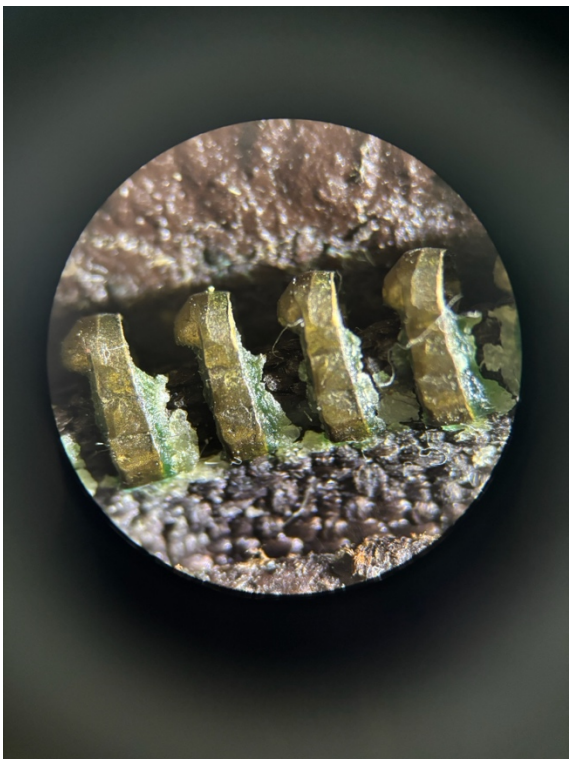

Figure 4: Accretions of neatsfoot oil caught in the teeth of the jacket zip, under x20 magnification, prior to treatment.

Leather Dressings and Neatsfoot Oil

The use of leather dressings, a varying array of oil, fat and wax mixtures intended to preserve and restore the strength, flexibility and appearance of leather surfaces, is long established (McCrady 1990). Their use is thought to originate in traditional object care practices, predating the Industrial Revolution (commencing in mid-late 18th Century) (McCrady 1990). By the latter years of the 20th Century however, a growing emphasis on scientific research into the efficacy of dressings had established little evidence for their supposed preservative effects (McCrady 1981). Instead, evidence to suggest the detrimental impact of their indiscriminate use was growing (van Soest *et al.* 1984; Rapheal and McCrady 1984).

Whilst the use of leather dressings 'is not now generally recommended' in conservation (CCI 2019), practice has adapted slowly (McCrady 1990; Teper and Straw 2011). In the domestic sphere, the use of dressings such as neatsfoot oil continues to be strongly advocated. Neatsfoot oil is a pale yellow, fatty oil, obtained from the boiling of the skin, shinbones and feet (excepting hooves) of cattle (CAMEO Materials Database 2022). It has been used as a leather dressing, often in combination with lanolin, as in New York Public Library Formula (60% neatsfoot oil: 40% lanolin) (Teper and Straw 2011), in both conservation and domestic contexts. Dressings containing neatsfoot oil are especially susceptible to wicking, seeping through leather to surrounding surfaces (McCrady 1981).

Solvent Cleaning

Working on the principle that like dissolves like, a range of solvents, identified as suitable for leather, were plotted alongside neatsfoot oil on a Teas chart (Burke 1984). Testing considered how effectively neatsfoot oil was removed from surrogate samples of leather and cotton webbing tape (assessed visually and by touch), the extent of wetting of the leather and changes in appearance by five solutions, identified by the Teas chart. 100% white spirit was found to be most effective, reducing the waxy feel of both samples with minimum visual alteration.

Cleaning was undertaken using swabs soaked in white spirit and gently rolled across the surface of the leather. Swabs were changed as they became visibly soiled. Each jacket panel was cleaned in turn, followed by each of the leather and cotton seam tapes. Care was taken to clean under the seam edges of the tapes, where dried oil deposits were especially noticeable. Metal components of the jacket were cleaned with white spirit swabs, and a toothpick used to dislodge hardened deposits of neatsfoot oil from the zip teeth (Figure 5 and 6).

Figure 5: Front view of the jacket, after treatment.

Figure 6: Back view of the jacket, after treatment.

Reflections on the retreatability of the Neatsfoot oil treatment on the jacket through solvent cleaning

Cleaning had a visibly positive impact on the jacket appearance, although this could be attributed to the removal of adhered dust and dirt as much as neatsfoot oil accretions. The waxy, tacky feel of the leather surface was greatly reduced. However, under x20 magnification deposits of neatsfoot oil remained visible, caught in the deteriorated surface of the leather (Figure 7). Areas where corium fibres had been exposed were particularly susceptible to retaining the dressing. Re-cleaning one of these areas with white spirit, under magnification, had little impact.

The jacket also continued to secrete oily residues, suggesting neatsfoot oil remained present beyond the surface deterioration. Seepage onto packing materials echoed the seam lines of the jacket back, with the heaviest accretions correlating to seams uncovered by a tape or

covered with a cotton tape. Noting neatsfoot oil's propensity to wick (McCrady 1981), the construction of the jacket itself was also complicating efforts to remove the dressing (Figure 8). The different seam types, across more than forty-five seams, were absorbing and depositing the dressing differently. Sheepskin is thinner than other leathers, owing to the retention of the wool fibres (Kite 2006), and further analysis would have been required to ascertain the extent of wicking through to the fleece.

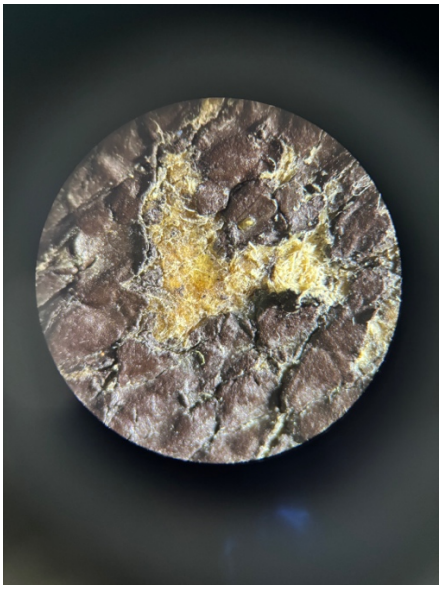

Figure 7: Neatsfoot oil accretions caught in the corium fibres of the leather, under x20 magnification, after treatment.

Figure 8: Neatsfoot oil accretions on packing materials, 12 months after treatment.

Conclusion

Dressings of neatsfoot oil were applied with the best intention of prolonging the jacket's life, guided by the information, often inconsistent and unspecific (McCrady 1981), available to a non-professional audience. This advice is out of step with that available to conservators regarding the risks and benefits of leather dressings (CCI 2019). The condition of the jacket echoed that noted by book and paper conservators dealing with both the volunteer and professional application of dressings to book bindings (Herro *et al.* 2017). However, treatments for removing oil from paper had limited application given the differing material needs and tolerances of leather and wool.

Time constraints limited further cleaning and treatment. The mixed results achieved through solvent cleaning raised the question 'to what extent is retreatability feasible?' and suggested that objects previously dressed with neatsfoot oil should be treated as complex, multifaceted cleaning challenges on a spectrum of retreatability.

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Conservation Continues: Reviewing and Renewing a 55-Year-Old Treatment

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Abstract
A rare 1740's cord quilted jacket and skirt, also referred to as a Brunswick, from the Charles Wade's costume collection at Snowshill Manor required stabilisation for open display. The ensemble, which features in Janet Arnold's *Patterns of Fashion 1* and the National Trust's recent publication *100 things to Wear: Fashion from the Collections of the National Trus*t, has received several conservation interventions since the 1970s, providing an opportunity, through the treatment process, for an encounter between two emerging professionals and some of our industry's early pioneers.

Due to the limited literature on conserving corded quilting the previous treatment acts as a vital primary resource and insight into the problems posed by densely quilted silk structures. Research into the methods and materials and how they have changed over time enabled the authors to approach the reversal of the previous treatment and the new intervention in the most appropriate way. This poster summarises the decisions and actions that led to what may be considered a review and a renewal of a fifty-five-year-old treatment.

Overview

Conservators often face the challenge of treating an object with a history of intervention. It is the responsibility of each new conservator to evaluate how effective each previous treatment has been, and what work should be kept, renewed, or replaced.

A stunning example of a 1740's quilted Brunswick outfit (refashioned in 1780's style) required stabilising before being featured on open display within the National Trust's (N.T.) Snowshill Manor 2026 exhibition (Arnold 1970, 70). The outfit includes a quilted silk satin jacket with flounce sleeves, peplum skirt and a hood, and a matching quilted petticoat which is knife pleated and closed at the centre back with a cotton tape (Figure 1).

The quilting featured on both garments is similar and has been worked to a high standard possibly by British professional quilters (Baumgarten 2007, 7-31). Most exemplary is the design of the ornate floral cord quilting and stuffwork which was potentially drawn by professional Pattern-Drawers and thus has a resemblance to contemporary embroidery designs (Baumgarten 2007, 10). On account of the outfit featuring in Janet Arnold's *Patterns of Fashion No. 1* the garments have become popular objects of study which are handled regularly. It was therefore important that the new treatment would strengthen the artefacts' delicate nature and in doing so facilitate studies of 18th Century garment construction and traditional hand quilting.

(L) Figure 1: Brunswick outfit after recent conservation treatment. © National Trust

(R) Figure 2: Areas of damage across petticoat skirt hem. © National Trust

Due to wear and natural ageing of the fine silk, which is held under tension across the cord construction, areas of silk splitting, loss and wool/cord exposure compromised the stability of the garments. Many of these areas of weakness were addressed in the previous treatments, however our inspection indicated that new damage had formed and weak areas continued to degrade (Figure 2).

Reviewing Previous Treatment

In condition reports provided by the N.T., a 1970's net and crepeline treatment is briefly described, and a 1986 review of the treatment states only 'condition good.' It seems likely that the 1970's work was undertaken by Karen Finch's studio, since she notes in 'A list of work done in 1970' that her studio undertook 219 hours of work on a 'quilted dress (circa 1735)', owned by Snowshill Manor, N.T. (Finch 1970). In the absence of more substantial treatment reports, secondary documentation mentioning the objects and their treatment were referred to, however this was found not to align with the extant material evidence. Arnold mentions in *A Handbook of Costume* that a polyvinyl acetate, probably Mowilith® adhesive, was used during the treatment, but the text does not directly describe how this was applied, nor was any adhesive mentioned in the 1970's treatment report (Arnold 1980, 116). Indeed, no evidence of adhesive could be found across the outfit. Samples from the petticoat net backing have been sent to Glasgow University and await infrared spectroscopy testing to indicate the presence of an adhesive.

In stabilising complex quilted surfaces, a specific approach is warranted since conventional laid couching would disrupt the quilt design and insufficiently support the heterogenous structure. The stitch methods employed in the previous treatment constitute a response to these problems.

As far as we could ascertain, the previous treatment of the petticoat had involved deconstructing the waistband and backing the petticoat when flat with a coarse white net. The backing was attached with an extensive network of zigzag stitching from the back which aligned with the quilt lines on the front. The open structure of the net backing meant that areas of loss were not infilled and degraded areas were insufficiently supported, leading to a fault line of weakness where the cord quilting meets the wadded quilting. A large centre front hole was infilled with a heavy weight linen upon which lines of stitching were added to loosely imitate quilting. This was considered to be an innovative approach which could be of great success when carried out on more complimentary materials - further experimentation is required (Figure 3, 4 and 5).

Figure 3: Previous treatment network of zigzag stitching as seen from back. © National Trust

Figure 4: Previous treatment crepeline patch overlay with zigzag stitching as seen from front. © National Trust

Figure 5: Previous treatment linen infill with imitating quilt stitches. © National Trust

The inside body and fitted sleeves had all been lined with a close weave linen which provided good stability, which Arnold estimates was added during the nineteenth century (Arnold 1977, 70). The inner face of the flounce sleeves were backed with the same white net and zig-zag stitching, which could be seen readily. On both garments patches of silk crepeline were used over areas of splitting silk and total loss. A second treatment is indicated by further silk crepeline patches (but not noted in records) which overlay the previous treatment and can be distinguished by their threads. This patched formation of crepeline created an uneven surface appearance and disruptive visual ‘haze’. An estimated

50% of the outfit's surface was covered with patches. Closer inspection also revealed that the crepeline materials used had begun to fray and split, some worse than others (Figure 6 and 7).

(L) Figure 6: 1970s crepeline patches with 1980s crepeline patches overtop. © National Trust

(R) Figure 7: Close up of jacket shoulder detailing crepeline patches splitting and fraying above delicate silk. © National Trust

Renewing Treatment

"We do not use methods which are irreversible, believing that the first principle of conservation is always to safeguard the possibility of re-treatment, if at a later date, a newer and better method should be discovered." - Karen Finch, 1970

After 55 years Finch's treatment approach remains appropriate, however over time the conservation materials have degraded, and the garments have continued to develop new areas of weakness and loss. As more sympathetic materials are readily available, it was felt appropriate to reverse the previous treatments. We consider our treatment an update on the previous conservation as we used the same approach but with contemporary conservation materials and a more cohesive overlay solution.

Drawing upon the extant zig-zag stitch method, the new stitching took a minimal, focused approach, following the quilt lines while incorporating long and short stitches and support lines where needed. The dyed fuji silk petticoat backing was more supple than the net it replaced and the finer weave provided greater support which also acted to infill the losses. The damage upon the sleeves, previously backed with the same coarse white net, was effectively supported with dyed silk habotai patches camouflaged within the corded quilting (Figure 8 and 9).

Figure 8 and 9: Silk patch repair to sleeve flounce. © National Trust

A full overlay solution was applied to both garments using custom dyed diamond mesh nylon tulle selected on account of its open structure, which reduced visual obstruction from the quilting and satin sheen. To ensure the net closely followed the form of the jacket without being too tight, it was pinned and stitched whilst the jacket was on a mannequin. The net hems were camouflaged by trimming them to and stitching along the original quilting design. This ensured the seams were flush with the jacket surface whilst also being able to move with the garment during handling (Figure 10 and 11).

(L) Figure 10: Madeline stitch supporting the deconstructed petticoat. © National Trust

(R) Figure 11: Jessica adding net support to the jacket. © National Trust

Following conservation work, the garments were mounted and can be seen on display at Snowshill Manor until Autumn 2026.

Acknowledgements
We would like to thank the Snowshill Manor staff, and our studio head Alison Lister for allocating us this project, supporting the treatment's development and undertaking the mounting.

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Materials & Suppliers

Fuji Silk; Habotai Silk
Whaleys Fabrics Ltd.
Bradford BD7 4EQ
UK
+44 1274576718
www.whaleys-bradford.ltd.uk

Fine Tulle
The Tulle Factory [Closed in 2026]
Germany

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Further Reading

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Respecting the Past, Supporting the Present: The Conservation of a Seventeenth-Century Persian Velvet

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Abstract
The conservation of an early seventeenth-century hanging of Persian and Indian velvet, in the collections of the Abegg-Stiftung, offered the opportunity to explore retreatability within textile conservation practice. Previous heavy darning, used to compensate for the loss of the main warp, had become both structurally and visually problematic due to tensions and subsequent deterioration of the textile. Preliminary research, including mapping stitching threads and radiocarbon dating of textiles and threads, enabled differentiation between original materials and later repairs, leading to the careful removal of the lining and a fuller understanding of the object's layered history.
The treatment sought to stabilise new damage without erasing past interventions. Inspired by tapestry conservation research, a cotton flannel support was applied to the reverse of the central panel, secured with a system of support lines to provide structural stability with minimal stitching. Areas of tension within the darning were locally released, and various stitching methods were trialled to secure loose wefts in a manner visually sympathetic to the existing darned repair. Conservation of the velvet border required an alternative, adhesive-based approach. A Lascaux adhesive free film and Fuji silk support were employed to infill losses and support weakened areas, developing a reactivation method that preserved the delicate velvet pile. The treatment demonstrates how reflective decision-making and adaptation of cross-disciplinary techniques can honour earlier restoration work while ensuring the textile's continued stability and interpretability.

Introduction

The conservation of a seventeenth-century figural velvet hanging (Inv. no. 1156) in the collection of the Abegg-Stiftung, Riggisberg, provided an opportunity to reflect on earlier restoration, retreatability, and the appropriate extent of intervention.[20] Undertaken in preparation for a forthcoming exhibition of Persian textiles and an accompanying catalogue, the treatment sought to better understand the object, its construction, and prepare it for photography and display. The institutional context, with access to analytical resources, specialist expertise, and extended treatment time, enabled detailed material investigation alongside conservation. The project raised practical and ethical questions as to whether past

[20] The full treatment report can be requested from the Abegg-Stiftung:
Smith, E. 2026. *1156: Conservation Report.* Unpublished conservation report, Abegg-Stiftung.
As the textile is otherwise unpublished, a full photograph cannot be reproduced in this article. A full image will appear in the forthcoming catalogue of Persian textiles by Anna Jolly for the Abegg-Stiftung (expected 2029).

restorations should be removed, modified, or preserved, and how new interventions can ensure stability while leaving room for future retreatability.

The hanging is 162 x 116cm and consists of a central Safavid figural velvet panel, woven in Persia in the late sixteenth or early seventeenth century, depicting rows of female figures beside flowering plants. This panel was later assembled, probably in India, into a rectangular hanging with a striped velvet chevron border, red lining, and additional internal layers. The object therefore represents more than one moment of manufacture.

The central panel had extensive later darning, carried out to compensate for the loss of the main warp. The chevron border also had significant loss, particularly in the light-coloured striped areas. Rather than seeking to 'correct' earlier repairs, the treatment aimed to stabilise damage, reduce harmful tension, and improve the visual coherence of the textile.

The treatment developed two distinct approaches in response to the different structural problems of the central panel and the border. The central velvet was stabilised using an overall stitched support system, designed to reduce tension while retaining earlier darning. In contrast, the fragile border required an adhesive-supported solution, with the silk too fragile for stitching alone.

The treatment reflects wider shifts in textile conservation over the past thirty-five years; a move away from reconstruction towards minimal intervention, and from a focus on reversibility towards a more critical understanding of retreatability.

Historical and Material Context

The central panel is composed of three seamed pieces of a cut and voided figured velvet. The pattern is depicted with a black outline, the skin tones and highlights in a cream colour, and the infill of the women and flowering plants is shown in white, blue, yellow, beige and orange tones formed by differently coloured pile warp threads arranged into vertical stripes (*ourdissage à disposition*). The women wear a long-sleeved, floor-length caftan closed with garment frogs down the chest, a sash tied around the waist, black pointed shoes, a black necklace, and jewelled headpiece. In one hand they hold a dark round fruit, in the other a small flowering plant. The ground was originally covered with a gilded silver lamella pattern weft, now largely lost.

Comparable velvets, both stylistically and technically, are preserved in the Royal Danish Collections, formerly at Gottorp and later Rosenborg Palace (Bier 1995), and are thought to have been presented as diplomatic gifts by a Persian delegation. These similarities support a Safavid attribution for the central panel.

The figural velvet was subsequently assembled, probably in Mughal India, into a rectangular hanging (Mackie 2015). The surrounding chevron border consists of an alternating teal and white striped velvet, which has been cut on the bias and seamed to create a chevron pattern with lozenges at the mid-point of each side. The use of a raw silk in the weft, as well as compositional parallels with Indo-Islamic architectural ornamentation, suggest assembly in Mughal India. Radiocarbon dating undertaken during this project confirmed a seventeenth-

century date for the border velvet and silk sewing thread attaching the border velvet to the central panel.

Textiles of comparable dimensions functioned in Mughal palace interiors as door hangings or wall panels. The present object includes sewn loops along the upper edge of the lining; however, these are unlikely to represent the original hanging mechanism and probably relate to a later phase of display or adaptation.

The hanging also includes a red cotton lining, which appears to be secondary, with traces of earlier stitching in the border lacking corresponding holes in the lining. Radiocarbon dating of the lining produced a broad date range extending into the nineteenth century and cut basting stitches in the central panel indicate that earlier linings may once have been present. The hanging also includes a red wool binding with heavy insect damage, and a thick striped cotton band and red open weave textile which sit between the outer and lining along the lower edge, likely providing weight to help the hanging drape well.

The object was purchased on the New York art market in 1968 and subsequently entered the collection of the Abegg-Stiftung. Its present form reflects not only Safavid weaving and Mughal assembly, but also later phases of repair, adaptation, and collecting.

The hanging therefore represents a layered construction, which may have been modified since its first construction. It cannot be understood as the product of a single moment, but as a textile that has been woven, assembled, adjusted, and repaired over time. This understanding informed the conservation approach, which needed to address not only material deterioration but also the evidence of these successive interventions.

Condition and Previous Interventions

Prior to treatment, the central panel had extensive loss of the silk main warp, particularly in the voided ground areas where the pile did not protect the structure. The cotton foundation wefts were exposed and, in many areas, unsupported. A large proportion of the ground had been darned to compensate for this warp loss. The darning was carried out using three different silk threads, however it was unclear whether these represented a single phase of darning using different threads, or multiple phases of repair. The darning was executed finely and sympathetically, but it introduced irregular tensions. In some areas the darning pulled adjacent wefts out of alignment, generating new distortions and localised stress, and new areas of loss had opened since this darning had been carried out.

Although the darning was beginning to contribute to structural problems, it had also stabilised the textile for a considerable period. Its removal would have required unpicking large areas of fragile ground and would likely have resulted in significant loss of the remaining main warp and metal pattern weft. The darning formed part of the object's conservation history, as much as its deterioration.

The chevron border had suffered significant loss, especially in the white striped areas where there were large holes and almost complete loss of the pile. This damage was likely caused by insect activity, probably at the same time as the wool binding was affected. The silk was extremely fragile and prone to fragmentation. The use of raw silk in the weft may have

contributed to its crisp and brittle handle. Many seams were open or had been re-secured with later restoration threads. These seam repairs were executed in silk and cotton threads, many of which appeared hand-spun. It was therefore not possible to determine whether these later interventions were early or relatively recent.

The red fulled wool binding was largely destroyed by insect damage. The thick striped cotton band inserted along the lower edge caused distortions that were visible on the surface and contributed to new splits in the lower part of the central panel. The lining was generally stable, but it was slightly larger than the front and, with the loss of border and binding, was visible from the front. Although the lining appeared secondary, it was hand woven and could not be securely dated; radiocarbon analysis produced a broad date range extending into the nineteenth century. As with the seam repairs, its precise chronology remained uncertain.

The hanging therefore contains several phases of intervention: original construction, later seam repairs, at least one extensive darning campaign, and the addition or replacement of lining and binding. These layers of intervention form part of the object's history and directly influence its present condition. The difficulty in distinguishing clearly the chronology of these later repairs complicated the treatment approach. Structural instability needed to be addressed, but in a manner that preserved the possibility of future reassessment, should the chronology and significance of these repairs be better understood.

Retreatability and the Decision to Partially Remove the Lining

One of the initial decisions during treatment was whether to release the lining. In recent decades, dismantling textiles has become a more cautious undertaking, reflecting greater recognition of the evidential value of historic assemblies. Any decision to separate elements must therefore be carefully justified.

Research into the construction of the hanging was undertaken to determine whether temporarily releasing the lining could be justified. This included close examination of sewing threads and stitch holes, discussion with the curator regarding the likely chronology of the textiles and their current configuration, and radiocarbon dating of the chevron border, the lining fabric, and the silk sewing thread attaching the border to the central panel.

Several factors supported the decision to release the lining. Silk thread fragments and basting stitches were visible along the edges of the chevron border and within the central panel that had no corresponding stitch holes in the lining, suggesting that the present lining was not original to the first assembly. Despite extensive insect damage to the wool binding and parts of the border, there were no insect remains or frass trapped between the layers, indicating that the lining may previously have been detached. None of the extensive darning stitches passed into the lining suggesting this work may have been carried out with the lining removed. Removal of the lining would allow improved support of both the central panel and the chevron border and enable distortions to be reduced more effectively. The curator considered the present configuration likely to be later than the weaving of the central panel and border. Finally, radiocarbon dating of the lining returned a broad date range extending into the nineteenth century, making it impossible to confirm that it was contemporary with the seventeenth-century textiles.

Taken together, this evidence suggested that the lining was probably secondary, although its precise date remained uncertain. On this basis, temporary release was considered justifiable.

The lining was removed under controlled parameters to preserve as much information as possible. Detailed photographs were taken prior to intervention. The left, right, and upper edges were released, while the lower edge was left attached in order to retain the internal layers and the surviving wool binding. Threads were cut from the front and drawn through to the lining to preserve stitch evidence. The chevron border was temporarily secured with a nylon net overlay to maintain its position during treatment.

Release of the lining revealed fibre debris, stitch holes, and construction details that were previously inaccessible, adding to the technical understanding of the textile and informing decision making. The lining itself was retained, remaining attached along the lower edge, and was later resecured following treatment. This approach allowed access without permanently dismantling the historic assembly. By choosing a partial detachment of the lining which was reattached at the end of treatment, this option allowed for full support of the central panel and chevron border while maintaining the integrity of the object's layered construction and preserving the possibility of future reassessment.

Addressing the Darning and Supporting the Central Panel

The earlier darning presented a central question: should it be removed, modified, or supported? Although visually coherent, it imposed uneven tensions and did not create a regular woven structure. However, it represented a skilled and historically meaningful attempt to preserve the textile.

Complete removal would have risked further loss of the fragile main warp and the remaining metal pattern wefts. Instead, a strategy of selective release was adopted. Under magnification, particularly tight darning threads were cut at their ends to reduce tension without unpicking entire sections. This allowed distorted wefts to be realigned through gentle humidification using an ultrasonic humidifier. The aim was not to reverse the earlier repair, but to mitigate any negative impact.

The choice of support fabric was important. A full support to the reverse side was required to stabilise the weakened ground while limiting additional stitching. Because there were no large open areas, the visual appearance of the support fabric was of secondary importance, as it would not be seen from the front. A cotton flannel support, brushed on one side to provide nap (Lennard *et al.* 2020, 66), was selected as a support fabric for the central panel. Dyed to a sympathetic tone, it was attached using a system of carefully spaced support lines worked on a stitching table. This distributed weight evenly and reduced reliance on localised stitching. The support was applied in three sections, respecting the original seams of the central panel. The velvet was aligned carefully on the support prior to stitching. Stitch placement avoided the pile wherever possible, and tension was moderated by leaving thread tails for slight ease. In seam allowances, the nap of the flannel was reduced with a scalpel to minimise bulk when turning the edges.

In supporting the exposed cotton wefts, the project also provided an opportunity to reconsider the range of stitches employed in textile conservation. Drawing on methods more

commonly associated with tapestry conservation, brick couching was initially tested on a surrogate object and proved successful in supporting the loose cotton wefts in a matter sympathetic to the darning. However, when carried out on the central panel, this method created an unintended visual waviness (Figure 3). The method was therefore adapted. Laid couching proved more effective in stabilising loose wefts while maintaining surface regularity (Figure 2). Stitch selection was responsive, adjusting as work progressed in response to the behaviour of the textile. Couching was kept minimal and was used primarily to support interpretation rather than to reconstruct structure. It was concentrated within the figures to maintain legibility of the design, with smaller areas placed in the background where structural weakness was greatest, particularly along seams and edges, and areas distorted by earlier darning (Figure 1). Some loose wefts remain, however given that the hanging will be handled only rarely and by trained staff, these are at minimal risk of worsening.

This approach recognises the earlier darning as part of the object's history, modifying it only where structurally necessary and supplementing rather than replacing it. The adaptation of support methods taken from tapestry conservation to velvet, reflects the permeability between textile sub-specialisms. In this case, stability was achieved through redistribution of stress and careful adjustment of existing interventions.

Figure 1: Central panel before conservation, showing distortion caused by the darning threads

Figure 2: Central panel after conservation

Figure 3: Brick couching in the central panel, creating a wavy appearance to the wefts

Adhesive Support of the Chevron Border

The fragility of the border's white striped areas prompted testing of both stitched and adhesive supports on a surrogate object. Trials included adhesive cast crepeline underlays, intarsia fills, adhesive free films (Smith 2014), and stitched sandwich supports using an underlay fabric and nylon tulle overlay. Although sandwiching allowed for minimal stitching into the fragile velvet, the crisp handle of the velvet meant it didn't take a needle well, and overlays visibly dampened the shine and remaining pile on the surface. Adhesive supports, if carefully controlled, offered a less intrusive alternative.

The border was carefully surface cleaned using low vacuum suction on the front and back. Distortions in the border, and seams on the back of the border, were aligned through ultrasonic humidification and secured with insect pins.

A free film of Lascaux® acrylic adhesive 303 and 498 (1:2 ratio) was cast onto silicone release film. Silicone release film proved to be the most suitable carrier as it created a flat, even surface, was easy to release from the adhesive film, was able to be worked into folds in the border, and was transparent allowing the textile below to be seen. A 1:2 ratio of 100% adhesive allowed for a free film to be made with limited pooling and gave good working properties for the textile. The casting area was defined using two layers of masking tape to control film thickness. The adhesive was spread with a glass rod, and dried with a hair dryer to limit any pooling. Once dry the film was covered with another layer of silicone release film to prevent dust accumulation and ironed to ensure an even film.

The adhesive free film was positioned and reactivated to the reverse of the border at 65°C using a heated spatula for 30 seconds. Where possible one sheet of film was worked into seam allowances using various spatula heads. Where not possible small strips of adhesive film were used to secure seam allowances. Occasionally the cotton threads securing the seams in the border needed to be cut to allow access to the seam allowances. A padded mat was made to lie under the velvet, to provide a soft surface under the pile to protect it from being flattened during reactivation of the adhesive film.[21] The adhesive free film was carefully cut away using a scalpel in areas of holes and the edges of the border textile.

Fuji silk 800, dyed to a neutral beige, was used with the grain at a 45° angle to the border, with the warp running parallel to the long edge of the border. The decision not to recreate missing stripes followed testing of painted and stitched stripe reconstructions. This decision aligns with current conservation practice, which tends to avoid reinstating lost design unless necessary for interpretation.

The Fuji silk was reactivated to the adhesive free film at 65°C using a heated spatula for 30 seconds (Figure 4 and 5). Excess fabric was cut away, ensuring that the edges were cut not exactly following warp lines so as not to create areas of tension. Along the bottom edge, as the lining and binding are still attached, it was not possible to work the support to the edge of the border silk. Here the Fuji silk was left longer, in case this area needs to be further supported in the future. A small amount of excess adhesive remained on the front of the textile. This was removed using a heated spatula and tweezers, then swabbed with acetone

[21] This was made from a thick cotton molton, covered with a light cotton batiste.

to ensure no adhesive remained. Small fragments were reattached to the support fabric using the same adhesive free films, sometimes with nylon tulle overlays stitched in place for added security.

Adhesive use in textile conservation remains debated. Here, its selection was guided by testing, controlled reactivation, and the recognition that complete reversibility may not be achievable, but retreatability, access to seams and the possibility of localised removal, remains viable.

Figure 4: Border before conservation

Figure 5: Border after conservation

Reassembly and Finishing

Following stabilisation of the central panel and border, seams were resewn using grège silk in a tunnel stitch. The lining was locally supported where necessary and reattached, with edges turned under to prevent visual intrusion from the front (Figure 6).

Along the lower edge, an insert was introduced to soften the transition created by the internal cotton band and to reduce the visual and structural impact of this thickness change. To allow access if this insert needs to be removed or adjusted in the future, two openings of approximately 15 cm were left at the right and left edges of the object. The insert itself consists of two strips of archival cardboard, each approximately 6 cm wide, inserted from either side so that they meet at the vertical seam joining two sections of the central panel. To facilitate safe insertion and ensure the strips remain correctly positioned, two white cotton pockets corresponding to the size of the cardboard strips were sewn internally into the inside lower section of the lining.

After discussions with the curator, it was decided to recreate the missing bottom left corner in the border to restore the rectangular outline of the hanging, and a mitred corner was

created in the support fabric. The corner was not reconstructed in the lining, allowing future researchers access to internal layers.

The remaining wool binding was secured where necessary using nylon tulle overlay but not infilled. This restrained approach avoided introducing visually dominant new materials while preserving the remaining binding.

Figure 6: Diagram of conservation treatment

Documentation
Comprehensive documentation accompanied each stage of examination and treatment. High-resolution photography, weave analysis, stitch mapping, material analysis, radiocarbon results and dye analysis were recorded in detail. The full treatment report, including newly established information regarding materials, construction, and the chronology of repairs, remains within the conservation records of the Abegg-Stiftung. This documentation preserves both the technical rationale for the interventions and the material evidence revealed during treatment. The technical findings will also inform the forthcoming published catalogue of the Persian and Indian textiles in the collection, ensuring that conservation research contributes directly to art historical scholarship.

Display and Storage
Although the textile may originally have functioned as a vertical hanging, its present structural condition favours display flat or at a shallow angle. After discussion with the curator, a shallow incline was selected. This allows the object to retain a sense of vertical orientation, rather than being read as a floor covering, while significantly reducing strain on weakened warp areas. The textile will therefore be displayed in a vitrine, laid on a supportive board at a gentle angle. This approach minimises stress on exposed foundation wefts, surviving metal pattern wefts, and the remaining velvet pile.

Long-term storage recommendations follow the same principle of supported handling and minimal pressure. The hanging will be stored flat in a drawer large enough to avoid folding. It will rest on a secondary support, such as glassine paper, allowing it to be moved without direct handling of the textile. Nothing will be placed on top of the object, as the surface, particularly the metal wefts and degraded pile, remain highly vulnerable to loss.

In this, the project reflects a broader shift in conservation thinking, prioritising long-term preservation over recreating presumed original modes of display.

Conclusion
The conservation of this seventeenth-century velvet hanging required balancing structural intervention with respect for earlier repair. The central panel and border required different approaches: stitched support, and adhesive support respectively. These decisions were determined by the material behaviour of each element.

Throughout the treatment, earlier interventions were considered part of the object's history rather than obstacles to be removed. The extensive darning, although contributing to distortion, had achieved its intended purpose in preserving the integrity of the textile. The lining and numerous phases of seam repair could not be securely dated and may themselves represent historic campaigns of care. Interventions were minimised to what was structurally necessary, with the aim of retaining evidence of previous work wherever possible.

Retreatability informed the approach more usefully than the concept of full reversibility. The partial release of the lining allowed structural access without completely disassembling the object. The selective cutting of darning threads reduced tension without unpicking entire areas. The adhesive support of the border was undertaken with controlled reactivation and

with seams left accessible for potential future treatment. In each case, the aim was to improve stability without removing the possibility for later reassessment.

The project also reflects broader developments in textile conservation over recent decades. There is less emphasis on reconstruction and visual reinstatement, and greater focus on distributed support, minimal intervention, and careful testing of materials. At the same time, continuity remains evident. Earlier repairs were undertaken with the same intention that guides present practice: to extend the life of the textile. Recognising this continuity encourages negotiation rather than correction.

The hanging now enters the exhibition not as a reconstruction of an original state, but as a structurally stabilised object whose history of making, repair, and conservation remains visible. In this sense, conservation has not sought to return the textile to a fixed moment in the past, but to support its continued existence in the present, with scope for future interpretation and intervention.

Acknowledgements
I would like to warmly thank Anna Jolly, curator of the project at the Abegg-Stiftung, for her collaboration and many helpful discussions about the textile's history, display, and interpretation. My sincere thanks also go to Nadine Kilchofer and Agnieszka Woś Jucker, whose guidance and support throughout the treatment were invaluable.

The practical work on the object benefited greatly from the help of several colleagues. I am especially grateful to Francesca Fracassi, who completed the last few weeks of treatment, as well as to Anaka Asokan and Nadine Kilchofer for assisting with the application of the support lines and Lina Vogelsanger for her careful work on the couching.

I would also like to thank Dr Irka Hajdas at the Laboratory of Ion Beam Physics, ETH Zürich, for carrying out the radiocarbon dating, and Dr Ina Vanden Berghe at the Royal Institute for Cultural Heritage (KIK-IRPA), Brussels, for dye analysis. My thanks also go to Merethe Kjeldgaard, textile conservator at the Royal Danish Collection in Copenhagen, for generously sharing her knowledge and showing me comparable velvets from the Rosenborg collection.

I am grateful to Christoph von Viràg for the photography of the object, and to Cédric Schüpbach for adapting the stitching table used during treatment.
Finally, I would like to thank my colleagues at the Abegg-Stiftung for their interest, encouragement, and many conversations around the project.

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Ness of Brodgar, Orkney and the PROCON Project, McDonald Institute for Archaeological Research, University of Cambridge.

Materials & Suppliers

Cotton flannel (Bio-Flanell)
Anita Pavani Stoffe GmbH & Co. KG
Heuchelheim
Germany
+49 641 962820
https://www.naturstoff.de

Cotton batiste
Schlegel & Co Textilien. AG
Basel 4052
Switzerland
+41 61 279 97 80
https://schlegel-textilien.ch/

Cotton calico
Sänger-Leinen AG
Langnau im Emmental
Switzerland

Fuji silk 800
Barth & Könenkamp GmbH & Co. KG
Bremen 28209
Germany
+49 421 34 10 41
https://www.barth-seiden.de

Grège silk (Tassinari & Chatel)
Lelièvre
Paris 75002
France
+33 (0)1 43 16 88 00
https://lelievreparis.com

Hexagonal nylon tulle
Dukeries Textile & Fancy Goods Ltd
Nottingham NG2 5BG
UK
+44 0151 981 6330

Diamond tulle (Fine Tulle T5)
The Tulle Factory [Closed in 2026]
Germany

Acrylic adhesives – Lascaux 303 and Lascaux 498
Lascaux Colours & Restauro
Brüttisellen CH-8306
Switzerland
+41 44 807 41 41
https://lascaux.ch

Detergent for scouring fabrics – Sonett detergent
Sonett GmbH
Deggenhausen 88693
Germany
+49 (0) 7555 9295 0
https://www.sonett.eu

Desizing agent for support fabrics –Beisol T 2090,
CHT R. Beitlich GmbH
Tübingen 72072
Germany
+49 7071 1540
http://www.cht.com

Novacron dyes
Erba AG Chemische Produkte
Mannheim 68219
Germany
+49 621 8799770
https://www.erbalachema.com

Lanaset dyes
Archroma (formerly Huntsman Textile Effects)
Pratteln
Switzerland
https://www.archroma.com

Cardboard (Passepartoutkarton, Altweiss, 0.75 mm)
Klug-Conservation
Immenstadt im Allgäu 87509
Germany
+49 8323 965330
https://www.klug-conservation.com

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Under (Gentle) Pressure: The Conservation of a mid-17th century Indian velvet

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Abstract

This paper will focus on the conservation treatment of a rare mid- 17th century Indian velvet. The aims for this large, incredibly fragile, powdery, and fragmentary velvet were to prepare it for publication photography, vertical exhibition display and storage. Prior to entering the Abegg-Stiftung's collection, it had been conserved and pressure mounted in the early 2000s in the United States. Due to the meagre documentation available and the inaccessibility of the reverse of the textile, it was dismounted. A comprehensive study and documentation of the materials, techniques and deterioration were undertaken. Due to the presence of pile, extensive damage, and numerous loose pieces in the centre of this large velvet, an adhesive treatment was considered. Post adhesive trials and discussions, a more hands-on approach to the mount was implemented rather than to the textile. It was pressure mounted again while ensuring the possibility of retreatment with minimal intervention. However, this pressure mount system was based on the Abegg-Stiftung's established protocols and in-house expertise, which differed significantly from the earlier one.

This project illustrates the benefits and successful implementation of the tenets of minimal intervention and retreatability which enabled the removal of the previous treatment with minimal damage and hopefully paved a similar outcome for the future. It also provides a variation of pressure mount that is unique to the Abegg-Stiftung.

Introduction

The Abegg-Stiftung is a museum of textiles and applied art in Riggisberg, Switzerland (Abegg-Stiftung, 2025a). In accordance with one of its mission statements, 'To Study: The furtherance of academic exchange in textile art through the organization of conferences, the publication of books and papers and the provision of an academic library with a focus on applied art, textile art and conservation' (Abegg-Stiftung 2018), the Abegg-Stiftung produces an annual special exhibition often accompanied by a catalogue. The special exhibition for 2025 was titled 'Flourishing India: Textiles from the Mughal Empire' and was on view from 27th April until the 9th of November 2025. To accompany this exhibition, a detailed catalogue of the Indian textiles including technical analyses is in production. Thus, the textiles were not only prepared for exhibition display but also for detailed documentation, analyses, and publication photography.

One of the more significant pieces within this exhibition was a mid- 17th century velvet 'hanging' displayed under the category of *Textile Furnishings* (Abegg-Stiftung 2025b), which was acquired by the Abegg Foundation in 2018 from a private collection (Jolly 2025). Mughal miniature paintings contemporary to this hanging shed light on the ways such velvets were used: as tent panels, hangings, curtains, canopies etc (Okada *et al.* 1995), with this varied use contributing to the rarity and significance of surviving examples in global museum collections (Calico Museum of Textiles and Jain 2011; Los Angeles County Museum of Art 2022; The Victoria and Albert Museum 2026).

Composition & Construction

The textile is a silk patterned warp velvet with a design of a single flowering plant beneath an architectural niche measuring 191cm in length and 115cm in width. It has three main components: a central rectangular panel, four rectangular border panels and four-square corner panels. The textile is finished with a green edging tape (Figure 1). The selvedges of the central panel are intact.

The borders are stitched to the centre panel along all four sides. The long borders feature a single row of flowering plants within chevron and vine borders; the corner panels have floral motifs. The ground of the architectural niche and the flowers of the central panel were woven with gilt metal threads but only remnants exist now. The condition of the velvet of the corner panels and their appearance at the seams suggest they were pieced together from another textile. Comparative studies of similar velvets (Calico Museum of Textiles and Jain 2011; Los Angeles County Museum of Art 2022) indicate that this is the only known piece with separate corner panels. It is possible that during active use the textile sustained damages from wear and tear, and by piecing these repurposed panels, it was once again complete and usable. The borders may have been woven together as long lengths, which were later cut and assembled onto this textile. This is based on a textile in the Abegg-Stiftung's collection featuring three rows of uncut borders with a distinct 'cut' line of the ground weave in between the patterned areas (Abegg-Stiftung 2025c).

Previous Treatments

When the textile was acquired by the Abegg-Stiftung, the accompanying documentation provided information on the most recent interventions. The textile had been conserved in 2008 in New York, and the treatment report was informative and concise as summarized below:

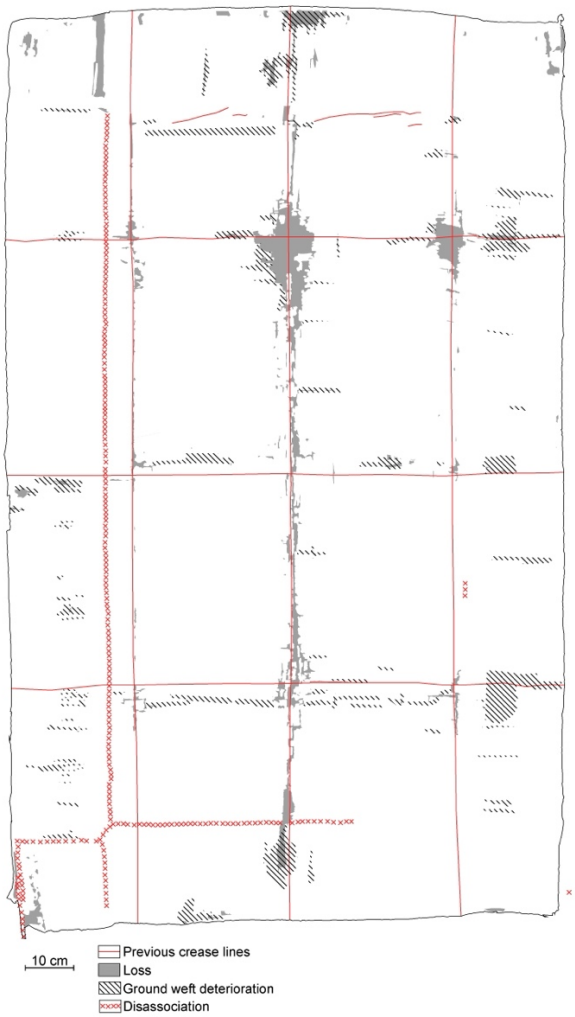
- The textile had been humidified and straightened using Gore-Tex® to reduce the creases.
- This was followed by reattachment of the green edging using hair silk. Some of the bunched stitching threads and thick fabric at the corner seams were loosened.
- The textile had two layers of fabric underneath in varying shades of brown, one as the loss infill fabric, which had been cut to the exact dimensions of the entire textile and the other, which was the display fabric and used to cover the entire support board. Finally, the textile had been pressure mounted with the mount composed of Pellon®, polyester felt and plexiglass and secured with a powder-coated frame.

Condition

Before the author started this project, the plexiglass mount had been removed in-house, along with all the in-fill layers, except the two layers of brown underlay fabrics. This was done when the textile was acquired in 2018.

The textile was in a poor, and unstable condition. The main condition issues were broadly grouped under the category of structural damage and weakness (Figure 2). The velvet had six prominent crease lines, three vertical and three horizontal. The textile appeared to have been folded for an extended period. The vertical fold lines had left a sharper, and lasting impact as compared to the horizontal ones, owing to the difference between primary and secondary folds. Most of the deterioration was concentrated around these crease lines. There were also smaller creases and folds along the top of the central panel and around the corners of the borders and the panels, due to the inherent construction and seams along with bulky folded fabric. The fibres around these crease lines were brittle and more susceptible to breakage and subsequent loss.

Figure 1: The textile after the removal of previous underlays, as viewed from the reverse. Photo credit: Christoph von Viràg.



(R) Figure 2: Condition map, as viewed from the reverse.

There were three main vertical splits along the fold lines. The central split was more severe, extending beyond the central panel and toward the borders. The majority of losses were concentrated at the top flower and throughout the entire length of the central split. There were also numerous horizontal and vertical splits in the central panel. The borders had a few areas of loss, while the corner panels had the least. Other evidence of structural weakness included loss of pile, metal threads, and foundation wefts, as well as multiple splits and breaks throughout the piece. There were various small fragments completely detached in the top of the flower and along the centre of the plant; some appeared to be in their correct location, while others were in incorrect locations and orientations.

One of the major factors for structural weakness was a specific kind of deterioration of the foundation wefts throughout the textile. They were extremely brittle, powdery, and dry. Poor storage conditions in the past involving folding, low humidity, and high temperatures exacerbated the condition, though an inherent production factor may also have contributed to the deterioration of the silk foundation wefts (Figure 3). The presence or absence of sericin could be linked to this deterioration phenomenon (Vogelsanger 2025), but this requires further analysis and research.

The textile was far more fragmentary than it first appeared. Multiple creases, splits, losses, and disassociation made it unstable and prone to further damage. Additionally, the remaining velvet piles were fragile, powdery, and brittle. Numerous loose fibres and dust covered the entire textile. The long border on the right and the right top corner panel were fully disassociated from the entire textile.

Figure 3: Detail of the deteriorating foundation wefts, as viewed from the reverse.

Proposed Treatment
Since the curator requested that the textile be shown as originally intended, it needed to be prepared for vertical display. The scale and the textile's highly fragile and powdery condition ruled out the possibility of any kind of stitched intervention. While exploring alternative methods to pressure mount, the decision was made to explore adhesives for the stabilisation and display preparation.

Owing to the poor condition and to be minimally invasive, patch consolidation concentrated on the central panel was proposed instead of a full consolidation. Research and testing were undertaken using prepared Lascaux films (Ritchie and Palumbo 2022) and pre-prepared Beva 371 films (Kronthal et al. 2003) for the areas of severe loss, damage, and surviving fragments. Along with the consolidation, loss compensation with colour matched fabrics, realignment of the loose foundation wefts and reduction of the creases were proposed. Finally, a board as a display mount was to be prepared while also considering a permanent storage solution.

Treatment Undertaken
The final treatment vastly differed from the original proposal. Generally, velvets are not pressure mounted, but after weighing in all the known facets of the journey of this textile, which included loss of the majority of its pile, being pressure mounted for almost 16 years and the highly interventive nature of an adhesive treatment, a different approach was undertaken. With the adhesive trials and a better understanding of the textile, it became clear that, no matter the level of handling, the type of adhesive, or the application method, the central section was too deteriorated to undergo such an invasive treatment and still be retreatable. The existing velvet pile was so powdery that it would result in adhesion of fibre dust rather than the fibres. Furthermore, even with the adhesive treatment, an additional step involving a frame would be unavoidable for vertical display and could cause further loss of pile and more handling. Thus, the treatment plan was fully revised to incorporate pressure mounting, with a dual purpose of serving as an exhibition display and a permanent storage solution. The main part of the treatment plan focused on the display and mount board.

The following sections explain in detail the execution and implementation of this treatment:

Documentation
As mentioned in the section on previous treatments above, the textile had been removed from its mount. Due to the mobile pieces of the textile, two handling boards were prepared using lightweight foam with a layer of padding and covered with Tyvek®. It was used by sliding one board underneath the textile, and the other one laid on top of it with a barrier tissue layer. Following this, they were clamped and turned for documentation. Due to the fragmentary and brittle nature of the textile, only glassine paper could be used as a cover and underlay layer. Other materials, such as Melinex® were not compatible due to the static current. After turning the textile, the larger brown fabric (previous display fabric) was gently rolled and removed. The smaller brown fabric (previous underlay) had been stitched to the textile. These stitches were carefully cut, and the textile was released from the final layers of the previous mount fabrics.

Four inscriptions were found on the reverse of the textile, which were photographed in Infrared for enhanced visibility. One appears to be a numerical valuation, while the other three remain undeciphered.

Following the documentation, all the smaller loose fragments were carefully picked and positioned for temporary storage to provide better access for the treatment without any further loss or displacement. An Ethafoam® board of the appropriate size was prepared by arranging an A3 scale printout of the textile which helped in documenting and positioning the fragments in the exact locations they had been found on the textile.

Realignment
Prior to positioning the textile on the board, it was humidified and realigned. This was achieved by placing the textile in an enclosed space and steadily raising the RH from 48% to 75% with a humidifier and maintaining it for two weeks. Before attempting this, a successful trial had been conducted on a small section of the disassociated border using Gore-Tex® and blotter. The crease reduction at the top of the central panel was not possible with contact humidification due to the metal weft remnants and the risk of corrosion. Thus, the textile was successfully realigned using tweezers, pins, and glass weights. The indirect introduction of moisture made the fibres more pliable, reduced breakage, and enabled the simultaneous realignment of the pattern and the broken wefts.

Mount preparation
A pressure mount generally consists of a rigid base, padded layers, and the display fabric. The textiles are laid onto this padded board and held in place with a glazing layer secured by a frame or clamps. At the Abegg-Stiftung, there are two kinds of pressure mount systems in place. One, for flat textiles with no relief features, where the textile is sandwiched between the glass and a padded, flat surfaced board. Second, for textiles with some relief elements like knots, metal accessories and bulky seams, for which the board is prepared with provision of cavities or dug outs either in the padded layers or in the wood directly to accommodate the relief elements without compressing them during the final mounting with the glass (Bayer 2016).

For this pressure mount, considering the different components of the textile and their respective seams and excess fabrics, two different depths were identified and a trial pressure mount with cavities was prepared for the disassociated right border and one corner panel to understand the workings and to evaluate the pros and cons of this method. This included preparing a detailed template to properly position and prepare the cavities. Upon the successful and satisfactory implementation of the trial board, the decision to proceed with the pressure mount with two depths of cavities was undertaken.

Due to the considerable size of the textile and the many loose fragments located vertically, at the top and the centre, a slightly convex board along the width was prepared. This was to ensure that the loose fragments were in contact with the glass without excessive pressure, and that there would be sufficient contact and homogenous pressure throughout the mount to

properly support the entire textile, taking into consideration the bowing tendency of large pieces of glass.

The curved surface was achieved through form glueing to produce a stable, pre-tensioned baseboard that would not fully revert back to its original disposition due to the wood's flexibility and the weight of the glass. This method involves gluing two surfaces, in this instant, a flat board behind the curved blockboard. After a series of trials, a 19mm thick blockboard consisting of a spruce core and poplar veneers (Bayer 2016) was prepared, with an initial distance of 17mm from the board surface to the highest point of the curve. A spruce panel with the thickness of 10mm was adhered to the curved blockboard with a slow-setting adhesive and clamped. Since the curve of the board inevitably recedes, at the end, the distance from the surface of the board to the highest point of the curve was a favourable 13mm. Cédric Schüpbach (in-house technical staff) prepared the curved board.

The board was padded with two layers of molton followed by a layer of flanelette and the silk display fabric on top. In the padding layers, cavities of two different depths were cut out after stitching around them to prevent the fabric from slipping: a full-size cavity was cut from the flanelette layer, and the deeper cavities were cut from the top molton layer for the bulky seams and excess fabric areas (Figure 4). Lascaux 498HV and heat were used to secure all the layers to the back and sides of the board.

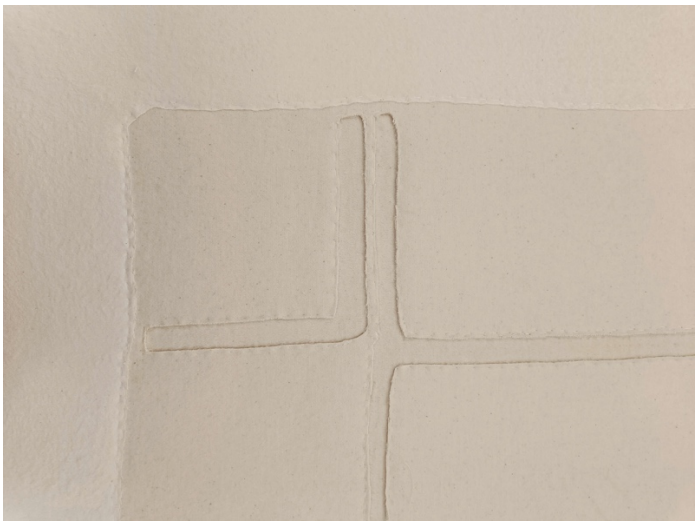


Figure 4: Detail of the cavities from the flannelette and the molton layers.

Loss compensation

To tackle the areas of loss, colour matched patches were prepared and stitched onto the board to minimize handling of the textile and to avoid any kind of direct stitched intervention. Taking aesthetic preferences into account, different coloured loss infill patches were used to accommodate the three components of the textile. For the corner panels, a greyish-green cotton fabric with a grey silk crepeline overlay was used. For the long borders, a dark beige cotton fabric was used. For the central panel, dark beige cotton fabric was used with a peach crepeline overlay. The crepeline layer added more depth and dimension to the central panel

with the remaining red piles while being less intrusive to the viewers. These patches were stitched onto the board with colour matched hair silk using a combination of running and herringbone stitches. For the patches in the central panel, the crepeline was positioned diagonally to avoid the moiré effect. All the patches and their placements were documented (Figure 5).

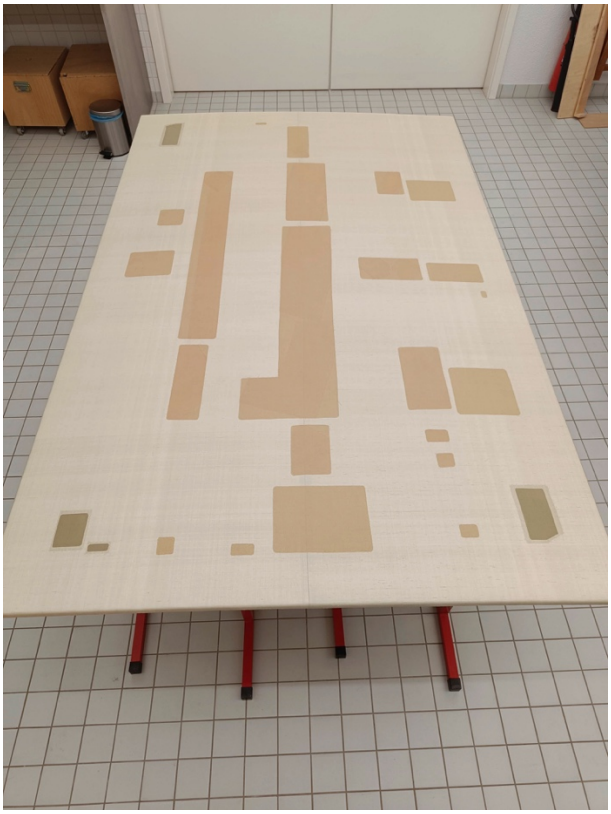


Figure 5: Overview of the placement of all the patches on the board.

Positioning

The transfer and positioning of the textile on the mount was achieved by sliding a sheet of Melinex® between the textile and the handling board, ensuring it slid under all the different pieces. Even though glassine paper was used instead of Melinex®for the previous steps, the transfer required a single, stronger, and stable surface to ensure the entire textile remained together. This was followed by tilting the handling board to a mimic a gentle slope and, while securing the different pieces with finger pressure, the textile along with the Melinex® was transferred onto the mount.

Following the transfer, the final step consisted of cutting the single sheet of Melinex® into smaller sections using the existing splits and disassociation in the textile. After ensuring the correct placement of the textile within the cavities, the smaller Melinex® section were removed by sliding them while also holding onto the various sections of the textile to ensure their positioning. After the textile was laid on the board, it was realigned a final time. This was followed by positioning of the loose fragments stored separately.

The placement of the fragments has been carried out to the best estimation, based on the fibre colour, warp, and weft orientation, among other factors. To prevent their movement and subsequent displacement during the glass placement and to ensure their overall safety, the fragments in the central panel have an additional support in the form of a net overlay. The stitching has been done around the fragments and through the board to account for their fragility. Net overlay has been undertaken in two sections on the long borders. These sections contained many broken foundation wefts and were very mobile and distracting. To prevent the fragments from moving and to keep the broken threads in place, colour matched net was positioned and stitched using hair silk using running stitches only in the available vertical splits to avoid further damaging the dry fibres.

Finally, the white glass with a non-reflective and anti-glare preparation was placed and secured using a metal frame (Figure 6). This was followed by lifting the pressure mount to the vertical position to minimize stress on the textile caused by the weight of the glass. After the exhibition, the textile will also be stored in this pressure mount in vertical orientation (Figure 7).

Figure 6: Placement of the glass on the curved pressure mount.

(R) Figure 7: Pressure mounted Indian velvet on view in the exhibition. Photo Credit: Christoph von Viràg.

Conclusion

Within the field of conservation, the term ‘pressure mount’ has often been considered as an easy or a last resort solution, with little information about what it entails. In most cases, it is viewed only as a mounting solution, but with this textile, pressure mounting as a conservation treatment approach has been presented. This case study, while demonstrating two variations

of pressure mount, also provides an insight into the Abegg-Stiftung's approach to pressure mounting and the details and intricacies involved in this process. It is also an excellent example which reinstates our tenets of minimal intervention and retreatability. The comprehensive study and documentation of the materials, techniques, and deterioration of this textile at the Abegg-Stiftung were only possible due to the retreatable and reversible nature of the treatment approaches undertaken in 2008. This also formed the basis of the most recent approach in 2025, in which the treatment focused on working on the mount underneath rather than through the textile. One of the additional goals was to have detailed written and graphic documentation for future research while minimising the need for further handling and stress for the textile. Subsequently, if the textile needs to be removed from its mount for any number of reasons, it can be done with the least amount of damage to the textile.

This article is not intended as a blueprint for pressure mounts, rather to disseminate knowledge about a different approach for a similar outcome. The author is aware that wood is an uncommon mounting material for museum objects worldwide, but it has been successfully used at the Abegg-Stiftung without any adverse results. Availability, workability, and the importance of certain material characteristics in a given environment influences the choice of materials. Initially, conservators at the Abegg- Stiftung used wooden board as bases; however, increased awareness of the possible long-term effects led to changes in which blockboard with a near neutral pH and low formaldehyde emissions is used instead (Bayer, 2016). This is based on the information gathered as part of the continued evaluation and monitoring of 60+ years. It is also important to highlight the unique factors that makes this approach viable for the Abegg-Stiftung, such as the quality of the wood available, in-house support and infrastructure for the board preparation, a fully regulated and controlled exhibition and storage environments, along with the space available for this storage method, which is quite bulky and requires ample real estate.

This approach to pressure mounting has only been tested on wooden boards, and based on the principles and detailed process discussed, the possibility of replicating it with other conservation grade materials is something worth exploring.

Acknowledgements
The author would like to thank the incredible team at the Abegg-Stiftung who were involved in the treatment presented and also for their continued support for this article. These include Lara Derks-Imhof, Nadine Kilchhofer, Anna Jolly, Bettina Niekamp, Regula Schorta, Cédric Schüpbach, Christoph von Viràg, and Agnieszka Woś Jucker. Thank you also to Mridula Nambiar and Lina Vogelsanger.

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and Museology, India and has a B.A (Hons) in History from the Delhi University. She has experience working with conservation and heritage organizations in India, UK, US, and Switzerland.

Materials & Suppliers

Crepeline (100% silk)
Whaleys Fabrics Ltd.
Bradford BD7 4EQ
UK
+44 1274576718
www.whaleys-bradford.ltd.uk

Silk display fabric
Barth & Könenkamp GmbH & Co. KG
Bremen 28209
Germany
+49 421 34 10 41
https://www.barth-seiden.de

Ethafoam
Abena Schaumstoff AG
Emmen 6032
Switzerland
+41 41 269 88 99
https://www.abena.ch

Flanelette
Heimatwerk & Hand-weberei Zürcher
Bauma 8494
Switzerland
+41 52 386 11 60
https://www.heimat-werk.ch/

Lascaux 498 Hv ; Glassine/Pergamin papier
Lascaux Colours & Restauro
Brüttisellen CH-8306
Switzerland
+41 44 807 41 41
https://lascaux.ch

Blotting paper
Oekopack
Spiez 3700
Switzerland
+41 33 655 90 55
http://oekopack.ch/

Melinex
GMW
Unterensingen 72669
Germany
+49 70 22 217 21 212
https://gmw-shop.de/

Molton (cotton)
A.Berger GmbH
Krefeld 37809
Germany
+49 2151 3876700
https://bergertextiles.com/

Nylon net
The Tulle Factory [Closed in 2026]
Germany

Tyvek
WEPRO AG
Wolfhausen ZH 8633
Switzerland
+41 55 253 40 00
https://www.wepro.ch/

Blockboard
Michel + Jenni AG
Belp 3123
Switzerland
+41 31 818 18 18
https://www.michel-jenni.ch/

White glass (display)
Vedo glas + spiegel AG
Bern 3027
Switzerland
+41 31 992 25 02
https://www.michel-jenni.ch/

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Sticking and Stitching: One problem with two solutions

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Abstract
The 2025 Victoria and Albert Museum exhibition, Marie Antoinette Style, presented a conservation challenge for two pieces of 18th-century toile de jouy. After more than a century in the museum's collection, both pieces required treatment for failing 1960s adhesive repairs.

Initially held as records of prints but now regarded as textile objects in their own rights, input was required from both exhibition and collections curators to consider the various lives of the objects. This paper focuses on the reversal of two similar treatments and the different routes each was subjected to, to prepare them for exhibition, tour, and life after Marie Antoinette Style. One was treated with a fresh adhesive, losing some of its textile qualities but retaining all material and not losing visual impact through dense stitching. The other, which suffered total separation into parts, was able to have a stitched support and had a flexibility returned which the earlier adhesive treatment had removed.

As well as considering the object's change of role over the last 100 years, this paper reflects on changing documentation and the importance of recording our "whys" as an aid to the future reversibility or retreatability of an object.

Introduction

The 2025 Victoria and Albert Museum (V&A) exhibition *Marie Antoinette Style* (MAS) captured the enduring influence of the famous French queen. The exhibition included over 250 objects, covering the period of her reign and encompassing the 19th century to the present. Included in this number were 46 dressed mannequins and 32 accessories and flat textiles (Figure 1). This paper examines the journey of two of these flat textiles through the museum context, focusing on their recent re-treatment and preparation for inclusion in this exhibition.

The term *toile de jouy* today conjures images of blue and white pastoral scenes; animals frolicking, flowers blooming and fountains bubbling. This widespread usage is often applied incorrectly, however. *Toile de Jouy*, which translates literally as 'cloth from Jouy', should only be applied to those fabrics printed at the Oberkampf factory in Jouy, France (Grant 2010, 10). This factory was founded in 1760 by Christophe-Philippe Oberkampf and his brother in the Jouy-en-Josas region. This factory produced the classic bucolic scenes, totalling over 30,000 known patterns (Musee de toile de Jouy). In 1783, six years before the French Revolution, the factory

was granted the title of Royal Manufacture, a clear indication of the Queen's appreciation for the fabrics produced just four miles from the palace of Versailles.

Figure 1. A selection of printed cottons included in Marie Antoinette Style Exhibition. The Cherished Sheep is top left. ©Victoria and Albert Museum, London. Photographer: Peter Kelleher.

Toiles at the Victoria and Albert Museum

In 1919 the textile department at the V&A acquired 988 objects. Amongst these were a collection of over 350 printed cotton textiles, acquired directly from French collector, Madame Mayoux. The printed fabrics are mainly French, with the rest made up of Swiss, German, Dutch and Spanish pieces. Dr. Sarah Grant (Senior Curator, V&A, and curator of *MAS*), speculated that Madame Mayoux may have cut her pieces of toile, to sell one half to the V&A and the other to the Les Arts Décoratifs in Paris. There are a suspiciously large number of identical prints sold by the one lady to the two museums.[22] Records of their V&A acquisition show that these pieces were collected to be didactic tools for students of textile and wallpaper designs.[23] They were not collected as textile remnants of the curtains or bedclothes they once were. The two fragments were likely used for these types of furniture due to their large-scale prints, and as it is possible to see the curves and pointed shapes of valances and pelmets on the reverse of similar pieces in the V&A collection.

[22] S. Grant, 'Madame Mayoux and Dr Forrer, Two Collectors of Toiles de Jouy', unpublished seminar paper, Wallace Collection History of Collecting Series, Wallace Collection, London, 26 July 2010

[23] Ibid.

Of the two textiles discussed in this paper, the first object falls into the "Bucolic Scenes" style of *toile*, as categorised by Dr. Grant in her 2010 book (42). Known as *The Cherished Sheep* (T.488-1919), this is a monochrome copper-plate printed cotton manufactured by *Favre, Petitpierre et Cie* in Nantes, around 1785. This print comprises six different scenes of idealised rural life, with human figures, animals and architectural features, all on islands of grass with trees. In the centre, a game of blind man's buff is being played. This scene is a direct translation of the Jean-Honoré Fragonard painting "Blindman's Buff" (1755-56, Oil on Canvas, Toledo Museum of Art, Ohio). While the catalogue description refers to the object as having a single pattern repeat, the object is formed of four horizontal strips, which come from at least two different sections of fabric as the parts must overlap for the pattern to correctly register.

The historic name of the second textile (T.440-1919) carries an offensive content warning on the museum's Collections Management System (CMS), where it is known as "La danse des noirs". It was referred to as *The Dancing Men* during discussions. This object is a smaller panel and one single piece of fabric. This is genuine *Toile de Jouy,* printed at Oberkampf around 1784. The fabric is polychrome, with blue, green, red and yellow being the principal colours. This piece shows scenes of men dancing around palm trees topped with liberty caps. The background shows musicians, boats, huts and further plant life. While *The Cherished Sheep* was included in a section of the exhibition covering Marie Antoinette's life around her hamlet at Versaille (Hameau de la Reine), shown alongside gardening tools, *The Dancing Men* was used to demonstrate the building revolution, shown alongside silk cockades and pamphlets with anti-monarchy messaging.

Understanding Previous Treatments

The conservation of the two toiles for MAS started with the hard copy records. Due to the sheer number of textiles acquired during 1919 the record for this year spans three files. The 1960s saw a run on treatments for these objects, which often involved the soaking off of backing paper and re-adhering objects onto net. The record cards for *The Dancing Men* and *The Cherished Sheep* are both present, but both lack treatment detail. The virtue of having a substantial archive of similar treatment notes is that identification can be made of patterns of treatment, allowing assumptions from these minimal notes. Soaking in cold water was a common start to treatment, and this is regularly noted as the only method used to remove the original backing paper. Some objects were then washed in a 1% solution of Lissapol[24] or Digester R.S.R.[25] Others had a "H de G wash". For those unfamiliar, this refers to the work of Judith Hofenk de Graaff (1968), who recommended the use of non-iconic detergents and suspension agents. This use of shorthand underscores a professional challenge: the use of colloquialisms and initialisms in documentation can obscure technical clarity for subsequent generations of colleagues.

Adding an adhesive net backing was the most common, almost universal, next step. Throughout the conservation record cards Vinamul 6515 (copolymer of 85% vinyl acetate and 15% vinyl

[24] A non-ionic detergent and wetting agent, the precursor to Synperonic N.

[25] Digester: Rapid Stain Remover. An enzyme based cleaner combining amylase and protease.

caprate) and Mowlith DMC2 (copolymer of around 65% vinyl acetate and 35% dibutyl maleate) are referred to by name, with some referring to just “PVA emulsion”. One emulsion is stated as being made of 40% water, 60% Mowlith DMC2. We do know the application method of this approach (Landi 1966): net was tensioned across a specially designed table; thin washes of adhesive were applied with a sponge and then the adhesive reactivated to the object with a warm iron. Landi’s article also discusses the use of mixes of Vinamul 6525 with Vinamul 6515 to get the desired percentage of caprate plasticizer in the final emulsion. A full account of the history of adhesive use at the Victoria and Albert Museum is readily available (Hackett and Hillyer 2019).

To better understand the ageing of adhesives used, a minimal survey was conducted, correlating specific object conditions with their documented treatment dates (See Table 1 at end of paper). Objects encountered whilst assessing for the wider project were included. As they were assessed or moved aside to gain access to objects needing assessment, their object number was recorded along with an initial impression on the state of the adhesive treatment. Back in the studio, the dates of treatment were checked in the treatment record. This brief analysis revealed a shift in the application of net supports, even within the small data set. Earlier interventions (generally pre-1965) are characterized by a more heavy-handed approach and the use of a coarser net, resulting in treatments that have become stiff and sticky over time. These are more likely to have had crepeline added as an isolating layer. One conservation record card reports a 1961 adhesive treatment being reversed “with meths” as early as 1976. This was replaced with a cotton backing stitched with Stabiltex. Treatments from the later 1960s exhibit a more refined technique, demonstrating greater physical stability and a reduced need for contemporary retreatment. This is useful to know for initial remote assessments where only database records are available. This period of refinement aligns with the appointment of Sheila Landi in 1963, whose influence was pivotal in improving adhesive applications. Hackett and Hillyer (2019) report that her first V&A adhesive treatment was on an 18th-century block-printed textile.

Several objects encountered still had their paper backings in place, such as T.221-1919. Pin holes around the edge of one portrait-style print (T.473-1919) suggest a display method at one time of pinning straight through the layers. For the most part the paper is a thin lining paper. Fold lines in some (such as T.405-1919), going through both fabric and paper, hint at earlier methods of storage. In further support of the idea that the objects all arrived at the museum with a paper backing, rather than it being a treatment on arrival, is the placement of the object number. Many pieces of toile had their accession number hastily written across the paper in blue pencil; a necessity when you acquire 350 pieces at one time! Corners of the paper have then been peeled away to allow access to the textile onto which the formal object number could be stitched, as seen on the reverse of T.462-1919. While the objects in this group present a compelling opportunity for an in-depth case study, that was well beyond the scope of exhibition preparations.

Conservation in 2025 - The Cherished Sheep

The Cherished Sheep was "mounted onto net"[26], but no indication of the adhesive used was given. When retrieved from storage *The Cherished Sheep* was found to be rolled and stuck to itself in areas and to the tissue it had been wrapped in. The rolled shape was held due to the stiffness of the 1960s adhesive net treatment (Figure 2). The decision was quickly made to work towards removing the net backing as the textile was no longer lying flat and the net was tacky on the reverse.

Figure 2: The Cherished Sheep after removal from storage. ©Victoria and Albert Museum, London.

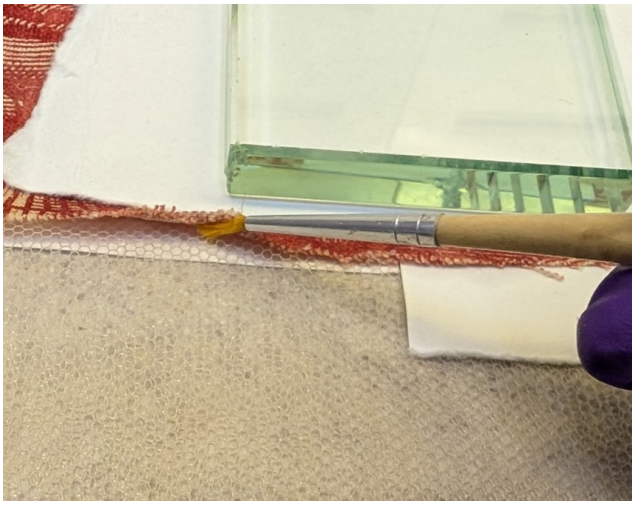

Figure 3: Adhesive removal around the edge of the cotton. ©Victoria and Albert Museum, London.

The removal of the object from its net support was achieved through a combination of chemical softening and mechanical lifting. Based on the previously shared research, the adhesive was assumed to be a poly(vinyl acetate)/ poly(vinyl caprate) blend. Initial solubility tests and subsequent treatment utilized Industrial Methylated Spirits (IMS) as the primary solvent. Historic treatment records and studio knowledge indicated that this would be the best starting point. While the net could be mechanically removed by pulling back, this resulted in fibre loss. Using IMS to first soften the adhesive resulted in noticeably less fibre remaining on the net, although some could still be seen especially around the edges where the fabric was frayed and fibres were at their weakest. Water was not tested as IMS was deemed effective.

The first step of removing the net was to apply IMS directly to the frayed edges of the textile with a fine brush (Figure 3). This allowed for confirming that IMS would work and for carrying out the delicate lifting prior to treating the more stable central areas. For general softening, IMS was applied directly via pipette. Blotting paper was placed under the object, with silicone release paper below and polythene above. This increased the dwell time of the solvent. To address more resilient sections, a "flooding" technique was employed: working at an angle, IMS was applied via a fine pipette in a stream, with a non-woven solvent resistant textile (Tek-Wipe) positioned beneath. The capillary action of this textile helps draw away any dissolved residues. Following separation, the net retained significant tackiness and so the removal was worked in sections and then cut away to prevent re-adhesion. Residual adhesive on the textile's reverse—

[26] Conservation Record Card

potentially from an earlier intervention or uneven adhesive application—was reduced through targeted IMS application. This was successful in some areas and less so in others. The combination of historic treatments may have layered up, creating small marks which would not soften using IMS. Any work undertaken with IMS should be carried out following appropriate health and safety guidance. For this work that meant working underneath spot extraction or within an extraction unit. Purple nitrile gloves were also worn.

The Cherished Sheep was wet cleaned using anionic detergent Hostapon® TPHC (Sodium Methyl Oleoyl Taurate) at 1g/l.[27] This is the favoured anionic surfactant at the museum, since Hostapon T (a slight variation of Sodium Methyl Oleoyl Taurate) was found to be a suitable alternative to Synperonic N (Fields *et al.* 2004). It was chosen for this object as it is relatively easy to rinse out and has a known affinity for lifting soling from cotton fibres. A second bath also incorporated trisodium citrate used at 5g/l, which the museum often uses for aiding the removal of carbon, sticky soiling. These concentrations are standard V&A protocols, which have proven to be effective.[28] This helped to remove some acidic degradation in the fabric itself, with some staining from the adhesive remaining. The four pieces were dried individually, using templates to ensure they were pinned out to the correct shapes to allow them to go back together as closely as possible to the position they were previously in.

Once dry, the collection curator was brought in to discuss how the pieces should be placed back together as one object. To keep as much of the back as visible as possible, a partial fabric support was chosen. Of the four parts, one was almost three quarters of the overall textile, with one strip above and two below. A light plain weave cotton was chosen as it was lighter than the object and didn't interrupt its handle. One strip of support was laid across the topmost join and a second piece across the bottom two joins. Each raw edge of the object was stitched to this support using long-and-short stitch in cream and red Mara 220 thread. The cotton was lightly stretched out onto the worktable and then trimmed to fit. To avoid bulk, edges were trimmed just short of the front of the fabric rather than folded backwards. Stitching around the object was placed at intervals of 8mm to 10mm. This variation was due to the colour changes in the textile, so some lines are 1-2mm different to keep in an area of the correct colour stitching thread. Using this spacing also allowed for stitching to the display board in between the treatment stitches. Laid-thread couching was worked at 5mm-6mm intervals in one area of total loss, using Mara 220. This was chosen to best spread the support around the loss and balance the visual impact of the stitching with the texture of the textile (Figure 4).

Due to the object not being one complete repeat, there is a gap between the bottom two object strips where bare support fabric could be seen. This was not a problem in plain areas of substrate but visually disrupted the viewing of the red motifs. After experimenting with layers of crepeline and net, this harsh line was broken up through the placement of one layer of crepeline and one layer of net between object and cotton support prior to stitching (Figure 5).

[27] Hostapon TPHC is currently the most used surfactant when wet cleaning cotton and linen objects within the V&A.

[28] Generally following internal notes "The Basics of washing" written by Frances Hartog.

This combination was chosen as multiple layers of net alone created a hexagonal pattern which was too disruptive. A solid red cotton was also considered, but this did not blend in well with the cross-hatching of the printed textile.

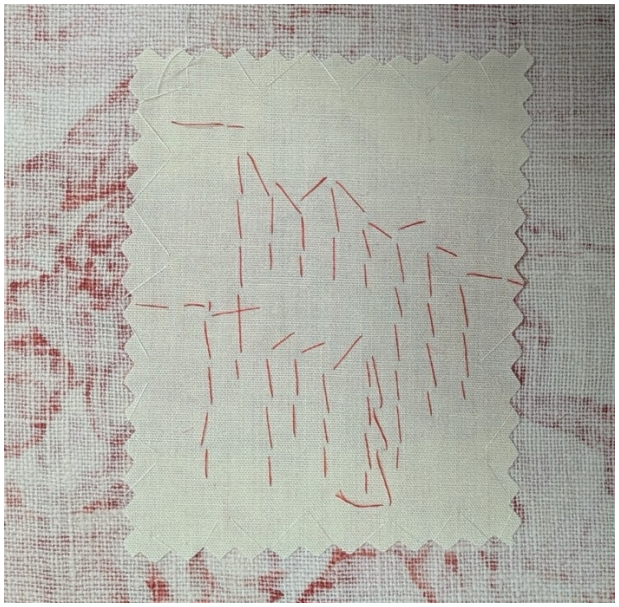

Figure 4: Area of laid-thread couching from the reverse. ©Victoria and Albert Museum, London.

Figure 5: Detail of The Cherished Sheep after treatment and mounting. ©Victoria and Albert Museum, London.

Conservation in 2025 - The Dancing Men

The previous treatment of *The Dancing Men* varied slightly from *The Cherished Sheep* as it had an additional layer of silk crepeline placed across its reverse in 1967, just six years after its initial treatment in 1961. This 1961 treatment consisted of "Textile fully backed with net which was 3 times coated with PV acetate emulsion".

The extra layer of crepeline came away very easily as it was minimally attached to the net. The net was separated from the object using the same approach as *The Cherished Sheep*, with testing worked in small areas. After the success of the previous treatment, the author had more confidence in the work, and this object was released much more quickly. Whilst in one piece, this object had many areas of loss, each with frayed edges. These areas were released first with IMS loaded onto a soft brush, before the larger sections were dealt with, using IMS in a dispensing bottle within an extraction unit (Figure 6). This textile had likely had a much heavier earlier adhesive application, perhaps with the paper backing, as the flex of the textile did not return as much after net removal as with *The Cherished Sheep.*

The Dancing Men was yellowed in appearance, yet full wet cleaning was felt to be risky, given the potential for loss of material from sponging and prolonged rinsing. After consideration it was decided to soak the textile in deionized water for 30 minutes which released some yellow degradation products, causing a drop in the pH of the water (Figure 7). After a further two soaks the pH was back to that of the water itself, and the object was removed and dried. After

bathing the textile did seem to have more contrast between the print and the substrate, although it remained somewhat stiff.

Figure 6: Dancing Men during solvent removal of adhesive backing. ©Victoria and Albert Museum, London.

Figure 7: Dancing men during wet cleaning. ©Victoria and Albert Museum, London.

The overall weakness and recurrent losses meant a different approach was considered than the one given to *The Cherished Sheep*. The amount of stitching necessary to fully support the losses would have been disruptive to viewer understanding of the work, especially as its visual design holds more weight for its position in the collection than its history as a functional textile, so it was decided to reinstate an adhesive backing. The author had a previously prepared 12.5% Vinamul 3252 (vinyl acetate/ethylene copolymer emulsion) film on an undyed silk crepeline. The author's familiarity with this material and its studio availability made this a good choice for initial testing and eventual treatment. The adhesive was reactivated using a heated spatula, held at 70-75°C. In areas of loss the adhesive was voided off the crepeline using IMS. For the MAS exhibition the object was to be displayed on a black fabric covered board. In several areas this increased the visibility of the holes. To compensate for this, several patches of dyed cotton were stitched to the board prior to mounting the object (Figure 8).

Conclusion

This project, and subsequent work on the V&A's collection of French printed textiles collected at the same time, has helped build the author's knowledge of early adhesive treatments within the museum. At least four pieces will need retreatment to support the exhibition and tour of MAS. While much of this knowledge is accessible in theory form, the current state of objects treated in these ways is not necessarily fully known, nor comprehensively reviewed. Adhesive treatments on these textiles have held them together for over 60 years and prevented dissociation of the smaller fragments used to form whole pattern repeats. Hackett and Hillyer (2019) describe that an 'almost formulaic technique was applied to a large range of objects' in the V&A studio in the 1960s and 1970s. This is reflected in the sparse comments made across treatment notes – they were notes for those in the know, not a comprehensive record for the future. Other details were recorded in daybooks, kept by individual members of staff and not retained with the objects. This is an area the profession has much improved on, but it is still a reminder today to include the basics of treatment decisions and the precise material meant by a tradename or abbreviation.

The treatment of the two objects discussed here may not stand the test of time and in 50 years there might be need to change them again. These treatments were made with a view to balance what the object's need to be now against what they might need to be in the future. They have been preserved as textiles rather than records of prints and, for *The Cherished Sheep*, this has returned textile-appropriate flexibility and movement to the piece.

Figure 8: Dancing Men after treatment and mounting. ©Victoria and Albert Museum, London.

Object numbers given in the article can be searched on Explore The Collections (https://www.vam.ac.uk/collections) for further information and images where available.

Acknowledgements
Thanks are due to Isobel Harcourt for her assistance in wet cleaning *The Cherished Sheep*, and to Clara Low who mounted *The Dancing Men* for display. I am grateful for the support of all colleagues who had a hand in the wider exhibition preparations.

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Materials & Suppliers

Hostapon TPHC
Clariant UK Ltd
UK
https://www.clariant.com/en

Tek-Wipe
DTC
Southampton SO52 9DF
+44 023 8025 1100
https://www.dtc-uk.com

Vinamul 3252; No longer available, but other formulations can be obtained from
Celanese
Derby DE21 7BS
UK
+44 013 3268 1423
https://www.celanese.com/

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Table 1: Object conditions with their documented treatment dates

Object Number	Feel	Treatment dates and notes
T.489-1919	Stiffer, with layer of crepeline.	1964 – Paper backing soaked off, washed in lissopol, mounted on net. 1976 – isolated net with silk crepeline, excess net round edges trimmed. Isolated on right side with silk crepeline where necessary.
T.488-1919 Cherished sheep	Sticky and stiff	1965 – to be mounted on net.
T.440-1919 Dancing men	Sticky and stiff. Crepeline on reverse.	1961 – textile completely backed with net which was 3 times coated with PVA emulsion. 1967 – Crepeline backing laid on reverse side of net.
T.452-1919	Better adhesive, neatly cut, not overly stiff, not sticky.	September 1968
T.462-1919	Original paper backing	No treatment

T.334-1919	Finer net and adhesive handle, but stuck to itself. Easy to unstick.	1968 – card and glue to be removed and stretch mounted onto net. 1972 – no changes made when mounted for display.
T.361-1919	Better adhesive. Smaller piece so harder to compare flexibility. Had crepeline added. Stored with silicone release paper.	1987 – remove from paper, wash and support for storage. Net supported with crepeline at this time to ensure it is not sticky.
T.175-1919	Had crepeline added. Stored with silicone release paper. Net yellowed.	No hard copy records.
T.465-1919	Larger holed net, yellowed. Crepeline added to the back.	1964 – mounted on net 1976 – Isolated with silk crepeline on reverse side and right side where necessary excess net trimmed. Pressed flat.
T.317-1919	Stiffer feel with crepeline added to the back.	No hard copy records

Research and Reflection: The Conservation and Storage of a Guidon and a Pipe Banner at the National Army Museum, U.K.

Charlotte Baker
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Abstract

The poster presents a selection of short case studies from the National Army Museum, U.K., focusing on the conservation for storage of a group of guidons and a pipe banner. These objects form part of a large, long-term project to improve the storage of Colours and flags across the collection. The poster highlights how periods of reduced exhibition activity allow conservators' work to focus more intensively on
collections care and documentation. These quieter phases provide valuable time to update records, revisit previous treatments, and reflect on the long-term needs of the collection.

Through institutional archive research and detailed object study, the project has revealed insights into past conservation and repair practices at NAM, including early work carried out at the Royal School of Needlework, and in some cases has helped identify original makers.

The case studies reflect a broader shift in institutional conservation practice at NAM. While earlier treatments from the 1950s–60s often prioritised display-readiness and aesthetic presentation, the last 35 years or so have seen a movement toward preventive conservation and risk-based collections care. Improved storage is now a key strategy, designed to protect fragile materials while enhancing long-term access for researchers and visitors. Finally, the poster explores the ethical and practical challenges of retreatability: when, how, and why we might choose to reverse, adapt, or preserve elements of historic conservation work. In doing so, it contributes to ongoing conversations about the legacy of conservation treatments and the evolving role of the textile conservator in some institutional contexts.

Introduction

This poster discusses two case studies from the National Army Museum (NAM), U.K., highlighting the institutional shift towards preventive conservation and risk-based collections care, while addressing the legacy of earlier conservation practices. The case studies focus on research into a pipe banner and the conservation for storage of a guidon. Both case studies form part of a wider long-term project to improve the storage, documentation and care of over 1000 Regimental Colours and flags in the NAM collection (Figure 1). This number also includes associated part-numbered objects such as tassels and finials.

In its early years the museum was based at the Royal Military Academy Sandhurst; by 1960 NAM was officially established by Royal Charter. In 1971, the museum moved to its current site in Chelsea, London. NAM's stores remained at Sandhurst until 2013, when they moved to a new storage facility north of London (National Army Museum 2026).

A recent period of reduced exhibition activity has provided a valuable opportunity to focus on storage improvements, documentation, and reassessment of earlier treatments. At NAM, and likely within other smaller institutions, the work of a textile conservator can also involve extensive collections care work. The aim of this project has been to improve the condition and storage of as many objects as possible. So far, approximately 100 flags stored on rollers (some of which had not been checked since 1987) have been unrolled, assessed, and re-rolled using current conservation-grade materials.

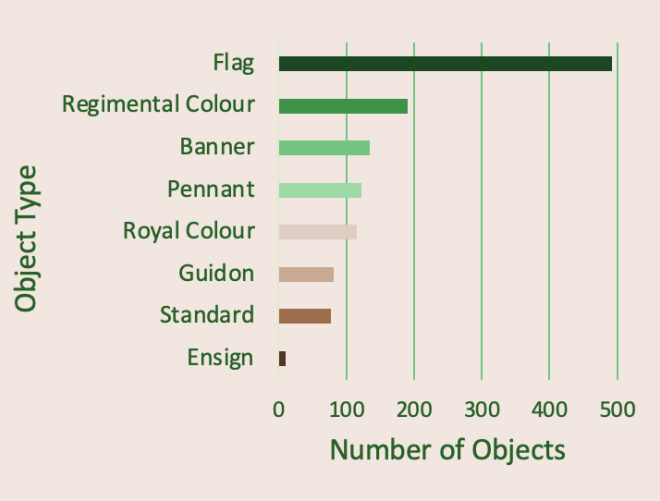

Figure 1: Bar chart showing types of flags and colours in the NAM collection. ©National Army Museum.

Figure 2: Regimental Colours and flags on display in the Indian Army Room, Sandhurst, 1951-1986 (NAM-P4-1-9). ©National Army Museum.

Institutional Archive Research and Reflection

To understand how the collection was first formed Charlotte Baker (NAM Textile Conservator) conducted research in the Institutional Archive. Early correspondence discussing around 50 colours demonstrated that repair work was frequently commissioned externally, notably from the Royal School of Needlework (RSN), as well as manufacturers like Hobson & Sons.[29] Letters exchanged during the 1950s–60s between NAM staff such as Director, Lieutenant-Colonel Charles Appleby, and the RSN reveal a great level of thought given to treatment decisions, including the degree of repair, use of netting, and balance between preservation and display.[30]

[29] Cortland-Anderson, G.P.G. 1956, Letter discussing options for restorers and mounters, 21st November, National Army Museum, London, C1-2-3-1

[30] Unknown author. 1960, Letter from the Royal School of Needlework regarding Pipe Banner repairs, 13th May, National Army Museum, London, C2-1-4-27

These letters also shed light on how flags and colours at the time entered the collection. In many cases, regiments were actively involved in approving treatments and privately raising funds. In some cases, Colours were transferred from churches that were closing. Objects were often repaired specifically for immediate display upon entry to the collection and hung in publicly accessible spaces such as the Indian Army Memorial Room at Sandhurst where they could be seen daily by visitors and cadets in training (Figure 2).

A letter from 1956 written by Lieutenant-Colonel George Cortlandt-Anderson states '*The principle we adopt here [at Sandhurst] is that when Colours have reached the stage where they will disintegrate if left hanging, we are prepared, and indeed glad, to receive them here. We have to have them cleaned and repaired and usually netted. They are then mounted on headboard, framed and netted…The colours are then permanently protected and displayed*.'[31] This aligns with discussion in Ecclesiology Today, by former secretary of the Army Honours and Distinctions Committee at the Ministry of Defence, Andrew Greenwood (2021) who describes '*one way in which colours can be preserved is to have them 'netted' when laid up….[this] is normally done once the colours have been formally received by the building where they are being laid up, with the cost falling to the regiment. As the colour disintegrates it also holds the pieces as they separate.'*

It was noted during this project that many of the colours assessed have indeed been netted. Often the netting is what is holding the colour together; therefore, it is very unlikely to be removed or replaced unless the colour is selected for display when timing allows for more extensive treatment. It is on a case-by-case basis that any interventive treatment would be carried with ethical consideration to the laid-up nature of some of the colours in the collection.

This project has prompted reflection that as a civilian conservator working with a military collection, knowledge of the objects is learned rather than lived, unlike many of the staff with Army backgrounds working at NAM Sandhurst in its early days. In response to many of the broader questions around consecration of colours and their laying-up, a *Colours Working Group* has been established with colleagues and other Armed Forces' museums to share literature and develop working documents.

Case Study: Royal Scot Fusiliers Pipe Banner

The first case study concerns a pipe banner (NAM.1960-05-37-1). While reviewing correspondence from the 1950s, a letter was identified stating the banner had been made approximately forty years earlier by the sister of the company commander who owned it, using designs and materials sourced from the RSN.[32] With help from Dr Emma Worrall, NAM's Military Records and War Graves Researcher, it was possible to identify the maker as most likely Helen Farquhar, watercolourist and sister of William Farquhar, a company commander in the Royal Scots Fusiliers *circa* 1910 (Wales Census 1881).

[31] Cortland-Anderson, G.P.G. 1956, Letter discussing options for restorers and mounters, 21st November, National Army Museum, London, C1-2-3-1

[32] Appleby C. 1960, Letter to the Royal School of Needlework, 9th May, National Army Museum, London, C2-1-4-27

During conservation treatment, when stitching was released and the banner detached from a historic padded board, the underside revealed the Farquhar family crest, which corroborated this attribution (Figure 3). This case study highlights the 'full circle' nature of the object's history: constructed using RSN designs and materials and later repaired by the RSN in the 1950s. From the mid 1960s NAM employed in-house textile conservators as shown in a British Pathé (2014) video of a guidon being wet cleaned. There are index cards which detail the conservation work carried out from this period. Within the last 35 years there has been a shift towards online record-keeping within NAM's collection management system, occurring alongside more affordable access to digital photography.

(L) Figure 3: Private Side of the Banner (Garter and hand) showing Farquhar family crest. ©National Army Museum.

(Above) Figure 4: Guidon before treatment. ©National Army Museum.

Case Study: 9th Light Dragoons Guidon

The second case study concerns a guidon (NAM.2025-12-7-1-4) of the 9th Light Dragoons dated 1815-1816. For context as described by the Ministry of Defence (2017) a guidon is a type of colour carried by the British Army, distinguished by their swallow-tail design.

This guidon was transferred to the NAM collection in 1995. During this recent storage review this object was identified as being in particularly fragile condition. The poor and fragmented condition of the silk ground fabric meant there was concern that even opening the plan press in which it was stored could cause further damage (Figure 4). It was noted that the guidon had been encased in silk net prior to entering the museum but this was in an advanced state of degradation and had already mostly separated from the guidon. Although there were additional areas of historic stitch repairs in the form of running stitch and zigzags, these were kept as their removal would likely destabilise the ground silk further and ethically, they were thought to be evidential.

Following discussion with Belinda Day, NAM Senior Curator, it was agreed that a time-sensitive method should be developed to provide access for researchers, without a full interventive treatment. A stitched or adhesive treatment was estimated to require upwards of 150 hours and was not possible within the project timeframe. Instead, a minimal, reversible support method was devised.

The guidon was humidified to relax the fibres, gently realigned, and placed onto a padded support board made from conservation-grade materials. A fine nylon net, dyed to a sympathetic colour with LANASET® Huntsman dye, was laid over the surface to provide overall support. To ensure retreatability, the net was secured using stainless steel insect pins and Melinex® discs resting against it. The discs were created by cutting small uniform circles of Melinex®, 7mm in diameter, with a hole in the centre for the pin head to sit above. The pins and discs needed to be sufficiently detectable to be removed in the future if needed, whilst remaining visually unintrusive. This was achieved by covering the discs with 36 gsm Japanese paper, Kitakata Natural, which provided a strong substrate that could be colour-matched to the object with acrylic paints. A number of starches and adhesives were considered for adhering the Melinex® to the Japanese paper. Acid-free Nori Rice Paste was selected as it dried clear with minimal shine and created a good bond with the other components (Figure 5). The discs helped to prevent the net lifting up where a pin alone would not. These were anchored only into areas where loss had already occurred and not into the ground silk of the guidon (Figure 6). This approach stabilised the object sufficiently to allow for future researcher access, while allowing for future retreatment.

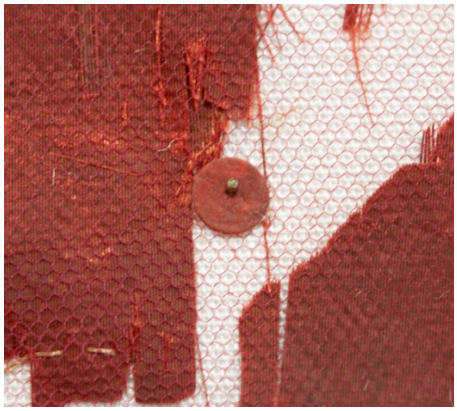

Figure 5: Pinned support method for guidon. ©National Army Museum.

(R) Figure 6: Guidon After Treatment. ©National Army Museum.

Acknowledgments
The author is grateful for the advice and assistance of Sophie Stathi, Belinda Day, Emma Worrall and Penny Hutchins.

Author – Charlotte Baker is a textile conservator based in the U.K, having graduated from the Centre for Textile Conservation (CTC), University of Glasgow, in 2019. She has worked at the National Army Museum as a conservator since 2021 specialising in the conservation of military textiles, uniforms and equipment. She was formally an Icon/HLMF Intern at the Bowes Museum (2019-2020), a Textile Conservation Intern at the V&A (May-July 2018) and costume mounter for the John Bright Historic Costume Collection (2017). Her experience prior to studying at the CTC was predominantly working with costume for theatre and film having studied BA (Hons) Costume Interpretation at Wimbledon College of Art, University of the Arts London. Her work aims to promote traditional craft skills and advocate for sometimes overlooked narratives of original makers through the practice of conservation.

Materials & Suppliers

Austerlitz Stainless steel insect pins, Size 00.
Watkins & Doncaster
Leominster HR6 6BS
UK
+44 015 6875 0657
https://www.watdon.co.uk/

Kitakata Natural – 36gsm Japanese paper (90% Phillipine Gampi and 10% pulp)
Preservation Equipment Ltd
Norfolk IP22 4HQ
UK
+44 013 7964 7400
https://www.preservationequipment.com/

Golden Artists Acrylics
Golden Artist Colors, Inc.
NY 13411-9527
USA
https://goldenartistcolors.com/

Yamato Nori Rice Paste
Handprinted Ltd
Bognor Regis PO22 9SX
UK
+44 012 4369 6789
https://www.handprinted.co.uk

N80000 20 Denier Monofilament Nylon Net
Dukeries Textile & Fancy Goods Ltd
Nottingham NG2 5BG
UK
+44 1519816330

LANASET® Huntsman Textile Effects dye
Town End (Leeds) plc,
Leeds LS13 4LY
UK
+44 011 3256 4251
https://www.dyes.co.uk/

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Flagmentary: Thinking Our Way Through the Treatment of a Regimental Colour

Stella Gardner & Lynn McClean
Assistant Textile Conservator & Principal Textile Conservator, National Museums Scotland

Abstract
A Regimental Colour (1798 – 1802) on long-term loan to National Museums Scotland (NMS) was damaged accidentally in an unforeseen incident in the flag storage unit at the museum's Collection Centre. The silk flag's condition had been assessed prior to the incident as very brittle, fragmentary and stitched between two layers of a brown silk net which was also degrading and tearing. The condition was re-assessed in 2022 as extremely poor and steps were taken to inform the lender and develop a plan for treatment according to their wishes.

After discussions between the owner and members of the Collections Services department an agreement was made that NMS would conserve the flag and a contract conservator was employed to manage the project. This offered an exciting yet daunting challenge and was cause for much discussion between the conservation team about ethics, cost and resource issues. The treatment involved a mix of new approaches and more traditional techniques, and while it was extremely time consuming the conservators benefited hugely from the opportunities it provided while the flag can now be rolled and potentially even displayed safely.

It is a major achievement in terms of what can be done to save an object that many would have considered untreatable, but the team often felt at odds with the work being carried out. Through the case study of this flag's treatment this paper will discuss what conservators do and why: when should objects be treated or re-treated and what can be learnt for future projects.

Description and Condition of the Colour

The Regimental Colour of 3rd Argyllshire Regiment of Fencible Infantry, 1798 – 1802 is a double-sided Colour constructed from three widths of gold-coloured silk joined by two evenly spaced horizontal seams.[33] The upper and lower edges of the silk are finished with selvedges while the fly edge and curved top corner are finished with a seam. There is a round central motif of red silk, applied over the ground silk, which includes the gold-coloured embroidered silk letters: III. REGT. OF ARGYLESHIRE F.I. The central motif is surrounded by a floral garland embroidered in polychrome silk threads. The canton is a pre-1801 Union flag in the upper left corner pieced from red, blue and gold silks joined with seams. The pole sleeve is made from red silk over a linen lining and is stitched to the Colour. The two tassels of silk with metal strips and threads are attached through the hole at the top

[33] NMS Object number: IL.2004.19.16.1

of the pole sleeve. There are some small areas of unobtrusive darning throughout the silk ground, worked in colour matched silk threads.

The Colour has been on loan to the National Museums Scotland since 1982. During this time it was stored flat in a Planorama® drawer storage system but never displayed. In 2012 a condition report (with photography) was prepared at the request of the lender and the Colour noted to be in poor condition. It had been encased previously in a fine silk net which was stitched through in a grid pattern of small running stitches. The silk net had become degraded and was splitting. The silk ground of the Colour was also very fragile and fragmentary with areas of loss and creases throughout. There were many loose pieces which were displaced under the net. There appeared to be significant loss at the fly edge as the proportions of the Colour were not correct. The pole sleeve was becoming detached at the bottom corner. All metal elements of the tassels and cords were tarnished and dusty.

Reasons for Conservation

On Friday 10th June 2022 a call was taken in textile conservation from the stores. Curators working in the banner storage were concerned that there was a problem with the drawer containing the Colour. It was discovered that the pole sleeve had become caught at the back of the drawer and was dragging the Colour down. The team of conservators and curators managed to get the Colour out with great difficulty and loose pieces that had fallen to lower drawers during the rescue were reunited with it. However, no actual positioning was carried out at this stage due to the time of day and need to make a plan so that no further damage would be caused to the Colour.[34]

Figure 1: The Colour in store after the rescue, from the reverse. ©Trustees National Museums Scotland

The NMS damage procedure was instigated immediately in terms of informing appropriate managers and colleagues and recording all aspects of the incident. The Registrar team who manages the relationship with the lender followed the procedure for informing them while on the Monday the conservation team worked on assessment of the damage and preparation of a condition report (Figure 1). In brief it was noted that the silk net encasing the Colour was ripped, folded, very weak and easily torn. Much of it remained in place

[34] After the incident all drawers were checked to make sure no other flags or colours were at risk.

however and was still supporting many areas of the silk. There was extensive damage to the ground silk along all four edges. The silk was very fragmented with loose pieces, many of which were out of position and their exact location could not be easily determined. The central motif and embroidery remained sound. The pole sleeve had completely detached from the body of the Colour, but a small section of silk ground was still secured in the stitched edge. The tassels were now completely separated from the top of the pole sleeve and the cord was broken in two roughly halfway down.

During this process possible treatment options were beginning to be considered. While preparing the condition report, a temporary holding treatment was put in place by pinning patches of white nylon net over rips and holes in the silk net overlay to both support the fragile silk of the Colour and to hold fragments in place. There were many other fragments which had been collected and bagged at the time of the incident. These were retained until decisions had been made about how to proceed.

Next Steps

The situation was complicated. Not only was there the distress of the event, the rescue and the damage to the flag, but the issue of it being a loan object added an elevated level of concern. In discussion with the Director of Collections and the Head of Collections Services a number of initial treatment options were considered. These were:

1. Do nothing and leave the Colour stored flat in the drawer. This was dismissed as the object was in such poor condition and the likelihood of further damage, loss and misplacement of pieces was too great. It was also considered to be an inappropriate and unethical step in terms of care of collections. This option could also be problematic in the future should the loan be returned to the lender.

2. A partial support treatment to enable the Colour to be stored safely, estimated at 100 hours. This included removing areas of the previous silk net support which were folded and crumpled, surface cleaning and aligning loose silk where possible, then encasing in white nylon net stitched through to secure the Colour.

3. A full support treatment to enable the Colour to be stored safely and potentially displayed if required, estimated at 600 hours. This consisted of preparing a full-size template, removing the silk net and then the loose fragments which would be positioned on the template. Surface cleaning and assessment for further cleaning would be followed by a full adhesive treatment to the reverse, at which point the loose fragments would be replaced. Finally, an overlay of nylon net would be stitched in place to replace the silk net support.

After discussions involving various members of the Collections Services Department, it was agreed with the lender that a full treatment would be undertaken. This had implications for NMS in terms of resourcing and funding. These were resolved internally and in March 2024 Stella Gardner was contracted to complete the treatment of the Colour with support from Lynn McClean. The complexity of the proposed treatment provided an opportunity for building the conservation team's existing skills in flag conservation and developing them further.

There were additional complications for the textile conservation team as this work was an unforeseen event and not included in the work programme. Time had to be found in the busy schedule to support and assist the contracted conservator. A large workspace had to be organised as the treatment plan would require the use of two double sets of tables effectively occupying half of the larger shared lab space. The vulnerability of the Colour to further loss of the many small loose fragments during the treatment was also a concern. For this reason the work was set up at the end of the lab furthest away from the door and cordoned off to reduce the risk of disturbance.

Conservation Treatment

Preparation and Cleaning

The treatment began with snipping the many grid stitch lines from the front to enable the degrading silk net to be removed. This was taken off in stages together with any small patches of nylon net which had been added for support in 2022. The silk net was immediately replaced with a large piece of undyed nylon net which was pinned in place through the many gaps in the silk ground. Any displaced fragments were removed and labelled. Once turned over this process was repeated, the pins were replaced with stitch lines and the Colour was surface cleaned with low-powered vacuum suction.

While much of the treatment carried out was part of the conservator's existing skill set (two experienced conservators with about 50 years between them) there were aspects which caused much discussion and consideration. There would likely be a real benefit to wetting out the discoloured and brittle silk but cleaning an object in this condition was concerning. The treatment proposal had suggested this could be in the form of a light mist of water followed by gentle blotting to remove soiling. However, with the removal of the silk net the condition of the Colour was understood better in terms of fragility and this option was discounted.

Fortunately, around this time another silk flag had been cleaned successfully using Paraprint OL60, a relatively new treatment method for the textile team (Pattinson *et al.* 2025).[35] Due to the excellent results of this clean and the very minimal amount of intervention needed it was considered that this procedure might enable the Colour to be cleaned. Tests were conducted to see how the silk reacted to wetting out and to see whether the nylon net sandwich would affect the cleaning results. One plus point of having many loose fragments was that there were plenty to use in testing. Once it was confirmed that Paraprint would improve the condition of the silk, the many loose fragments that had been removed from the Colour during netting were also secured between layers of nylon net to enable them to be cleaned at the same time as the Colour, saving time and ensuring uniformity (Figure 2).

The cleaning of the Colour using Paraprint was extremely satisfying and successful. A significant amount of yellow soiling was removed, resulting in the silk regaining its lustre and flexibility. The clean was also carried out with the minimum amount of handling possible, ensuring no damage to the object or movement of the silk fragments occurred.

[35] Paraprint OL60 is an acid-free non-woven viscose material stabilised with an acrylic binding agent.

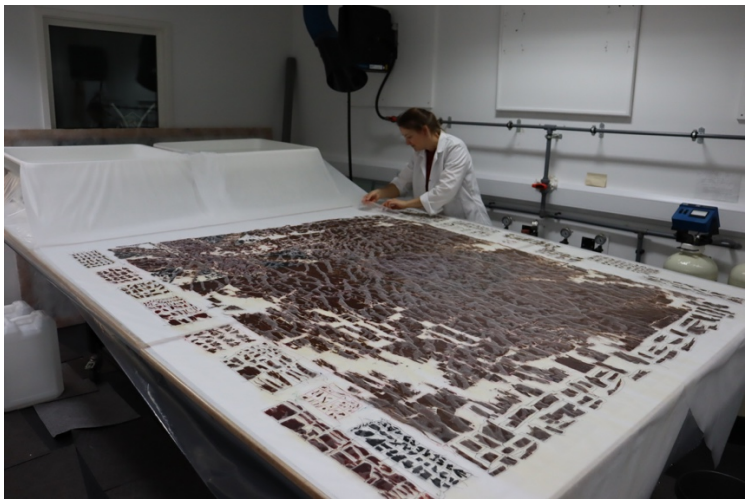

Figure 2: *Paraprint cleaning in progress. ©Trustees National Museums Scotland*

Support Treatment

After Paraprint cleaning preparation was made for an adhesive treatment. While the central motif area remained fairly complete many parts of the silk were separated from this and each other by splits and breaks. It was decided that all these pieces should be removed prior to applying an adhesive silk crepeline layer. Previous experience in 2002 using this method to treat the Avendale banner formed the basis of how to work with the many fragments in this project (McClean and Haldane 2003). Twenty years ago templates were made using photocopies of images which were pieced together to create a copy of the banner. Fragments were then positioned onto this template to ensure they could be replaced correctly after the adhesive treatment. In 2024 the team had access to the Museum's in-house print facility and were able to obtain a to-scale colour print using a professional studio image that had been taken in 2012 for the requested condition survey. This saved a lot of time as well as providing a guide as to what damage was present prior to the incident and where loose pieces might need to be returned. Large clear polyester pockets were used to trace around areas of silk ground which would need to be removed from the Colour (Figure 3).[36] These pieces were then transferred to the inside of the polyester pocket before being moved to the correct location on the to-scale print, which was laid out on the tables adjacent to the Colour. There were some issues with static which were mitigated to a degree with the Milty Pro Zerostat anti-static gun but the technique generally worked very well and made the removal of fragments and re-positioning of them on the print as accurate as possible.[37]

Two lengths of silk crepeline were dyed to match the silk ground then blocked out on polythene in preparation for the adhesive. After testing several adhesives and application methods a layer of 12.5% Lascaux acrylic adhesive mixed in water was brushed onto the crepeline.[38] The two lengths of adhesive coated crepeline were applied to the reverse of the Colour using the lower of the two horizontal seam lines to position the join. The crepeline

[36] Large clear polyester archival storage pockets were cut to size, leaving one welded edge present to keep the front and back layers joined.

[37] Milty Pro Zerostat 3 anti-static gun uses piezoelectric crystals to emit positive ions when squeezed and negative ions when released, reducing static charge

[38] 12.5% Lascaux adhesive at a ratio of 1:2 - 303 HV:498 HV

was tacked in place using finger pressure only at this stage. The Colour was then rolled and turned over to the front to enable the loose fragments to start being returned to their correct locations (Figure 4). The fragments which joined onto the central motif were repositioned first then additional fragments added, working from the centre out to the edges. When all fragments temporarily housed in the polyester pockets had been returned to the Colour the remaining loose fragments were sorted through and where possible positions were found using fabric grain, colour and shape to identify where they might go. This stage was the most time consuming and challenging of the treatment and was the subject of much discussion. There were still hundreds of tiny fragments remaining whose location could not be identified. Talks between the project conservators as well as the wider Paper and Textile team focused on the best, and most ethical, approach. The two options identified were:

1. To position as many fragments as possible back onto the Colour, knowing that many of them would not be positioned correctly.

2. Only place fragments that could be located correctly and return the remaining pieces to the lender separately from the Colour.

While the team were not entirely comfortable with the first option it was decided that there was a risk of the fragments being misplaced in the future if they were not added to the Colour at the time of treatment. Large areas of loss also remained, which was distracting to the overall appearance of the Colour. By comparing the Colour to the printed image it was possible to see which areas had previously been more complete than others and this helped identify where to position unknown fragments.

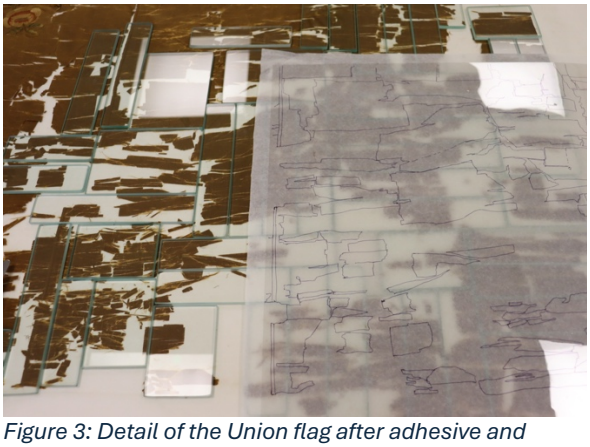

Figure 3: Detail of the Union flag after adhesive and colouring treatment. ©Trustees National Museums Scotland

Figure 4: Aligning fragments onto the adhesive coated crepeline ©Trustees National Museums Scotland

Until this point the treatment hours were reasonably on target and the conservators were fairly confident in their approach. However, the uncertainty over the fragment positioning impacted the time spent on this part of the treatment as much thought went into considering options and choosing locations. An additional member of staff was brought in at this stage to help move the process forward and a firm deadline set to finish the repositioning of fragments – something that had not been needed until this point.

After as many fragments as possible had been positioned on to the Colour the decision was made to add an additional layer of silk crepeline over the top, sandwiching the fragile silk ground between two layers of adhesive coated support fabric. This differed from the original proposal of using nylon net as an overlay. Due to the fragmentary condition of the silk and the time spent putting everything back it was decided that adhesive crepeline would offer more structure while reducing the need to stitch through the support layers. The crepeline was dyed and prepared with adhesive as for the reverse. It was thought that the red central motif and the Union flag canton would stand out more and improve the overall appearance if the crepeline was coloured to match the original red and blue silk. However, piecing small sections of colour matched crepeline would be time consuming and create many joins and areas of weakness which would reduce the supportive nature of the treatment. Therefore, alternatives for colouring the two lengths of silk crepeline were investigated.

Research into painting the silk crepeline was undertaken and Lascaux Sirius® Primary System Watercolour paints were tested for their suitability to use with Lascaux adhesive. Red and blue paint samples, mixed with water, were prepared and colour matched to the silk of the canton and central motif. Melinex® (polyester film) was laid over the Colour and the crepeline secured in the correct position on top before the areas were painted with the appropriate colour wash of red or blue, tinting the dyed crepeline. Once dry the crepeline was applied to the Colour, making sure to align the painted areas (Figure 5). For this side the join in the crepeline was positioned over the upper horizontal seam line. The front layer of crepeline was folded to the reverse around the top, bottom and fly edge of the Colour and secured under the back layer, which was trimmed to each edge. All adhesive layers were heat reactivated using a lining iron and silicon release paper template.[39] A heated spatula was used (at the same time and temperature) in areas of the Union flag where seams in the silk ground created uneven layers. The pole sleeve edge of the crepeline was left open at this stage to allow for the pole sleeve to be added. Adding a layer of adhesive coated crepeline to the front slightly altered the nature of the Colour in terms of stiffness but this was considered acceptable in order to make it safe.

The pole sleeve was conserved separately to the Colour and repositioned at the end of the treatment. The pole sleeve was encased in nylon net prior to any cleaning due to the fragile and fragmentary nature of the silk. Full immersion wet cleaning was carried out to ensure the thicker layers were wet out fully. Any loose fragments from the pole sleeve were cleaned using the Paraprint method and replaced after cleaning. Due to the construction of the Colour it was decided to position the pole sleeve in its correct location before encasing it in the silk crepeline layer attached to the reverse of the Colour. This method helped strengthen this area of weakness where the pole sleeve joined the Colour and reduced the need for attaching the two in some way after conservation. Again, the Lascaux Sirius® paints were used to tint the crepeline to the red of the pole sleeve silk. The crepeline was heat reactivated to the pole sleeve and the edge secured with a folded seam, then stitched with silk thread along lines of original stitching (Figure 6).

[39] The iron was set to 80°c and the crepeline reactivated for 2 minutes before the area was weighted under glass.

Figure 5: Detail of the Union flag after adhesive and colouring treatment. ©Trustees National Museums Scotland

(R) Figure 6: The Colour after treatment, from the reverse. ©Trustees National Museums Scotland

Project evaluation and reflections

Evaluation and reflection were an ongoing process during this project rather than being addressed on completion as is often the case. The extent of treatment and the time and resources required were constantly discussed while the conservators aimed to ensure the best of treatment was provided for the Colour. Conservation training instils this process of questioning and reflection but neither author has previously questioned a treatment or the ethics of one as much.

The Institute of Conservation's (ICON) Ethical Guidance embodies many of the aspects the authors considered during the treatment, particularly in relation to the unusual situation of an object on long-term loan being damaged while in the care of the museum.[40]

The first principle states that 'The aim of the proposed action should be agreed with stakeholders, taking into account the demands which will be placed on the item, the goals of the stakeholders and the material needs of the item. The option of no action should be investigated first' (ICON 2020). In this case, while no action was initially considered this proposal would have put the object at risk. Subsequent decisions were made once this had been determined. It was particularly important to NMS that the good relationship with the lender be maintained. This relationship and the needs of the object had to be considered and balanced carefully. All communications were made through the Registrar team and the lender was kept informed and provided with a full treatment report with images at the end of the project.

[40] ICON's Ethical Guidance document (2020) consists of the Principles of Conservation, 13 statements defining the ethical approach to items of cultural heritage.

Much consideration was given to whether a full treatment would have been carried out had the object belonged to NMS. The Colour is historically significant but with no plans for it to be displayed within the Museum it would most likely have undergone the temporary holding treatment of 100 hours. This would have required less resource and been easier to fit into the work programme but would have removed the challenge of the treatment and the chance to develop and enhance skills. It would also have removed an opportunity to demonstrate to non-conservation colleagues and managers what can be achieved by conservation on objects which are in a very fragile state.

Another principle discussed during this project covered resources and constraints (ICON 2020).[41] The time taken for the whole treatment was considerable, representing nearly a year of one conservator's dedicated time plus an increase of the original estimate by 30%. While the treatment carried out has enabled the Colour to be handled safely and made it displayable in the future it was hard not to question where else this time could have been spent and how many objects might have benefitted had the time been directed elsewhere.

Both conservators did have mixed feelings during this treatment. There was the concern that it might not be possible to achieve a good outcome countered by the excitement of such an amazing challenge. Previous experience was an important part of enabling the project to get started but recent experiences of colleagues, e.g. the use of Paraprint, played an important role in developing skills and knowledge. The conservation of the Colour, and the conservators involved, benefited greatly from having the time and space to reassess the treatment proposal as the work was carried out. Some stages were not finalised until just before being implemented which allowed for new techniques to be included and alterations made to the original plan, for example swapping the overlay of nylon net for a layer of adhesive coated silk crepeline. This reflects another of ICON's principles 'Decisions and actions should draw on and provide appropriate skills and experience' (ICON 2020). On being reminded of these overarching conservation principles it was heartening to note that they were embedded in all aspects of the work.

Conclusion

The treatment was considered extremely successful and a vast amount of knowledge was gained from the work. It highlighted the benefits of cleaning with Paraprint and that this technique can also be used safely for extremely fragile objects. Painting the silk crepeline was another new method for the team and has the potential to be used for various treatments in future as it offers an effective alternative to dyeing or piecing fabric. At a practical level the Colour can be stored, handled and displayed safely. However, it has been altered by the conservation. There are many fragments which are not in their original position and due to time constraints it was not possible to note these locations. Therefore the documentation does not clarify whether fragments are correctly located or not. The method of sandwiching an object between two adhesive coated crepeline layers is not a standard treatment and it has resulted in some loss of flexibility. This is countered by the security of the pieces from future loss.

[41] ICON's Principle of Conservation number 6. Decisions are informed by an assessment of consequences, risks and benefits.

The dilemma of ownership (lender/museum) and the options for treatment were a source of much discussion. Ultimately the needs of the object were of foremost importance and it is considered that the correct approach was taken despite the time and resources that were required. That said, the decision would likely have been different if the Colour was owned by the museum. Based on resources available, time restrictions and a busy exhibition programme it is likely that the temporary stabilising treatment of 100 hours would have seemed more apt.

The unusual circumstances of this project stimulated much thought about what conservators do and why and what levels of treatment are appropriate. It demonstrated that the ethical principles are the bedrock of a conservators practice and that reflecting and adapting throughout a treatment helps to ensure the best outcome for the object.

Acknowledgements
The authors would like to thank all colleagues at National Museums Scotland for their help and support with this project.

Authors

Stella Gardner graduated from the Centre for Textile Conservation, University of Glasgow in 2013. After graduating she worked in private practice at Textile Conservation Ltd, Bristol for seven years. During this time she spent six months at the National Trust Textile Conservation Studio to further skills in tapestry conservation. She joined the Textile Conservation team at National Museums Scotland in January 2023.

Lynn McClean graduated from the Textile Conservation Centre in 1993. After a one year internship at the National Trust's Textile Conservation Studio she joined National Museums Scotland where she is now Principal Textile Conservator.

Materials & Suppliers

Lanaset dyes
Archroma, distributed by Town End Dyes PLC
Leeds LS13 4LY
UK
+44 011 3256 4251
https://www.dyes.co.uk

Lascaux Acrylic Adhesive 303 HV/498 HV; Melinex® 401 (Clear polyester film roll); Paraprint OL60; Polyester Clear Pockets
Preservation Equipment Limited (PEL)
Norfolk IP22 4HQ
UK
+44 013 7964 7400
https://www.preservationequipment.com/

Lascaux Sirius ® Primary System Watercolour paints
Jackson's Art Supplies
London N16 7SX
UK
https://www.jacksonsart.com/

Milty Pro Zerostat3
Fisher Scientific
Loughborough LE11 5RG
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https://www.fishersci.co.uk

Nylon Net N8000
Dukeries Textile & Fancy Goods Ltd
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Nottingham NG2 5BG
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Planorama®
CXD International (Conservation by Design)
Bedford MK42 7QB
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+44 012 3484 6300
https://www.cxdinternational.com/

Silk Crepeline 1630
Lelievre Paris
75002 Paris 75002
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Conservation and Collaboration: A Transatlantic Partnership Between Textile and Paper Conservators to Conserve Meiji Era Japanese Embroidered Screens in Slovenian Collections

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Abstract
While collaboration between conservators specializing in different disciplines is becoming more commonplace, these partnerships can be challenging when working in monocultural lab environments, where only one discipline is represented. In 2023 the author was approached to run a workshop for paper conservators at the Stanford University Library, introducing the basic principles and techniques of textile conservation, to help them better understand the preservation of books in the collection that have textile covers and samples.

In 2024 this workshop was adapted for a symposium about Japanese embroidered screens led by the University of Ljubljana's Department of Asian Art. This event provided the opportunity for museum professionals throughout Slovenia to gather and share screens from their collections for examination and discussion.

During this introductory workshop participants recognized the potential that adhesive coated supports could have in the conservation of their screens. A second week-long workshop took place in April 2025. Every participant was a conservator, mostly specializing in paper, with a few experts in textile and inorganic specialties. The goal was to fully conserve at least one panel of a screen from the Piran Maritime Museum, front and back. Teams worked on the textiles and paper elements concurrently and came together at the end of the week for reassembly – ultimately two panels were completed over the course of five days.

Introduction

If conservators wish to understand and responsibly care for the cultural heritage entrusted to them, then collaboration and interdisciplinary cooperation with interconnected professionals are absolutely essential – for both individuals and for the evolution of the professional field. The synergy between paper and textile conservation arises from shared scientific principles, the similarity of some materials, analogous treatment methods, and the frequent need for collaborative efforts on mixed-media objects. However, in practice, that interaction is perhaps a little one sided. Textile objects are rarely just textiles, they often incorporate non-textile materials for structure, function, or decoration, spanning categories like apparel, home furnishings, and industrial products. Consequently, textile conservators tend to be the magpies of the conservation world, picking up treatment techniques and materials from other disciplines on a regular basis. The opportunity to learn from colleagues

and vice versa is of course easier when working in a conservation department that has different disciplines, but much less so when working in a monocultural lab environment as is often the case with university libraries.

Libraries, however, often contain a lot of textile materials. Of course, most books will have textile elements, such as cloth bindings or spine linings, but textiles in library, archive, and special collections often span from historical, functional, and decorative pieces to "realia" (objects) that accompany personal papers or rare books. These collections frequently bridge the gap between documents and artefacts, providing insights into material culture, manufacturing history, and social history. Textile Sample Books are a good example with volumes containing oversized fabric swatches mounted on paper. Book covers wrapped in embroidered or highly decorated textiles (rather than more usual book cloth or leather) are another.

This paper will focus on workshops that were led by the author at Stanford University Libraries in 2023 and at the Slovene Ethnographic Museum and the National Archives of Slovenia in 2024 and 2025 that focused on introducing textile conservation techniques (and in particular the use of thermoplastic adhesives to support damaged silk) to paper conservators, and concluded with a collaborative treatment of a Meiji era Japanese embroidered screen from the collection of the Sergej Mašera Maritime Museum in Piran, Slovenia.

Textiles and Paper

As paper and textiles are often organic materials that share sensitivity to the same agents of deterioration such as light, temperature, and humidity both disciplines are defined by many of the same fundamental principles and problems. Techniques for aqueous cleaning, solvent use, and enzyme treatments are frequently exchanged between the two disciplines. Paper conservation methods, such as using specialized adhesives or tissue for stabilization, often inform textile support techniques.

The use of paper treatment methods and materials in textile conservation treatments is well documented; For instance, conservators from National Museums of Scotland have presented about paper influenced treatments involving cleaning methods and structural support at recent NATCC conferences (McClean 2017; Pattinson 2025) and the team at Zenzie Tinker Conservation has written extensively about paper and textile collaborative projects including the innovative treatment of the Keddleston Hall state bed tester (2019). Chen and Thompson (2020) have presented about the potential of non-woven support materials for textiles such as cellulose nanofibers and *Tengujō* paper, and as the 2026 ICON meeting is being held in Manchester it would be remiss not to mention the conservation of the Oldknow book by Zoe Lanceley and Amber Russell (2025), another well documented project from the collection of the John Rylands Library.

Geographic Differences

It is worth noting that all of these examples are from United Kingdom (UK) based conservators. Geography appears to play a part when it comes to the ease of interaction and collaboration between the two disciplines. In the UK for example, there is the Textiles in Libraries Network organized by the Bodleian Libraries that meets online every few months.

In September 2025 the Kelvin Centre at the University of Glasgow launched a new two-year conservation programme: MPhil Book and Paper Conservation, modelled on the highly successful textile conservation programme. In Asia, publications such as Conservation of Papers and Textiles by The National Research Institute of Cultural Heritage in Korea (2011) detail the long tradition of conservators of both disciplines working side by side on the treatment of objects such as scroll mounted paintings, screens and paper containing costume.

By contrast, examples of similar collaborations in the United States are hard to find and are mostly limited to the treatment of upholstery. The author has collaborated with paper conservators in the past, but mostly on projects involving leather objects, where paper was used to infill and support losses (Sutcliffe 2019).

The Stanford University Library

In 2023 the author was approached by Kristen St John, Head of Conservation Services at Stanford University Libraries (SUL) to run a workshop for the conservation staff introducing the basic principles and techniques of textile conservation. SUL comprises 20 branch libraries and centres, many with their own special collections materials. Over the past few years, Conservation Services has been actively reaching out to individual branch libraries to expand preservation efforts across SUL. These efforts generated an influx of materials in need of treatment from SUL's East Asia Library and allowed for leadership in interdisciplinary collaboration.

Kimberly Kwan was one of the workshop participants and wrote about how it helped one of her subsequent projects in her paper 'The Ties That Bind: Communication, Collaboration and Cross Disciplinary Professional Development in the Service of Library Special Collections' (2025):

> 'In order to better conserve East Asian bound materials and deepen our relationship with [the East Asian Library] library, we collaborated with internal staff and external conservation peers within and beyond book conservation to understand curatorial expectations, select appropriate terminology, and develop new techniques allowing us to meet treatment priorities.'

During the planning stages discussions with East Asia Library curators highlighted the importance of retaining and stabilizing the original wrappers for continued use. While standard book conservation techniques could be used to stabilize the wrappers, many items required additional enclosures after treatment to repair and restore function to failing textile components. Aisha Wahab, one of SUL's book conservators, had worked with the author as an intern in the textile conservation department at the Detroit Institute of Arts. It was her suggestion that the conservators would likely find the use of adhesives to support damaged textiles useful and subsequently shifted the treatment focus.

The SUL Workshop

The workshop was held over two days and started with an introductory lecture, before moving on to a late morning session that provided a brief overview of materials (these had been ordered ahead of time so the conservators had had the chance to examine them), and

covered basic cleaning techniques, many of which were already familiar to paper conservators. Dyeing fine nylon bobbinet using Lanaset dyes was introduced during this 'wet' session, since it had been identified as being the most useful material to help support structural damage on book covers.

The afternoon was spent introducing a variety of stitch techniques using samples of a nineteenth-century damaged cotton toile the author prepared beforehand (Figure 1). For paper conservators this area of textile conservation is probably the most outside of their comfort zone, and they loved and hated it in equal measure! During that afternoon several attendees were also tasked with mixing Lascaux 303Hv/498Hv adhesives for experimentation the following day. The conservators were proficient with cellulose adhesives so their use in textile conservation was not covered.

Figure 1: Stanford Workshop participants working on stitching exercises.

The second day was spent experimenting with the Lascaux adhesives – using different proportions, concentrations and casting them onto different substrates using different casting beds. Trials were also carried out trying to create usable Lascaux films (without a substrate) that could be slipped in between book boards and covers to secure loose textile elements. This was something the author had not done before, but using two to three layers of undiluted 90% 498Hv and 10% 303 Hv (allowing each layer to dry between applications) worked really well for this.

The workshop finished with a final session reviewing a number of objects that had been identified as having textile related issues. These included sample books, artist designed books and books with non-standard textile covers, along with a set of large format cotton backed maps.

SUL Workshop Outcomes
The workshop was well received and several of the participants kept in touch with the author as they started to treat some of the objects that had been examined. The subsequent treatment of a c.1615 red velvet bound land dispute manuscript with a shattered silk flyleaf by Kimberly Kwan was the subject of a paper presented at the AIC meeting in 2025. Kwan's presentation resulted in conservators from other university libraries getting in touch with the author to discuss coordinating similar workshops, indicating a clear need and interest in nurturing this cooperation between the two disciplines, certainly in the United States.

Slovenia
In March 2024 the author was invited to take part in an international symposium in Slovenia – 'Japanese Embroidered Screens and issues of Restoration' and also lead a one-day workshop to introduce the basics of textile conservation to a group of roughly 50 conservators and curators from museums throughout Slovenia.

Orphaned Objects
The symposium grew out of the project 'Orphaned Objects: examining East Asian objects outside organized collecting practices in Slovenia" (2021-2025), led by the Department of Asian Studies at the University of Ljubljana. The project explored the colonial and postcolonial frameworks of collecting practices, the cultural and socio-political settings in which collectors assembled their collections, and the history of displaying East Asian objects in museums and other institutions in Slovenia (Vampelj-Suhadolnik 2025).

From the outset, the research encountered challenges; from missing documentation, lost objects and dispersed collections to histories of confiscations. One common issue was the occurrence of individual East Asian objects, unrelated to known collections and/or without re-constructible provenance. These "orphaned objects" – a term borrowed from similar phenomena in art history and archaeology, were a challenge of a unique kind, not only posing questions about their own unknown history and biography but also challenging the methodological approaches for dealing with singularity and missing information. The research coalesced around three categories of objects; East Asian objects in the non-western collections kept by the Celje Regional Museum that had come from the Celje District Collection Centre established in 1945 to collect and preserve—i.e. confiscate—cultural/historical and valuable works of art from all over Slovenia (these also included objects that had been previously confiscated by the Nazi occupying forces during WWII); East Asian objects housed in Slovenian castles and manor houses; and East Asian objects brought to present-day Slovenia by individual sailors of the military and merchant navies in the late 19th and early 20th centuries.

The Japanese Embroidered Screens Symposium
The symposium was held at the Slovene Ethnographic Museum and Celje Regional Museum. The first morning consisted of presentations from invited scholars about Meiji era embroidery. The afternoon commenced with an introductory lecture to textile conservation, followed by a review of several screens that participants had been invited to bring from their collections for examination with the author. Many of the issues that had been covered in the lecture could then be discussed in more depth with real world examples

(Figure 2). This session was also a good opportunity to talk about the storage of the screens, and the author was able to provide useful information that will hopefully help the museums to better care for the screens in the short term until they are able to be fully conserved.

The Screens

19th-century Japanese embroidered screens (*byōbu*) are complex, multi-layered masterpieces, often made up of four to six panels. All of the screens that were brought to the symposium were standard in their format; double sided with an embroidered silk 'front' side, and a painted paper or painted silk mounted on paper 'reverse' side. The silk outer layers are lined with layers of *washi* paper (and in the case of the screen treated – also newsprint) stretched over a rigid, lightweight structure of latticed bamboo/softwood and secured around the edge using wheat starch paste. The mounted panels are then secured into lacquer work frames using fine metal pins to hold them in place. The individual panels are hinged together using elaborate silk wrapped braided cords.

Condition Issues

As would be expected most of the screens suffered from extensive structural damage caused by use and/or weakening of the silk due to UV catalysed acid hydrolysis of the fibres. Many of them had holes, splits and areas that were actively deteriorating. Embroidery threads were almost universally weakened with losses, along with detaching elements such as metal embroidery threads. The painted silk and paper sides rarely fared any better and exhibited structural damage in the form of tears and holes.

Figure 2: Screen review at the first workshop in Ljubljana, Slovenia.

Figure 3: The Japanese embroidered screen from the collection of the Sergej Mašera Maritime Museum in Piran, Slovenia.

The First Workshop

The type of damage exhibited by such degraded silk was ideal for support using thermoplastic adhesives. There are very few textile conservators in Slovenia, at the time of the workshop there were just five (all of them attended). One of them, Eva Ilec, Head of Conservation at the Regional Museum Ptuj-Ormož felt that they did not have the training or expertise using these adhesives to confidently take on the conservation of the screens – something that was likely to become a multi-year project. As a result, everyone was very keen for this to be the focus of the workshop held on the second day of the symposium. This also shifted the narrative of the workshop away from purely introducing the basics of textile conservation to the paper conservators and more towards teaching the textile conservators about adhesive use.

A four-panel embroidered screen brought to Slovenia at the beginning of the 20th Century by Admiral Anton Haus[42] and now owned by the Sergej Mašera Maritime Museum in Piran was chosen for treatment (Figure 3). It is representative of its type – on one side of each panel the green silk satin ground fabric is embroidered with sprays of flowers in vases worked in polychrome silk floss and metal threads, on the other, the paper lined silk is painted with depictions of different water birds. Its condition could only be described as poor, with punctures and tears through the panels and extensive light damage resulting in large areas of warp loss on the silk satin ground fabric.

There was something of an unrealistic hope from the Museum's team that we might be able to complete treatment of one of the panels, but the one-day workshop was just enough time to introduce the main ideas and procedures, and for participants to recognize the potential the adhesive supports would have in the conservation of their screens.

The workshop format closely followed that established by the one at Stanford, albeit working on an actual object. The process started with surface cleaning using low-powered vacuum suction to remove surface particulate soiling and dust (Figure 4).

Much discussion was had about how to go about supporting the silk – whether or not the whole panel had to be removed from the frame, or whether it could be partially removed to allow patch supports to be inserted behind. In the end, to give it the level of support it needed, it was decided to fully remove the panel from the frame. The edges of the silk panels were humidified using an ultrasonic humidifier to soften the wheat starch paste enough to release the silk from the frame. This was a very slow process. While participants took turns on this job, others focused on stitching exercises or learning how to cast adhesive films.

Before the end of that day the author had been invited to come back and run a much more in-depth workshop – and this time just for conservators. With 50 people attending the

[42] Although much is known about the collector of the screen, the object mostly lacks all other information (e.g. location, provenance prior to collection and method of acquisition) that would allow a deeper insight into the understanding of East Asian heritage by the sailors and their descendants. As such, it falls into a broader category of objects or collections 'orphaned' because their curators or owners have lost interest in them, or because there is simply no information about them.

symposium it was difficult to have enough activities going to keep everyone occupied all of the time. Even so, by the end of the day there was great enthusiasm for what had been achieved and what could be put into action.

(L) Figure 4: Surface cleaning the Haus screen at the first workshop in Ljubljana, Slovenia.

(Above) Figure 5: The author reviewing the Haus screen at the second workshop in Ljubljana, Slovenia.

The Second Workshop

The second workshop took place in April 2025 and was hosted at the newly opened Archives of the Republic of Slovenia building in Ljubljana. This time it was five-days long and the 15 participants were all conservators, nine specializing in paper, five textile conservators and one whose specialty was stone. The goal for the week was to continue the work of the first workshop and fully conserve at least one panel of the Haus screen, front and back (Figure 5).

To help realize this goal, Eva and her team of two textile conservators from the Regional Museum Ptuj-Ormož were able to do a lot of preparation work beforehand. The humidification and release of the panel edges was continued, and it was removed from the frame. The support fabrics – fine nylon bobbinet and silk organza were custom dyed to match.

Paper Conservation

Teams worked on the textiles and paper elements concurrently and came together at the end of the week for reassembly (Figure 6). With the embroidered silk panel removed from the frame, the lining paper layers were revealed. These consisted of a sheet of thick *washi* Japanese tissue laminated with newsprint on the reverse. The paper conservators gently humified the papers using strips of damp blotting paper to soften the wheat starch paste, and then carefully removed the papers from the frame. The newsprint was dated to the early 1900's. Once removed the papers were washed and then supported using fine Japanese tissue secured using wheat starch paste. In consultation with Bogdana Marinac, the maritime museum's curator it was decided that the paper layers should not be placed

back in the screens – the newsprint was still acidic, even after washing, but it also provided an insight into the time in which the screens were made, and so in the future they will be displayed together. The old lining papers were replaced with a thick new layer of Japanese *daitoshi* paper.

With the embroidered silk and paper lining removed from one side of the stretcher, the other side of the panel – the painted silk/paper side, was now fully accessible (the lining papers on that side notwithstanding). The tears were able to be supported using Japanese tissue patches secured using quite a dry wheat starch paste.

Conservation of the Embroidery

Once removed from the frame the embroidered silk panel was surface cleaned on the reverse side. It was humidified using dampened Gore-Tex sheeting to allow for alignment of the damaged areas prior to support.

Most of the splits occurred due to the loss of the warp threads in the satin structure, thus time was required to straighten out the weft floats. Following numerous tests, a 12% mixture of 50:50 Lascaux 303Hv:498Hv in deionized water was chosen. Tests were conducted using a Teflon casting bed that had been purchased after the first workshop, but it had a slight texture to its surface and the films it produced were neither smooth, nor consistent. Luckily the author had brought a roll of Beva 371 film for the workshop, and the release layer – silicone coated paper, made for an excellent casting bed. This was used throughout.

The participant conservators were tasked with casting the adhesive films. It is very difficult to convince people that in this instance more is not better, but after a few over enthusiastic false starts some useable films were produced. In the author's experience the edges of the net should not be secured and the adhesive has to be worked on the net until it starts to become tacky and dries, this results in an even film, without crease lines, where only the net structure is coated rather than the net cells filling in with film. This technique – now officially called '*The Sutcliffe Protocol'* is outlined in the poster '*Network: Collaborating to improve the application of adhesives on nylon net*' (Simcoe *et al.* 2025) that was presented at the TCC@50 conference.

Once the films were dry (and this took a little longer than usual as it was wet and humid in Ljubljana that week) they were carefully peeled from the silicone release paper and placed on the table tacky side up. The embroidered panel was positioned on top of the film, final alignments made and the adhesive then reactivated using a small, heated spatula. A small piece of the silicone release paper was used between the spatula tip and silk to prevent marking.

With the initial support in place the areas of complete loss were infilled using patches of the silk organza. Again, applied to the reverse side and then tacked in place using lines of staggered reverse running stitch worked in hair silk, that had also been dyed to match. Some lines of laid thread couching were used across the weft floats as a belt and braces measure to make sure everything was secure. These were worked in threads pulled from olive green Stabiltex (Figure 7).

Figure 6: The teams working on the textile and paper elements at the second workshop in Ljubljana, Slovenia.

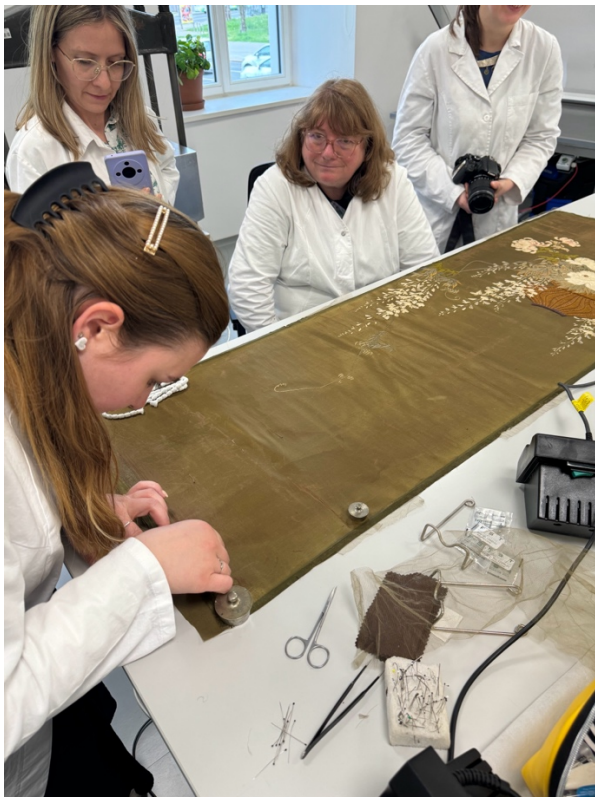

Figure 7: Working on the embroidered silk panel at the second workshop in Ljubljana, Slovenia.

Reassembly

With the paper conservation complete the silk panel was ready to be secured back onto the stretcher frame. Thin strips of Beva 371 film were used for this task rather than the original wheat starch. Beva was chosen as it was easy to work with and strong enough to hold the textile which would be under slight tension. The strips were applied to the edges of the wood frame and the adhesive reactivated using the small heated spatula. The panel was then laid out on the frame and lightly tensioned using pins - the wood was soft enough to allow this. The other side of the adhesive was then reactivated using the heated spatula to secure the panel to the frame.

Workshop Outcomes

Ultimately two panels were completed over the course of five days (Figure 8). The second panel was treated from scratch with its removal from the frame, disassembly, conservation and reassembly all taking place during the course of the week. The process is definitely not quick, with 16 conservators working on them for 8 hours a day, the total working time was 640 hours.

It would have been ideal to return the panels to their lacquer frames at the end of the workshop, but during the course of the week it was determined that an object conservator that specialized in lacquer work should assess the frames, and address some areas of concern that had been observed such as bowing of the horizontal elements, small cracks and flaking of the surface in isolated areas.

The collaboration was a highly productive learning experience for all, and one that provided the conservators that care for screens in their collection with the tools and knowledge necessary to carry on the work to ensure that these objects continue to exist.

In addition, the conservation process itself also revealed information like dated newspaper linings that will help to inform ongoing research, and as more screens undergo conservation perhaps one day enough will be known for them to be no longer considered ‘orphaned’ at all.

Figure 8: The two finished panels at the end of the second workshop in Ljubljana, Slovenia.

Conclusion

In conclusion, the collaboration between paper and textile conservators is not merely a beneficial interdisciplinary exercise, but a necessary approach for the holistic preservation of complex, multi-material artifacts. Bridging the distinct methodologies of paper with those of textile conservators can develop safer, more innovative treatment protocols, particularly for hybrid objects like bound textiles, mixed-media art, and historical documents with fabric elements.

Ultimately, the future of conservation lies in breaking down disciplinary silos. Embracing a collaborative, multi-disciplinary, and sometimes "creative" approach ensures a higher standard of care, leading to more sustainable, long-term preservation of cultural heritage.

Acknowledgements
A very big thank you to Amanda Holden for her editorial input. Kimberly Kwan for sharing information about her book project after the workshop. Professor Nataša Vampelj Suhadolnik, for all of her help with both workshops in Slovenia, Eva Ilec and Lucija Planinc for their input and help with the second.

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Materials & Suppliers

Beva 371, Lascaux 303Hv and 498Hv adhesives
TALAS
NY 11211
USA
+1 212 219 0770
www.talasonline.com

Conservation nylon bobbinet
Dukeries Textile & Fancy Goods Ltd
Nottingham NG2 5BG
UK
+44 1519816330

Cotton broadcloth
Fat Quarter Shop
TX 78640
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+1 866 826 2069
www.fatquartershop.com

Gutermann cotton threads
Red Rock Threads
NV 89048
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https://redrockthreads.com

Japanese tissue
Gaylord Archival
NY 13221
USA
+1 800 448 6160
www.gaylord.com

Silk fabrics
Whaleys Fabrics Ltd.
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+44 1274576718
www.whaleys-bradford.ltd.uk

Stabiltex polyester crepeline
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www.museumstjenesten.com

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Threads of Life: Tracing Women's Stories Through the Palestinian Thobe

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Abstract
This study examines how material traces found inside and on the surface of Palestinian thobes reveal the social, personal, and cultural lives of the women who wore them.

Through close observation and documentation, the research highlights how small discoveries — grains of sand, herbal seeds, and traces of daily life hidden within the seams — provide glimpses into the wearer's environment and routines.

Alterations on the garments also tell layered stories: hems shortened for a new, shorter wearer; silk fabric additions reflecting wealth and status; and chest openings carefully stitched after breastfeeding periods. Even the insertion of fabric from a husband's robe at the back of the shoulders quietly marks marital identity.

During conservation, especially throughout examination and cleaning, new marks and hidden details continue to emerge — offering further reflections on the lives these garments have lived. This poster addresses the conference theme of reflection, exploring how the conservation process itself becomes a dialogue with the past and a means of regenerating memory through textile traces.

Palestinian *tatreez* (embroidery) is considered an integral part of Palestine's tangible cultural heritage. It is not merely a decorative element, but a visual language that conveys spatial, social, and cultural meanings Over time, different regions developed distinctive embroidery patterns, colours, and materials that identified specific towns or areas. This regional distinction was evident, especially in earlier periods; for example, clear differences in the colours and motifs of thobes (dresses) of coastal areas compared to those from other areas, along with decorative units associated with a variety of symbolic meanings.

The Palestinian thobe was not just an everyday item, but a living document that reflects multiple aspects of its wearer's life. The choice of fabric, colours, the nature of the embroidered motifs, the method of tailoring, and later alterations could all indicate a woman's social status, (such as marriage, widowhood, and others), and it could also reflect the economic and political transformations experienced by society across different historical periods.

This article seeks to provide a reading of the thobe as a material text that can be "decoded" through initial examination. It also demonstrates how the preservation and conservation of a

collection of thobes within the Palestinian Museum's collection has expanded our knowledge of them. Some information can be extracted directly from the thobe without any intervention, while other layers of evidence and artifacts emerge during the examination, cleaning and conservation phases, opening a deeper path to understanding the piece's history and use.

Since 2022, following specialized training in textile conservation at the Victoria & Albert (V&A) Museum, and after opening The Palestinian Museum Textile Conservation lab, I have conserved about 100 textile pieces from the museum's permanent collection. These pieces varied between thobes, scarfs, pillows, and others, and differed in their condition and degree of deterioration. Some pieces were in good condition and did not require much time for conservation, while the deteriorated pieces required more complex conservation procedures and lengthy treatments.

Out of all the pieces I worked on, thobes interested me the most. Before beginning the conservation process, I carried out an initial examination of the thobe, that included observing and analysing the visible elements of the thobe and discussing them with my colleagues, whether in terms of apparent meanings and symbols or assessing condition and setting priorities for intervention. This analysis can be considered as the first reading of the piece. That was then followed by second and third readings during the conservation phases themselves, depending on what was revealed during the work, as materials and remnants inside the thobes, or structural details and meanings that were not clear at first gradually appeared with examination, cleaning, and direct handling of the textile.

To illustrate how these readings are transformed into knowledge during the conservation process, I present brief examples of thobes I have conserved:

Example One, Fabric Remnants inside the Seams: a Bir Saba' Thobe (0002.01.0065), Dating to around 1940 (Figure 1 and 2).
This thobe is made of black cotton and embroidered primarily with red and navy silk threads. The chest panel and the *nayashin* (epaulettes) are embroidered with predominantly geometric and plant motifs and *tashrifi* (couching stitch). The *radha* (upper back neckline) is made of orange *hermezi* (silk) embroidered with plant motifs. The sleeves and cuffs are decorated with geometric and plant designs, with denser geometric embroidery on the cuffs. The front panel bears light embroidery of rose, pot, plant, and geometric motifs, while the back panel and *al-Banayiq* (sides) display dense embroidery of roses, rose pots, cypress motifs. At last, the *diyal* (tail) is embroidered with *a qutbet tihshai* (couching filling stitch) which is one of the most common decorative stitch techniques applied to/used for thobes from the Bir Saba' area.

Before conservation:

- The dress is likely to be from the Bir Saba' area, based on its overall design and the use of navy-coloured threads at the bottom, which are common in women's thobes from that area.

- A different piece of textile was added to the shoulder area later, indicating an alteration made after a period of use.
- The thobe's measurements (113cm width × 143 cm length) indicate that its owner was of average height, as women usually wore thobes that extended to ankle level.

Observations made during conservation:

- It was determined that the embroidery of the thobe was executed using "*marka*" textile, a temporary fabric that is attached to the thobe during embroidery and then unravelled, thread by thread, after completion. Remains of threads from this textile were found during the initial examination, providing evidence of the embroidery technique used.
- Straw and grains were found inside the *diyal* of the thobe, indicating the nature of the environment where the woman lived; she likely worked in the fields or lived in an agricultural area.
- Slight openings were observed under the armpits, which may be a result of repeated use or an intentional alteration made for ventilation.

Figure 1 and 2: Bir Saba' Thobe (0002.01.0065), c. 1940 front (L) and back (R).

Example two: A Galilean Jalaya (0002.01.0026), Dating to around 1920 (Figure 3 and 4)
Jalaya thobe (overcoat dress) from Galilee made of black linen, featuring heavy *tatreez* (embroidery) influenced by the Syrian style and executed primarily in pink silk threads. It is open from the top to the bottom of the thobe like a coat, with buttons on the chest area. The chest panel is embroidered with geometric and feather motifs, whereas the shoulders have

feather motifs in burgundy, purple and pink. The sleeves are embroidered with feathers and *manajil* (sickle) motifs and geometric shapes. The front panel of the Jalaya bears no embroidery but there is light *manajil* embroidery at the centre, and feather motifs at the bottom. *Al-Banayiq* (the sides) are embroidered with plant and geometric motifs, as well as pockets.

Before conservation:

- The fact that the Jalaya is completely open in the front indicates that it was worn over another thobe and was not used alone.

Observations Made during Conservation:

- Several kinds of grains were found inside the Jalaya pockets, including crushed lentils, wheat grains, parsley seeds, and straws. These remains provide a clear picture of the lifestyle of the owner of the Jalaya and indicate that she used to work in the field and practice agricultural activities.

Figure 3 and 4: A Galilean Jalaya (0002.01.0026), c. 1920 front (L) and back (R).

Example Three: A Bayt Nabala Thobe (0002.02.0001), Dating to around 1920 (Figure 5 and 6) A thobe from the Bayt Nabala area, Ramla district, made of beige linen and embroidered primarily with red silk threads. The chest panel of the thobe is embroidered with cypress and feather motifs, and in the middle are squares in the shape of rose. The shoulders, the *radha* (the upper back neckline), and the *nayashin* (epaulettes) were made from Ottoman fabric traditionally used in tailoring men's *qumbaz* (coats) and were bordered with green and orange

heremzi (silk). Moreover, the sleeves were embroidered with rose pot motifs, while the cuffs have geometric shapes. The front panel features very light embroidery composed of two parallel motifs, in contrast to the dense embroidery on the back panel, which includes the *sunbula* (wheat ears) motif, high palm, and mountains. At last, the *al-Banayiq* (long triangular sleeves) were embroidered with fan, plant, feather, and *manajil* (sickle) motifs.

Before conservation:

- The overall form of the dress indicates its origin in the coastal region, where light-coloured thobes were commonly worn.
- The motifs used confirm the thobe's specific relationship to the Bayt Nabala area.
- The presence of a textile insert at the centre of the thobe suggests it was worn by more than one woman: the first one was shorter, and the second lengthened the dress to suit her height.
- The addition of fabric at the shoulders is similar to that used in men's garments, which indicates that the wearer was married.
- Alterations in the chest area suggest that the woman went through a period of breastfeeding and later stitched the area after this stage ended.
- Patches at the elbows indicate frequent use, as this area is particularly prone to wear.

The information revealed after conservation has not yet been fully collected, as the thobe is still undergoing conservation.

Figure 5 and 6: A Bayt Nabala Thobe (0002.02.0001), c. 1920 front (L) and back (R)

Example Four: A Bethlehem Thobe (0002.01.0082), Dating to around 1850 (Figure 7 and 8)
This *Malqa* thobe (Royal dress) from the Bethlehem area is made of handwoven fabric produced on a traditional loom in the Majdal region and embroidered with silk threads and gilded *qasab* (metallic couching cord). The chest panel is embroidered with *manajil* (sickle) and plant motifs made with *laff* and *tahrira* stitches (couching). The *nayashin* (epaulettes) and the *radha* (upper back neckline) bear no embroidery but are made from different fabrics: the *nayashin* from "*abu warda*" (flower-printed) fabric, and the Radha from a composite fabric in burgundy, brown, and beige tones, which was later attached to the thobe. The *mradan* (long triangular sleeves) are made of orange and red *hermezi* silk, with cuffs embroidered in the same motifs as the chest panel. No embroidery appears on the front or back panels, except for horizontal orange threads at the lower back. The *Al-banayiq* (sides) are made of red *hermezi* silk, lightly embroidered with geometric motifs and attached to the thobe. The thobe also shows several patches repaired with *hermezi* (silk) fabric.

Before conservation:

- The overall form of the thobe reflects the old traditional style of the Bethlehem region.
- The use of silk fabric was not purely decorative but also a sign of wealth, given its high cost.
- The numerous patches indicate prolonged and frequent use of the thobe.
- The *mradan* sleeves were considered an aesthetic feature and a symbol of modesty; women were known to tie them back during work and to release them afterward.
- The thobe also conveys a touching story: it appears to have been torn from the chest panel downward and later mended, indicating that its owner may have experienced a period of deep grief, such as the loss of a loved one or financial hardship, and later repaired the thobe to continue using it.

Based on these indications, the thobe's owner appears to have been financially comfortable at one stage of her life, before experiencing grief or economic setback. The prolonged use and self-repair of the thobe reflect clear changes in her life circumstances.

Figure 7 and 8: A Bethlehem Thobe (0002.01.0082), c. 1850 front (L) and back (R)

Conclusion

The previous examples show that the conservation of Palestinian thobes can be extended beyond technical practice to become a research tool through which the thobe can be read as a living material document. Initial examination focuses on form and decoration, but advanced conservation reveals deeper evidence of daily use, work, social status, and the psychological and economic transformations of the women who wore these thobes. Through these readings, the Palestinian thobe works as a witness to women's lives rather than just as a museum object, highlighting the importance of conservation not only in preserving textiles, but also in safeguarding memory and the human stories embedded within threads, patches, and silent remnants heard only by those who listen.

Acknowledgments

I would like to extend my sincere thanks and appreciation to the Palestinian Museum for granting me the opportunity to use materials and photos from its collections, and for the support and cooperation that significantly enriched this work and contributed to its completion in its present form.

I would also like to express my deepest gratitude to the Victoria & Albert (V&A) Museum in London, especially to the staff of the Textile Conservation Studio, for their generous sharing of knowledge and their invaluable contribution to my training in conservation techniques. Their

guidance and expertise have had a profound impact on the development of this research and the strengthening of its practical dimensions.

With my highest respect and appreciation.

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