

The British
Museum

The Amorepacific Project
for the Conservation of
Korean Pictorial Art

Edited by
Louisa Burden and Joanna Kosek

Korean translation by
Lee Boyoung

5	Foreword Hartwig Fischer	104	Articles
6	Introduction Louisa Burden		Korean paintings at the British Museum Sang-ah Kim
8	Acknowledgements		In the midst of knowledge: Amorepacific Project for the Conservation of Korean Pictorial Art Eleanor Soo-ah Hyun
10	Conservation treatment reports for twelve paintings Meejung Kim-Marandet		The Amorepacific Project at the British Museum: overview of achievements, fieldwork and discoveries Meejung Kim-Marandet
	<i>Flying geese</i> (Chang Woo-Soung)		Korean folding screens at the British Museum Insoo Cho
	<i>Korean Nobleman</i> (Artist unknown)		<i>The Five Confucian virtues</i> at the British Museum: a novel conservation approach Meejung Kim-Marandet
	Pair of preparatory paintings for posters (Rim Hong-eun)		Woljeon Chang Woo-soung's works in the eyes of a conservator. Byung-kap Cha
	<i>Tribute mission to the Son of Heaven</i> (Artist unknown)		Making of a mounting fabric for the <i>Scenes of Life</i> Jeongju Song
	<i>Plum blossoms</i> (Jeong Tae-o)		Dyeing fabrics for the conservation treatment of the <i>Five Confucian Virtues</i> Jong-nam Lee
	<i>Hunting scene</i> (Artist unknown)		Fresh indigo dyeing methods from the Joseon period Boyoung Lee
	<i>Landscape</i> (Kim Yong-won)		The dyes of the mounting fabrics of Korean traditional paintings at the British Museum Diego Tamburini
	<i>Orchids</i> (Artist unknown)		Morphological comparisons between ramie and hemp and how they influence the bast fibre procedures in Korea Minsun Hwang
	<i>Bird and flower</i> (Artist unknown)	194	References and further reading
	<i>Tigers and magpies</i> (Artist unknown)	196	Publications and other outputs Joanna Kosek
	<i>Scenes of life</i> (Artist unknown)		
	<i>Five Confucian Virtues</i> (Artist unknown)		

Foreword

Hartwig Fischer
Director, British Museum

The Amorepacific Project for the Conservation of Korean Pictorial Art has been ground-breaking. It brings together extraordinary expertise from both the British Museum and Korea. The project has yielded a variety of results, not least the conservation of a number of Korean art works, ten of which have been on display for the first time at the Museum in 2022. This would not have been possible without the support, cooperation and goodwill of our colleagues and funders in Korea.

Korean specialists helped conserve the objects and paintings alongside the project conservator, and they helped establish connections to suppliers and manufacturers whose support is indispensable for conservation work. Their input and generous willingness to share their knowledge has been remarkable, ensuring that the whole team at the British Museum has learnt a lot about Korean painting, folding screens, scroll mounting, manufacture and the sourcing of materials.

Caring for our collection is an exacting task for our conservators. The skills required can be highly specialist within an already specialist profession. Projects that focus on specific parts of the collection and the support of funders are crucial for this work. The Amorepacific Project for the Conservation of Korean Pictorial Art, the first of its kind outside of Korea, has exemplified how this can be achieved. I wish to thank our sponsor and the Korea Foundation for their generosity and foresight.

This publication celebrates the treatment work, the many new connections, and the programme of events we have been able to develop thanks to their support. The Conservation team will continue to encourage these to flourish as we move forward with the conservation of the Korean collection at the British Museum.

Introduction

Louisa Burden
Head of Conservation
British Museum

The Amorepacific Project for the Conservation of Korean Pictorial Art was developed by British Museum colleagues in 2017. The project began in 2018 and will be completed in March 2023. Primarily a conservation project, its success has been due to collaboration between British Museum conservators, curators of East Asian Art and scientists, and colleagues in Korea and beyond. International collaborative working was essential to the completion of this project.

The British Museum has a long history of conservation of East Asian paintings. Expert Chinese and Japanese scroll mounters have been employed since the 1980s, and from 1994 they have been based at our Hirayama Studio. The Hirayama Studio is the single conservation and remounting studio in a European museum dedicated to all East Asian pictorial art.

The process of scroll mounting, integral to Asian painting for nearly two millennia, has remained little known to broader audiences. This is partly because focus is typically on the artwork itself rather than its mount, and partly because scroll mounting is complex, difficult to master and restricted to specialist workshops with appropriate resources, a skill hierarchy and succession training. The Hirayama Studio staff have directly promoted scroll mounting by offering student placements for conservators from all over the world. In 2011 they also encouraged a PhD in Korean traditional scroll mounting.

Since 2000 the British Museum has benefited from a dedicated Korean gallery thanks to the generosity of the Korea Foundation. The museum has enjoyed close collaboration with the National Museum of Korea in Seoul, which generously sponsored the conservation of two British Museum Korean paintings. This project was completed between 2011–2016. After this project the Hirayama Studio staff were in a position to support expanding expertise in Korean scroll mounting. This situation was strengthened by the British Museum paper conservators' dedication to study historical mounting within the collection and piece together historical evidence, not only from the objects themselves but also from mounting elements. It is in that context that the request for a dedicated Korean scroll mounting specialist was developed within the British Museum. This coincided with the appointment of a new curatorial role in 2015 solely dedicated to the Korean collections and, in turn, to securing the Amorepacific Project for the Conservation of Korean Paintings.

The project was integrated within the Hirayama Studio, the studio is equipped to carry out conservation treatments and mounting in accordance with Chinese, Japanese, and now Korean traditions. The international team of experts support each other and learn and respect the differences between each other's approaches and traditions. The other British Museum conservation teams are based in the World Conservation and Exhibition Centre and liaison between all teams helps to support the conservation work at the Hirayama Studio; for example, working with our textile conservators to retain and re-use old silk mounts when possible.

The British Museum currently has approximately 550 Korean paintings and graphic art works. The project included a survey of the Korean paintings to enable decision-making about which paintings should be conserved. Early focus in the project was on folding screens in view of their complexity and multiple paintings. Later in the work programme scroll paintings were also surveyed.

We have been especially fortunate to have Korean specialists working with us. Scroll mounters came from their studios in Korea to participate both in discussions and practical work. Their assistance was a key component of the project and the preservation of the paintings. The British Museum team and I appreciated the opportunity to see them working and sharing their knowledge and experience in this field. This is a key element in developing conservation practice and a significant component of this project. Four practical workshops were held at the Studio which enabled discussion about scroll and screen conservation. Our project conservator also completed fieldwork, visiting and working alongside Korean colleagues in their studios.

Connections have been made with skilled artisans in Korea, including carpenters, textile dyers and traditional paper makers. A focused seminar on Korean mounting fabrics informed the purchase of correct materials for conservation treatments. Sourcing the artisans and materials required for the work on the paintings has been vital to ensure the completion of the conservation work.

Other outward-facing work to share the research and findings included contributions to conferences and a 3-day programme entitled *Discovering Korean Art* at the British Museum, in collaboration with the Korean Cultural Centre UK and our own curatorial colleagues. The project conservator's contributions here were based at the Hirayama Studio and delegates joined her here. We had a very successful final symposium in September 2022, with videos now available on the British Museum YouTube channel.

Finally, paintings conserved as part of the Amorepacific Project, including scrolls and 19th–20th century screens, are now in a stable condition and able to be displayed. These paintings were on show in the Korean Gallery from July 2022 until January 2023.

This volume draws together the work of the Amorepacific Project conservator and the many colleagues who have contributed to the project. Summaries of information shared through seminars, fieldwork and symposium authored by the participating conservators, artisans, art historians and scientists are included, alongside detailed treatment reports of those objects that were conserved as part of the project. The articles include an appreciation of a famed Korean artist, scientific analysis of dyes used in the mount fabrics and practical issues such as traditional methods of dyeing fabrics. This shows the range of subjects that were needed to successfully complete the project. The authors voices and opinions have been highly valued throughout and the articles are notable in providing another channel for their voices to be heard.

We are very grateful to our funders, Amorepacific, and also thank the Korea Foundation for the ongoing support we have received from them throughout the project. We anticipate that future partnerships to support conservation of the Korean collection at the British Museum will be as successful as this one.

Acknowledgements

The British Museum wishes to thank the Amorepacific Corporation for funding the Amorepacific Project, and the Korea Foundation for providing administrative services and support through the Foundation Global Challenges Programme.

AMORE PACIFIC

KOREA **KF**
FOUNDATION

Korean partners

Director Jeon Seung Chang,
Director of Amorepacific Museum of Art

Mr Hyun Moonphil, Chief Curator,
Amorepacific Museum of Art

Ms Pyun Ji-Hye, Curator,
Amorepacific Museum of Art

Ms Lee Hyunkyung, Assistant Director,
Designated Donation Program, Budget and
Public Affairs Department, Korea Foundation

External experts

Professor Cho Insoo,
Korea National Museum of Arts

Ms Lee Boyoung,
Adjunct Professor, Korea University

Ms Hwang Minsun, Conservator,
Metropolitan Museum

Korean conservation studios that supported the project (alphabetically)

Mr Cha Byung-kap, Hogo Conservation Studio

Ms Cho Eunhye, National Archives of Korea

Ms Park Chisun, Jeongjae Conservation Studio

Ms Song Jeongju, Gochang Conservation Studio

Korean artisans

Mr Jang Seong-woo, Jaangibang papermaker

Mr Jeong Gwanhae, Natural Indigo Dyer

Mr Kim Kyu-bong, Metal Craftsman

Mr Kim Moon-kwon, Carpenter

Mr Kim Sam-sik, Mungyeong Hanji Papermaker

Ms Lee Jong-nam, Natural Dyer

Mr Moon Byung-seong, Carpenter

Mr Shin Hyun-se, Uiryeong Hanji Papermaker

British Museum

Project Conservator

Meejung Kim-Marandet,
Amorepacific Conservator for Korean Painting

Project development and support

Jane Portal, Keeper of Asia

Eleanor Soo-ah Hyun,
former Project curator: Korean Collection

Sang-ah Kim, Project curator: Korean Collection

Sandra Smith, Head of Collections Care

Louisa Burden, Head of Conservation

Joanna Kosek, Head of Pictorial Art Conservation

Kim Youkyoung, Conservation Intern 2020,
Korea Foundation Global Challengers programme

The Hirayama Conservation Studio team

Jin Xian Qiu, Alice Derham, David Green,
Kyoko Kusunoki, Yiteng Lu, Valentina Marabini,
Matthias Sotiras, and Carol Weiss

And everyone who contributed to the success of this project

Christina Angelo, Evelin Arweck, Caroline Barry,
Dean Baylis, Karen Birkhoelzer, Anna Buelow,
Alice Ceiriog-Hughes, Wei Kiat Chen,
Paul Chirnside, Alice Derham, Tiago Domingues,
Anna van Dyk, Ben Faulkner, Sarah Faulks,
Mike McGowan, Carl Heron, Teresa Heady,
Amy Hitchcock, Lucy Holmes, Dudley Hubbard,
Hannah James, Tadas Khazanavicius,
Verena Kotonski, Kevin Lovelock, Yu-Ping Luk,
Ann Lumley, Joanna Fernandes, David Giles,
David Green, Paulina Kralka, Tatiana Marasco,
Megumi Mizumura, Alex Owen, Julianne Phippard,
Ben Powell, Monique Pullan, Simon Prentice,
Imma Ramos, Paul Richards, Louise Roer,
Alice Rugheimer, Dean Smith, Suzi Smith,
Corinne Stritter, Kieyara Tabingo, Diego Tamburini,
Benjamin Watts, Fiona West, Jill Westerman,
William Whitwell, Megan Wilcock, Stella Yeung

Conservation treatment reports for twelve paintings

Conservation treatment reports for twelve paintings

Meejung Kim-Marandet, PhD

The Amorepacific Conservator for Korean Painting undertook a range of conservation treatments on a selected group of paintings in the Korean collection. Details of these treatments follow. Collaboration with conservation colleagues to support the work is noted within these reports.

List of objects

- 1 Chang Woo-Soung (1912–2005), *Flying geese*, 1983; 1995,1012,0.2, RFC3842
- 2 Artist unknown, *Korean Nobleman*, 19th century; 1881,1210,0.227.KO, RFC3678
- 3 Rim Hong-eun (1914–?), Pair of preparatory paintings for posters, 1948 and 1952, (N. Korea); 2018,3033.1 and .2, RFC4967-8
- 4 Artist unknown, *Tribute mission to the Son of Heaven*, ten-panel folding screen, 19th century; 2000,0609,0.1, RFC31876
- 5 Jeong Tae-o (1880–?), *Plum blossoms*, ten-panel folding screen, 19th century; 2014,3057.1, RFC47309
- 6 Artist unknown, *Hunting scene*, eight-panel folding screen, late 19th century; 2000,0610,0.1, RFC31875
- 7 Attributed to Kim Yong-won (1842–?), *Landscape*, 1876; 1881,1210,0.224.KO
- 8 Artist unknown, *Orchids*, 19th century; 1881,1210,0.225KO and 1881,1210,0.226KO
- 9 Artist unknown, *Bird and flower*, 20th century; 2001,0807,0.1
- 10 Artist unknown, *Tigers and magpies*, early 20th century; 1991,0201,0.1 and 0.2
- 11 Artist unknown, *Scenes of life*, two-panel folding screen, 20th century; 2016,3028.1, RFC51839
- 12 Artist unknown, *Five Confucian Virtues*, twelve-panel folding screen, 20th century; 1957,1214,0.1, RFC2834

1

Title
Flying geese
새안 塞雁

Accession number
1995,1012,0,2, RFC3842

Artist
Chang Woo-Soung 장우성 張遇聖
(1912–2005)

Date
1983

Materials
Ink and light colour on
*hwaseonji*¹ paper

Format
Panel, framed and glazed

Dimensions (H x W mm)
Image: 900 x 940
Overall with panel: 1030 x 1075
Overall with frame: 1065 x 1113

¹ *Hwaseonji* (화선지 畫宣紙) is the name of a Korean paper type similar in properties to Chinese *xuan* paper produced and distributed in Korea

Fig 1
Flying geese before (a)
and after treatment (b),
shown with the inner frame



1a



1b

Condition before treatment

The painting was framed in a glazed frame with an inner frame made of multiple layers of paper. The painting surrounded by a fabric margin mount was stretch-mounted onto a wooden lattice panel (Fig 1a). The painting was discoloured overall and had brown staining where in contact with the wooden lattice of the panel forming four faint vertical and two intense brown horizontal lines. The staining was caused by off-gassing of resinous substances from the wood (which had not been sufficiently seasoned) within the microenvironment of the frame.

Treatment request

Remove from frame; surface clean; preserve and reuse the inner and outer frames.

Painting and mounting fabric: detach the painting from the panel; remove old linings; preserve and reuse mount fabrics; wash the painting and investigate reduction of brown staining if possible; line; re-assemble onto original panel and frame in the original frame.

Panel: disassemble and remove old under-papery; seal old wood with acid-free paper; apply new under-papery layers.

Conservation treatment

After removing the painting from the frame, a soft brush and low-powered vacuum were used to remove loose dust from the surface of the painting and mount fabrics. The panel was disassembled and painting lifted using a bamboo spatula.

Pigments were tested for water solubility and proved stable. Various bleaching agents were considered bearing in mind materials safety and painting aesthetic quality before selecting a very low concentration hydrogen peroxide solution. This was applied with a soft brush and fine spray in a controlled manner (Fig 2) and was followed by washing (Fig 3) and drying. After reduction of stains, the painting was backed with *hanji*, traditional Korean mulberry paper (4 *momme*).

The original panel had old under-papery layers stripped off using moisture and bamboo spatula. Wooden lattice was sealed with acid-free tape. The panel was under-paperyed with eight layers of *hanji* paper using wheat starch paste. The original fabric borders were also relined.

New golden strips were adhered with thick wheat starch paste 3mm from the edges of the painting's verso. The position of the painting was marked on the under-paperyed panel; wheat starch paste was applied along verso edges and water to the rest of the verso using a Japanese water brush to relax the painting uniformly. The painting was placed exactly on the marked position and lightly pressed through a protective sheet (polyester nonwoven) to ensure attachment. For object safety during drying, the centre of the painting was kept moist using a water spray. The original textile border was reattached. The panel was assembled back with its original inner mount, frame, and fittings as seen in Fig 1b.

Mr Cha Byung-ka, specialist in conservation of modern Korean painting and a former conservator at the National Museum of Modern and Contemporary Art in Seoul, was invited for two weeks to collaborate on the conservation and re-mounting of the *Flying geese* in July 2019.

Fig 2
Flying geese: local bleaching

Fig 3 (overleaf)
Flying geese: washing the painting





2

Title
Korean Nobleman
남자 초상 男子肖像

Accession number
1881,1210,0.227.KO,RFC3678

Artist
Artist unknown

Date
19th century

Materials
Ink and colour on Western
machine-made laid paper

Format
Window mount

Dimensions (H x W mm)
Image: 642 x 395
Overall with mount: 686 x 508

Fig 4
Korean Nobleman: recto before (a)
and after treatment (b)



4a



4b

Condition before treatment

The painting was lined and unmounted. It was distorted because it had been stored rolled up. The painting was partially delaminated from the lining. It was covered with dust and had torn parts and small corner missing areas. Staining was observed locally and lead white pigment had darkened grey-black. After testing for water sensitivity, the purple colour was found unstable, therefore care needed to be taken with any treatments using moisture.

Treatment request

Dry surface-clean; investigate treatment of blackened lead white pigment to reverse to white colour; remove and preserve old lining paper as a complete sheet; repair tears and missing areas; flatten the painting and the lining sheet and mount both sheets together in a standard British Museum overthrow sunk mount.



5a



5b

Conservation treatment

The painting was very lightly humidified (moistened) using a Gore-Tex chamber technique (Fig 6) and then flattened under blotters and boards. Ingrained dirt was cleaned off the verso and the unpainted areas of recto using grated eraser and applying gentle pressure with fingertips.

The lining was removed after controlled application of moisture using water-based rigid gel (Nanorestore Gel® Peggy 5 Gum) followed by local application of water with a brush to the lining only. This ensured the pigmented areas and physical integrity of the painting were safe while the lining could be securely and successively separated without damaging the sheet (Fig 7).

Darkened lead white was treated using low concentration of hydrogen peroxide with a soft brush. Torn areas were washed locally with methylcellulose and water suspension and a soft brush and tears repaired with a thin *hanji* paper (13 gsm) and missing areas infilling with Chinese *xuan* paper and wheat starch paste. Similar repairs were carried out to the lining sheet. After gentle re-moistening in a chamber, the painting and lining were flattened by placing in a sandwich made of absorbent layers of blotters under weights.

Mounting

David Green, one of the British Museum's conservation mounters, inlayed the drawing by adding a protective margin and hinged in a 'window' mount. The lining paper was placed in a Melinex (polyester) sleeve for better protection and was hinged under the drawing in the same mount.



6a



6b

Fig 5
Korean Nobleman: The roll before treatment with verso exposed (a) and the verso after treatment (b)

Fig 6
Korean Nobleman: Using a chamber humidification technique, (a) and (b).

Fig 7 (overleaf)
Korean Nobleman: Separating lining paper from the painting



3

Title
Pair of preparatory paintings
for posters (N. Korea)

Accession number
2018,3033.1 and .2, RFC4967-8

Artist
Rim Hong-eun (1914–?)

Date
1948 and 1952

Materials
Ink and colour on
machine-made paper

Format
2D

Dimensions (H x W mm)
Image:
(2018,3033.1) 240 x 160
(2018,3033.2) 298 x 211
Overall with mount: 406 x 280

Fig 8
Preparatory painting for a poster:
recto of 2018,3033.1 before (a)
and after treatment (b)



8a



8b

Fig 9
Preparatory painting for a poster:
recto of 2018,3033.2 before (a)
and after treatment (b)



9a



9b

Condition before treatment

The paintings were covered by surface dirt. There were edge tears and residue of paper and adhesive on the right-hand-side edge and the upper and lower right-hand-side corners of the verso as well as local staining on both recto and verso (Fig 8 and Fig 9).

Treatment request

Surface clean; remove old adhesive and paper debris on verso; mount in standard overthrow sunk mount.

Conservation treatment

The objects were cleaned using grated eraser and a smoke sponge to remove ingrained dirt (Fig 10). Pigmented areas were tested for water sensitivity, and black and red pigments were found unstable, therefore, aqueous treatments had to be applied with caution.

After local humidification using a water-based rigid gel (Nanorestore Gel® Peggy 5 Gum), paper and adhesive residue was removed from the verso mechanically with a scalpel under a microscope (Fig 11). Tears were repaired by inserting wheat starch paste and skinned areas infilled using thin toned *hanji* paper (13 gsm). After moistening using the chamber humidification technique, the paintings were flattened by sandwiching between absorbent layers of blotting paper under weights.

Mounting

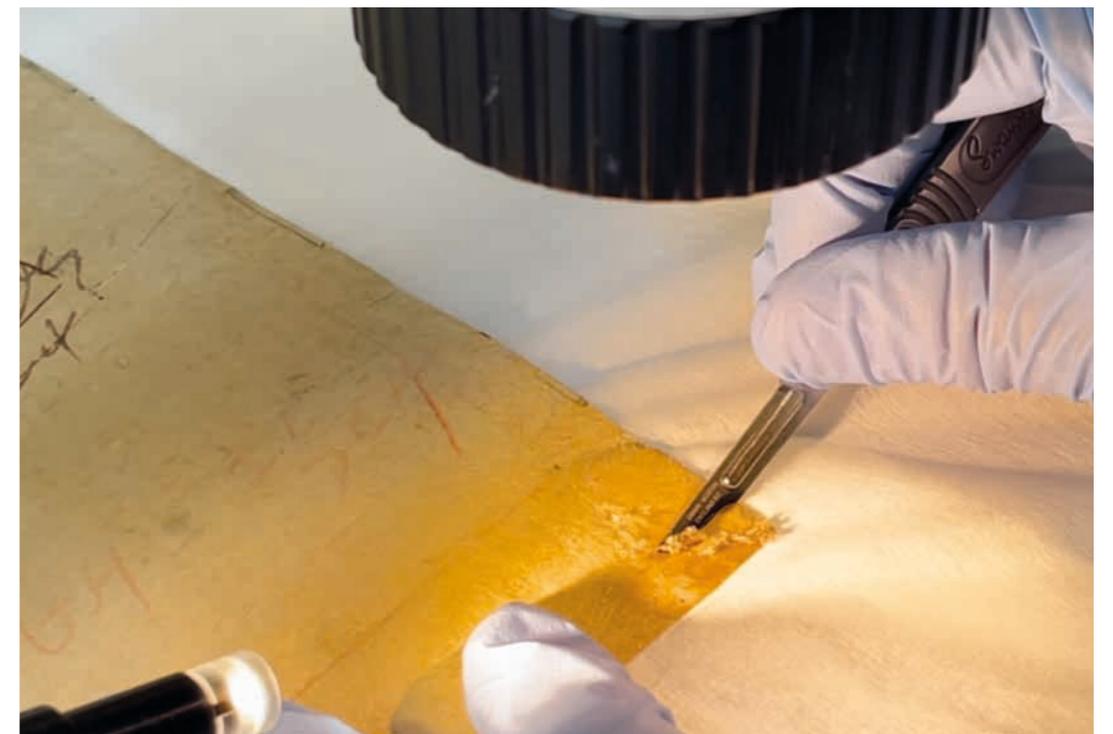
David Green, one of the British Museum's conservation mounters, hinged the paintings in standard museum 'overthrow' mounts consisting of a top window mount and a back mount to allow display and easy access to the verso of the paintings for study.

Fig 10
Preparatory painting for a poster:
dry-cleaning using grated eraser
and applying gentle pressure
with fingertips

Fig 11
Preparatory painting for a poster:
removing residue of paper and
adhesive with a scalpel



10



11

4

Title
Tribute mission to the Son of Heaven
왕회도 병풍 王會圖 屏風

Accession Number
2000,0609,0.1, RFC31876

Artist
Artist unknown

Date
19th century

Materials
Ink, colour and gold leaf on silk

Format
Ten-panel folding screen

Dimensions (H x W mm)
Each image:
(1st and 10th paintings) 1457 x 295
(2nd to 9th paintings) 1457 x 370
Overall with mount: 1657 x 3752

Fig 12
Tribute mission to the Son of
Heaven 왕회도 병풍 王會圖 屏風,
ten-panel folding screen,
2000,0609,0.1, RFC31876



Condition before treatment

The paintings had vulnerable and flaking pigmented areas, particularly the green and white pigments as well as some gold leaf. There was some delamination of the painting from the lining along the edges and along old tears and missing areas.

Treatment request

Consolidate pigment areas and reattach lifting silk where necessary. In the long-term, carry out full conservation and remounting.

Conservation treatment

Vulnerable and flaking areas of paint and gold leaf were consolidated using 1%, 2% and 3% isinglass solution in de-ionised water. The consolidant was applied with a fine-tipped brush and dried locally under blotters and light pressure (Fig 12).

Fraying tears and lifting edges of the silk were also consolidated and all delaminating areas re-adhered to the lining paper with methyl cellulose (4.5%) (Fig 13).

Fig 13
Tribute mission to the Son of Heaven: pigment consolidation

Fig 14
Tribute mission to the Son of Heaven: painting silk consolidation and re-attachment



13a



13b



14

5

Title
Plum blossoms
매화도 병풍 梅花圖 屏風

Accession number
2014,3057.1, RFC47309

Artist
Jeong Tae-o (1880-?)

Date
19th century

Materials
Ink and colour on silk

Format
Ten-panel folding screen

Dimensions (H x W mm)
Each image: 1294 x 295.5
Overall with mount: 1860 x 4884

Fig 15
Plum blossoms 매화도 병풍
梅花圖屏風, Jeong Tae-o (1880-?),
2014.3057.1, RFC47309



Condition before treatment

The paintings and their panels were in a generally good condition except for the white and green paint layers which were powdery and flaky and vulnerable to damage. The paintings and their mounts were covered by surface dust.

Treatment request

Surface-clean and consolidate pigment as necessary.

Conservation treatment

Painting surfaces and mount elements on each panel were surface cleaned with a soft brush. Fragile white and green paint layers were consolidated progressively with 1%, 2% and 3% isinglass solution in de-ionised water using a fine-tipped brush and drying under blotters and light weight. The consolidation was carried out under a microscope, and repeated up to four times, depending on the friability of the paint area (Fig 16).

Fig 16
Plum blossoms:
Pigment consolidation



16

6

Title
Hunting scene
호렵도 병풍 虎獵圖 屏風

Accession number
2000,0610,0.1, RFC31875

Artist
Artist unknown

Date
Late 19th century

Materials
Ink, colour and gold leaf on paper

Format
Eight-panel folding screen

Dimensions (H x W mm)
Each image:
(1st and 8th paintings) 1109 x 504
(2nd to 7th paintings) 1109 x 533.5
Overall with mount: 1544 x 4318

Fig 17
Hunting scene 호렵도 병풍
虎獵圖 屏風, artist unknown,
2000,0610,0.1, RFC31875



Condition before treatment

The object was in fair condition, however, there were loose and flaking areas on the white paint.

Treatment request

Consolidate vulnerable paint layers.

Conservation treatment

Loose white paint flakes and particles were re-adhered using 3% solution of rabbit skin glue in de-ionised water, which was applied with a fine-tipped brush. Friable white pigment areas were consolidated with the 3% rabbit skin glue solution.

Fig 18 (opposite)
Detail of paintings on the first and second panels showing white pigment that required consolidation



7

Title

Landscape

산수도 山水圖

Accession number

1881,1210,0.224.KO

Artist

Attributed to Kim Yong-won (1842-?)

Date

1876

Materials

Ink and light colour on

Chinese *xuan* paper

Format

Album

Dimensions (H x W mm)

Image: 275 x 315

Fig 19
Landscape: recto before (a)
and after treatment (b)



19a



19b

Condition before treatment

The painting was backed with *hanji* paper and stored unmounted rolled up since acquisition in 1881. This resulted in sheet distortions. The painting was covered with surface dirt, it had small edge tears and missing areas in the corners as well as local staining. The painting was partially delaminated from the backing paper (Fig 19a and 20a).

A hand-written inscription in iron gall ink on the backing paper indicated production date of 1876 by the collector William Anderson, thus the backing had to be retained in its entirety.

Treatment request

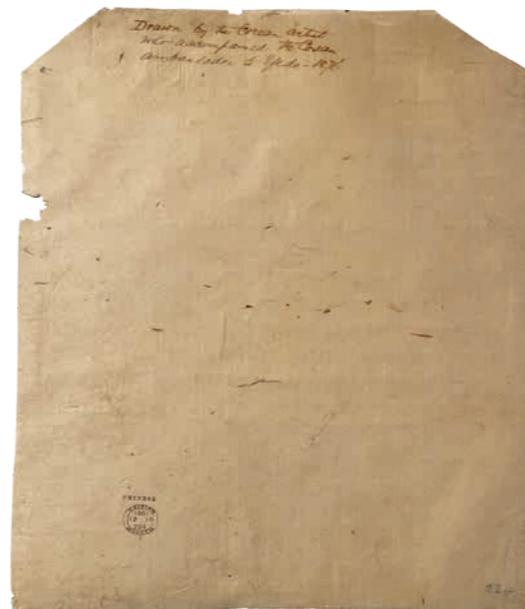
Clean surface dirt; separate backing from the painting preserving iron gall ink inscription; mount both sheets together in a standard British Museum mount.

Fig 20
Landscape: verso before (a)
and after treatment (b)

Fig 21
Lining the Landscape



20a



20b

Conservation treatment

The inks and pigments were tested for fugitivity in water and were found to be stable. However, iron gall inks are known to be susceptible to damage by moisture and should not be exposed to water.

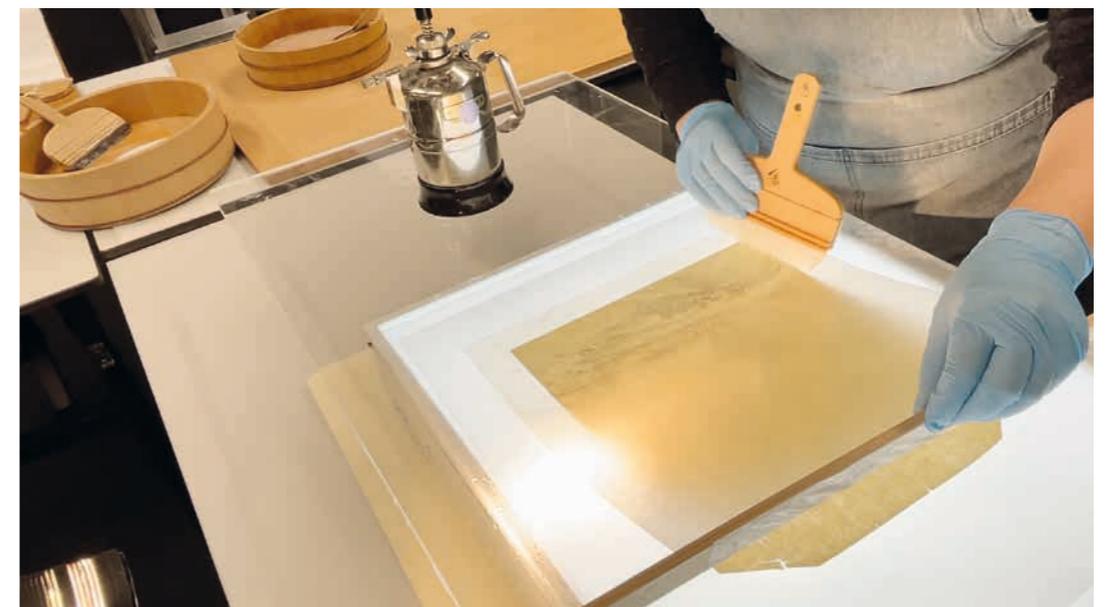
The treatment started with dust removal by controlled vacuuming and brushing with a soft brush. To separate the backing paper from the painting, humidification was carried out in a controlled way using a water based rigid gel (Nanorestore Gel® Peggy 5 Gum) on the backing paper in the areas without the inscription. As a result, the entire backing sheet was safely separated from the painting.

The painting was capillary washed. It was supported on a polyester sheet face up and placed on several layers of blotting paper. A Dahlia sprayer was used to moisten the painting slowly and water allowed to penetrate the primary substrate and the blotters. Once blotters became saturated with discoloration, they were replaced with clean and dry blotters to absorb and remove as much discoloration as possible. This process was repeated two times. The painting was then allowed to dry and was flattened under weights.

Tears and missing areas were repaired using *xuan* paper, pre-dyed with *yasha* dye from the *Alnus japonica* cones and wheat starch paste. The painting was humidified and lined with *hanji* paper and fresh wheat starch paste (Fig 21). The lined painting and its old backing were dried and pressed by sandwiching between blotters which were exchanged for dry ones four times as seen in Figs 19b and 20b.

Mounting

The painting and its backing sheet were mounted as a two-page traditional Korean album style for display; they were adhered to the album's inner pages (Fig 22 overleaf).



21

Fig 22
Landscape and the backing paper
after mounting



8

Title
Orchids
목란도 墨蘭圖

Accession number
1881,1210,0.225KO and
1881,1210,0.226KO

Artist
Artist unknown

Date
19th century

Materials
Ink on *Naeng-geumji*¹ paper

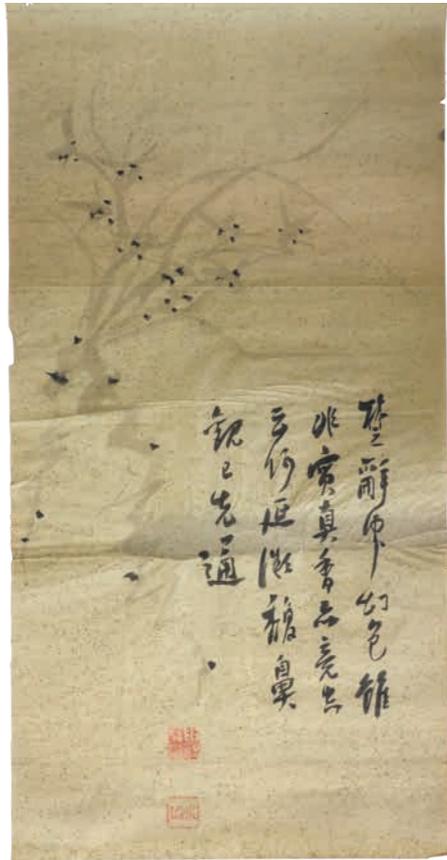
Format
Pair of hanging scrolls

Dimensions (H x W mm)
Image:
(1881,1210,0.225KO) 580 x 291
(1881,1210,0.226KO) 578 x 290
Overall with mount: 875 x 353

¹ *Naeng-geumji* (냉금지 冷金紙) is a type of dyed decorative paper sprinkled with gold leaf flakes.

Fig 23
Orchids, 1881,1210,0.225KO (a)
and 1881,1210,0.226KO (b)
before treatment

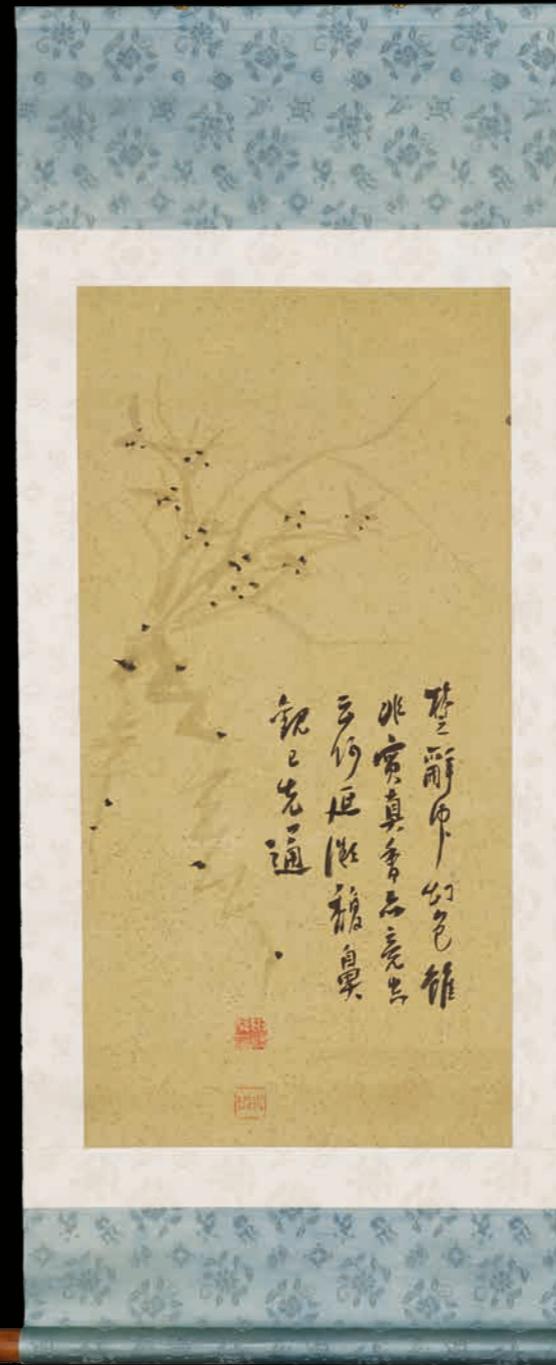
Fig 24
Orchids, 1881,1210,0.225KO (a)
and 1881,1210,0.226KO (b)
after treatment



23a



23b



24a



24b

Condition before treatment

This pair of unlined and unmounted paintings have remained rolled up in the collection since acquisition and were in poor condition overall. The paintings were covered in surface dust, had torn and small missing areas and 1881,1210,0.225KO had an old repair using paper strip similar to that of the primary substrate. Local staining and general discolouration were also observed (Fig 23).

Treatment request

Clean surface dust; remove linings; repair as necessary; line and mount as a pair of matching late Joseon-style hanging scrolls.

Conservation treatment

After establishing that the ink was stable to moisture each painting was humidified in preparation for capillary washing. After capillary washing, old repair on 1881,1210,0.225KO was carefully removed with tweezers, tears repaired and missing areas infilled using *xuan* paper pre-dyed with *yasha* cones and indigo.

False margin strips were adhered alongside painting edges using wheat starch paste to keep the primary substrate intact during the following scroll mounting process. The paintings were lined first with *xuan* paper and then with *hanji* paper (2.3 *momme*) using fresh wheat starch paste (Fig 25). New mounting silks in keeping with painting period and style were also lined with *hanji* paper and fresh wheat starch paste. The painting and the silks were stretch-dried on a drying board. Repaired and infilled areas were toned down using Schmincke watercolours and a soft brush.

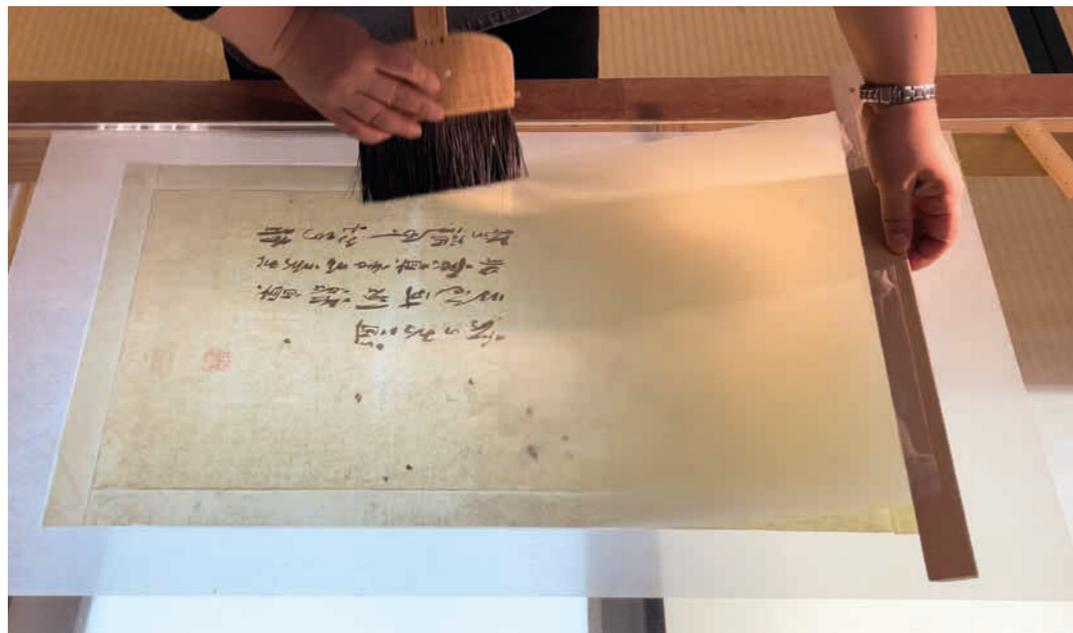
Scroll mounting

The paintings were mounted in late Joseon-style hanging scroll format in the following process. Lined paintings and mount fabrics were released from the drying board using a bamboo spatula, and edges trimmed off using Japanese round knife. After attaching the borders alongside the paintings, two further subsidiary linings were applied using Japanese *misu* paper and aged paste (*funori*), and then a final backing of *hanji* paper (13gsm) was adhered using a mixture of 50% *funori* and 50% fresh wheat starch paste. The assembled painting was adhered face up on a drying board by applying wheat starch paste alongside the edges of the false margins and left to dry. The scrolls were released from the drying board, their verso burnished with glass beads and adhered face down on the drying board. After releasing scrolls from the board, roller rod, hanging stave, metal fittings and a cord were attached (Fig 26 and 24).

The mounting materials were purchased and the finishing process for one hanging scroll was carried out in collaboration with visiting conservator Ms Song Jeongju of the Gochang Conservation Studio who was invited to the British Museum for two days in 2022. Hirayama Studio conservator Kyoko Kusunoki also contributed to the mounting treatment.

Fig 25
Orchids, 1881,1210,0.225KO: lining

Fig 26
Orchids, 1881,1210,0.225KO:
scroll mounting



25



26

9

Title
Bird and flower
화조도 花鳥圖

Accession number
2001,0807,0.1

Artist
Artist unknown

Date
20th century

Materials
Ink and colour on Korean *hanji* paper

Format
Panel, framed and glazed

Dimensions (H x W mm)
Image: 745 x 435
Overall with mount: 1010 x 610

Fig 27
*Bird and flower: before (a)
and after treatment (b)*



27a



27b

Condition before treatment

The painting was mounted in blue window mount and framed in a glazed frame (Fig 27a). It was in a poor condition. The frame had broken elements and could not be handled easily. There was severe physical damage and evidence of poor lining technique. Dirt and deposits were found all over the surface of the painting. The painting was discoloured and had missing, skinned and folded areas. The lining paper was exposed through the missing areas. The lining paper in the losses and their surroundings were overpainted.

Treatment request

Remove from frame and mount; capillary-wash and remove old linings and restorations; repair; line and re-mount as a Korean single panel format; retouch loss areas to background colour.

Conservation treatment

After separation of the painting from the glazed frame, the inks and pigments were tested for fugitivity in water and found to be stable. Capillary washing was repeated four times (Fig 29). The second lining paper was carefully removed immediately after washing. On the following day, old first lining paper was removed, fibre by fibre, using tweezers after local moistening with water using a soft brush and a Dahlia sprayer (Fig 24). Torn areas were repaired, and missing areas infilled with *hanji* paper (13 gsm) which had been dyed with *yasha* (*Alnus japonica* cones) after pre-sizing with fresh soy milk. The painting was lined with dyed *hanji* paper (2.3 *momme*) and fresh wheat starch paste. On the following day, the second lining was applied using *hanji* paper and fresh wheat starch paste, and the painting was dried on a Japanese drying board. Repaired and infilled areas were toned down using Schmincke watercolours and a soft brush.

Remounting Process

New panel production was carried out at the Hogo Conservation Studio of Mr Cha Byung-kap during fieldwork in Korea in April 2022. A new wooden lattice framework was under-papered with four layers of *hanji* paper (2.8 – 3.0 *momme*). New hemp textile borders and covering paper were also lined with *hanji* paper using wheat starch paste.

Before the assembling process, the lined painting and mount textiles had been stretched on a drying board. They were released from the drying board using a bamboo spatula, and the lining paper margins trimmed off using a Japanese round knife. After marking the position of the painting on the under-papered painting panel, thick wheat starch paste was applied 20mm alongside the edges of the painting's verso and the water was brushed on the rest of the verso using a Japanese water brush to relax it evenly. The painting was placed exactly on the marked position and the pasted areas were lightly 'massaged' through a protective polyester Sanmoa® sheet to attachment.

Hemp borders were adhered to the panel alongside the edges of the painting. The same fabric was also wrapped round the bevelled window frame using thick wheat starch paste. The window frame was assembled with the panel, inserted into the outer frame and fixed with new brass connectors and nails, see Fig 27b.

Fig 28
Bird and flower:
removing old lining papers

Fig 29 (overleaf)
Bird and flower: capillary washing



28



10

Title
Tigers and magpies
호작도 虎鵲圖

Accession number
1991,0201,0.1 and 0.2

Artist
Artist unknown

Date
Early 20th century

Materials
Ink and colour on Korean *hanji* paper

Format
Two-panel folding screen

Dimensions (H x W mm)
Image: 1020 x 380
Overall with mount: 1415 x 840.5

Fig 30
Tigers and magpies,
1991,0201,0.1 (a) and 0.2 (b):
before treatment

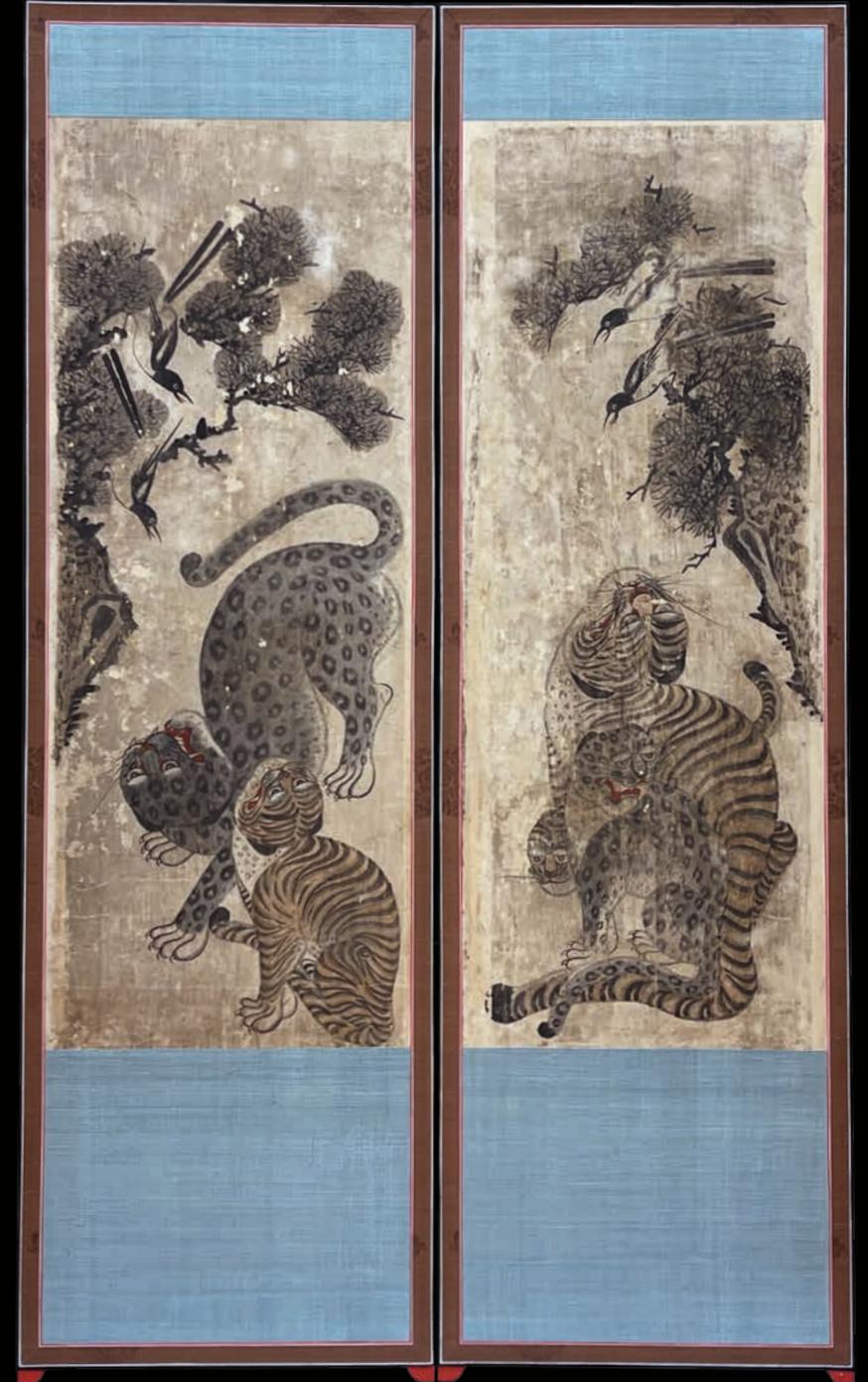
Fig 31
Tigers and magpies,
1991,0201,0.1 and 0.2:
after treatment



30a



30b



31

Condition before treatment

The paintings were framed in a pair of matching modern glazed frames and mounted with dark blue window mounts (Fig 30).

The paintings had severe physical damage, such as missing, skinned and folded areas, and were badly discoloured. Dirt and deposits were found all over their surfaces. Damage had also been caused by previous poor lining technique. The lining was exposed in the missing areas. These areas and their surroundings were overpainted.

Treatment request

Remove from frames and mounts; surface clean; capillary-wash and remove old linings and restorations; repair; line and re-mount as a Korean two-panel screen; retouch loss areas to background colour.

Conservation treatment

Both frames were cleaned using a conservation vacuum cleaner. Upon removal from the frames, the paintings appeared to be loosely attached to poor quality mountboard with beige masking tape. The tapes were removed mechanically.

After testing inks were safe to moisture, the paintings were capillary-washed and lining papers carefully removed except for the first lining. The first lining was removed on the following day, little by little, using a soft brush to dampen small areas with water and lifting the fibres with tweezers (Fig 33). Torn areas were repaired, and missing areas infilled with *hanji* paper (13 gsm) which had been dyed with *yasha* dye from the *Alnus japonica* cones after pre-sizing with fresh soy milk.

As soon as the repair operation was completed, the paintings were lined with dyed *hanji* paper (2.3 *momme*) and fresh wheat starch paste and allowed to dry overnight. The lining operation was repeated on the next day and the paintings dried on a Japanese drying board.

Remounting Process

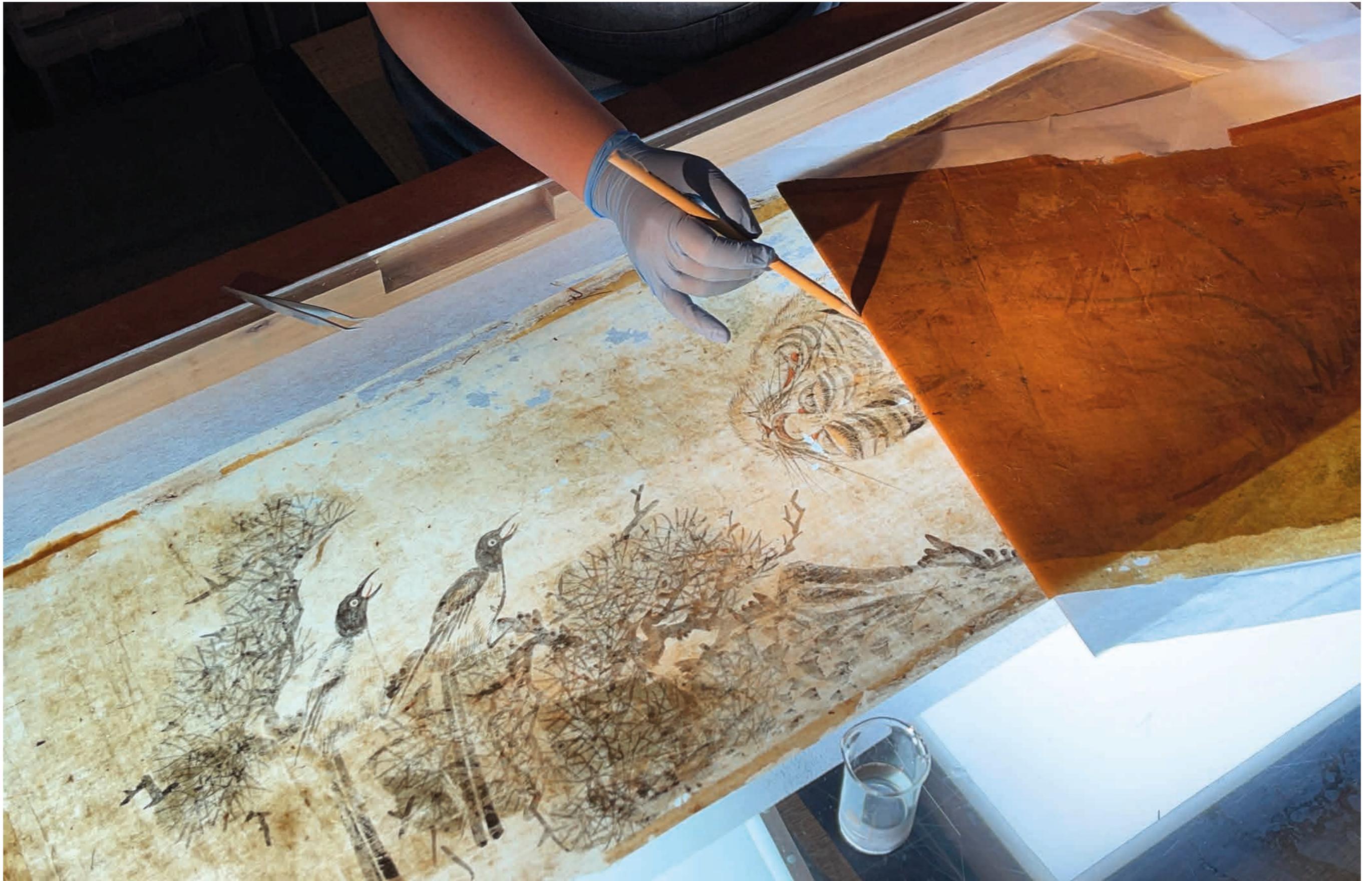
The screen preparation process was carried out at the Hogo Studio of Mr Cha Byung-kap, during fieldwork in Korea in April 2022. Two new wooden lattice frameworks were under-papered with eight layers of *hanji* paper (2.8–3.0 *momme*) and hinged with thick *hanji* paper (4.5 *momme*) and thick wheat starch paste. The outer surface of each panel was covered with black hemp fabrics which had been pre-lined with *hanji* paper dyed with Chinese ink.

Before the assembling process at the museum, the paintings and mounting silks were released from the drying board using a bamboo spatula, and lining paper margins were trimmed off using a Japanese round knife. Thin wheat starch paste was applied on the verso and thick paste to the edges of each painting, and the paintings were placed exactly on pre-marked positions on the panels. Using a soft smooth brush, the paintings were lightly 'massaged' to ensure good attachment. New blue hemp borders were adhered in the similar way along the top and bottom of each painting (Fig 32). Brown decorative silk bands bordered on the inner side with narrow pink and off-white strips were attached surrounding the four edges of each panel using wheat starch paste. Finally, infilled loss areas were toned down using Schmincke watercolours and a soft brush (Fig 31).

Fig 32
Attaching paintings onto the under-papered screen panels

Fig 33 (overleaf)
Tigers and magpies:
removing old lining papers





11

Title
Scenes of life
평생도병풍 平生圖 屏風

Accession number
2016,3028.1, RFC51839

Artist
Artist unknown

Date
19th century

Materials
Ink and colour on silk

Format
Two-panel folding screen

Dimensions (H x W mm)
Each image: 632 x 370
Overall with mount: 865 x 818

Fig 34
Scenes of life: screen recto
before (a) and after treatment (b)



34a



34b

Condition before treatment

The screen was originally a ten-panel folding screen but only the last two panels have survived. The screen had 19th-century mountings and was an important example of pre-20th century mounting methods and styles. The conservation operation was expected to reveal information about late Joseon screen mountings.

The screen was in an unacceptable condition.

Paintings

Dust and deposits had accumulated on the surface of the paintings. There were water stains, and structural damage such as delamination, tears and missing areas. The silk was discoloured; however, the pigmented areas and the silk substrate were in a fair condition. There were many scratchmarks in pigmented areas as well as missing areas in the silk which appeared to have been scraped off with a sharp tool, presumably in order to remove disfiguring deposits.

Screen panel

The mount elements were in a very damaged state, and especially the grey covering fabric on the verso of the screen. It was not only discoloured but also very weak and could be easily damaged during handling. Many stains and missing areas were also found on mount silks and decorative bands.

Considering the severe damage to the paintings and mount elements a full conservation and remounting treatment was required. Because the paintings and the screen were original and important example of pre-20th century mounting methods and styles the decision was taken to conserve the mountings alongside the paintings as much as possible.

Treatment request

Remove from frames and mounts; surface clean; capillary-wash and remove old linings and restorations; repair; line and re-mount as a Korean two-panel screen; retain and reuse old silk mounts; retouch loss areas to background colour.

Conservation treatment

Dust removal of the painting's surface and mount fabrics was carried out using a soft brush and vacuuming with a conservation grade vacuum cleaner.

Disassembly

When the screen was disassembled by removing the painting from the mount elements and the inner wooden frame, each layer constituting the screen mount was carefully detached layer by layer after humidification using Nanorestore Gel® and Microfibre cloth, in the reverse order that the original screen mounter had mounted the painting. This approach was to understand the order of each step and how each layer was added and to be able to retain the original historical mounting techniques.

Fig 35
Scenes of life: screen verso
before (a) and after treatment (b)

Fig 36
Scenes of life: infilling missing areas
with artificially aged repair silk



35a

35b



36

Paintings

Rigid gel (Nanorestore Gel®) was used locally on deposits to humidify them in a controlled way and to allow their mechanical removal with the tip of a scalpel. Any unstable pigmented areas were consolidated using 1% concentration of rabbit skin glue.

After capillary-washing the painting, all old second-lining papers were carefully removed, while constantly keeping the paintings moist. Because the first lining paper appeared to be part of the painting and an element of the primary support, it was not removed. Any missing areas of the painting silk (face-down) were infilled with artificially aged repair silk after the fibres of the first lining paper were carefully opened with tweezers (Fig 36). Two paintings were lined with Korean mulberry paper (2.8 *momme*) and fresh wheat starch paste.

After the humidification of the mount fabrics using a Dahlia sprayer, old lining papers were removed. Missing and torn areas were repaired with pre-dyed repair silk (naturally aged old Korean and thin Chinese silk) and all the mount silks lined twice with pre-dyed *hanji* paper (2.8 *momme*) and fresh wheat starch paste. The original decorative bands were repaired and infilled with pre-dyed Korean silk, using wheat starch paste. After lining, the paintings and mount fabrics were dried on a Japanese drying board and adhered face up (Fig 37).

Remounting Process

During fieldwork in Korea in April 2022, a new screen was produced at the Gochang Conservation Studio located in Yongin. Two new wooden lattice frameworks were under-papered with eight layers of *hanji* paper (2.8–3.0 *momme*) and hinged with Korean mulberry paper (4.5 *momme*) and thick wheat starch paste.

The outer surface of both panels was covered with a reproduced purple cotton fabric which had been lined with paper. Prior to the assembling process, both paintings and all mount silks had been stretched on a drying board. They were released from the drying board using a bamboo spatula, and the lining paper margins trimmed off using a Japanese round knife.

Thin wheat starch paste was applied on the verso and thick paste to the edges of each painting and the paintings were placed exactly onto their marked positions using a smooth brush and pressed lightly through a protective polyester sheet (Sanmoa®) to ensure proper attachment. The blue silk borders were trimmed to size and reattached at the top and bottom of the paintings. Brown decorative bands were also adhered to surround the four edges of each panel. The feet of the folding screen were painted with lacquer (Fig 34b).

Loss inpainting

Any repaired and infilled areas were toned down using Schmincke watercolours and a soft brush.

The mount materials, such as covering fabric and wooden lattice frame, were reproduced in collaboration with visiting conservator Ms Song Jeongju of the Gochang Conservation Studio.



Fig 37
Scenes of life: flattening lined paintings and mounting silk elements on drying boards

12

Title
Five Confucian Virtues
오륜행실도 병풍 五倫行實圖 屏風

Accession number
1957,1214,0.1, RFC2834

Artist
Artist unknown

Date
19th century

Materials
Ink and colour on silk

Format
Twelve-panel folding screen

Dimensions (H x W mm)
Each image: 1279 x 315
Overall with mount: 1709 x 4347

Fig 38
Five Confucian Virtues:
recto (a) and verso (b)
before treatment

Fig 39 (opposite)
Five Confucian Virtues: recto (a)
and verso (b) after treatment



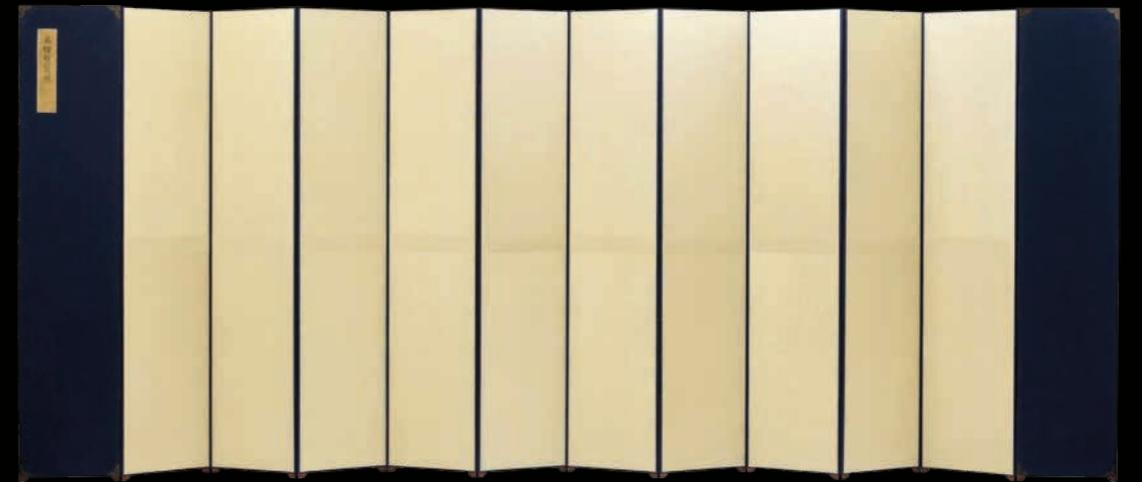
38a



38b



39a



39b

Condition before treatment

The screen, dated to the 19th century, was original with the paintings and constituted an important example of late Joseon mounting methods and styles. Both the painting and mounting elements were in poor condition overall (Fig 38).

Panel and mount condition

The screen wooden frames and lattice panels were fragile because of age and previous use and the screen could not be handled safely. The mount fabrics consisted of horizontal blue silk textiles joined alongside the top and bottom of the painting, and brownish decorative bands bordered on either side by narrow pink and off-white strips surrounding each panel's four edges. Moreover, dark blue cotton fabric covered the outside of the panels when closed. The fabrics had many tears and missing areas. They were delaminated from the panels, exposing degraded paper of the panel's under-papery layers. The surfaces of the exposed silk were powdery and fragile. The fabrics were discoloured or faded in most areas. The fabrics, and in particular silk, were easily damaged.

Painting condition

Accretions, dirt, and deposits were found all over the surface of the paintings, and there was a lot of surface dust on the screens. Some pigments were found to be extremely fragile to cracking and off-setting. 'Intense' colours used, including vermilion, malachite green, synthetic ultramarine, and a white pigment, showed weakened binding adhesion. The paintings seemed to have been restored twice in the past. Relatively recent intervention was evident on the parts with extreme tears on the seventh panel from the right. Another restoration was found on the tenth panel, an area which appeared to be a hole burnt out, possibly by a candle fire, had been infilled and repainted. There were traces of overpainting around that area.

Treatment request

Conserve paintings and remount as a twelve-panel screen.

Retain and reuse historical materials as much as possible, including mounting silks, borders and metal fittings.

Surface clean; capillary-wash and remove old linings; repair; line and re-mount; retouch loss areas to background colour.

Panels: replace with modern lattice frames under-papered with *hanji* paper layers.

Conservation treatment

The treatment started by thoroughly cleaning dust off the surfaces of the paintings, mount fabrics and exposed frames using a soft brush and a conservation vacuum cleaner. This included removing the powdered mount silk dust.

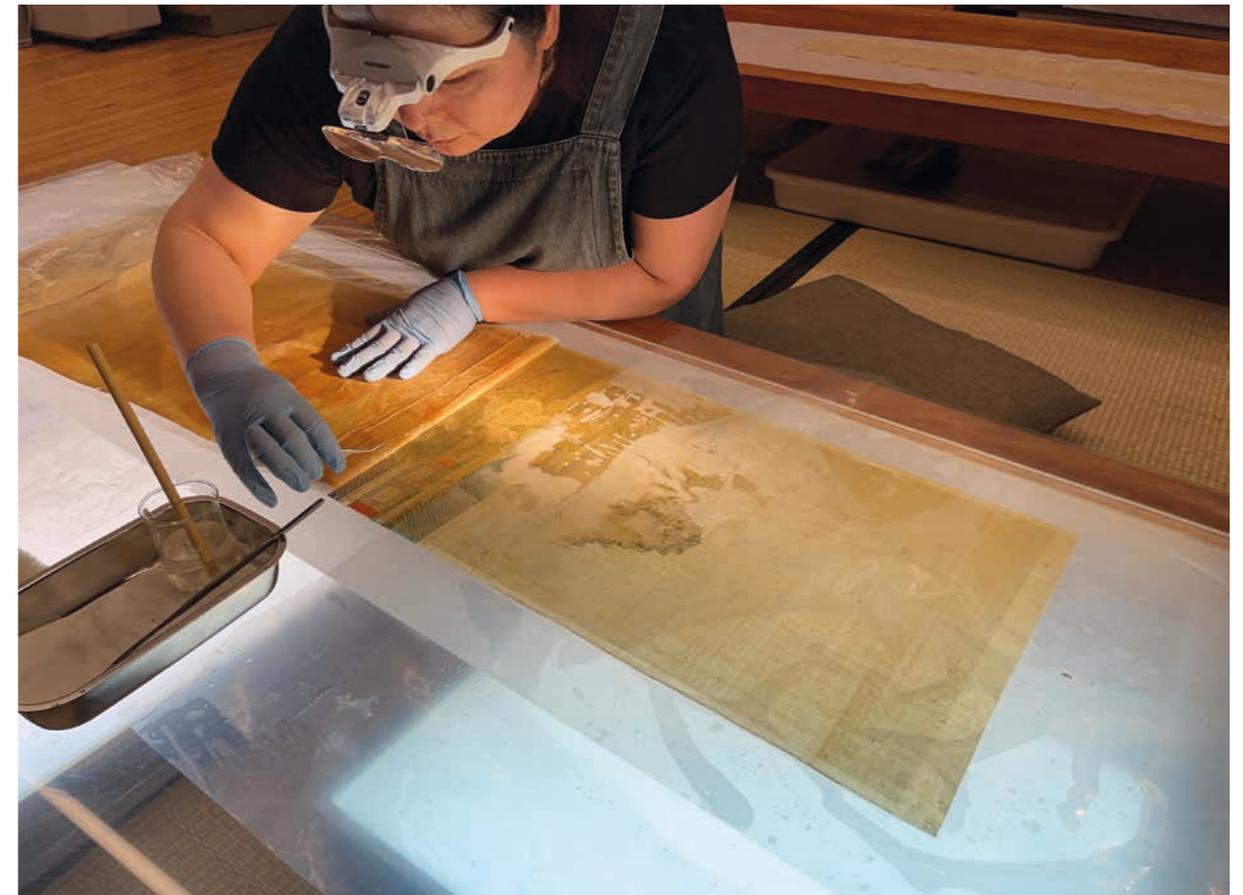
When disassembling the screen, starting from the edges, each textile and paper lining layer was removed using Nanorestore Gel® and Microfiber cloth, in the reverse order to the order the screen had been assembled originally.

Painting treatment

Unstable pigmented areas were consolidated using rabbit skin glue, with concentration progressively increased from 1% to 3%. Despite repeated application, some parts, especially the blue pigment, remained very sensitive and required further applications. The paintings were subsequently dried for at least three days.

After capillary washing all the paintings, second-lining papers were carefully removed as complete sheets. To do this, the use of water had to be minimised since some pigments continued to be affected by moisture. It was established through testing that seven hours of exposure to moisture was the limit before some pigment particles became prone to being dislocated. It was also important not to use pressure on the thick pigmented areas, which would squash their layers. A 'semi-dry' method of first-lining removal was devised. Using a polyester sheet to support and roll the lining onto, the linings were removed, little by little using tweezers (Fig 40).

Fig 40
Five Confucian Virtues:
removing old first lining



40

Once the linings were removed tears in the silk were repaired, and missing areas infilled with matching old Korean silk and Chinese open-weave silk. Underneath the old repair on the tenth panel mentioned above, parts of the inner frame had completely 'disappeared', due to fire/heat damage. It was noticed that the area infilled was only a small section of silk that had been attached from the back and repainted. The infill was separated from the painting during lining removal and reattached in its exact position during the repair stage.

All 12 paintings were lined first with dyed *xuan* paper and fresh wheat starch paste so that the fragile pigmented areas and silk substrate were stabilised with paste (Fig 42). Second lining was carried out using *hanji* paper (3.0 *momme*) and fresh wheat starch paste. The paintings were dried on felt for 20 minutes and moved onto drying boards and adhered face down using wheat starch paste along the protruding edges of the lining paper.

Mount fabrics reuse

After moistening of the mount fabrics using a Dahlia sprayer, old lining papers were removed. Missing areas were repaired with a matching pre-dyed repair silk and all the mount silks as well as the decorative bands were lined twice with pre-dyed *hanji* paper (3.3 *momme*) and thick wheat starch paste. The brown decorative bands were lined twice in a similar manner using *hanji* paper (2.8 *momme*) which was also pre-dyed but had the fibre direction changed in cross-direction. Care was taken to keep the bands stretched and straight to maintain their dimensions.

Screen assembly

During fieldwork in Korea in 2019 and 2022, the screen remounting process was carried out at the Jeongjae Studio located in Seoul. 12 new wooden lattice frameworks were commissioned and under-papered with eight layers of paper. The under-papered frameworks hinged to one another with Korean mulberry paper and thick wheat starch paste. The outer surface of each panel was covered with dark blue cotton fabric.

Remounting

During five days in 2022, Ms Park Chisun and Ms Cho Eunhye were invited again to the British Museum to collaborate on the mount assembly. Before the assembling process, all paintings and mount silks were stretched on a drying board. The paintings and mount fabrics were released from the drying board using a bamboo spatula, and the margins of the lining paper trimmed off using a round Japanese knife.

After applying thick wheat starch paste to the edges of the verso and thin paste on the inside, each painting was placed exactly onto its pre-marked position using a smooth brush, and lightly 'massaged' or pressed through a protective sheet (polyester sheet or Sanmoa®) to ensure proper adhesion (Fig 41).

As an additional decorative element, narrow pink and off-white paper strips were added along the line of the top and bottom blue silk in contact with the painting. The blue silk borders were trimmed and reattached alongside the top and bottom of the paintings.

The repaired old brownish decorative bands that are bordered on either side by narrow pink and off-white strips surround the four edges of each panel. New repairs and infills were toned using Schmincke watercolours and a soft brush (Fig 39).

After drying, the original metal fittings were attached onto the first and last frames.

This screen was remounted in collaboration with visiting conservators Mrs Park Chisun of the Jeongjae Conservation Studio and her former student Ms Cho Eunhye, conservator at the National Archives of Korea, who were invited to the British Museum for seven days in 2019 and for five days in 2022. Hirayama Studio conservators Kyoko Kusunoki and Matthias Sotiras contributed to the conservation of the original brown decorative bands or mounting strips.

Fig 41
Five Confucian Virtues:
screen assembly

Fig 42 (overleaf)
Five Confucian Virtues:
lining the painting





Among many great legacies of world culture in the British Museum, the Korean collection remains relatively unknown but occupies a significant position in the Asia Department. When the Museum was founded in 1753 by an Act of Parliament to house the collections of Sir Hans Sloane (1660–1753), it did not contain any Korean materials.¹ After the first Korean object was acquired in the late nineteenth century, Korean holdings have grown through donations and purchases and now comprise more than 4,000 objects spanning from prehistorical times to contemporary. Among these, some 500 are pictorial art on paper and silk.

There were several significant moments in the growth of the painting collection: in 1881, the first group of Korean paintings entered the Museum collection; in the 1950s, a small number of important paintings were acquired; in the 1990s, the contemporary pictorial art collection expanded greatly in anticipation of the opening of the Korea Foundation gallery; and in the 2000s, North Korean posters and prints were added to the collection, a unique feature among museums in Europe.

The earliest painting acquisitions were purchased from Dr William Anderson (1842–1900) in 1881, upon his return from a sojourn in Japan. A professor of anatomy and surgery, Dr Anderson had served as the Medical Director of the Imperial Naval Medical College and Medical Officer to the British Legation in Japan from 1873 to 1880. With his strong interest in pictorial art, Dr Anderson amassed a collection of thousands of paintings. Most were Japanese, but four Korean paintings were included. Dr Anderson offered a historical and stylistic assessment of his Asian painting collection that was quite astute at the time. In *The Descriptive and Historical Catalogue of a Collection of Japanese and Chinese Paintings in the British Museum* (1886), he allotted one page to the topic of Korean painting.

'Little can be said with reference to Korean art; partly on account of its close resemblance to the art of China, and partly because of the difficulty in obtaining access either to authentic historical facts, or to a sufficient number of representative specimens. It is, however, beyond doubt that Korean art in general, could claim in ancient times a far higher position than that to which it is now entitled'.²

Dr Anderson thus acknowledged the significance of Korean art while acknowledging the difficulty of obtaining quality examples – the latter a situation that persists to the present day. He noted that Korean painting had much in common with that of China, in contrast to his emphasis on the unique qualities of Japanese painting. However, his understanding of Korean painting was no doubt based on his own limited collection and other works he saw in Japan. His judgement could be inherently problematic, for the evidence strongly suggests that Japanese consumers preferred paintings that reflected traditional Chinese themes and styles.



Fig 1
Yu Un-hong (1797–?), *Falcon*,
ink and colour on silk, hanging
scroll, 1881, 1210, 0.223.KO

Fig 2
Attributed to Kim Yong-won
(1842–?), *Landscape*, ink and
light colour on paper, 1876,
1881, 1210, 0.224.KO

Fig 3
Artist unknown, *Orchids*,
a pair of paintings, ink on paper,
1881, 1210, 0.225–226.KO

The five paintings from the Anderson collection in the British Museum are a falcon by Yu Un-hong 劉運弘 (1797–1859); a landscape attributed to Kim Yong-won 金鏞元 (1842–?); a portrait of a nobleman, and a pair of orchids. Dr Anderson's Korean painting collection offers a glimpse of what was available and popular in the Japanese market in the late nineteenth century. The painting depicting a fierce falcon perched on a pine tree is a useful example of export painting to Japan (Fig 1). On the top left corner of the painting, a calligraphic inscription gives the title of the painting as 'A hero standing on his own', followed by the date of the painting's production, which corresponds to 1853. The two-column inscription at the bottom names the country of origin as Joseon 朝鮮 (the dynasty that gave its name to Korea from 1392 to 1910) and the artist as Sisan 詩山. Inscriptions mentioning 'Joseon' are found frequently in Japanese collections and identify paintings that were made explicitly for the Japanese market. Among these, images of falcons and tigers, often occurring in pairs, were regarded as auspicious symbols of power and strength. They were especially sought after by men of Japan's ruling samurai class.

Except for the falcon painting, which is mounted in a Japanese-style hanging scroll, three out of four Anderson collection paintings had remained unmounted, and unsuited for display, until the Museum started the Amorepacific Project. Now they have been conserved and remounted in the format of an album, window mount, and hanging scrolls, respectively.

The landscape painting (Fig 2) and orchid paintings (Fig 3) bear the same inscription on the reverse, probably written by Dr Anderson himself. It reads 'Drawn by the Korean artist who accompanied the Korean ambassador to Edo in 1876'. After a few decades of severance of diplomatic relations with Japan, Joseon sent a mission to Japan in 1876 with the assigned task of learning about scientific and technological developments recently adopted from the West. The court painter Kim Yong-won was a member of the party that travelled to Edo, presumably to create visual documentation of the mission. After returning home, Kim Yong-won took up photography and became Korea's first studio photographer.

The landscape painting in Dr Anderson's collection is unsigned, but the attribution to Kim Yong-won is based on Anderson's handwritten note on the back of the work. Unfortunately, the paucity of landscapes ascribed to Kim Yong-won makes it difficult to confirm the attribution of the British Museum painting based on stylistic comparison to known works. However, Anderson's attribution should be given some weight, given that his note is contemporary with the creation of the painting and that Kim Yong-won is known to have travelled to Tokyo in 1876. We cannot rule out the possibility that Anderson met Kim Yong-won, or at the very least, that the Korean envoys were the source of his paintings, as a visit to the Japanese Ministry of the Navy was a part of the itinerary for their group. On the other hand, Anderson's note on the reverse of the pair of orchid paintings, likewise attributing to Kim Yong-won, seems less plausible because these bear the seals of a different artist, who is as yet unidentified. Further research is needed on the authorship of all three paintings.



2



3

Fig 4
Artist unknown, *Portrait of a noble man*, ink and colour on paper, 1881,1210,0.227.KO



A portrait of a nobleman from the Anderson collection is a unique example of Korean portraiture of the late nineteenth century (Fig 4). A young man is shown wearing a deep berry-coloured silk jacket, casually loose. His hat of diaphanous woven horsehair identifies him as a nobleman, but there are no other clues about his rank or name. The artist sensitively captured the youth's face, with its smooth skin, freckles and budding moustache. The posture of the sitter and the technique of depicting his hair and clothes follow the tradition of earlier Joseon-period portraits; what is new here is the use of Western paper and Western pigments and an active attempt at chiaroscuro.

During the first half of the twentieth century, Korean paintings were acquired only intermittently. In the 1950s, two important paintings entered the Museum's collection. *Five Peaks* painting, supposedly produced and used in the royal court, was donated in 1952 by Reverend Stanley Smith (1876–1954), who had been a missionary in Korea with the English Church Mission from 1912 to 1917.³ Another mid-century acquisition was a twelve-panel folding screen from the collection of Sir Esler Dening (1897–1977), who had served as the British ambassador to Japan in the 1950s. Depicting stories of five Confucian virtues, this folding screen received conservation treatment through the Amorepacific Project. More detailed information about the painting and the conservation process can be found in the articles by Professor Insoo Cho and Meejung Kim-Marandet in this volume.

In the 1990s, a decade prior to the establishment of the Korea Foundation Gallery, a sizeable Korean pictorial art collection was formed by then-curator Jane Portal in preparation for the new gallery. Portal made several visits to Korea from 1990 to 1993 to meet artists and craftsmen and acquired many shamanistic paintings as well as twentieth-century paintings and prints on her trips. Chang Woo-seong's *Flying geese*, another painting conserved as part of the Amorepacific project, was donated by the artist in the 1990s. Chang is renowned for his vibrant and innovative modern transformations of ink painting. After treatment, the painting has regained the serene and peaceful atmosphere of its autumnal scene.

The Museum's acquisition strategy has not been limited geographically to South Korea. The British Museum is virtually unique for having a small but significant collection of objects from North Korea. More than half was collected during two visits to North Korea in 2001 and 2002 by Jane Portal, following the establishment of diplomatic relationships between the UK and North Korea. The collection grew with further acquisitions of North Korean posters in 2017 and 2018 by then-curator Eleanor Hyun.

Fig 5
Rim Hong-eun (1914–?),
Pair of preparatory paintings
for posters, 1948 and 1952,
(N. Korea); 2018,3033.1 (a)
and .2, RFC4967-8 (b)



a



b

Two preparatory paintings for posters received treatment (Fig 5a and 5b), including surface cleaning, restoration of areas of loss, and mounting through the Amorepacific Project.

Traditional Korean paintings are executed on silk or paper, materials that are inherently vulnerable to light and humidity. Conservation of Korean paintings requires not only highly specialised skills but also knowledge of uniquely Korean materials and techniques, which differs somewhat from Chinese and Japanese conservation methods. Before the Amorepacific Conservation Project, many Korean paintings in the British Museum collection could not be displayed due to their physical condition. Thanks to the Amorepacific programme, thirteen paintings were restored to a sustainable state. Ten of these were featured in the Korea Foundation Gallery from July 2022 to January 2023, for the first time since coming to the Museum. The Amorepacific Project has been a milestone for the British Museum. Given that the Museum's collection of Korean pictorial art continues to grow, ceaseless efforts will be required in the future to preserve these works and make them accessible to the public.

¹ One of Sloane's interests was birds and insects, and his collection includes Chinese albums of drawings of these subjects, but there was no Korean painting.

² Anderson, W., *The Descriptive and Historical Catalogue of a Collection of Japanese and Chinese Paintings at the British Museum*, British Museum (London, 1886), p. 493

³ Another painting in Reverend Smith's collection, *Portrait of Chae Je-gong*, was purchased by the Museum in 1996.

In the midst of knowledge: Amorepacific Project for the Conservation of Korean Pictorial Art

Eleanor Soo-ah Hyun
Associate Curator, Department of Asian Art,
The Metropolitan Museum of Art

*and let thy feet, millenniums hence,
be set in the midst of knowledge*
— Tennyson

Many will consider the Amorepacific Project for the Conservation of Korean Pictorial Art as a conservation endeavour that is the norm for and expected of a museum. This is true, since the project is about caring for the collection, a mandate of museums. Yet regarding it as only conservation, would be an egregious minimisation of its importance because the project is a milestone in the field of Korean pictorial conservation. Prior to the Amorepacific Project for the Conservation of Korean Pictorial Art, there had not been a focused strategy for the care and conservation of Korean pictorial art or a dedicated conservator for Korean paintings at a Western museum. Thanks to institutional encouragement from the Conservation and Asia curatorial departments and the generous support of Amorepacific, the British Museum became the first Western museum to have a dedicated conservator of Korean pictorial art.

In 2015, as the first curator for the Korean collections, I realised that the British Museum was an ideal location to pioneer Korean painting conservation. The Museum is one of the few Western museums, and the only one in Europe, to have an East Asian painting conservation studio. The Hirayama Studio has internationally recognised conservators and mounters of Chinese and Japanese paintings. While these conservators did preserve and remount the Korean paintings when needed, this arrangement had its deficiencies. At the time of developing the project, one of the contract conservators employed in the Hirayama Studio was Meejung Kim-Marandet, who had an interest in Korean painting conservation. Meejung had Western paper conservation training and developed her East Asian painting conservation skills at the Hirayama Studio. With her language ability, cultural and historical knowledge, and Hirayama Studio experience, Meejung could fill a new project conservator role. With respect to curatorial personnel, the British Museum is rare in having two Korean art specialists, at the time, myself and Jane Portal, Keeper of Asia.

After receiving institutional support,¹ I created an initiative and sought a sponsor. The success of any project hinges on good partnerships and Amorepacific has been an ideal collaborative sponsor. Amorepacific, from the start, understood that due to the groundbreaking nature of traversing paths never taken by a Western museum, there would be a steep learning curve and was completely prepared to face the challenges together. I am profoundly grateful to Jeon Seung-chang, Director of the Amorepacific Museum of Art for his support and steady guidance. His insight and encouragement from the outset were instrumental in implementing this project. Pyun Ji-hye, curator at Amorepacific Museum of Art, was an astute liaison that allowed for the project's fruitful results. The Korea Foundation also played an important intermediary role in securing the financial support.

About fifteen years ago, Korean cultural and government institutions recognised the need for the conservation of Korean pictorial art and the difficulty of non-Korean museums in providing it. They started programmes to conserve overseas Korean cultural heritage objects. These programmes are not limited to pictorial objects and the Korean institutions generously assumed the conservation expenditures. Unsurprisingly, many non-Korean museums have participated in these programmes and several Korean paintings have been conserved and remounted. With a couple of exemptions, selected objects are sent to institutions and studios in Korea, where the conservation treatments are carried out, and returned to the home museum after completion. This was the case for two British Museum Korean paintings that were sent to National Museum of Korea, Seoul in 2011 for treatment and remounting and returned to the British Museum in 2016.²

Korean institutions support for conservation is beneficial, especially since non-Korean museums do not have the competency to conduct treatment and remounting. Yet, in examining the British Museum's case, disadvantages of these programmes became apparent. Sending the paintings to Korea thwarted the involved parties to engage in an intensive and extensive collaboration. During conservation treatment there are often discoveries and unexpected issues, which raise questions and provide insight into the object's creation and its 'life' into the present. These unanticipated occurrences often lead to impromptu and fruitful discussions between curators, conservators, and scientists. For the two British Museum paintings sent to the National Museum of Korea, British Museum staff were unable to observe and track the treatment or participate in all the discussions that organically arise during the process.³ Hence British Museum staff lost the opportunity to acquire and expand their knowledge and understanding of Korean painting mountings and materiality. This is not to disparage these programmes, particularly since there is a great need for professional conservation of Korean cultural heritage. But, in many aspects, these programmes are about 'giving a man a fish' instead of 'teaching a man to fish'.

To judiciously perform conservation treatment, infrastructure, equipment, and personnel are required. As aforementioned, only a few Western museums have the requisite expertise and facilities for the conservation and remounting of East Asian paintings. Thus, for most museums, outsourcing the conservation of Korean paintings is the only choice. But this is not the case for the British Museum. With the right investment and guidance, the Museum was glad and ready to expand their activities to include Korean pictorial conservation.

The Amorepacific Project fulfills the epigraph, a quote from 'Two Voices' by Alfred Tennyson (1809–1892) that is engraved on the floor of the Great Court of the British Museum. It is often cited by the Museum's leadership and staff because it poetically embodies the tenets of the British Museum's mission. The Museum discusses its objectives in relation to future generations and places a premium on safeguarding its collection so that the objects will be available to experience and study for 'millenniums hence.' Conservation is key to fulfilling this aim. Before the Amorepacific Project, the care of the Museum's Korean pictorial art required improvement and sending objects abroad for treatment does not allow for the Museum community to 'be in the midst of knowledge.'

While the conserved objects themselves are evidence of the value of this project, the articles in this volume further attest to the importance of developing the field of Korean pictorial conservation in the West. Not only are the pictorial works receiving the needed care and attention, but also the discoveries during the treatment processes have already revealed new aspects of the objects and the materiality of East Asian painting, which will continue to inspire and inform future scholarship. From sponsors to artisans and scholars, this project demonstrated the exponential and reciprocal benefit of good collaboration. The only way to bring Korean painting conservation to the British Museum is to have a dedicated conservator at the Hirayama Studio. Meejung Kim-Marandet's academic and practical training, along with her prior experience at the Hirayama Studio, enabled her to be the first Korean pictorial art project conservator. I am profoundly impressed by the conservation and remounting results. Though I am the project's architect, Meejung is its cornerstone and I am deeply grateful for her fortitude to realise the project's goals, made all the more difficult because of the global pandemic.

With the conserved objects, an exhibition in the Korea Foundation Gallery, an on-line symposium and this volume, the Amorepacific Project for the Conservation of Korean Pictorial Art has proven the significance of having one's 'feet...in the midst of knowledge' and that the project is a watershed initiative that is only the start in developing a field and changing museum practice.

¹ I want to express my sincere gratitude for the institutional support of the project by Joanna Kosek and Caroline Barry, Co-Head of Pictorial Art Conservation, and especially Tadas Khazanavicius, Head of International Philanthropy, Anna Bülow, Head of Conservation (2013–19) and Jane Portal, Keeper of Asia. Also, my thanks to Sandra Smith, Head of Collection Care, and Louisa Burden, Head of Conservation, who inherited this project and oversaw that it reached its fruitful conclusion.

² The two paintings are *Five Peaks* (1952,1215,0.1) and *Seated Buddha and Two Bodhisattvas* (1959,1010,0.3).

³ The British Museum staff that applied for the programme understood and fully acknowledged that their involvement would be limited. They were included in treatment discussions and when specific decisions about treatment were required, these were discussed and decided via email correspondence.

The Amorepacific Project at the British Museum: overview of achievements, fieldwork and discoveries

Meejung Kim-Marandet, PhD

In 2018, a post for the Amorepacific conservator for Korean Pictorial Art was established to carry out the conservation of Korean art, ensuring that the British Museum would be a unique European centre of excellence in this field. Through this project, the British Museum was able to spend five years researching and conserving key objects of pictorial art from its 4,200 strong Korean collection, which includes about 500 paintings, prints and artworks on silk and cotton.

The British Museum's Hirayama Studio was a central part to the commencement of this project. It was opened with the support of Hirayama Ikuo in 1994 as the only conservation and remounting studio in any European museum dedicated to East Asian pictorial art. The Hirayama Studio differs from conservation studios in Asia as it is outfitted to carry out conservation treatments and mountings in Chinese and Japanese traditions, and now Korean as well. Hirayama Studio colleagues benefit from techniques and traditions that are outside of their scope of influence in corresponding studios in China, Japan and Korea.

With the opening of the Museum's World Conservation and Exhibitions Centre in 2014, home to the Departments of Collection Care and Scientific Research, conservators working in the Hirayama Studio have the ability to gain access to the expertise of colleagues working in areas customarily found in Western museums. This helps to inform and broaden the expertise shared across the Museum.

Fig 1
Examination of a screen from the
British Museum's collection with
Professor Cho Insoo during the
2018 seminar

Survey and Assessment

The project began in 2018 with an in-depth survey of parts of the Korean pictorial collection, in which their storage conditions were reviewed and assessed, and a survey criteria was developed to best serve the needs of the objects. Thinking strategically about time and complexity, it was agreed that the survey would begin with folding screens. Of all traditional pictorial formats, folding screens with their complicated forms often require the most time, material, and planning to completely remount. As such, it seemed prudent to assess the folding screens first to allow for adequate time to plan and conduct any agreed conservation treatment and remounting that would be identified as a result of the assessment.

Following a prearranged schedule, twelve Korean screens in the collection were delivered to the Hirayama Studio. Along with a conservation-focused assessment, each screen was examined against their current object record to verify the accuracy of the database information such as dimensions with and without mounting, descriptions, materials and techniques, and object records were updated accordingly. After finishing the screen assessments in 2018, it was decided to focus next on scrolls in the collection. The objects in scroll format range from early Joseon to contemporary paintings and a total of fifty-one were assessed during the period.

After the initial assessment, ten screens were selected to be the focus of the first seminar of the project in July 2018. Of the ten, two screens, the *Five Confucian Virtues* (1957,1214,0.1) and *Scenes of life* (2016,3028.1) were prioritised, due to their poor physical state preventing them from being displayed, and in need of conservation treatment. In addition to these two screens, several other paintings were identified for conservation and mounting as part of the project.



1

Annual Seminar-Workshop and research

In keeping with the survey, the focus for the inaugural year's Amorepacific Project annual seminar was on screen paintings. Following discussions with the Amorepacific Museum of Art, art historian Cho Insoo, Professor at the National Korea University of the Arts, was invited to attend a two-day seminar to examine the ten screens and discuss each object's historical context, materiality, condition and current mounting state. Having identified the *Five Confucian Virtues* and *Scenes of life* as candidates for extensive conservation treatment, the second day of the seminar was dedicated to examining and discussing these two screens.

For year two, a plan was conceived for a two-day workshop-seminar focusing on Korean textiles together with invited textile conservators and scientists to examine and discuss mounting fabrics. The objectives were to identify the types of fabric used for painting and mounting, dyes and dyeing methods used and to discuss appropriate methods to preserve damaged original silk. The outcome of this event enabled the conservation work to proceed.

Fieldwork and new purchases of materials and equipment

The Museum needed to secure a stock of paper and silks to proceed with the treatment and mounting. Several specialist materials such as wooden frames, textiles and paper for the mounts in this project were purchased during fieldwork in Korea. The acquisition of Chinese and Japanese papers required for these treatments in addition to the various Korean papers was also continued.

Some equipment was purchased to support the project research. This included a Mettler-Toledo Ltd pH meter, and a Hirox 3D video microscope with a bespoke bridge that enabled paintings and scrolls to be placed flat under the microscope without causing damage or stress to the paintings.

Conservation treatment and remounting

The following paintings are examples of those chosen based in their historical importance and urgency of treatment needed. In the second year, conservation plans were devised, and the treatment began.

Chang Woo-sung's *Flying geese* (1995,1012,0.2) has been the first object to be conserved as part of our project; to treat it, Mr Cha Byung-kap of the Hogo studio, formerly a conservator at the National Museum of Modern and Contemporary Art, Korea, was invited. The problem was brown stains that ruined the artist's intent of a pure white ground. Our main focus, therefore, was on bleaching and remounting, reusing historical frame and support.

The Five Confucian Virtues and *Scenes of life* are two screens that still have their 19th century mountings and thus are also important examples of pre-20th century mounting method and styles. The remounting process revealed important and interesting information with regard to late Joseon screen mountings. After the examination, treatment plans and schedules were drafted

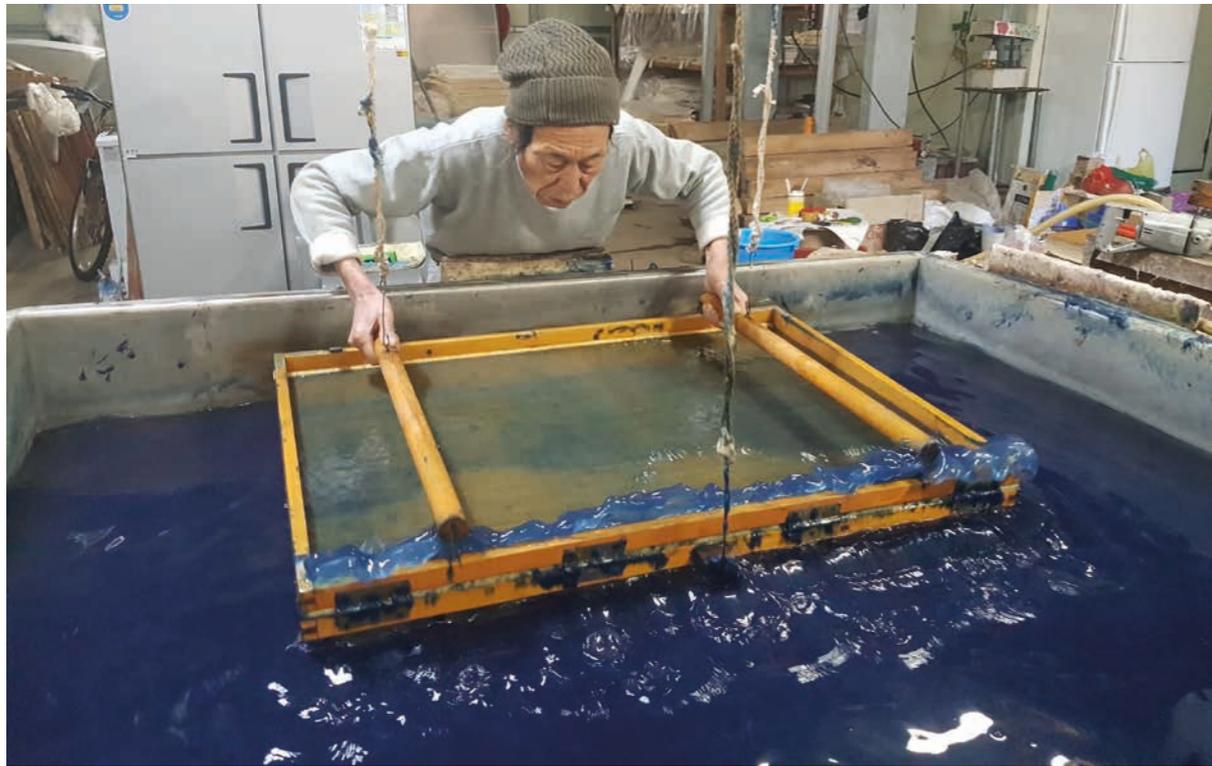


Fig 2
Korea paper maker Shin Hyun-se forming a sheet with natural indigo-dyed fibres

Fig 3
Song Jeongju examining the original covering silk of the *Scenes of life*

Fig 4 (overleaf)
Remounting the *Flying geese* with Cha Byung-kap in July 2019

2

for the screens. As securing appropriate Korean silk has been challenging and the retention of historical materials was vital, it was decided to reuse some of the original mounting silk. Ms Park Chisun of the Jeongjae Studio and her former student Ms Cho Eunhye, now conservator at the National Archives of Korea to the British Museum were invited to the British Museum to collaborate on the treatment. This highly decorative mid-19th century screen portrays *Five Confucian Virtues*. This painting was the most time and energy-consuming due to its enormous size and its great fragility.

The *Scenes of life* painting consists of the last two panels of what must have originally been a folding screen of ten panels. The painting depicts important events of a virtuous man. On acquisition to the Museum, there were significant concerns with the mounting structure being extremely damaged as well as the covering mount silk being in such bad condition that the fabric had to be reproduced and the paintings remounted. Importantly, the mount was evidently original and made in the late Joseon period, with no traces of previous treatment whatsoever.

The positive collaboration with Ms Song Jeongju of the Gochang Studio focused on selecting silks required for remounting. It was decided to reuse some of the original mounting silk due to a problem of acquiring appropriate Korean silk. The lack of available mounting silks was a pressing issue and a significant obstacle in remounting this Joseon painting. The covering silk was very damaged and ordering the reproduction of the same pattern silk was not straightforward. However, replica silk was commissioned in Japan and its production was applied for the remounting.

Storage

A suitable housing option for the *Portrait of Chae Je-gong* (1996,0329,0.1) was based on the author's research into historical scroll storage box kits. A plan to reproduce the kit used to house two related versions of the portrait painting was devised, based on examples which are held at the Suwon Hwaseong Museum, located in Suwon. Numerous artisans agreed to collaborate to produce the kit: a carpenter, lacquer, metal ornament maker, dyer and tailor. Then a workshop investigating the historic kits at the Suwon Hwaseong Museum was carried out to ensure the right level of technical information was communicated. Owing to pandemic delays, budget and space constraints this did not go ahead, however, the research has been kept for future reference.

Korean Gallery Display

All this accumulation of research, conservation, fieldwork, surveys and purchases of materials have resulted into the display at the Korean Foundation Gallery. The exhibition opened on 23 July 2022 for six months in the Korea Foundation gallery titled 'Conservation in Action'. Out of the fifteen Korean paintings that were conserved during the project, ten paintings are currently on display in the Korean gallery, alongside elements of historical mounts, and painting and mounting material and tools.



3



Korean folding screens at the British Museum

Cho Insoo

Professor of Korean Art History,
Korea National University of Arts

Translated by Boyoung Lee, PhD, DPhil

The Korean collection at the British Museum numbers about 4,500 objects, of which approximately 550 are paintings and works of graphic art. In 1984, a special exhibition titled *Treasure from Korea* was held at the museum. In 1997, another exhibition titled *Arts of Korea* was held under the auspices of the late Dr Hahn Kwang-ho (Chairman, Hahn Cultural Foundation) and the Samsung Foundation of Culture. In 2000, the Korea Foundation Gallery, a permanent Korean art exhibition room, was installed in Gallery 67. The Korean room of the British Museum is one of the few places where the public can meet an outstanding collection of Korean art outside of Korea. Korean traditional paintings remaining today are few and fragile, requiring ongoing care and limited light exposure. Museums in Korea display only a small number of pieces at once and update the displays every so often, the British Museum takes the same approach.

I had a meaningful opportunity to see some of the important pieces in the collection through the Amorepacific Project for the Conservation of Korean Pictorial Art. In July 2018, I participated in the 'Screens' seminar/workshop held at the Hirayama Studio, which was organised as part of the Amorepacific Project. The two-day seminar was led by Meejung Kim-Marandet (Amorepacific Project conservator), Eleanor Soo-ah Hyun (former curator of the Korean collection), and Hyo-jin Choi (Intern, Korea Foundation International), with support from Jane Portal (Keeper of the Department of Asia). In this article, I will discuss six Joseon Dynasty folding screens among the nine artefacts examined during the workshop.



Fig 1
Jeong Tae-o (1880–?),
Plum blossoms (매화도, 梅花圖),
ink and colour on silk, ten-panel
folding screen, 19th century;
2014,3057.1, RFC47309

Plum Blossoms
매화도, 梅花圖
2014,3057.1

This ten-panel folding screen is in relatively good condition in both painting and mounting. The frame is believed to have been conserved in Korea in the late 20th century. Each panel depicts the branches of a plum tree, with large vertical branches splitting off into smaller branches filled with red plum blossoms in full bloom. The branches were expressed using the light and shade effect of ink without the contour, and the sparse green dots are depicting the moss attached to them. Each panel has a poem written in neat calligraphy with a signature stamp. The poem and the stamp must be analysed and studied in the future. It is not yet verified whether the current order of the paintings is the original placement, but the panel on the far left is thought to be the last panel given the three stamps present. One of the three seals belongs to Jeong Tae-gyu, which is an alias for an artist named Jeong Tae-oh. He is described as being talented in landscapes and still life in a short record found in the *History of Paintings in Korea* (槿域書畫徵) by Oh Se-chang. Based on the remaining works today, he is thought to have been active in the late 19th century. In the plum paintings, a stylistic influence of Jo Hee-ryong (1789–1866) appears, raising a question about the relationship between Jeong and Jo. Unlike the conventional plum paintings, Jo Hee-ryong favoured painting splendid red plum blossoms on thick and angular stems, sometime painting a single large plum tree across a large folding screen. Jeong Tae-gyu seems to be influenced by the new style of plum paintings established by Jo Hee-ryong but arranged in his own style, with calmer strokes.

This item was purchased from the Kang Collection in New York in 2014.



Fig 2
Artist unknown, *Hunting scene*
(호렵도, 胡獵圖), ink and colour
on silk, eight-panel folding screen
late 19th century; 2000,0610,0.1,
RFC31875

Hunting scene
호렵도, 胡獵圖
2000,0610,0.1

This is a consecutive eight-panel folding screen where individual paintings on each panel come together as a single large scene. Though the paintings are degraded, the screen frame is in good condition. It was remounted using a panel and amount made outside of Korea. On the right side of the scene, a fancily dressed woman on horseback is seen around the corner of a mountain. Moving toward the left, the main character is seen on horseback surrounded by guards. Further left, soldiers riding horses hunt tigers and wild boars with bows and spears. On the far-left side, a large rock is present and a wide field unfolds.

Horyopdo, a 'Barbarians Hunting' painting, is also considered to be a depiction of the Qing emperor hunting. The Horyopdo style is known to have been first painted by court painter Kim Hong-do (1745 – after 1806). Kim's painting style is also seen in the expression of landscape in this work. The detailed depiction of colourful clothes and military equipment is excellent, and the movements of figures and animals are lifelike. The landscape was mainly drawn in ink, and the figures are highly coloured. A high-quality, royal painting style can be seen in parts of the piece, such as in the magnificent landscape and elaborated character expression. However, it is mixed with a style of a later period than Kim Hong-do, and some less sophisticated depictions of animals are observed. Many of the remaining Horyopdo are painted in the style of folk paintings. This work shows a mixed style of court and folk paintings, which seems to have been painted in the 19th century.

The folding screen was purchased from Kunsthandel Klefisch of Germany in 2000.



Fig 3
Tribute mission to the Son of Heaven
왕희도 병풍 王會圖 屏風,
ten-panel folding screen,
2000,0609,0.1, RFC31876

Koreans paying tribute to the Chinese Court
왕희도 병풍 王會圖 屏風
2000,0609,0.1

This ten-panel folding screen has a Japanese-style mount reproduced in the first half of the 20th century in Korea. There is a net-patterned fabric attached to the back of the folding screen, and gold paper linings were used around the painting screen. A tear in the framing fabric revealed lining papers consisting of official documents with Gangwon province (江原道) and Daisho (大正) printed on them, as well as Japanese newspapers. The mount of the screen has deteriorated but the paintings are in good condition. It is a consecutive folding screen where individual paintings on each panel come together as a single large scene. The theme of the painting is foreign envoys paying tribute to the Zhou Dynasty court of ancient China. East Asian folding screens are generally placed in the order of right to left, and the consecutive story types follow this order. However, this work reads from the left to right. Outside the door on the left, attendants with specialities and animal tributes are waiting. In the middle, envoys are climbing up the stairs. On the right, the emperor receives the envoys by the table. The various aspects of foreign envoys and the scenery of the splendid palace were realistically depicted in complex composition and vivid colours. The paintings were thought to have been produced by the royal court in the late 19th century. The style of painting is similar to that of Yojiyeon-do (瑤池宴圖) or Gwakbunyang Hangrak-do (郭汾陽行樂圖), which were often painted in the royal court at the time. Further research into why a theme of Chinese history was painted seems necessary.

The folding screen was purchased from Christie's Auction House (New York) in 2000.



Fig 4
Artist unknown, *Five Confucian Virtues* (오륜행실도, 五倫行實圖),
ink and colour on silk,
twelve-panel folding screen,
20th century; 1957,1214,0.1,
RFC2834 (1957,1214,0.1)

Five Confucian Virtues
오륜행실도, 五倫行實圖
1957,1214,0.1

This folding screen of 12-panels maintains its original form from the 19th century including its deteriorated mount. The silk fabrics are used in mounting, small supports possibly screen feet are attached to the bottom, metal decorations attached to the sides of the first and the twelfth panels, and the title slip attached on the back of the first panel are all exhibiting the 19th century style. The four corners of the back of the first and the twelfth panels were reinforced with small triangular metal plates, which I had never seen before. The paintings are in good condition. The title 五倫行實圖 is written in ink on a cloud-patterned silk slip. The Joseon Dynasty emphasised the Three Bonds and Five Moral Disciplines in Human Relations (三綱五倫) of Confucianism, so many stories related to these disciplines were painted. In the 15th century, the Joseon government published the *Illustrated Conduct of the Three Bonds* (三綱行實圖), including 330 illustrations of devoted sons, loyalists, and virtuous widows from the ancient Chinese and Korean stories. After the Japanese Invasion of Korea in 1592, a book to rebuild the society was published, honouring 1,100 figures who died defending Joseon. In 1797, the *Five Confucian Virtues* was again compiled in woodblock printing, including illustrations of 150 characters in total. It is believed that Kim Hong-do made sketches for this book. Since then, the stories of devoted sons have been produced in large folding screens, arranging splendid buildings coloured in vivid shades to create realistic scenes. This folding screen depicts not only the filial son, but also the stories of loyalists, virtuous widows, brothers, friends, teachers, and pupils. The depiction of the characters is somewhat awkward, showing the characteristics of folk paintings.

Through this project, important details were discovered in the process of dismantling the *Five Confucian Virtues* for conservation treatment. The papers used for the lining were the family register of Muncheon-county, Hamgyeong-province. The family register was a book that comprehensively documented the status of households in the country and played an important role in the planning of national finances and military service. The family register was updated every three years, and three copies were made: one each for the county office, the provincial office, and the Hojo (Ministry of Finance) in Seoul. From the 17th century, a census registration system grouping five houses as one unit was carried out. The documents found from the folding screen show evidence of the 'five houses-one unit' system managed by the unit head. The documents were hand-copied on woodblock printed template papers. The corresponding year of the imprint is 1861, and red official seals were stamped in various places/randomly. Discarded government documents are often found in Joseon Dynasty folding screens and picture albums. For example, during the conservation treatment of the Tamla Sunryk-do produced in 1703, a document containing the personal information of soldiers in Jeju Island (previously Tamla) was discovered. The picture album was made locally by the governor of Jeju, Lee Hyung-sang, thus the military document was recycled as lining paper. It is interesting to consider where the family register used in the *Five Confucian Virtues* originally came from. From the style of the painting, it is unlikely that it was produced in Hamgyeong-province. Therefore, it was probably the copy kept in Seoul, which was recycled as lining when this folding screen was remounted. Assuming the family register was written in 1861, this folding screen was painted after the 1870s.

The folding screen was purchased by Sir Esler Dening (1897–1977), who was the British ambassador to Japan in 1951–1957. The folding screen was donated to the British Museum shortly after his return to England in 1957.



Fig 4
Artist unknown, *Scenes of life* (평생도/平生圖), ink and colour on silk, two-panel folding screen, 20th century; 2016,3028.1, RFC51839

Scenes of life
평생도/平生圖
2016,3028.1

This work is a two-panel folding screen that showed signs of ageing in its damaged mount and screen. There are round metal legs attached to the bottom. It is smaller than a typical folding screen. The *Scenes of life* paintings appeared in the late 18th century, and the influence of Kim Hong-do can be seen in many of them. This folding screen is thought to have been painted in the style of Kim during the late 19th century because of its excellent depiction of characters. The *Scenes of life* depicted various scenes of wealth and prosperity experienced by the aristocrats of Joseon in chronological order, from healthy birth to successfully aged life with children. The series was usually made in eight panels, but also in ten to twelve panels in the later period. The common themes are ceremonial scenes (the first birthday party, a day in school, a wedding, a 60th birthday and wedding anniversary, and retirement) and professional life scenes (state examination, winning first place, and inauguration). This work contains painted scenes of a baby wearing multi-stripe Jeogori (shirts) receiving a ceremonial table from the family, a young groom riding a white horse in a wedding ceremony, a first-place winner in the state examination marching around their hometown in glory, and an elderly couple in wedding attire participating in a renewal wedding ceremony.

This *Scenes of life* screen has only two panels. The left panel is Hoebang-rye, commemorating the 60th anniversary of passing the state examination. After passing through various government posts for a long time, the main character once again marched through the streets in splendid attire with musicians and clowns. The right panel is Hoehon-rye, the 60th wedding anniversary. The depiction of the bride and groom sharing a drink among many guests after the wedding vow is quite realistic. The *Scenes of life* series usually ends with Hoehon-rye. During the conservation treatment, number labels written on lining papers were found. The labels "nine" for the right screen and "ten" for the left screen indicate that this folding screen was originally a 10 panels series.

The folding screen was purchased from Lady Penelope Newall in 2016.

Fig 5
Artist unknown, *Five Peaks* (오봉도, 五峯圖插屏), ink and colour on silk, single panel screen, 19th century, (1952,1215,0.1)

Five Peaks
오봉도, 五峯圖插屏
1952,1215,0.1

This work is a single panel standing screen (插屏). Although it was not subject to conservation treatment under this project, it was investigated together at the seminar and is included here due to its historical importance. The painting ground is made of two sheets of silk fabrics sewn together. It was in the form of a scroll when initially purchased, but it was remounted into the original format of a standing screen through a conservation project with the National Museum of Korea (April 2012–2016).

As an object symbolizing the royal authority of Joseon, the *Five Peaks* paintings were displayed behind the king's throne or the king's portrait, even after his death. The *Five Peaks* painting was usually made as a Jangja (障子, standing screen) to be placed behind the throne inside the Dang-ga (唐家, royal canopy). It was also made into a mobile screen, and this work is painted on a single panel mounted in a wooden frame to be inserted into a separate pedestal. The current standing screen format is based on several *Five Peaks* standing screens in the National Palace Museum of Korea. The elements of a *Five Peaks* painting are the sun, moon, five peaks, red pine trees, and waves. Therefore, it is also referred to as Il-wol-do (the Sun and Moon painting), or Il-wol Obong-do (the Sun, Moon, and Five Peaks painting). However, some paintings do not include the sun and moon, such as in this piece. The exact meaning of the *Five Peaks* paintings is not clear, but it is assumed to symbolise an ideal place, wishing prosperity for the king and royal family, or striving for peacetime.

This work was donated by Rev. Stanley Smith (1876–1954) who served as a missionary in Korea from 1912 to 1917.

The Joseon-era folding screens housed in the British Museum welcome visitors from all over the world. They have become a part of the British Museum's collection through various channels at different times. When I visited London in the summer of 2018 to investigate these folding screens, there was an unprecedented heat wave. Since 2018, London's summer temperature has been breaking records every year. Just as people struggle with climate change, paintings also suffer from changes in temperature and humidity, like all organic artefacts which are vulnerable to environmental change. Therefore, folding screens and scrolls are regularly treated from a long-term perspective. Thanks to the Amorepacific Project for the Conservation of Korean Pictorial Art, a group of Korean paintings at the British Museum have had their lives prolonged. I hope these initiatives of good will continue and contribute to the conservation and display of Korean artworks.



The Five Confucian Virtues at the British Museum:
a novel conservation approach

Meejung Kim-Marandet, PhD

In 1797, when it was first published, the *Illustrated Stories Exemplifying Five Confucian Virtues* was to become a popular book in Korea to the point that it was used by painters to decorate screens as can be seen through an example owned by the British Museum. Dating from the mid-19th century, it was acquired in Korea by the British ambassador to Japan, Sir Esler Dening GCMG OBE, and later bought by the Museum from him in 1957 (1957,1214,0.1). Made up of twelve panels, this screen offers some features that seem particular to Korean screens. Its height is quite important and the number of panels – twelve – is the largest panel number used for a Korean folding screen. On the outside of the first panel, a title tag with an inscription reveals its iconography: '*Illustrated Stories Exemplifying the Five Confucian Virtues*'.

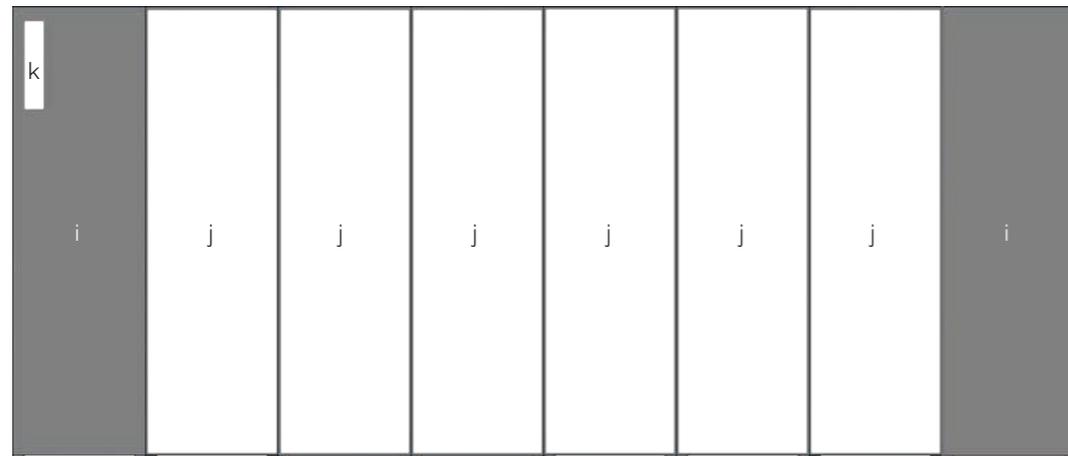
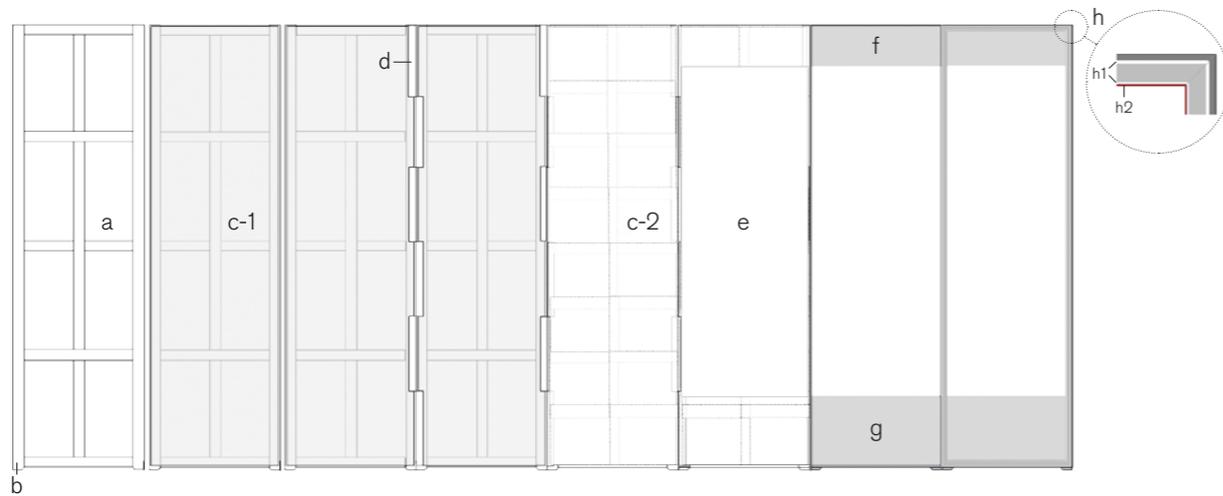


Table 1
Structure of the Korean traditional folding screen with terminology

	Korean romanisation	Korean	Chinese	English
a	<i>byeongpung-gi</i>	병풍기	屏風機	Wooden framework of the folding screen
b	<i>jok</i>	족	足	Foot
c	<i>sokji</i>	속지	—	Under-paper
d	<i>yeoncheop/jongyi-nalgae</i>	연첩/종이날개	連貼	Paper hinge
e	<i>hwabon</i>	화본	畫本	Painting
f	<i>sang'hoegang</i>	상회장	上回裝	Top mount
g	<i>ha'hoegang</i>	하회장	上回裝	Bottom mount
h	<i>hoegang/tti</i>	회장/띠	回粧	Decorative band
h-1	<i>baekhyeop</i>	백협	白挾	White narrow strip
h-2	<i>honghyeop</i>	홍협	紅挾	Red narrow strip
i	<i>byeongpung-ui</i>	병풍의	屏風衣	Covering silk
j	<i>deung</i>	등	—	Back
k	<i>jecheon</i>	제첨	題簽	Title tag

Mounting process and characteristics of this Joseon folding screen

The mounting process and the morphological features of this British Museum screen observed and retained during the careful demounting and conservation processes reveal the typical technique of making Joseon screen, as follows:

A carpenter was in charge of manufacturing the wooden inner lattice structure used as a framework made of a pine tree. Red lacquer was applied on the little feet of the wooden framework. Rarely found in the Chinese and Japanese configuration, the phenomenon of visibility of the feet of the screen is a typical Korean element. These feet are an extension of the vertical outer bars.

The following step was the under-papering on the inner wooden structure, which was made of recycled paper. The panels were then all unified by using paper hinges made of recycled paper, which were attached with paste. The quality of the paper used for the underpapering is much more resistant which allows the hinges to ensure a secure connection between each panel. After connecting the hinges, another layer of under-papering was added.

For the first lining paper of the painting, the 'Joseon mounter' traditionally used Chinese paper, known for its short fibres, while the second lining was made using Korean mulberry paper (*hanji*). The painting was then attached onto the under-papered panel, and the dark blue cotton fabric was used to cover both external panels of the screen, as well as outer sides of each individual panel which would be in contact with the outside. Both the top and bottom parts of the panels were then decorated with satin damask silk mounts. As well as this, the mounter attached small decorative purple bands all around each panel. Pink and off-white narrow strips were bordered on either side of the small decorative brownish bands. Apart from being decorative the role of these bands was protective to the paintings. By protruding from the surface the thick bands around the actual painting, protected it from abrasions by direct contact with the painting on the opposite side, when the screen was closed.

The British Museum screen had two distinct decorative mounting elements. The first one was the white and pinkish narrow strips inserted between the upmost part of the decorative silk at both the top and the bottom, nearest to the painting. The second consisted of metal fittings, which are rarely found, on the first and last panels on Korean screens. They were obviously added to protect the folding screen structure from shocks when closed.

Fig 1
Examination of *The Five Confucian Virtues* with Ms Park Chisun and Ms Cho Eunhye



1

Conservation

When first examined, this screen was found in an unacceptably poor condition. Due to its fragility, the screen could not be handled easily, and all the fabrics could be very easily damaged. There was physical damage such as tears, as well as general discolouration in most areas; there was a lot of dust on the screen. The mount silks were powdery and fragile. There had been two previous repairs, one being relatively recent, and the other, restored and re-painted, appeared quite old.

Ms Park Chisun of the Jeongjae Studio and her former student Ms Cho Eunhye, now conservator at the National Archives of Korea, were invited to the British Museum for seven days in 2019 and five days in 2022 to collaborate on the examination and remounting of this screen painting. Since securing appropriate Korean silk was challenging, retaining the original historical materials as much as possible was very important, and it was decided to reuse some of the original mounting silk.

Following treatment plans and schedules, the screen was disassembled by removing the paintings from the inner framework and mounting after consolidating the unstable pigmented areas. After capillary washing, the old lining papers were carefully removed, and after they were completely repaired, all 12 paintings were lined again with dyed Chinese *xuan* and Korean *hanji* papers.

After the removal of the old lining paper of the mount silks and hemp decorative bands, the mount textiles were repaired and lined twice. Before the assembling process, all lined paintings and mount textiles were stretched on drying boards.

The highlights of the treatments were as follows. Dust removal of the surface of the paintings and surrounding fabrics was carried out using a soft brush and a conservation vacuum cleaner. Using a microscope, it was possible to identify that the dust was composed of black powder which originated from the mount fabric illustrating extreme fragility of the mount silks. There was also a considerable difference between the condition of the exposed silk and that covered under the old mount elements. Because of the decision of reusing the original silk, it was crucial to find a solution to consolidate it.

Some pigments were also found to be extremely fragile, due to exposure to light and environmental factors. Rabbit skin glue was used for consolidation and its concentration was progressively increased from 1% to 3% through the process. This is a standard consolidation method applied to East Asian paintings.

From the end of the 19th century, Korean painters are known to have started using synthetic pigments but traditional consolidation method was not very effective for these kind of pigments. Obviously, modern synthetic consolidants could be used, but their effect in the long-term was unknown, and it was considered too risky to use them in this case and decided to continue with animal glue. After repeated application of animal glue some parts, especially the blue, were still sensitive. Once consolidation was finished, the paintings were dried for at least three days before backing removal.

Interestingly, when removing the original second lining paper, important historic official documents were found, which contained the name of a location in Korea named Muncheongun Hamgyeong-do, currently part of North Korea. It was all about the number of inhabitants in this area. These official documents formed over 70 sheets that had been recycled for use within the screen.

As pigmented areas were very fragile the use of water had to be minimised especially when removing the first lining. Despite several methods of removing the first lining papers typically used in Asia, a new method which would be most suited to the fragile pigments had to be devised. It was established that seven hours was the maximum period of exposure to moisture before vulnerable pigment particles started 'moving'. It was also important not to use pressure even if it was minimal, as this would squash the pigmented area. By using a polyester sheet for support, the old first lining papers were removed, little by little using tweezers. As soon as this operation was completed, the painting was lined and stabilised with Chinese *xuan* paper and paste.



2

Fig 3
Under-papering on the
wooden inner frame

Fig 4
Kim Moon-kwon trimming
the wooden framework

Fig 5
Attachment of the decorative
bands on the screen assembled

Fieldwork and remounting

During fieldwork in Korea, several materials from artisans and experts were bought and a wooden lattice framework and the missing metal fittings were commissioned from a carpenter, Mr Kim Moon-kwon, and a maker of metal ornaments, Mr Kim Kyu-bong. A dyer, Ms Lee Jongnam dyed the mount silks to a suitable colour for the screen. Under-papering was carried on the wooden inner frame at the Jeongjae Studio located in Seoul since it required the help of a carpenter to trim the wooden framework in Korea.

Finally, the paintings were remounted onto the inner frame with as many of the original parts retained as possible, such as the mount silk and metal fittings. Having completed the mount assembly, the metal fittings were attached onto the original positions of the first and last frames.



4



3



5

Woljeon Chang Woo-Soung's works in the eyes of a conservator

Cha Byung-kap
Korean Paintings and Paper Conservator
Formerly of National Museum of Modern and
Contemporary Art, Gwachoen, South Korea

Translated by Boyoung Lee, PhD, DPhil

The first item to be conserved, marking the beginning of the Amorepacific Project for the Conservation of Korean Pictorial Art was the *Sae-an* (*Flying geese*, 1983, British Museum 1995,1012,0.2) by Chang Woo-Soung (장우성 張遇聖, 1912–2005). Chang (soubriquets: Woljeon and Banryongsanin) was known as a literary painter who was talented in both art and scholarship. During the investigation of stored items at the British Museum in 2018, former curator Eleanor Soo-ah Hyun found brown stains over the surface of the painting. Dr Meejung Kim-Marandet, the Amorepacific Project Conservator, soon organised the conservation plan for the piece and invited me as a consultant for a short period. As a former conservator at the National Museum of Modern and Contemporary Art (NMMCA) in South Korea and a specialist in modern Korean paintings, I am familiar with the works and style of Chang. However, it was more meaningful to me because my personal relationship with Woljeon goes back a long way.

It was during the snowy winter of 1968 that I met Woljeon for the first time. I was a 16-year-old boy who just left his home country to work at *Dongsanbang* Gallery in Insa-dong, Seoul. All I could do as a starting apprentice was run small errands. One cold day, I was sent to fetch Woljeon's paintings. Walking down the snowy passages of Insa-dong, I arrived at his atelier. There he was, prepping the silk fabrics; a decent, elegant man. A few years later, his atelier was moved to Gwanghwamoon from Insa-dong. Though I could no longer see him in-person, the connection between me and Woljeon's works continued. In 1987, I joined the NMMCA as a Korean Paintings Conservator and had opportunities to conserve renowned works of Woljeon. I would like to share that story with the readers.

Fig 1
Seungmu-do (Buddhist dance),
Chang Woo-Soung, 1937.
Colour on silk, 1980 x 1610mm,
NMMCA KO-00189,
© National Museum of Modern
and Contemporary Art, Korea



1

In 1972, I was making frames for the Deoksoo Palace Museum of Art in preparation for a touring collection of Korean art in Europe and America. Woljeon's *Seungmu-do* was among the collection. I instantly noticed the damage to the silk fabric. A part of the thick silk ground was torn off and patched over with unmatching fabric. In Woljeon's work, the use of negative space has great importance in conveying balance and harmony. I thought it deserved better treatment so that Chang's signature placement of negative space can fully serve its purpose. Moreover, the piece was going on exhibition overseas, and I was a little ashamed of what I saw. Back then, no one really cared about such details if there were no visible holes. Unfortunately, there was nothing I could do as I was not a conservator yet. I had to bear the pitifulness and walk away, thinking that one day maybe I can find a better solution for it. After a long time, I found *Seungmu-do* among the new acquisitions at the National Museum of Modern and Contemporary Art. The bitter memory of it from the Deoksoo Palace came back, but this time I was thrilled because I could do something about it. I immediately registered the *Seungmu-do* on the conservation treatment list and gave it the best treatment I could. After cleaning and removing the rag-like patches, I repaired the hole with a support silk fabric that matched the original ground. I could not fully remove the traces of damage because it was there for too long, but I am glad to think that my effort contributed to restoring the original charm of the *Seungmu-do*.



2

Woljeon's paintings were so popular, and many of them were displayed in the lobby of government buildings, including *Gui-mok* in the lobby of the Ministry of Culture, Sports, and Tourism. I was always so fond of the piece because the calm scene of a young boy with a cow returning home from farming brings me great nostalgia, as if I am seeing myself as a child. But there was something off about this painting. Woljeon's paintings are known for the articulate use of negative space, but *Gui-mok* seemed too full. Then one day, a conservation request for *Gui-mok* came through the inter-institutions support project. Being delighted to see one of my favourite paintings, I vowed to take good care of it and started dismantling the frame. I was soon shouting for joy, "There was a negative space!" A part of the screen about 20cm tall was folded over the back. Sadly, it was folded that way to fit the size of the display wall in the lobby. It is a sad thing, but I had to be grateful that the painting was at least not cut-out. I tried my best to make the folding line less visible, putting my best effort in it. Now when you see *Gui-mok*, you can appreciate the widespread summer sky filled with tender sunset, as Woljeon intended to show you.

Fig 3
Jeol-gyu (The Scream),
Chang Woo-Soung, 1980,
NMMCA KO-00699,
© National Museum of Modern
and Contemporary Art, Korea



3

I personally like Woljeon's ink wash paintings. I like the use of negative space in ink wash paintings, but in Woljeon's work, there is something more. You can feel a deep, ambiguous, and mysterious atmosphere rising from the space surrounding the subject. It is as if you can read the season, weather, and time in the dark air. *Jeol-gyu* is an ink wash painting depicting the dynamic appearance of screaming birds, showcasing an excellent example of Woljeon's articulate use of negative space. During the conservation treatment of *Jeol-gyu*, I could see how he created depth and strength in the negative space. Most ink wash paintings are painted on *hwaseonji* (Korean *xuan* paper) and then lined (backed) with another layer of paper. However, *Jeol-gyu* is painted on pre-lined paper to express more depth. The negative space is first painted, and then the subjects were expressed in varying densities, giving it a sense of perspective around the sun and negative space. In this case, I believe as a conservator that I must recognise how the painting ground is constructed as a part of the artwork. If the pre-mounting paper attached to the screen is removed like in a typical ink wash painting conservation process, it will remove the depth and strength of this work. Therefore, I carefully cleaned and remounted the painting without separating the original ground. On the other hand, still life paintings of flowers such as *Jangmi* are treated as other ink wash paintings. Woljeon did not use pre-lined papers for flower paintings to achieve the fine effect of light and shade of colours. Woljeon's ink wash paintings were created in two different ways according to the subject and the artist's intention. Thus, his paintings are the true bearing of the three elements of ink wash paintings – paper, brush, and ink.



4

I moved to Samcheong-dong in 1994. Back then, Samgcheong-dong was a quiet neighbourhood with only small, single-story houses. Thus, a large stone building stood out in such a place: Han-byeok-won, the Woljeon Art Museum. I went to see him at once. Despite the signs of age, he still looked like a noble scholar, just as when I first saw him as a young boy. I recalled my old memories of him and told him I have desired to meet him again every time I treated his work. It was a new feeling to greet each other after a long time, but this time as experts in their respective fields. Since then, we became friends, and I often helped him mount his own works or the hemispherical table rubbings he collected.

Unfortunately, time has passed, and I cannot talk to Woljeon again. I am an old man, retired from the museum and now meet his paintings as a viewer. However, I am happy and proud that his works are exhibited and stored all over the world on behalf of Korea. My will to help in protecting and conserving Woljeon's work remains unchanged. Through this contribution, I would like to convey this message to the young conservators in the field: the artworks we meet are the medium of artists' thoughts and vision; thus, we must try to understand their intention as much as possible and recognise their work process as a part of the creation, too. Truly meaningful conservation treatment is only achievable through sincere communication between the artwork, the artists, and us.

Making a mounting fabric
for the *Scenes of Life* (평생도)

Song Jeongju

Korean Paintings and Paper Conservator
Gochang Conservation Studio

Translated by Boyoung Lee, PhD, DPhil

After graduating college with a major in fine art, I moved to Japan to study Asian art history at a graduate school in Tokyo. One day, I joined a student tour of the Handa-Kyuseido conservation studio (半田九清堂) inside the Tokyo National Museum. It was the first time I learned about the field of art conservation, and I started to dream about being part of it. I still remember the shock of the day because art conservation was such a new thing in Korea, and the view of a large studio full of heritage and peacefully working conservators was quite overwhelming. The flawless movements and remarkable concentration of the conservators looked almost like religious rituals. When Master Handa showed me sample books of papers and textiles, I was blown away. After a week, I started my training at the Handa-Kyuseido conservation studio. To look back, it was a miraculous event that I was able to find what I wanted to do in life, and I continue doing it to this day.

A few years later, I was offered a position at the Ho-Am Art Museum, Seoul with the opening of their own conservation studio. I was nervous to think about becoming independent, but I knew it would be rewarding if I could contribute to the establishment of art conservation in Korea. Thus, I took the offer and prepared the opening of the conservation studio with the Ho-Am Art Museum, from the planning of the workspace to the purchasing of equipment, a year in advance of joining them. Working with Ho-Am Art Museum for 11 years, I had unforgettable experience such as conserving Goryeo Buddhist paintings, which became a solid foundation for opening my own studio. Since then, 17 years have passed, though I feel like I am only at the dawn of my life.



Fig 1 (previous page)
The pattern of the old mounting fabric consisting of floral motif embedded in the background of a Swastika in twill motif

Fig 2
Warp (a) and weft (b) of the original mounting fabric

Mounting fabric for the *Scenes of life* folding screen (2016,3028.1)

When I first heard from Dr. Meejung Kim-Marandet at the British Museum regarding the conservation treatment of the *Scenes of life* folding screen, I was not sure if I would be of much help given the pandemic and limited time. However, I wanted to contribute in any way I could, there are many Korean paintings in Europe and America, but they are usually not on the top list for conservation treatment unless funding from the Korean Government is arranged. Moreover, there are a smaller number of East Asian paintings conservators and sourcing the right materials and tools can be difficult due to distance and supply. I cannot imagine the sense of relative deprivation Korean staff working in overseas museums would feel, sandwiched between China and Japan who are doing better jobs in supporting their own heritage abroad. Since the artefact could not leave the British Museum, Dr. Kim had to source all of the materials from Korea. For my role, I aided Dr. Kim in studying the mounting fabric of the *Scenes of life* folding screen and making new support fabric to match the existing fabric.

Microscopic observation of fibres

A sample was taken from a fragment of loose threads from the artefact. Both the warp and weft did not show any signs of twisting. The fibres taken from the warp looked like silk or cotton, and the fibres taken from the weft looked like a combination of silk and wool. However, we could not be sure of the result since we could not conduct a cross-sectional examination (Fig 2).



2a

2b

Fig 3
Warp (a) and weft (b) of the new mounting fabric

Weaving structure

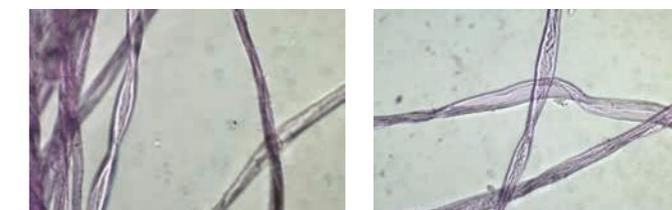
The old mounting fabric from the folding screen is a patterned Joo (文紬), also known as Qi (綺) in China, which has a plain ground with patterns woven in twill structures. As seen in Figure 1, the pattern is comprised of a Swastika in twill motif (卍字菱文) and a small circular floral motif (小團花紋), and a small floral motif (小花紋) is placed in-between the two motifs. The thread count is 22 x 19 per cm². The current colour is dark green, but some parts of the fabric survived the fading and exhibited the original purple shade.

Production of replacement fabric

Despite our best efforts, it was difficult to find a similar fabric to replace the old mounting. So, we tried to purchase a custom-weave one. It would have been better if we were able to do it in Korea, but the estimated cost exceeded our budget. During the search for a weaver, we found a textile mill in Nishijin (西陣), Japan, that was able to produce a patterned fabric using the same motifs as the original mounting fabric. The Yamazaki company agreed to help us, but the only hurdle was that they could not weave a union fabric of silk and no-twist cotton. They had to use the last few meters of a pre-woven fabric roll, so replacing the warp was difficult, and untwisted cotton could not endure the tension of the weaving process. Consequently, we settled on producing cotton fabric using low-twist cotton yarn for both warp and weft.

The new mounting fabric is woven in a Damask weave (綾), with patterns woven in weft-faced twill on a warp-faced twill ground. This is in an opposite grain compared to the original mountain fabric. The space between the small floral motifs is narrower than in the old mounting fabric.

The new mounting fabric was dyed at a dyeing studio using direct dye 21 PRODYE D07, Red 4BL and overdyeing with indigo. I initially tried a combination of madder and indigo, but it was difficult to match the colour well.



3a

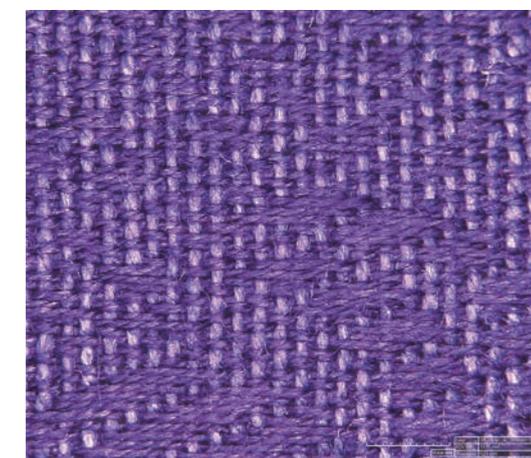
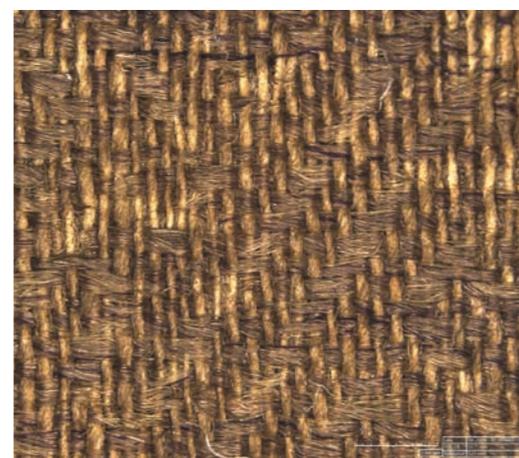
3b

Fig 4
Pattern view of the old (a) and
new (b) mounting fabrics

The elements of a successful conservation treatment are the skilled hands of conservators, tools, and materials. Finding the right materials, especially textiles, is often the most difficult and time-consuming part of East Asian paintings conservation. As in many developed parts of the world, traditional textile mills in Korea have almost disappeared, making it hard to source fabrics without custom weaving them. The same applies to the sourcing of traditional tools too. These items have to be either custom ordered or hand made by the conservator. In the case of textiles, it is particularly difficult to source them since the amount of textiles used in paintings conservation as mounting fabric is small. Therefore, I have come to weave a simple painting silk (화견) inside this studio with the help of Ms. Jeong-im Choi. During the conservation of *Donggwoldo* (Painting of Eastern Palaces), I could not find a matching fabric to mend with, and having an in-house weaver was particularly helpful. There were still difficulties and frustrations to navigate through. For example, there are no surviving silk reeling factories in Korea, and raw silk threads available in the market are limited. I tried to source directly from the Agricultural Research and Extension Services, but their crop season and my project deadline did not align. I was finally able to purchase a small amount of raw silk threads from the Japan National Institute of Sericultural and Entomological Science, which had an inventory. Unfortunately, the capacity of my studio is limited to the production of plain fabrics, meaning I could not faithfully reproduce the original mounting fabric. Additionally, conservation treatment needs to be completed within a limited time frame. It is regrettable that various alternatives could not be considered due to time constraints. I hope better solutions can be prepared by collecting opinions from those people who have similar experience to my own so that sourcing appropriate materials to conserve Korean art within Korea becomes possible in the near future.

The new silk has been used very successfully on the folding screen. The colour is now very vibrant as it was proven to be where original material had been protected from light damage.

Jeongju Song helped the project with sourcing and dyeing of fabrics. She is among the first-generation of modern Asian paintings and paper conservators in South Korea. She has accumulated experience and knowledge in various types of East Asian art conservation and has been a leader in the field for 36 years.



4a

4b

Dyeing fabrics for the conservation treatment of the *Five Confucian Virtues*

Lee Jong-nam

Lee Jong-nam Institution of Traditional Dyeing

Translated by Boyoung Lee, PhD, DPhil

My journey with traditional dyeing began with a small *jogak-bojagi* (patchwork wrapping cloth) featured in a magazine. A colourful *bojagi* decorating a modern space looked so cool to my young self, and as someone studying craft dyeing at university, I decided to make my own. Back then, the legacy of traditional dyeing was almost forgotten, so I did not have the luxury of learning things easily.

I started with oriental medicine books to learn about dyestuffs and searched for traditional recipes from old records and literature. Luckily, I was able to meet a few surviving traditional dyers to learn their know-how and techniques. For more than 30 years, I have studied dyeing methods for textiles and also leather, wood, and paper.

The outcome of my research on traditional dyeing is published as the book, *Natural dyeing that we must know* (2004). I had the honour of being awarded at the Korean Annual Handicraft Art Exhibition (2010 and 2018). Recently, I have been actively participating on conservation projects with major museums, such as the Seoul Museum of Craft Art, the National Museum of Korea, and the National Palace Museum of Korea. For the Amorepacific Project for the Conservation of Korean Pictorial Art, I dyed the fabrics used for the conservation treatment of the *Five Confucian Virtues* (오륜행실도, 1957,1214,0.1).

Dyeing fabrics for *Five Confucian Virtues*

My goal in dyeing fabrics for conservation treatment is not only to achieve colours that assimilate well to the current status of artefacts, but also to yield good fastness. For the *Five Confucian Virtues*, I prepared five different shades of cotton and silk fabrics to match the mounting.

Lightfastness of indigo-dyed cotton fabric

Before I decided which recipe to use, I implemented a simple experiment to compare the lightfastness of several indigo dyeing recipes on cotton fabric to choose the most appropriate method for the mounting fabric. The test was conducted by the FITI testing and research institute (Seoul, Korea) according to the KS K ISO 105-B02:2014, Colourfastness to Artificial Light (Xenon-arc fading lamp) using ATLAS Weather-o-meter apparatus.

The best fabric was plain woven, 30 counts cotton fabric; scoured before dyeing. The process is illustrated in Fig 1 and 2.

Materials for the test, with code for Table 1:

Indigo dyeing (I):

indigo vat was prepared by fermenting 1.3kg of *Indigofera tinctoria* leaves in 15l of beanstalk ash water with 100ml of *makgeoli* (rice wine) and 10–20g of seashell ash. Fabrics were wet and dyed in the indigo vat for 20 minutes, twice (total of 40 minutes)

Persimmon extract (P):

dilute green persimmon (Jeju island) juice in water (1:5)

Bean extract (B):

for pre-mordanting, 10g raw bean powder mixed in 1.1l of water and left undisturbed for 2 hours. 800ml of supernatant was removed and used to immerse fabrics for 15 minutes. For post-mordanting, 10g of raw bean powder mixed in 1.1l of water and left undisturbed for 4 hours. 800ml of supernatant was removed and used to immerse fabrics for 30 minutes. The process was repeated 3 times, and fabrics were dried in-between the turns.

Vinegar water wash (V):

indigo dyed fabrics were immersed in vinegar water to neutralise the pH and then rinsed thoroughly with running water.

Hot wash with boiling water (HW):

fabrics were washed thoroughly in a boiling water pot. Repeated 3 times with fresh batches of water.

Table 1
Lightfastness of cotton fabrics
dyed with indigo

The results (Table 1) showed that the samples pre-mordanted with bean (Sample 1) or persimmon extract (Sample 2) had a higher lightfastness (4 and above) than other samples. However, the samples without mordant also showed high lightfastness: a thoroughly washed, neutralised in vinegar water, and sundried sample (Sample 11) showed grade 4 lightfastness. Thus, the most important process to promote the lightfastness of indigo dyed cotton fabric seemed to be the removal of harsh alkaline substances used for dyeing by thorough washing. Although I was not able to perform any further tests due to limitations in time and capacity, it will be beneficial to repeat the tests with silk fabrics in the future.

No.	Variation	Lightfastness (KS K ISO 105- B02:2014)
1	B → I → V → HW	4+
2	P → I → V → HW	4
3	B → I → V → HW → laundered → rinse → HW	2
4	P → I → V → HW → laundered → HW	2
5	I → B	3–4
6	I → P	1
7	I → HW	3–4
8	I → neutralise with running water → laundered	3
9	I → neutralise with running	3
10	I → V → laundered	2–3
11	I → V → sundried	4
12	P → I → aired to develop → HW → B	2
13	P → I → V → HW → B	2

Based on the traditional recipes and the results from the above experiment, I have organised the dye recipes below to produce mounting fabrics for the *Five Confucian Virtues*. I hope this information will become useful to future conservators and dyers of Korean art.

Fig 1
Dyeing stages for cotton fabric:
extracting colourants from fresh
indigo leaves immersed in water
vat (a); adding lime to precipitate
colourants (b); and immersing fabric
into fermented dye vat repeatedly
until desired shade is achieved (c).
© Jongnam Lee, 2022



1a



1b



1c

1 Navy blue (Guncheong) on cotton fabric using persimmon extract to promote fastness and lessen the chroma:

- 1.1 Dilute persimmon extract in water at a 1:4 ratio, steep the cotton fabric for 15 minutes, and dry.
- 1.2 Dye indigo at about 20° for 30 minutes, repeating 9 times. Every 2–3 turns, take the fabric and rinse well in hot water (70°) to remove the alkaline substance and prevent damage.
- 1.3 Rinse in hot water (70°), neutralise the pH in vinegar water, and rinse well with running water.
- 1.4 Launder 3 times with neutral detergent, then steep in boiling water to remove any excess dyes and chemicals. Repeat the steeping process 2–3 times. Once dry, check the final colour and dye again if necessary.

2 Blue on silk fabric:

- 2.1 Dye indigo at about 20° for 15 minutes each turn. Repeat 5 times (adjust depending on the density of the fabric).
- 2.2 Dilute 5ml vinegar (5–10% acetic acid) in 1l water and immerse the dyed fabric for 30 minutes.
- 2.3 Rinse 5–6 times and then steep in boiling water to remove any excess dyes and chemicals.

3 Coral pink on silk fabric using alum mordant and madder and sapanwood for dyeing:

- 3.1 Mordant silk fabric in 5g/l alum solution at 50–60° for 15 minutes. Rinse well 5–6 times.
- 3.2 Extract sapanwood and madder in separate pots of boiling water at 10g/l each.
- 3.3 Dye fabric 5–10 minutes in each bath.
- 3.4 Rinse in water (20–30°) 5–6 times, then wash in boiling water 1–2 times.
- 3.5 Repeat dyeing and washing until the desired shade is achieved. A tannin bath of acorn extract can be used to adjust the colour.

Fig 2
Dyeing process of large sheets
of fabric: immersing a pre-treated
fabric into indigo vat (a); drying
coral-coloured (b), and indigo
silk fabric (c, overleaf)

4 Plum colour on silk fabric using iron liquor (iron acetate)
to achieve a dim shade:

- 4.1 Mordant fabric in iron liquor solution (2ml/l) for 15 minutes. Rinse well.
- 4.2 Extract sapanwood and madder in separate pots of boiling water at 20g/l each.
- 4.3 Dye fabric 10–15 minutes in each bath.
- 4.4 Rinse in water (20–30°) 5–6 times, then wash in boiling water 1–2 times.
- 4.5 Repeat dyeing and washing until the desired shade is achieved. A tannin bath of acorn extract can be used to adjust the colour.

5 Ivory on silk fabric by overdyeing with tannic substances:

- 5.1 Extract obaeja (gallnut) in boiling water at 20g/l
- 5.2 Dye for 10–15 minutes, rinse well 5–6 times.
- 5.3 Repeat if necessary, and overdye with acorn extract to match the desired shade.

Note: results from the recipes above can be affected by different elements, such as the freshness of dyestuffs, storage conditions, softness of the water, and purity of mordants.



2a



2b



Fresh indigo dyeing methods from the Joseon period

Boyoung Lee, PhD, DPhil

Adjunct Professor of Fashion Design and Merchandising,
Korea University

The *Portrait of Ch'ae Che-Gong* (1996,0329,0.1) was investigated as part of the Amorepacific Project. The colour analysis of the portrait detected indigo in the light sky-blue mounting silk fabric.¹ That colour is typically a product of fresh indigo dyeing, a characteristic Korean practice to dye textiles a spectrum of colours from green to bright blue. Although the practice and techniques may be familiar to a Korean audience, information on fresh indigo dyeing and the preference for certain hues is not readily available for non-Korean-speaking scholars. This article serves to improve accessibility by summarising the current knowledge of how indigo was utilised in dyeing during the Joseon Dynasty of Korea (1392–1910). Selected literature from the Joseon period containing information on fresh indigo dyeing, coupled with modern scientific studies on fresh indigo colour properties, are reviewed and summarised here.

Green



Deep grass green 眞草綠
Bright green 明綠
Soft pea green 軟豆
Black-green 黑綠



Grass green 草綠
Willow green 柳綠
Western green 洋綠
Willow blue 柳青
Lotus leaves 荷葉
Jadeite indigo 翠藍
Spring willow green 春柳綠
Kingfisher blue 鸚

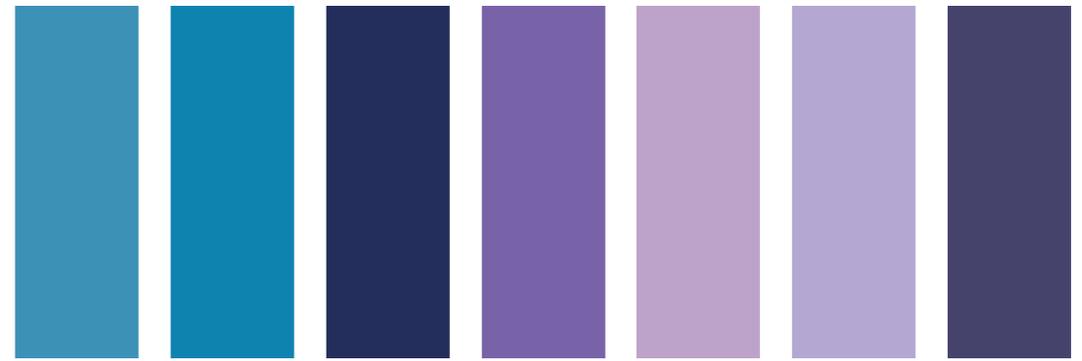


Blue-green 青綠

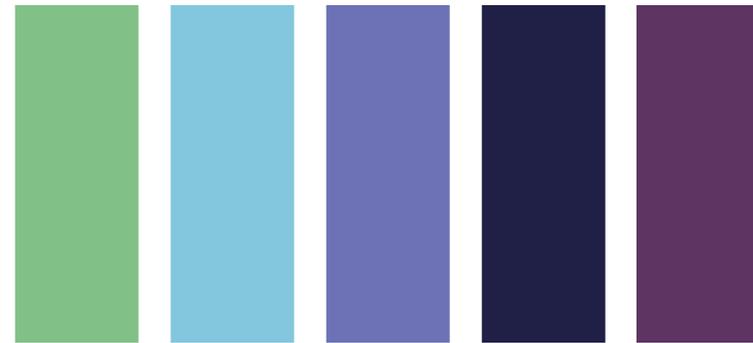


Green 綠

Blue



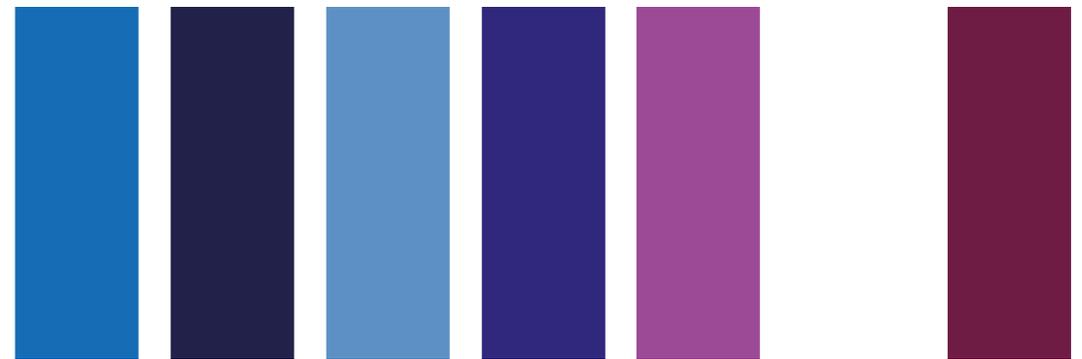
Light blue 淡青
Black-blue 黑清
Ultramarine 群青
Soft indigo 軟藍
Light purple 淡紫
Ash violet 灰甬羅
Fermented indigo 熟藍



Jade blue 玉
Sky blue 天青
Western indigo 洋藍
Crow blue 鴉青
Grape 葡萄



Aqua-blue 碧青
Blue-black 青玄
Aqua-indigo 碧藍
Porcelain blue 青磁
Red-indigo 紅藍
Aqua-purple 碧紫



Blue 青
Navy blue 紺
Aquamarine 碧
Indigo 藍
Violet 甬羅
Purple 紫

Hue

Lightness/
Chroma

Conceptual

Compound

Solid

Indigo dyeing methods in Joseon Korea

During the Joseon period, two major types of indigo dyeing were practised: the fresh leaf method and the fermented leaf method. The blue lake method, which uses various types of indigo or woad, was also practiced during the period,² but this paper will only focus on the two major types. The fresh leaf method, Saeng-ram (生藍), is a simple method using juice from the stone grinding of freshly picked indigo leaves to dye silk from Ok (玉, jade) to Nam (藍, indigo).³ Saeng-ram is easier to practice and better suited for producing lighter shades of blue, such as Ok, Cho-rok (草綠, grass green), Doo-rok (斗祿, pea green), and Borah (甫羅, violet),⁴ and compound shades by overdyeing. The fermented indigo method, Sook-ram (熟藍), is a vat dyeing method using an extract from indigo leaves soaked in water for several days with a small amount of alcohol that are then fermented with a vegetable ash solution. Sook-ram is more suitable for dyeing deeper blues, such as Ah-chung (鴉青), and darker shades when ground. A combination of the two methods was recorded in Saek-gyeong (穢經) and Sallim Gyeongje (山林經濟) with a remark that the combination is inferior to the fresh leaf method.⁵

The preference for light blue to green shades during the Joseon Dynasty was purposeful and heavily influenced by the Five Elements (五行), where blue represented east, spring, and nature.⁶ Traditional Korean colours are based on the major colours of the Five Elements (red, white, yellow, blue, and black) and their binary colours (靑, 纁, 硃, 黼, 黻, 綠, 駟, 紫, 紅, 碧),⁷ though each colour was elaborately named based on brightness, saturation, and colouring materials (Table 1).⁸ Research on reviving the traditional colour palette is ongoing, and there are more than 160 colour names discovered from Joseon period literature.⁹ Among them are many involving indigo, ranging from green to purple rather than being limited to solid blue (see Moon, *Traditional Colours of Korea*, 2012 and *Traditional Colors of Korea, names and reference samples: the 2nd edition*, 1992 for visual information).

The fresh leaf method was only available during the indigo harvest season in the summer, but it was essential to keep the dye bath temperature low to develop the desired colour. The *Gyuhap Chongseo* (閨閣叢書) states, "To dye *Nam*, one must choose a cool day to dye because on hot days the colour shifts to red quickly. Immerse the silk fabrics in water, grind indigo leaves with cold water, and filter the juice into the fabric vat. The dyer must use lots of ice and mix it vigorously to keep the temperature cool."¹¹ The requirement of ice limited the fresh dyeing method to the royal court during the Joseon Dynasty since ice was rare. In Seung-jung-won Il-gi (承政院日記), several records on Namyum-bing (藍染氷, ice for indigo dyeing) appear. On 6 June of Jung-chook year (1637), Sang-eui-won (尙衣院, Court Textile Department) reported, "We must dye the plain silk fabrics (吐紬) between the 8th and 9th of this month, but the supply of ice is short so we will have to follow the commoner's practice of using warm water... still, it is unavoidable to use some ice to develop colours at the end of the process... please allow 30 blocks of ice..."¹² On June 25th of Gye-mi year (1703), Ye-jo (Ministry of Culture and Education) reported the heavy use of Nam-bing by Sang-eui-won during the national shortage of ice and discussed how to rearrange the supply and management before another indigo dyeing takes place.¹³ The heavy use of Nam-bing and the labelling of warm water extraction methods as "commoner's practice" indicates that the fresh leaf method was preferred in the court. Moreover, the fresh leaf method was easier to follow than fermented indigo methods for unskilled court maids.¹⁴

As described in *Gyuhap Chongseo*, maintaining a low temperature is key to obtaining blue shades rather than a reddish hue. This aligns with modern chemical analyses showing that indoxyl reacts with oxygen and water to form the three isomers indigo blue (indigo), indigo brown (isoindigotin), and indigo red (indirubin),¹⁵ with isoindigotin and indirubin being more active at temperatures above 40°C.¹⁶ Studies have reported that dyeability and colour are dependent on temperature and pH. Silk fabrics dyed with fresh leaf extract shifted away from greenness/blueness and became less dyeable (measured by K/S value) when temperatures increase from 20 to 40°C.¹⁷ The measured colour of the fabrics was close to pure green (0.72 G) at -5°C but shifted toward yellow (GY) as the temperature increased. At 25°C, the fabrics appeared blue-green (5.24 BG) within the first 10 minutes but shifted toward (B) over time. At 35°C, the fabrics showed blue (1.64 B) within the first 10 minutes but shifted toward blue-green (BG) over time.¹⁸ Increases in pH also induced a colour shift, where silk fabrics displayed green (G) at pH 7, green-yellow (GY) at pH 8, and yellow-red (YR) at pH 9.¹⁹ Repetitive dyeing and higher dye concentrations (1% to 5%) increased the dyeability and blueness (*b).²⁰

In the fresh leaf method, surface adsorption of soluble indigo precursors is achieved by ionic bonding, and the blue colour is developed by the oxidation of indigo precursors.²¹ Cellulose fibres do not dye well with this method due to their low surface affinity.²² In the fermented leaf method, the adsorption of leuco-indigo occurs by van der Waals forces, and the oxidation of leuco-indigo to indigo induces hydrogen bonding between indigo molecules and fabric.²³ This difference in adsorption mechanism further results in different colourfastness and dyeability, with repetitive dyeing for colour build-up being less effective in the fresh leaf method.²⁴

During the Joseon period, the knowledge of various colours, dyes, and their production methods were documented in various formats, from court logs to literature on practical matters (實學書). Of the two major methods of indigo dyeing, the fresh leaf method was more popular in the court due to the availability of ice. Following traditional instructions to keep the dyebath cool to produce blue shades and prevent colour shift, modern studies have confirmed that silk fabrics dyed with fresh indigo leaf extract demonstrated better dyeability and more blue hues at 20°C compared to 40°C. Historical records suggest that the fresh leaf method was mainly used to dye silk from green to blue, and deep blue shades were obtained by the fermented leaf method or dyeing with blue lake made from woad. The fresh leaf method is less efficient than the fermented leaf method in terms of dyeability, but it is more versatile in terms of colour mixing, which was essential for the traditional colour palette of the Joseon Dynasty.

Acknowledgement

This article is dedicated to my father, Dr Sang-rin Lee, who led invaluable research at the Amorepacific Company for 30 years.

Appendix

Further information on Joseon period literature cited above

Korean	Chinese	English	Year	Author
색경	穉經	Saek Gyeong	1676	박세당 Park, Se-dang
산림경제	山林經濟	Sallim gyeongje	c.1700	홍만선 Hong, Man-sun
규합총서	閨閣叢書	Gyuhap Chongseo	1809	빙허각 이씨 Madame Lee (Bingheogak)
승정원일기	承政院日記	Seung-jung-won Il-gi (Journal of the Royal Secretariat)	1623– 1894	승정원 Seung-jung-won (The Royal Secretariat)

¹ Tamburini, D., et al., 'Bordering on Asian Paintings: Dye Analysis of Textile Borders and Mount Elements to Complement Research on Asian Pictorial Art,' *Heritage* 4/4 (2021), pp. 4344–4365

² Kim, S.Y., 'The Transition of the Indigo Dyeing Method Identified through the Agricultural Archives in the Latter Joseon Dynasty,' *Journal of the Korean Society of Clothing and Textiles* 32/8 (2008), pp. 1286–1298

³ Ibid.

⁴ Yi, B., *Gyuhap chongseo* 閨閣叢書 [Women's Encyclopedia], Translated by Y Jeong, Bojinjae (Paju, 1809, reprinted in 2008)

⁵ Kim, S.Y., op. cit.

⁶ Moon, E.B., *Hangukui jeontongsaek* 한국의 전통색 [Traditional Colours of Korea], Ahn Graphics (Paju, 2012)

⁷ Park, M.S. and Moon, E.B., 'A Study on the Traditional Color Names Appeared in the Korean Old Documents during Joseon Dynasty,' *Journal of Korea Society of Color Studies* 29/2 (2015), pp. 15–27 and Kim, S.Y., 'Color naming structure of red-series and purple-series in the clothing of Joseon dynasty period,' PhD thesis, Seoul National University, 2004

⁸ National Intangible Heritage Center, *Saegul ibhigo sureul nota* 국립무형유산원, 색을 입히고 수를 놓다 (*Empower with Colors, Inspire with Embroidery*), National Intangible Heritage Center (Jeonju, 2019)

⁹ Lee, J.H. and Kim, Y.I., 'The Characteristics of Korean Costume colors and the Interpretation from the Perspective of Cultural Semiotics (1),' *Journal of the Korean Society of Costume* 56/2 (2006), pp. 56–69

¹⁰ Ibid.; Moon, E.B., op. cit., and National Intangible Heritage Center, op.cit.

¹¹ Yi, op. cit.

¹² 曹文秀, 以尙衣院言啓曰, 吐袖, 自本院措備, 今月初八九日間, 當爲染藍, 而即今水丁, 其貴如金, 不得已, 依閨閣入染例, 擬以煮水入染, 而未稍取色時, 則不得不賂用片水, 紫門水三十丁許, 許令題給, 宜當, 事勢如此, 敢啓。傳曰, 依啓。
Seungeongwon ilgi 承政院日記 [The Daily Records of Royal Secretariat of Joseon Dynasty]. Available at <https://sjw.history.go.kr/main.do> (accessed 13 December 2022)

¹³ 禮曹啓曰, 即接西水庫牒報, 則關內染藍時, 各殿所用水丁, 內庫專管(...)今年則國用, 比前有倍, 供上之外, 兩勅之行, 俱當盛暑, 許多差應, 元無限量, 四梗水丁, 只餘一梗, 前頭國用, 實難支撐, 將不免關供之患, 若自內庫, 又有移送藍水之舉, 則生事之患, 勢所必至, 自本曹, 細察本庫事勢, 別爲啓稟, 尙方藍水, 只使本庫專管, 以爲本庫支堪之地云, 關內染藍, 則內水庫專管進排, 尙方藍水, 則西水庫擔當, 自是前例(...). Ibid.

¹⁴ Kim, S.Y., 'The Dyeing Culture of Royal Garments in the Late Joseon Dynasty,' *Fashion & Textile Research Journal* 15/2 (2013), pp. 192–201

¹⁵ Bechtold, T. and Mussak R., *Handbook of Natural Colorants*, Wiley (New York, 2009)

¹⁶ Kitamura, Y., 'Ai namabazome jissaigihō to hiketsu: Ai no namabazome o hajimeru tame ni,' 藍生葉染め實際技法と秘訣: 藍の生葉染めを始めるために [Techniques and Secret to Indigo Dyeing using fresh leaves]. *Gekkan senshoku a*. Some to ori o tanoshimu hito no seikatsu jōhō-shi 160 (1994), pp. 30–34

¹⁷ Chung, I.M., 'Dyeing of Silk by the use of fresh leaves of Indigo plant,' *Korean Society of Sericultural Science* 42/1 (2000), pp. 36–41 and Kang, J.Y., *Natural Indigo Dyeing on Protein Fibers*, in *Dept. of Clothing and Textiles*. 2000, Seoul National University, Seoul

¹⁸ Chung, I.M., op. cit.

¹⁹ Park, Y.J., et al., 'Effect of dyeing conditions on dyeing characteristics in silk during natural dyeing using raw juice of indigo plants,' *Korean Journal of Plant Research* 18/3 (2015), pp. 417–423

²⁰ Chung, I.M., op cit. and Kang, J.Y., op cit.

²¹ Heo, B.G., *Saengjogyeomsaegui irongwa silje* 생죽염색의 이론과 실제 [The Theory and Practice of Fresh Indigo Dyeing], Seowa ijae (Gwangju, 2012)

²² Cho, K.R., *Gyuhapchongseoee natanan jeontongyeomsaekbeop haeseol* 규합총서에 나타난 전통염색법 해설 [Explanation of Traditional Dyeing Methods in Gyuhap Chongseo], Korean Studies Information (Paju, 2007) and 'General introduction to the chemistry of dyes,' in *IARC Working Group on the Evaluation of Carcinogenic Risks to Humans* I.A.I.R.o. Cancer, Editor (Lyon, 2010)

²³ Heo, B.G., et al., *Jjok jaebae irongwa silje* 쪽 재배 이론과 실제 [Theory and practice in growing the Indigo plant], Naju Natural Dyeing Cultural Foundation (Naju, 2009) and Sakakawa et al., 'Kansei no senshoku eno teigen (1)-aizome to kusakichōzome nitsuite 感性の染色への提言 (1)-藍染めと草木調染めについて [Proposal for sensitive dyeing (1)-regarding indigo dyeing and vegetable dyeing methods].' *Senshoku kōgyō* 染色工業 [Dyeing Industry] 39/4 (1991), pp. 210–220

²⁴ Cho, K.R., op.cit.

The dyes of the mounting fabrics of Korean traditional paintings at the British Museum

Diego Tamburini

Fig 1
Images of the purple (a) and blue (b)
textile borders of the 19th-century
two-panel screen silk painting
of *Pyeongsaeng-do – Scenes
of life* (2016,3028.1) obtained
by digital microscopy, highlighting
the discolouration of the exposed
areas and the vibrant colours of
the protected areas

Mounting elements and textile borders are an integral part of Korean traditional paintings. The dyes used to colour these elements can not only unlock important information on traditional dyeing practice, manufacturing of the artworks and original appearance, but can also be used as dating indicators to establish connections between people and to refine provenance.

In the framework of the Amorepacific Project, three paintings were investigated with the aim to support their conservation and obtain information about the dyes used in the mounting textiles and other mounting elements. The paintings include a rare example of late 18th century traditional Korean portraiture (1996,0329,0.1), representing Chae Je-gong (1720–1799), Prime Minister of Korea under King Jeongjo (reign 1776–1800) of the Joseon dynasty (1392–1910), and made in 1789 by court artist Yi Myeong-gi (1756–before 1813); a 19th-century two-panel screen silk painting of *Pyeongsaeng-do – Scenes of life* (2016,3028.1), probably originally part of a larger screen; and a 19th-century twelve-panel screen silk painting representing the *Five Confucian Virtues* (1957,1214,0.1).

Digital microscopy was used to investigate the textiles by using a Hirox 3D digital microscope at magnifications between 20x and 160x. This was particularly useful to capture images of the weaving as well as the extent of discolouration undergone by some of the dyes, as shown in Fig 1. Tiny samples, Fig 2, were then taken from the areas of interest, which are summarised in Table 1. These samples were used to perform dye analysis using high pressure liquid chromatography (HPLC) for the molecular identification of the dyes.



1a

1b

The results obtained from the late-18th century portrait (1996,0329,0.1) revealed that the light blue and dark blue textile borders on the painting recto and verso were dyed with natural indigo. It is unfortunately impossible with current techniques to indicate exactly which indigo plant was used. The darker blue shade was likely to be obtained with a higher number of dye baths compared to the light blue shade. The dark orange colour of the hanging string and tassel was obtained with a mixture of a red dye extracted from the heartwood of the sappanwood tree (*Biancaea sappan*, formerly *Caesalpinia sappan*) and a yellow dye extracted from the bark of the amur cork tree (*Phellodendron amurense*). The bright red colour of the edge of the hanging rod was obtained by using the safflower petals (*Carthamus tinctorius*). To obtain such a bright red colour from safflower is far from easy, which attests to the high level of skills of the dyers. The identification of these natural dyes is in agreement with the date of the painting (end of the 18th century) and represents an important piece of evidence in the case of comparative studies. For example, similar portraits are present in other collections, such as the one of the Suwon Hwaseong Museum in Korea.

The two-panel screen painting (2016,3028.1) was bordered by a purple silk damask dyed with the synthetic dye methyl violet 3B (Colour Index number 42536), which was synthesised for the first time in 1866 and is a very light sensitive dye. The blue border was dyed with methyl blue (Colour Index number 42780), synthesised in 1862 and is also a very light-sensitive dye. The presence of these two dyes justifies the high level of discolouration observed for these textiles. The pink silk stripes were dyed with fuchsin (Colour Index number 42510) obtained by an early synthetic process that was already adopted in 1856. The brown border was dyed with a mixture of fuchsin and the natural red dye from sappanwood. Sappanwood is also known to be light sensitive and can discolour from red to brown shades. This textile would have originally looked more reddish or pinkish than it appears today. The identification of these early synthetic dyes suggests that these textiles are likely to have been dyed significantly before the end of the 19th century, probably at a time when synthetic dyes had just started to be introduced and dyers were experimenting with these newly available products. The mixture of fuchsin and sappanwood is particularly interesting in this regard, as it seems to suggest an attempt to use a familiar dye (sappanwood) to shade a less familiar dye (fuchsin), in order to reach a desired hue not easily obtainable by fuchsin alone.

The frame of the twelve-panel screen painting (1957,1214,0.1) was covered by a cotton textile dyed with natural indigo. The blue textile border was made of silk and was dyed with methyl blue, the same synthetic blue dye found on the two-panel screen painting. The brown textile elements were found to be dyed with fuchsin, but in this case fuchsin was found to be mixed with tannins. Tannins are natural molecules extracted from many plants that are traditionally used to obtain dark colours or change the shade of a dye to a darker one. Unfortunately, it is often not possible to indicate the exact plant source of tannins. Finally, a pinkish/reddish detail was present and found to be dyed with the synthetic colourant benzopurpurin 4B (Colour Index number 23500). This dye was synthesised in 1884, which places the possible production date of these textiles more towards the end of the 19th century. Nevertheless, the continuous use of natural

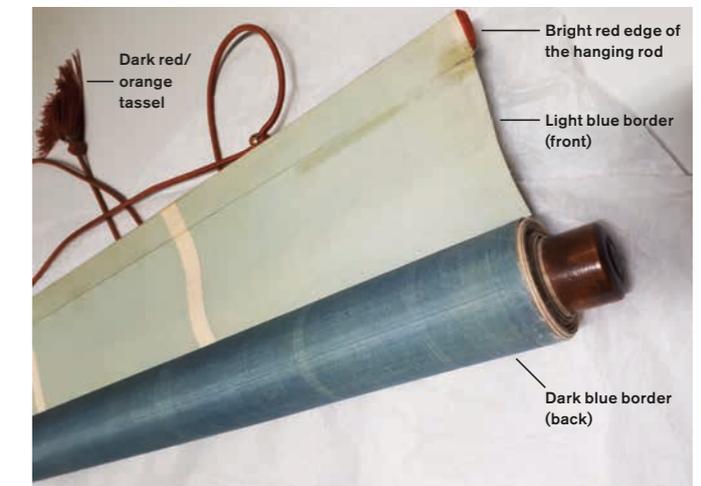
Table 1 (continued overleaf)
Summary of the results
obtained from dye analysis

dyes, such as indigo and tannins, alongside synthetic dyes, offers again a window into this interesting transition phase in dyeing practice and methods that occurred in the second half of the 19th century.

Overall, the results were useful to support the conservation process and to make decisions about the display of these artworks (Table 1). In addition, they represent an interesting starting point for further studies on traditional Korean dyeing practice and on the introduction of synthetic dyes into such practice.



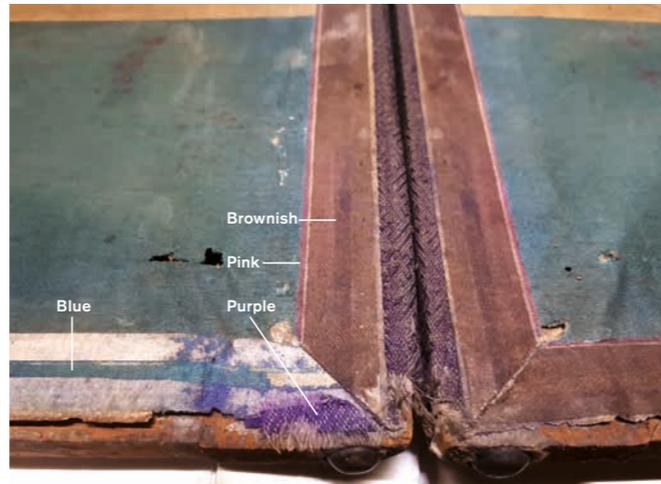
1996,0329,0.1 –
late-18th century portrait



	Light blue	Indigo
	Dark red/ orange	Sappanwod (<i>Biancaea sappan</i>) and Amur cork tree (<i>Phellodendron amurense</i>)
	Bright red	Safflower (<i>Carthamus tinctorius</i>)



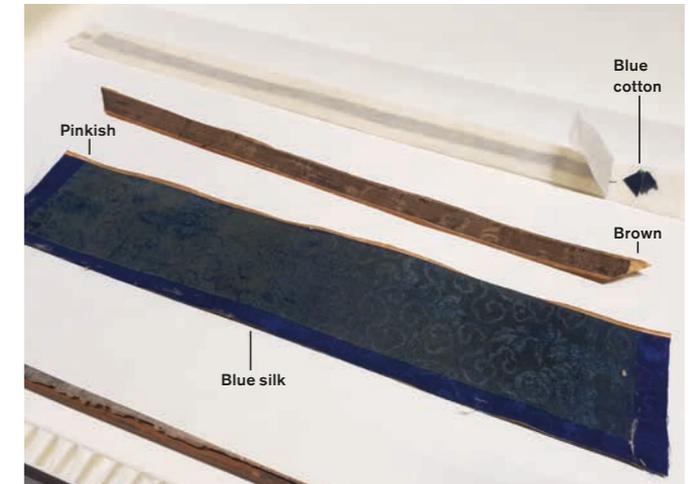
2016,3028.1 – 19th-century two-panel screen painting of *Scenes of life*



Not available	Purple	Methyl violet 3B (C.I. 42536 – first synthesis 1866)
	Blue	Methyl blue (C.I. 42780 – first synthesis 1862)
	Pink	Fuchsin (C.I. 42510 – first synthesis 1856)
	Brown	Sappanwood and fuchsin (C.I. 42510 – first synthesis 1856)



1957,1214,0.1 – 19th-century twelve-panel screen painting of the *Five Confucian Virtues*



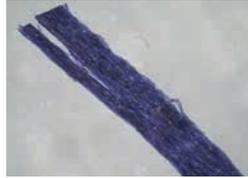
	Blue cotton	Indigo
	Blue silk	Methyl blue (C.I. 42780 – first synthesis 1862)
	Brown	Tannins and fuchsin (C.I. 42510 – first synthesis 1856)
	Pink	Benzopurpurin 4B (C.I. 23500 – first synthesis 1884)



Fig 2
Taking a sample from a damaged
area of the blue textile border of
the 19th-century two-panel screen
silk painting of *Pyeongsaeng-do –
Scenes of life* (2016,3028.1)

Morphological comparisons between ramie and hemp and how they influence the bast fibre procedures in Korea

Minsun Hwang
Conservator, The Metropolitan Museum, New York

The 2019 Amorepacific Project seminar on Korean Mounting Fabrics was devoted to the production and characteristics of traditional Korean textiles including hemp and ramie. Hemp and ramie fabrics have been used for mounting borders for Korean paintings and are not readily encountered in the Chinese or Japanese scroll mounting traditions, which mainly use silk. As part of this project Korean hemp textiles were used for new mount borders of two paintings: *Flowers and bird* (2001,0807,0.1) and *Magpies and tigers*, (1991,0201,0.1 and 0.2) introducing Korean traditional textiles in a Western institution. Hemp cloth, a widely used fabric among ordinary people, was assessed as suitable mount material for these two folk paintings. Ramie, another typical Korean fabric was also used for the folding screen mounting of the *Magpies and tigers*.

This paper covers ramie produced in Hansan County and hemp in Andong County in Korea, focusing on the morphological differences between ramie and hemp and how differences between these plants and their fibres have influenced weavers to develop the distinctive yarn-making processes of bast fibres.

Fig 1
Cloth woven with
Aboriginal ramie plant fibers
© Minsun Hwang, 2022

Fig 2
Aboriginal ramie plant leaf, recto (a)
and verso (b) and hybrid ramie
plant leaf recto (c) and verso (d)
© Minsun Hwang, 2022

Ramie and hemp are two major fibres among others (cotton, silk, hemp, ramie, and wool) used in Korea with a long history of use, going back to as early as the first century AD. Ramie and hemp are grown on the Korean peninsula. Hansan County is located five to ten kilometres from the shore of the West Sea on the west coast. Andong County is located to the east, surrounded by high mountains. Because Hansan County is on a lower latitude than Andong County, the Hansan region is warmer and has longer summer period, allowing up to three ramie plant harvests compared to the one harvest of hemp planting in Andong County.

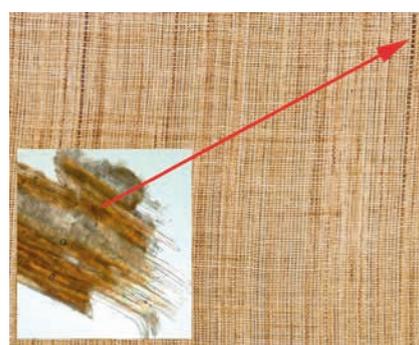
Ramie fabric, used for summer clothing, was enjoyed by the upper class and scholars. People in the countryside still appreciate ramie clothing during the summer. Hemp fabric was worn by the middle and lower classes because of its durability. It has also been used for funerary costumes and shrouds.¹ Hemp funerary costume has been gradually replaced with western style black suits in metropolitan areas. Hemp shrouds, used mostly for working class in the past, have become popular since the 1960s. Modern lifestyles have caused a decrease in the demand for ramie fabric and there are fewer people to continue the tradition of ramie fabric production.

Ramie, *Boehmeria nivea*, is an herbaceous perennial plant in the nettle family *Urticaceae*, native to eastern Asia. In Korea, there are two kinds of ramie plants being cultivated today. One is the aboriginal ramie species and the other is a hybrid species imported in the 1960s² (Fig 2).

The aboriginal ramie leaf is small and pointy. Its youngest leaves tend to have white hairs on the underside; however, the full-grown leaves do not have much of this white hair on the underside and are as green as the upper side.³ The hybrid ramie plants, have large heart-shaped leaves with much white hair on their undersides. These hairs reflect so much sunlight that when the wind blows, ramie fields can be recognized by the reflection of the leaves' hairs, even from 100–200 meters away.⁴

In addition, ramie growers mentioned that aboriginal ramie plants grow more slowly and thinner than the hybrids do with many more leaves. It results in producing smaller fibres in quantity, meaning lower income for farmers. In botany, when the leaves are removed at the nodes of the stem, the plant reacts chemically, showing brown stains on the epidermis. This staining is called 'leaf scar.' (Fig 1). Many times, these stains remain attached to the fibre layer as remnants of epidermis even after the epidermis has been scraped off and may be misunderstood as stains on the fibres themselves. These stains become more noticeable when the fabric is woven, resulting in their being less desirable commercially.⁵

The demand for ramie fabric has increased after the Korean War ended in 1953 and since 1960s farmers decided to pursue the hybrid ramie plant because it grows faster and taller with fewer leaves.⁶ At the present time, many farmers leave the plants to grow taller and heavier because clothing manufacturers, who mass produce fabrics, purchase them by weight.



1





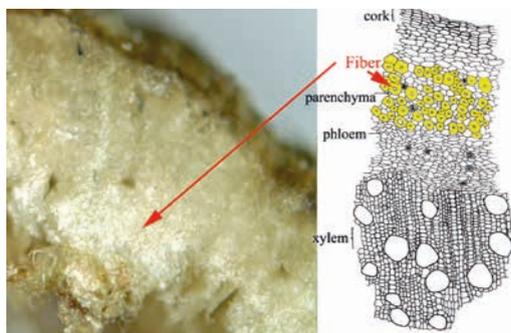
3

Hemp, *Cannabis Indica*,⁷ is annual and dioecious (having a male and female plant) and is in the *Cannabaceae* family. There is only one kind of hemp plant being cultivated in Korea (Fig 3). Hemp seeds are planted in the rice or vegetable fields unlike ramie, which grows in designated fields; the hemp plants grow from late March to late June or July. The farmers plant seeds close to each other for finer yarn production and the plants are bundled by the thickness of their stalks for sale.⁸ Thinner stalks are more desirable.

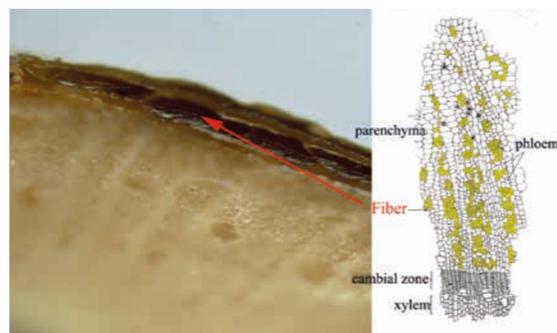
It is challenging to determine when such different procedures for these two bast fibres were developed. It is apparent that the yarn-making procedures of ramie and hemp were developed from a thorough understanding of their different characteristics, and to some extent, realizing each plant's unique morphology.⁹

Observation of the morphological difference of the ramie and hemp plants under higher magnification was conducted to understand why two distinct yarn-making methods for these two fibres were developed. Also, transverse sections of ramie and hemp stalks collected during the on-site research were studied (Fig 4).

This cross-sectional image of the ramie and hemp stalks shows that they are composed of pith (core), xylem (water-transporting cell tissues), and phloem (living tissue and an inner layer of the epidermis), fibres with parenchyma (ground tissues and capable of cell division), and epidermis (bark). Here ramie visibly shows that the large areas of fibre cells are distinguished from the neighbouring tissues and there is less concentrated ground tissues and less lignin, and pectin between individual fibre cell in the fibre layers. The hemp stalk in cross-section, on the other hand shows that the ground tissues with lignin and pectin are closely associated with the fibre cells.¹⁰



4a



4b

Fig 3
Hemp leaves
© Minsun Hwang, 2022

Fig 4
Morphology of a ramie stalk (a) and morphology of a hemp stalk (b).
© Minsun Hwang, 2022. Diagrams excerpted from *Identification of Vegetable Fibers*.

Fig 5
Morphology of ramie (a) and hemp fibers (b) in cross-section
© Minsun Hwang, 2022

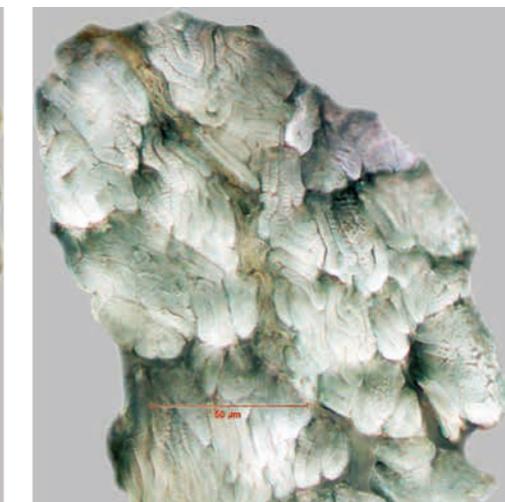
Ramie and hemp fibre both show irregularly spaced cross markings either singularly or in multiple under the microscope. However cross-sectional images distinguish how different ramie and hemp fibres are (Fig 5).

Ramie fibre, with 200x and 400x magnification, shows elongated, flattened, or curved into a crescent-shaped fibre cell and the lumina are open. The cells are also well-separated individually.¹¹ This composition creates easily separable fibres. Meanwhile, a three-month-old hemp from Andong shows that the typical hexagonal shape of the hemp cell, an indication visible in the mature hemp cells, is not yet present. This proves they are harvested at an immature stage. Most hemp fibre cells have slits like lumen and individual fibre cells are constrained by adjacent ones with no space between, thus pressing them into irregular shapes. Ground tissues between fibre cells¹² are closely associated with fibre cells, which lead one to understand that separation of hemp fibre becomes more difficult.¹³ Therefore, it is understanding that these specific characteristics of ramie and hemp led to the different processing techniques.

The steps of ramie and hemp yarn-making and fabric production described overleaf are followed by in-depth explanations.



5a



5b

Ramie¹⁴

- 1 Ramie stalks cut in the fields
- 2 Manual removal of leaves from the stalks
- 3 Decortication: Peeling the fibre layer from the pith, from the root end up to the tip
- 4 Scraping off bark from the fibre layers without using a board and sorting of the fibres by quality
- 5 Hanging to dry
- 6 Splitting:
 - Wetting, creating a fibre layer ball
 - Splitting the fibre layer with teeth, assisted by hands
 - Softening the root sides of the fibres to make them finer
- 7 Hanging to dry
- 8 Splicing to make yarn bundles, only one twist method
- 9 Warping: measuring the length of the warps to be woven
- 10 Reeding-in: threading warps in the reed
- 11 Starching: applying starch on the warps over low heat
- 12 Weaving
- 13 Bleaching the fabric (optional)

Hemp¹⁵

- 1 Hemp stalks cut in the fields
- 2 Steaming the stalks: leaves are removed during the steaming (no manual leaf removal necessary)
- 3 Drying the stalks
- 4 Retting small quantities of dry stalks for 5–7 hours
- 5 Decortication: Peeling the fibre layers from the stalk from the direction of the root up to the tip
- 6 Scraping off bark from the fibre layers on a board and sorting of the fibres by quality
- 7 Hanging to dry
- 8 Splitting:
 - Wetting, creating a fibre layer ball
 - Splitting fibres using the right thumb with the long fingernail
 - Softening the root sides of the fibres to make them pliable and finer
- 9 Hanging to dry
- 10 Splicing to make yarn bundles
- 11 Warping: measuring the length of the warps to be woven
- 12 Reeding-in: threading warps in the reed
- 13 Starching: applying starch on the warps over low heat
- 14 Dressing the loom and weaving
- 15 Bleaching the fabric
- 16 Dyeing yellow with gardenia seed pods



6a



6b

Fig 6
Scraping off the epidermis from the
ramie (a) and hemp fiber layers (b)
© Minsun Hwang, 2022

Fig 7
Diagrams of ramie (a) and hemp
splicing (b) © Minsun Hwang, 2022

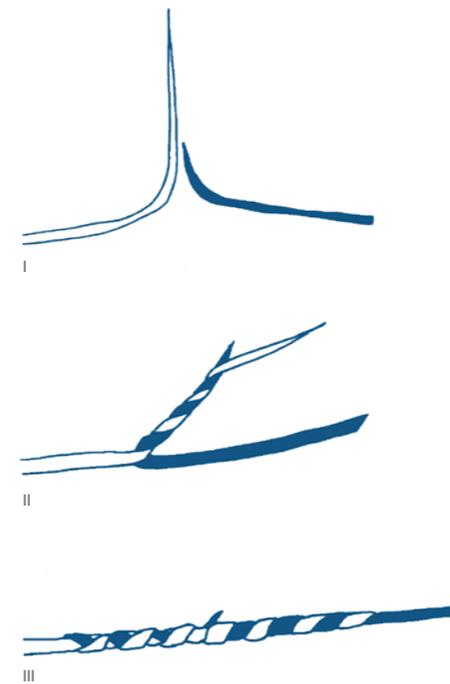
Among these summarised steps of ramie and hemp fabric production, several procedures need to be further explained in detail in relation to the difference of two fibres.

Ramie stalks can be decorticated without steaming or retting. The epidermis with the fibre layer can be peeled off the pith easily. In contrast, hemp stalks must be steamed and retted to remove the fibre layers from the woody pith. Steaming hemp stalks in a closed chamber dissolves much of the pectin and cellulose fibres in the stalks, which eventually helps in splitting and separating the fibre layers with additional scraping force (Fig 6).

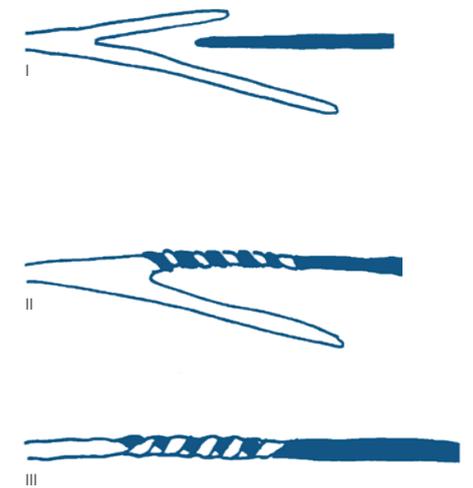
For splitting, weavers use their four front teeth for ramie and right thumbnail as a hemp splitting tool.

In splicing the ramie and hemp strands, there is one method for ramie and two methods for hemp¹⁷ (Fig 7). For ramie, a strand with the tip end and the other with the base end (which is 1/3~1/4 of the length of the tip), are combined and twisted slightly in a Z-direction. The twisted segment is then folded down toward the side of the base end of the second strand and twisted again in an S-direction.¹⁸ Hemp strands also can be spliced in the same way as ramie strands are spliced. The second splicing method starts with splitting the tip end of a strand. Next the base end of a second strand is inserted between the two split ends of the first strand. The base and one of the split tip ends are put together and twisted in a Z-direction. Lastly, these Z-twisted ends and the other tip end are twisted together in an S-direction.¹⁹

The warping, reeding-in, starching, and weaving of both fibres are carried out in the same general manner, with slight variations. For warping, rice bran is used to weigh down the ramie yarn bundles. For hemp, sand is used to keep the bundles down as hemp yarns are split thicker.



7a



7b

Fig 8
Starching ramie yarns over a gas-heated metal plate, Hansan (a) and starching hemp yarns over burned rice husks, Andong (b).
© Minsun Hwang, 2022

For starching the warp, finely ground soybean paste with salt is used for ramie and fermented soybean paste with cooked millet grain is used for hemp (Fig 8). In addition, weavers in Hansan designed a built-in gas-heated metal plate in the ground, attached to the rail track to position the yarn bundle on the other side. As starching advances, the weaver cranks up to wind the starched yarn onto the yarn bolt, pulling the remaining yarn toward the weaver. The whole mechanism enables one weaver to perform the starching process alone. For starching hemp in Andong, continuation of the traditional starching setup over burning rice husks is observed, requiring at least two weavers.

The weaving of both ramie and hemp fabrics is done in the same manner. As ramie yarns are made much finer than hemp yarns, ramie is much more vulnerable to dry air. Therefore, weaving, where yarns stay under tension, is set up in a very humid environment with additional humidity provided by a humidifier. For this reason, ramie fabrics used to have been woven in a cave in the past.²⁰ Now, a structure is built into the hill and weaving area is partially buried in the ground to provide natural humidity.

In conclusion, the morphological fact that the ramie fibre cells are distant from each other and less associated with ground tissues and that the hemp fibre cells are constrained by adjacent cells and grouped by the ground tissues affect the entire yarn making production in two fibre industries. It is fascinating that earliest Koreans developed perfect functional procedures for making yarns and fabrics out of ramie and hemp plants without even observing what the internal structure of ramie and hemp plants truly were.



8a

8b

¹ Hamilton, R. and Milgram, L., *Material Choices*, Fowler Museum UCLA (LA, 2007), pp. 79–80

² Kwon, Y., *Hansan Mosi Jjaki 한산모시짜기* [Hansan ramie weaving], National Research Institute of Cultural Properties (Seoul, 2004), pp. 30

³ Hwang, M., 'Morphological differences between ramie and hemp: how these characteristics Developed different procedures in bast fibre production industry,' Presented at *Textiles and Settlement: From Plains Space to Cyber Space*, Textile Society of America 12th Biennial Symposium, Lincoln, Nebraska, October 6–9, 2010, 2010 <https://digitalcommons.unl.edu/tsaconf/23/> (accessed 19 November 2022)
Sim, Bun-hwa. Interview with author (Andong, 2004)

⁴ Ibid.

⁵ Ibid.

⁶ Kwon, op. cit., p. 31

⁷ Matthews, J. M., *The Textile Fibers: Their Physical, Microscopical and Chemical Properties*, John Wiley & Sons Inc (New York, 1916), p. 417

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Catling, D.M. and Grayson, J., *Identification of Vegetable Fibres*, Archetype Publications (London, 1982), pp. 20; 32

¹² Ibid.

¹³ Ibid., pp. 22–23

¹⁴ Hwang, op. cit.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Hamilton, op. cit., p. 83

¹⁸ Hwang, op. cit.

¹⁹ Ibid.

²⁰ Kwon, op. cit. p. 141

References and further reading

- Anderson, W., *The Descriptive and Historical Catalogue of a Collection of Japanese and Chinese Paintings at the British Museum*, British Museum (London, 1886)
- Bechtold, T. and Mussak, R., *Handbook of Natural Colorants*, Wiley (New York, 2009)
- Catling, D.M. and Grayson, J., *Identification of Vegetable Fibres*, Archetype Publications (London, 1982)
- Cardon, D., *Natural Dyes. Sources, Tradition, Technology and Science*, Archetype Publications (London, 2007)
- Cho, K.R., *Gyuhapchongseoe natanan jeontongyeomsaekbeop haeseol* 규합총서에 나타난 전통염색법 해설 [Explanation of Traditional Dyeing Methods in Gyuhap Chongseo], Korean Studies Information (Paju, 2007)
- 'General introduction to the chemistry of dyes,' in IARC Working Group on the Evaluation of Carcinogenic Risks to Humans I.A.f.R.o. Cancer, Editor (Lyon, 2010)
- Chung, I.M., 'Dyeing of Silk by the use of fresh leaves of Indigo plant,' Korean Society of Sericultural Science 42/1 (2000), pp. 36–41
- Curatorial Department of the Museum of Modern and Contemporary Art. *Hanguk jeontongpyojun saengmyeong mit saeksang: je2cha sian* 한국전통표준색명 및 색상: 제2차 시안 [Traditional Colors of Korea, names and reference samples: the 2nd edition], Museum of Modern and Contemporary Art (Gwacheon, 1992)
- Hamilton, R. and Milgram, L., *Material Choices*, Fowler Museum UCLA (LA, 2007)
- Harris, M. *Handbook of Textile Fibers*, Harris Research Laboratories, Inc (Washington D.C., 1954)
- Heo, B.G., et al., *Jjok jaebae irongwa silje* 쪽 재배 이론과 실제 [Theory and practice in growing the Indigo plant], Naju Natural Dyeing Cultural Foundation (Naju, 2009)
- Heo, B.G., *Saengjijogyeomsaegui irongwa silje* 생쪽염색의 이론과 실제 [The Theory and Practice of Fresh Indigo Dyeing], Seowa ijae (Gwangju, 2012)
- Huang, M. Y., 'British Interest in Chinese Paintings, 1881–1910: The Anderson and Wegener Collections of Chinese Painting in the British Museum,' Journal of the History of Collections 22/2 (2010), pp. 279–287
- Hwang, M., 'Morphological differences between ramie and hemp: how these characteristics Developed different procedures in bast fibre production industry,' Presented at *Textiles and Settlement: From Plains Space to Cyber Space*, Textile Society of America 12th Biennial Symposium, Lincoln, Nebraska, October 6–9, 2010 <https://digitalcommons.unl.edu/tsaconf/23/> (accessed 19 November 2022) Sim, Bun-hwa. Interview with author (Andong, 2004)
- Kang, J.Y., 'Natural Indigo Dyeing on Protein Fibers,' PhD thesis, Seoul National University, 2000
- Kim, G., 1876. *Ildonggiyu* 日東記遊 [Record of Journey to Japan], Available at https://db.history.go.kr/item/bookViewer.do?levelId=sa_010_1int (accessed 8 July 2022)
- Kim, M., 'Broken history: Redefining eighteenth-century Korean portrait painting mounts,' Studies in Conservation 59/sup1 (2014), pp. S58–S61
- Kim-Marandet, M., 'Flying Cranes conserved, British Museum Magazine, Winter issue, 2019, pp.38–39
- Kim-Marandet, M., 'Yi Myong-gi's Portrait of Chae Che-gong (1789); an exceptional case-study', *2018 Conservation and Restoration workshop for Korean Cultural Heritage, 3–6 July 2018*, Overseas Korean Cultural Heritage Foundation, Mission Museum of St. Ottilien Archabbey, 2018, pp. 34–49
- Kim-Marandet, M. "Aux origins de la conservation des peintures coréennes: le constat d'état du Portrait du roi Taejo et sa conservation (1763–64)," Support/Trace (French) 2018, pp. 61–71
- Kim, S.Y., 'Color naming structure of red-series and purple-series in the clothing of Joseon dynasty period,' PhD thesis, Seoul National University, 2004
- Kim, S.Y., 'The Transition of the Indigo Dyeing Method Identified through the Agricultural Archives in the Latter Joseon Dynasty,' Journal of the Korean Society of Clothing and Textiles 32/8 (2008), pp. 1286–1298
- Kim, S.Y., 'The Dyeing Culture of Royal Garments in the Late Joseon Dynasty,' Fashion & Textile Research Journal 15/2 (2013), pp. 192–201
- Kim, S. Y., 'Kinds and Types of Dyes Used in the Joseon Dynasty,' Journal of the Korean Society of Clothing and Textiles 38/2 (2014), pp. 201–215
- Kitamura, Y., 'Ai namabazome jissaighō to hiketsu: Ai no namabazome o hajimeru tame ni,' 藍生葉染め実際技法と秘訣: 藍の生葉染めを始めるために [Techniques and Secret to Indigo Dyeing using fresh leaves]. Gekkan senshoku a. Some to ori o tanoshimu hito no seikatsu jōhō-shi 160 (1994), pp. 30–34
- Knecht, E., Rawson, C. and Loewenthal, R., *A Manual of Dyeing: For the Use of Practical Dyers, Manufacturers, Students, and All Interested in the Art of Dyeing, Vol. I and II*, Charles Griffin and Company (London, 1893)
- Kwon, Y., *Hansan Mosi Jjaki* 한산모시짜기 [Hansan ramie weaving], National Research Institute of Cultural Properties (Seoul, 2004)
- Lee, J.H. and Kim, Y.I., 'The Characteristics of Korean Costume colors and the Interpretation from the Perspective of Cultural Semiotics (1),' Journal of the Korean Society of Costume 56/2 (2006), pp. 56–69
- Matthews, J. M., *The Textile Fibers: Their Physical, Microscopical and Chemical Properties*, John Wiley & Sons Inc (New York, 1916)
- Min, K., *Jeontong otgam* 전통 옷감 [Traditional Cloths], Daewonsa (Seoul, 1997)
- Moon, E.B., *Hangukui jeontongsaeok* 한국의 전통색 [Traditional Colours of Korea], Ahn Graphics (Paju, 2012)
- National Intangible Heritage Center, *Saegeul ibhigo sureul nota* 국립무형유산원, 색을 입히고 수를 놓다 (*Empower with Colors, Inspire with Embroidery*), National Intangible Heritage Center (Jeonju, 2019)
- Park, M.S. and Moon, E.B., 'A Study on the Traditional Color Names Appeared in the Korean Old Documents during Joseon Dynasty,' Journal of Korea Society of Color Studies 29/2 (2015), pp. 15–27
- Park, Y.J., et al., 'Effect of Dyeing Conditions on Dyeing Characteristics in Silk during Natural Dyeing Using the Raw Juice of Indigo Plants,' Korean Journal of Plant Research 18/3 (2015), pp. 417–423
- Portal, J. 'The Origins of the British Museum's Korean Collection,' Transactions Royal Asiatic Society, Korea Branch 70 (1995), pp. 37–52
- Portal, J. Korea: Art and Archaeology, British Museum Press (London, 2000)
- Priewe, S. 'Hahn Kwang-ho and the British Museum,' Orientations, December 2000, pp. 59–64
- Priewe, S. and Yang, H. 'A New Look for the BM's Korea Foundation Gallery,' Orientations, May 2015, pp. 71–75
- Priewe, S. 'Atmosphere and Surroundings: The Use of Architecture in Korean Exhibitions and Galleries at the British Museum,' in Jason Steuber and Allysa B. Peyton eds., *Arts of Korea: Histories, Challenges, and Perspectives*, Gainesville: University of Florida Press (2017), pp. 40–65
- Sakakawa et al., 'Kansei no senshoku eno teigen (1)-aizome to kusakichōzome nitsuite 感性の染色への提言 (1)-藍染めと草木調染めについて [Proposal for sensitive dyeing (1) -regarding indigo dyeing and vegetable dyeing methods].' Senshoku kōgyō 染色工業 [Dyeing Industry] 39/4 (1991), pp. 210–220
- Seungjeongwon ilgi* 承政院日記 [The Daily Records of Royal Secretariat of Joseon Dynasty]. Available at <https://sjw.history.go.kr/main.do> (accessed 13 December 2022)
- Tamburini, D., et al., 'Bordering on Asian Paintings: Dye Analysis of Textile Borders and Mount Elements to Complement Research on Asian Pictorial Art,' Heritage 4/4 (2021), pp. 4344–4365
- Tamburini, D., Kim-Marandet, M., and Kim, S., 'Dye identification in mounting textiles of traditional Korean painting from the late Joseon dynasty,' *Heritage* 6/1 2023, pp. 44–66
- Weiss, C., Jin Xian Qiu, Kim-Marandet, M., Kosek, J., Kusunoki, K., Marabini, V., and Sotiras, M. 'A license to conserve: cultural diversity as a practical asset in conservation', in Murray, P, Humenuck, L, Bennett, W, and Moon-Schott, L, eds *Contemporary Issues in Book and Paper Conservation*, Proceedings of Mod Cons BPG conference 2021, 2022, 69–78
- Wood, I., New Crop newsletter (<http://www.newcrops.uq.edu.au/newslett/ncn11162.htm>), Issue No 11, January 1999
- Yi, B., *Gyuhap chongseo* 閨閣叢書 [Women's Encyclopedia], Translated by Y Jeong, Bojinjae (Paju, 1809, reprinted in 2008)
- Young-hee, A., Interview with author (Hansan County, Korea, 2009)

Publications and other outputs

Joanna Kosek
Head of Pictorial Art Conservation

Meejung Kim-Marandet, Amorepacific Project Conservator for Korean Painting and colleagues worked on a wide range of outputs in addition to the conservation work that has been completed for the Amorepacific Project.

Publications

Kim-Marandet, M. "Aux origines de la conservation des peintures coréennes: le constat d'état du Portrait du roi Taejo et sa conservation (1763–64)," *Support/Trace* (French) 2018, pp. 61–71

Kim-Marandet, M., 'Yi Myong-gi's Portrait of Chae Che-gong (1789); an exceptional case-study', *2018 Conservation and Restoration workshop for Korean Cultural Heritage, 3–6 July 2018*, Overseas Korean Cultural Heritage Foundation, Mission Museum of St. Ottilien Archabbey, 2018, pp. 34–49

Kim-Marandet, M., 'Flying Cranes conserved', *British Museum Magazine*, Winter issue, 2019, pp. 38–39

Tamburini, D., Dyer, J., Heady, T., Derham, A., Kim-Marandet, M., Pullan, M., Luk, Y.-P., Ramos, I. 'Bordering on Asian Paintings: Dye Analysis of Textile Borders and Mount Elements to Complement Research on Asian Pictorial Art.' *Heritage* 2021, 4, 4344–4365. <https://doi.org/10.3390/heritage4040240>

Tamburini, D., Kim-Marandet, M., and Kim, S., 'Dye identification in mounting textiles of traditional Korean painting from the late Joseon dynasty', *Heritage* 6/1 (2023), pp. 44–66, <https://www.mdpi.com/2571-9408/6/1/3>

Weiss, C., Jin Xian Qiu, Kim-Marandet, M., Kosek, J., Kusunoki, K., Marabini, V., and Sotiras, M. 'A license to conserve: cultural diversity as a practical asset in conservation', in Murray, P, Humenuck, L, Bennett, W, and Moon-Schott, L, eds *Contemporary Issues in Book and Paper Conservation, Proceedings of Mod Cons BPG conference 2021, 2022*, 69–78

British Museum website
research projects,
britishmuseum.org/research.

Presentations

Kim-Marandet, M., 'Yi Myong-gi's Portrait of Chae Che-gong (1789); an exceptional case-study', *2018 Conservation and Restoration workshop for Korean Cultural Heritage, 3–6 July 2018*, Overseas Korean Cultural Heritage Foundation, Mission Museum of St. Ottilien Archabbey, Eresing, Germany.

'Rediscovering Joseon Korean Painting: Recent Findings and their Effects on Conservation Practices', presented at the Symposium of The Metropolitan Museum of Art: *East Asian paintings Conservation in the 21st Century*, 1–2 June 2019.

Korean Gallery temporary display

'Conservation in action' showing paintings conserved as part of the Amorepacific Project, 23 July 2022 – 12 February 2023

Seminars and symposia

Annual Seminar: Screens. Professor Cho Insoo, Professor at National Korea University of the Arts to the Museum, was invited to attend the two-day seminar surveying Korean folding screens in the British Museum collection. The seminar's aim was to closely examine the 10 selected screens and to discuss each object's art historical context, materiality, condition and current mounting state, 26–27 July 2018

Annual Project Workshop-Seminar: Korean Mounting Fabrics, 24–25 October 2019

Masterclass: Mr Cha Byung-kap of Hogo Conservation Studio gave a masterclass on mounting 20th-century Korean panel painting. Mr Cha was formerly a conservator at the National Museum of Modern and Contemporary Art, Korea. He collaborated in the conservation and mounting of *Flying geese* over a two-week period, June 2019

'Discover Korean Art at the British Museum': 2-day seminar at the British Museum for the Friends of the Korean Cultural Centre UK, 13 and 20 July 2019

'Preserving Korean Pictorial Art & the History of Hanji': online lecture, the Korean Cultural Centre UK, London, 7 October and 14 October 2021

'Korean Arts Conservation': online lecture, the Korean Cultural Centre UK, London, 19 January 2023

Annual Project Workshop: demonstration of final scroll mounting operations with Ms Jeongju Song of Gochang Conservation Institute of Cultural Property, 1 July 2022

Final Amorepacific Project Symposium, 20–21 September 2022. Presentations and discussions about the various outcomes of the project, including scientific analysis of dyes and how practical conservation treatments were undertaken (Fig 1 overleaf).



Fig 1
Recording the Amorepacific Project
Symposium: Conservation of
Korean Paintings 2018–2022,
21–22 September 2022

