
五秘密菩薩像

平成13年度修復事業



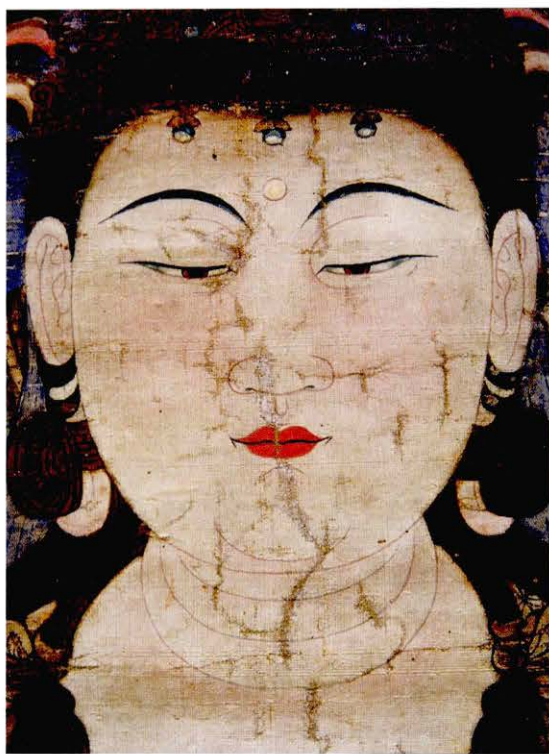
品名：絹本着色 五秘密菩薩像 1幅
所蔵：クリーブランド美術館
所蔵番号：61.423



7 五秘密菩薩 修理前
The Secret Five Bodhisattva <Before treatment>



8 五秘密菩薩 修理後
<After treatment>



9 五秘密菩薩 金剛薩埵 (面部) 修理前
Kongō Satta (face area) <Before treatment>



10 五秘密菩薩 金剛薩埵 (面部) 修理後
<After treatment>

五秘密菩薩像

修理報告

(株)宇佐美松鶴堂
鈴木 裕 林 煥盛

品名：絹本着色 五秘密菩薩像 1幅

所蔵：クリーブランド美術館

所蔵番号：61,423

修復施工：宇佐美松鶴堂

工期：平成13年6月～平成14年5月

施工場所：京都国立博物館文化財保存修理所第一装潢室

1. 修理前の状況

- 1) 寸法 本紙 縦78.9cm 横63.6cm
 絵絹の組織 一寸中の本数 経70 緯180
 デニール 経60 緯42
 表具 縦130.8cm 横78.4cm
- 2) 表具形式 本紙は絹本着色にて「三幅一舗」の仏表具仕立てである。
 三幅の巾：三寸三分、一尺四寸三分、三寸七分
- 3) 表装裂 風帯 緑地桐文金襴
 中縁 紺地入り子菱に菊文金襴
 総縁 朱褪地菊文金襴
 筋 浅黄絁
- 4) 金具 軸首 金銅製、蓮華文
 八双金具 釦、端喰（後補）
- 5) 裏打紙 肌裏紙
 増裏紙
 総裏紙
- 6) 損傷の状況
 - ① 本紙全体に横折れ甚だしく、横折れに沿って欠失した部分がある。
 - ② 本尊の胸飾り金具の部分やその他の部分に時代の経ていない補絹が見られ、所々補彩が施されている。
 - ③ 蓮台の截金部分に剥落がみられる。
 - ④ 円相周囲や頭髮などの群青部分に損傷が多く見られ、欠失部分を繕った痕跡がある。
 - ⑤ 特に円相内の白色部分には細かい折れ、しわが多く、折れに沿って浮きがあり、擦れによって欠落する危険性がある。
 - ⑥ 群青の部分には以前の補彩の変色があり、絵具焼けのため絹地の表面が摩耗して、欠失している部分

がある。

- ⑦ 表装裂地も全体に脆弱化している。
- ⑧ 軸首は軸装の大きさから比較して細い。
- ⑨ 総裏の浮きが全体にみられる。

2. 修理後の状況

- 1) 寸法 本紙 縦78.3cm 幅63.6cm
 表具 縦163.1cm 幅78.6cm
- 2) 表具形式 仏表具
- 3) 表具裂 中緑・風帯 紺地二重蔓中牡丹唐草文金欄
 総緑 茶地雲襷宝尽高野綾裂
 筋 浅黄絁
 八双金具
- 4) 軸首 金銅製、蓮華文
- 5) 紐 啄木（3色交じり織り）
- 6) 金具 軸首 金銅製、蓮華文
 座環
- 7) 補修絹 連盟補絹サンプル帳45番
 経21中60枚2ツ入り
 緯31中1本ヌキ160横
- 8) 裏打紙

本紙肌裏紙	薄美濃紙	楮	岐阜県、長谷川聡製
本紙増裏紙	美栖紙	楮、胡粉入り	奈良県、昆布一夫製
表具中裏紙	美栖紙	楮、胡粉入り	奈良県、昆布一夫製
総裏紙	宇陀紙草木染	楮、白土入り	奈良県、福西弘行製

- 9) 保存箱 桐屋郎箱・桐太巻芯添軸（京都、前田友齋製）

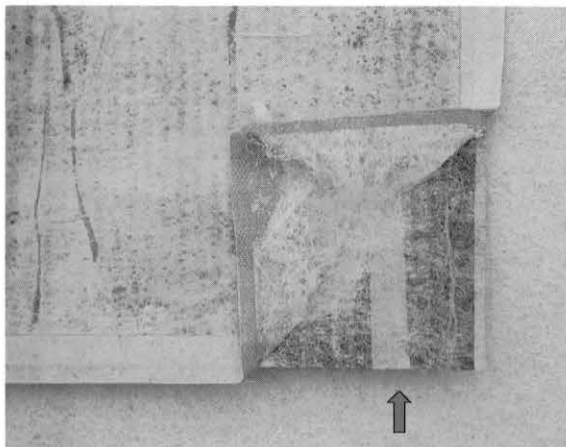
3. 作業工程

1) 調査・記録

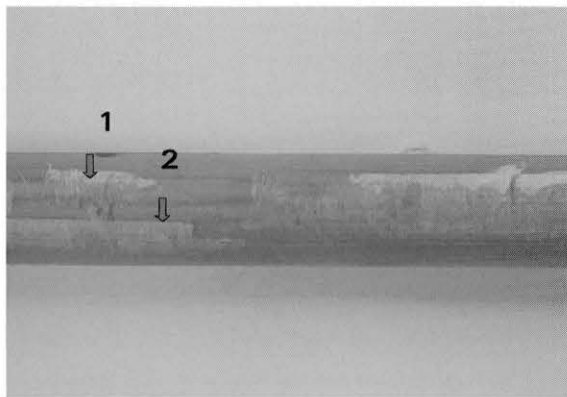
- ① 修理前の本紙の状態を調査・記録し、損傷の状態について写真撮影を行った。モノクロ・カラー・赤外線・X線・顕微鏡写真・顔料蛍光X線分析写真。
- ② 本紙の採寸、損傷などの調査を行い、本紙絵絹の組織、剥落状態、折れ、亀裂、破損箇所、補彩箇所、擦れによる損傷箇所を記録した。

2) 軸装の解体等

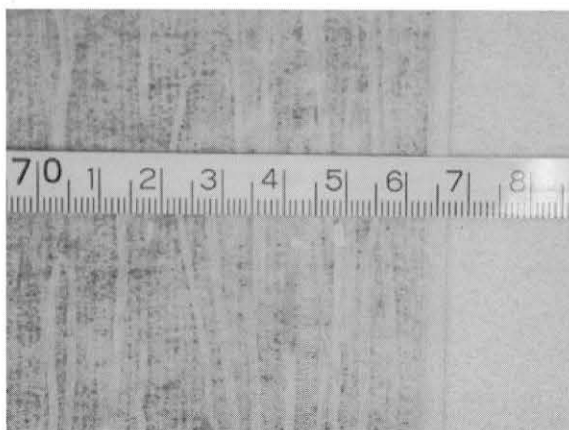
- ① 未解装の状態、鹿膠約1.5%～2.0%の水溶液にて剥落止めを行った。
- ② 絵具が安定したのを確認した後、表具裂地より本紙を取外した。



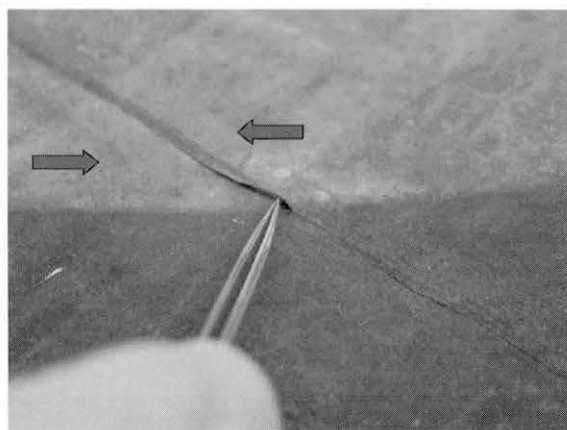
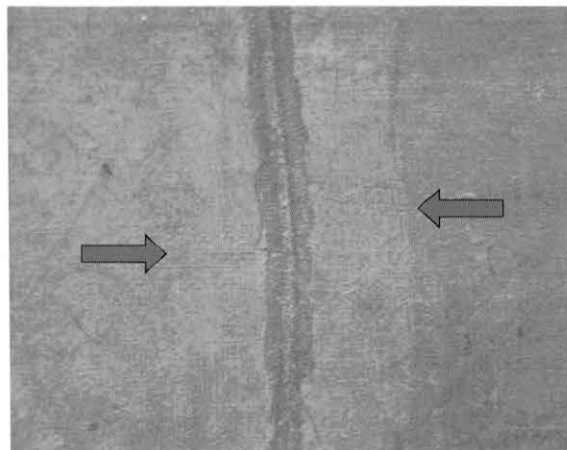
39 元肌の再使用
Reusing of the original initial lining



40 軸木の再使用
Reusing of the roller rod



41 折れ伏せの見当
Marks for crease reinforcement paper strips
Width of the previous crease reinforcement paper strips was approximately 2mm.



42 絵絹の継ぎ目
Seams in the silk painting support
The sewed seams of the painting silk support had been carefully trimmed off in the previous restoration.

3) 本紙の修理・補修等

- ① 本紙の汚れ、シミの箇所については本紙料紙に無理のない程度でクリーニングを行った。円相内の白色部にクリーニングによってシミが寄らないように洗浄した。
- ② 表面より布海苔にて仮表打ちを施し、絵具層と截金部分を保護する。
- ③ これから最後の総裏までの作業は全て「間接湿り法」を取り入れ行った。「間接湿り法」とは修理するため使う水分を最低限にし、激しい水分の変化をないように絵具層特に胡粉の白色部分と截金部分を保護する作業方法である。
- ④ 本紙の増裏、折伏、肌裏等を除去した。
- ⑤ 裏彩色の調査及び写真記録。
- ⑥ 色調を合わせた薄口美濃紙（墨染）にて肌裏打ちを行った。
- ⑦ 新肌裏打ち紙を入れた後、仮表打ちを取り除き、本紙表面に布海苔が残らないように除去する。
- ⑧ 美栖紙にて増裏打ちを行った。
- ⑨ 本紙の折れや脆弱化した箇所には折伏紙を入れて補強した。
- ⑩ その後一時仮張りをを行った。
- ⑪ 補絹作業。

4) 表装裂の選択

- ① 本紙の画趣にふさわしい文様と色合の数種類の裂地を用意し、それらをくみあわせて、三種類のサンプルを作り、関係者とクリーブランド美術館とで協議して行った。
- ② 風帯・中緑 紺地二重蔓中牡丹唐草文金襴
- ③ 総緑 茶地雲襷宝尽高野綾裂
- ④ 筋 浅黄絁

5) 表装裂の調整

中緑・風帯・総緑に古色を付け、肌裏打ちと増し裏打ちを行い、一時仮張りをした。

6) 付廻し

本紙と表装裂地の付廻しを行った。

7) 中裏打

美栖紙にて中裏打ちを行った。

8) 総裏打と仮張り

宇陀紙（草木染め）にて総裏打ちを行った。

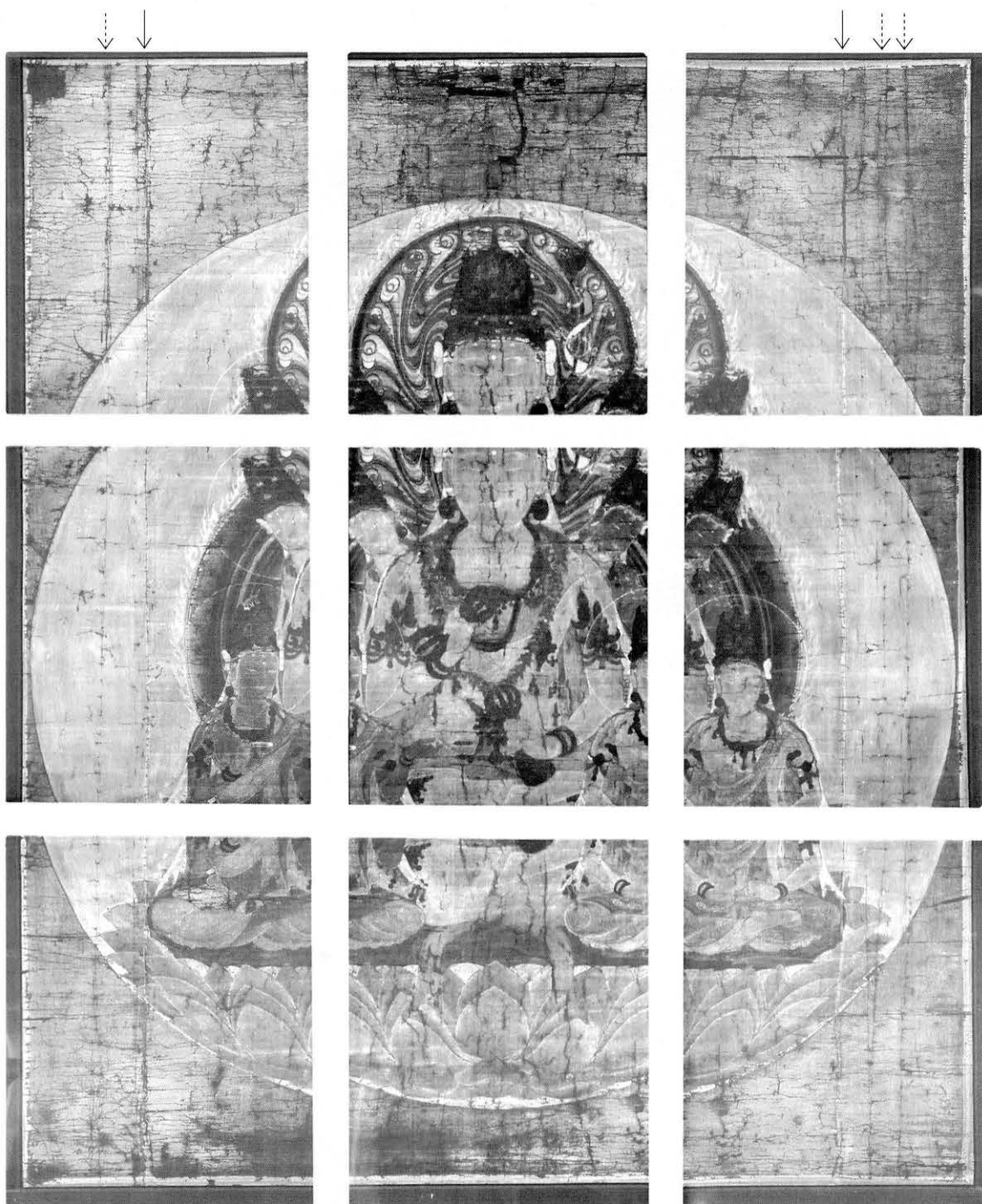
9) 裏摺り

裏摺りは張替え時に行った。

10) 仮張り

表裏2回の仮張りをを行い、十分な乾燥をした。

11) 軸首の取替え



43 左右足し絹部の縦折れ点線は絵絹の縫い目実線は三幅一鋪形式のオリジナルの裏打方法を示すと思われる
 Vertical creases on the added silk sections (left and right)
 Dotted lines indicate the silk seams.
 Solid lines indicate the original lining of the three-piece silk painting surface.



44 補絹箇所
Sections of silk infill

新調の金軸に取替えた。端喰は在外文化財の修理方針として表木取り付け部分を傷める恐れがあるとの判断による取り付けなかった。

12) 掛け軸装に仕上げ

中軸、表木、紐を新補し、旧状と同じ仏表具の軸装に仕上げた。

13) 保存箱の新調

桐太巻芯、桐屋郎箱、羽二重の包裂を新調した。桐屋郎箱に四方帙及び厚口美濃紙に斜め格子の洪紙製の箱覆を新調した。

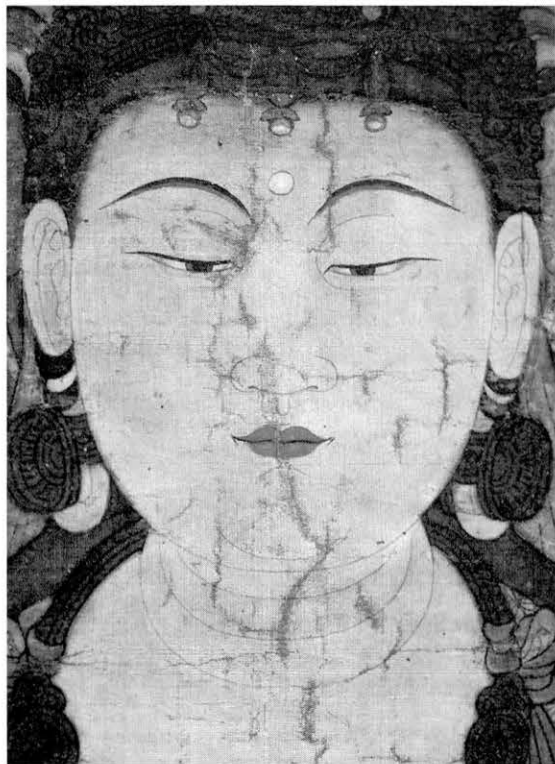
14) 完成写真

全体、修理前後の部分写真撮影を行った。

4. 今回修復に関する特記事項

- 1) 紙の上に残した折伏の切り方から見ても明らかに前回の修理では肌裏紙を生かしていた〔図39〕。
- 2) 軸木に残っている二箇所の糊代から過去の修理歴をうかがうことが出来る〔図40〕。
- 3) 元の増裏紙に見る折伏紙は黒と赤の墨線に添って入れられている〔図41〕。

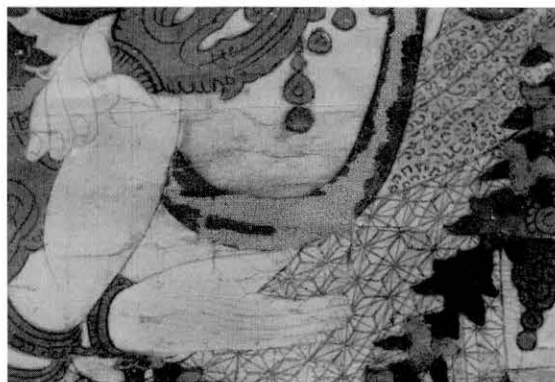
- 4) 補修絹は欠失部の裏面から欠失面積より全体に少し大き目に切って全体に当てられている。
- 5) 本紙の縫い継ぎ部分の返し代は前回の修理の際に細く裁断されている〔図42〕。
- 6) 蓮台部分にのみ截金がみられる、他の金線は金泥書きである。
- 7) 画面右左の縫い目に沿って右二本、左一本の縦折がみられる、これは三幅一舗形式の当初の形態（裏面に綾を縫い付け、その縫い目を巻くことにより表に形が付いて今の縦折となった）を示すものと思われる〔図43〕。
- 8) 画面中央部に縦折が集中しているがこれは元々軸装の構造上細い軸木に巻きつけた時の負担や紐や巻止めなどで損傷しやすい箇所である。今回の「五秘密菩薩像」の場合は恐らく以前の修理の際肌紙除去と共に裏彩色が剥落してしまった為に生じた黒ずみである。



45 a 金剛薩埵 (面部) 修理前
Kongo Satta (face area)
Before treatment



45 b 金剛薩埵 (面部) 修理後
Kongo Satta (face area)
After treatment



46 a 金剛薩埵 (胸部) 修理前
Kongo Satta (chest area)
Before treatment



46 b 金剛薩埵 (胸部) 修理後
Kongo Satta (chest area)
After treatment



47 a 慢金剛 (全図) 修理前
Man Kongo
Before treatment



47 b 慢金剛 (全図) 修理後
Man Kongo
After treatment



48 a 愛金剛 (頭部) 修理前
Ai Kongo (head area)
Before treatment



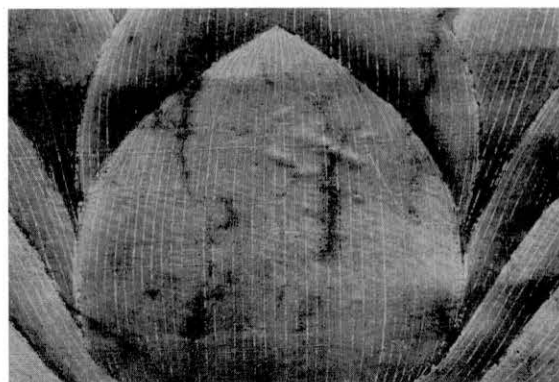
48 b 愛金剛 (頭部) 修理後
Ai Kongo (head area)
After treatment



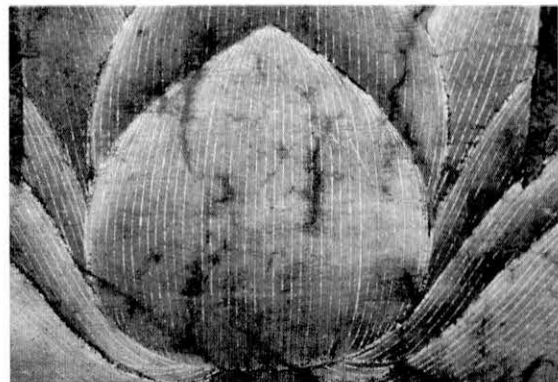
49 a 欲金剛 (全図) 修理前
Yoku Kongo (head area)
Before treatment



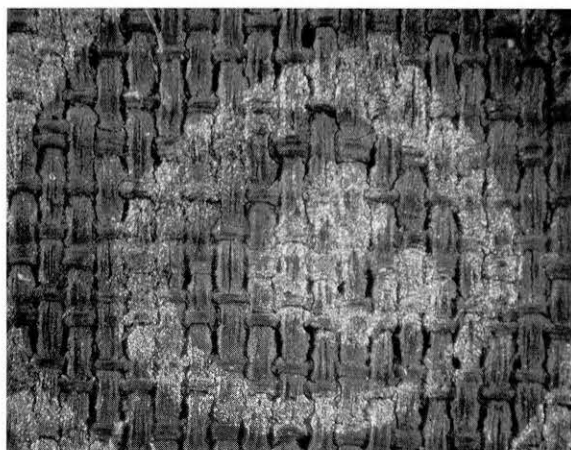
49 b 欲金剛 (全図) 修理後
Yoku Kongo (head area)
After treatment



50 a 蓮華座 (蓮弁) 修理前
Lotus stand (lotus petals)
Before treatment



50 b 蓮華座 (蓮弁) 修理後
Lotus stand (lotus petals)
After treatment



51 a 金泥描と截金線の比較 金泥描 (欲金剛の柔帛の文様)
Comparison of gold pigment and cut gold-leaf
Gold pigment (patterns on the scarf of the *Yoku Kongo*)



51 b 金泥描と截金線の比較 截金線 (蓮弁の葉脈)
Comparison of gold pigment and cut gold-leaf
Cut gold-leaf (veins on the lotus petal)



52 裏彩色 (全図)
Verso painting (overall view)



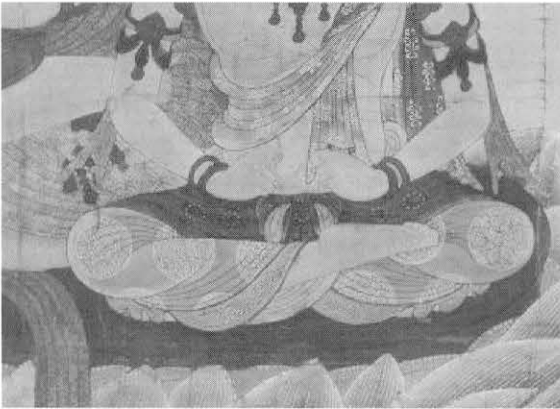
53 裏彩色 (金剛薩埵の面部)
Verso painting (face area of the *Kongo Satta*)



54 a 裏彩色の比較 (触金剛の頭部) 表彩色
Comparison of verso painting (head area of the *Shoku Kongo*)
Recto painting



54 b 裏彩色の比較 (触金剛の頭部) 裏彩色
Comparison of verso painting (head area of the *Shoku Kongo*)
Verso painting



55 a 裏彩色の比較 (慢金剛の体部) 表彩色
Comparison of verso painting (legs of the *Man Kongo*)
Recto painting



55 b 裏彩色の比較 (慢金剛の体部) 裏彩色
Comparison of verso painting (legs of the *Man Kongo*)
Verso painting

“The Secret Five Bodhisattva”

Conservation Report

SUZUKI Yutaka and LIN Huang Sheng
Usami Shokakudo Co., Ltd

“The Secret Five Bodhisattva” (*Gohimitsu Bosatsu*) Hanging scroll, color on silk

Accession Number 61.423

Cleveland Museum of Art

Conservation Studio Usami Shokakudo Co. Ltd.

Restoration Period June, 2001 – May, 2002

Location Mounting Room, No.1
The Conservation Center for Cultural Properties
Kyoto National Museum
527 Chayamachi, Higashiyama-ku, Kyoto

1. Condition before treatment

1) Dimensions

Painting H 78.9 cm W 63.6 cm

Structure of silk support: warp: average thread width 60 denier; 23 threads/cm
Weft: average thread width 42 denier; 60 threads/cm

Mounting H 130.8 cm W 78.4 cm

2) Type of Mounting

Painting is color on silk and mounted in double-surround Buddhist style mounting (*butsuga hyogu*)

The silk support is made up of three pieces joined together and measuring in width, left to right: 11 cm, 47 cm, and 12 cm.

3) Mounting fabric

Futai Gold brocade with design of paulownia on green ground
Chuberi Gold brocade with design of chrysanthemum and nested lozenge pattern on navy ground
Soberi Gold brocade with design of chrysanthemum on faded vermilion ground

Suji (narrow borders) pale yellow plain-weave silk (*shike*)

4) Metal fittings

Roller knobs: Gilt bronze with lotus patterns
Hanging rod metal fittings
Hanging ring nails and hanging rod fittings (later addition)

5) Linings

First lining (*hadaura*)
Subsidiary lining (*mashiura*)
Final backing (*soura*)

6) Condition of damage

① Horizontal creases were observed throughout the painting and some sections were missing along

these creases.

- ② Silk infills of a previous restoration were observed in the principle image, on the metal parts of the necklace, as well as in other areas. Traces of toning were observed in several sections.
- ③ Exfoliation of cut gold-leaf was observed on the lotus pedestal.
- ④ Damage was observed in many areas painted with azurite, such as areas around the circular mandorla and hair. There were traces of repair in these missing areas.
- ⑤ Fine creases and folds were particularly evident in the white areas of the circular mandorla, and peeling was observed along the creases. These sections had potential danger of further peeling from abrasion.
- ⑥ Previous toning in the azurite had altered the color and this pigment discoloration caused abrasion of the silk surface and flaking in some areas.
- ⑦ Mounting fabrics were worn.
- ⑧ Roller knobs and roller rod were too small in diameter relative to the size of mounting.
- ⑨ Lifting and separation of the final backing paper was evident overall.

2. Condition after treatment

- 1) Dimensions Painting H 78.3 cm W 63.6 cm
 Mounting H 163.1 cm W 78.6 cm
- 2) Mounting format Double-surround Buddhist style mounting (*butsuga hyōgu*)
- 3) Mounting fabric *Chuberi* and *futai*: Gold brocade with design of peony among double-ivy arabesque on navy ground
 Sōberi: *Kōya* twill-weave with clouds (*umo-tasuki*) and treasures (*takara-zukushi*) design on brown ground
 Suji: (thin borders) pale yellow plain-weave silk (*shike*)
 Hanging rod metal fittings
- 4) Roller knobs gilt bronze with lotus patterns
- 5) Cords tricolor, mixed weave hanging and wrapping cords (*takuboku*)
- 6) Metal fittings Roller knobs: Gilt bronze with lotus patterns
 zakan (hanging ring nails)
- 7) Infill silk Union Infill Silk Sample Book, No.45
 Warp: average thread width 21 denier; 20 two-ply threads/cm
 Weft: average thread width 31 denier; 53 1-ply threads/cm
- 8) Linings

First lining (painting)	Thin <i>Mino</i> paper	<i>Kōzo</i>	Made by Hasegawa Satoshi, Gifu Prefecture

Subsidiary lining (painting)	<i>Misu</i> paper	<i>Kōzo</i> mixed with <i>gofun</i>	Made by Konfu Kazuo, Nara Prefecture
Overall lining (mounting)	<i>Misu</i> paper	<i>Kōzo</i> mixed with <i>gofun</i>	Made by Konfu Kazuo, Nara Prefecture
Final backing	Vegetable-dyed <i>Uda</i> paper	<i>Kōzo</i> mixed with white clay	Made by Fukunishi Hiroyuki, Nara Prefecture

9) Storage box: *yaro*-style box made of paulownia; roller clamp made of paulownia (made by Maeda Yusai, Kyoto)

3. Treatment process

1) Examination and documentation

- ① Examined and documented the condition of the painting before restoration. Photo-documented the state of damage with monochrome, color, infrared, x-ray, photomicrography, and pigment x-ray fluorescence analysis photography.
- ② The following points were documented: dimensions of the painting, types and location of damages, structure of painting silk, flaking pigment, creases, splitting, worn or lost areas, inpainting, and abrasions.

2) Dismantling

- ① Before dismantling the hanging scroll, a 1.5%-2.0% solution of deer skin glue was applied to prevent pigment exfoliation.
- ② The painting was removed from the mounting fabric after the pigment was stabilized.

3) Repair and restoration of the painting

- ① Removal of stains and soiling on the painting was completed to within acceptable parameters to protect the painting silk support. Measures were taken to prevent soiling to cluster in the white areas of the circular mandorla during cleaning.
- ② A temporary protective lining was applied from the recto of the painting with seaweed paste, in order to protect the pigment layer and sections decorated with cut gold-leaf.
- ③ To remove all layers and until the final backing was applied, the "indirect damping process" was used. This process uses the least possible amount of water to accomplish the work and is effective in protecting the pigment layer and especially those white areas of *gofun* and cut-gold leaf.
- ④ Subsidiary lining, crease reinforcement paper strips, and first lining were removed from the painting.

- ⑤ The *verso* of the painting was examined and photo-documented.
- ⑥ The first lining was applied with thin *Mino* paper (ink-dyed) of color tone matched to the painting.
- ⑦ After applying the new first lining, the temporary protective lining and seaweed paste was carefully removed from the front of the painting.
- ⑧ The subsidiary lining was applied with *Misu* paper.
- ⑨ Creased areas and fragile areas were reinforced with reinforcement paper strips.
- ⑩ The painting was then temporarily stretch dried on the drying board.
- ⑪ Silk infills were applied.

4) Selection of mounting fabric

- ① Several pieces of fabric with patterns and colors that matched the subject matter of the painting were prepared and assembled into three mounting samples. Selection was made in consultation with the Cleveland Art Museum.
- ② *Fūtai* and *chūberi*: gold brocade with design of peony among double-ivy arabesque on navy ground
- ③ *Sōberi*: *Kōya* twill-weave with *umo-tasuki* and *takara-zukushi* design on brown ground
- ④ *Suji*: pale yellow shike-weave

5) Coordination of mounting fabrics

After the *chūberi*, *fūtai*, and *sōberi* were toned to achieve an aged appearance; first lining and subsidiary linings were applied on the mounting, and the silk fabrics were dried on the drying board.

6) Assembly

Painting and mounting fabric were assembled.

7) Overall lining

The overall lining was applied with *Misu* paper.

8) Final backing and stretch drying on the drying board (face-out)

The final backing was applied with vegetable-dyed *Uda* paper.

9) Verso Rubbing (*urazuri*)

The verso of the scroll was rubbed with rubbing beads and it was then attached to the drying board face-in.

10) Stretch drying

Thorough stretch drying was done twice (*recto* and *verso*) on the drying board.

11) Exchange of roller knobs

New roller knobs were used. In accordance with restoration policy regarding cultural properties abroad, hanging rod fittings (*hashibami*) were not applied for danger of damaging the rod.

12) Completion of mounting

After applying the new roller rod, hanging rod, and hanging and wrapping cords, the painting was completed as a hanging scroll in the Buddhist mounting style format as before.

13) Production of new storage box

A roller clamp made of paulownia, *yarō*-style storage box made of paulownia, and plain-weave silk wrapper (*habutae*) were newly made.

Folding case and box cover (diagonal lattice-patterned *shibugami* made with thick *Mino* paper) were prepared for the storage box.

14) Photo-documentation of the finished product

Overall and detail photographs documenting the conditions before and after treatment were taken.

4. Matters of special note on the treatment

- 1) As was clear from the manner in which previous crease reinforcement paper strips were cut, it appears that the old first lining was maintained during a previous restoration (Fig.39).
- 2) Traces of earlier restorations could be observed from the two paste tabs that remained on the roller rod (Fig.40).
- 3) Previous crease reinforcement paper strips on the old subsidiary lining were placed according to black and red ink line marks (Fig.41).
- 4) In a previous restoration, silk infills were applied to missing areas from the back and were covering areas larger than the actual losses.
- 5) The sewed seams of the silk support of the painting had been carefully trimmed and removed in a previous restoration (Fig.42).
- 6) Cut gold-leaf could be observed only on the lotus stand; other gold lines were applied in gold pigment.
- 7) Vertical folds (two on right and one the left) were observed along the seams on the left and right sides of the painting. These folds most likely suggest original stages of the three-piece silk painting surface (twill-weaved fabric was applied to the verso, and rolling the painting along the seam caused the vertical folds to appear on the painting surface) (Fig.43).
- 8) The vertical folds concentrated in the center of the painting were caused from the nature of the hanging scroll, as frictions from rolling the painting on a thin roller rod and pressures from the tying cord make the central areas prone to damage. In the case of the Gohimitsu Bosatsu, the blackening was caused from the removal of verso painting along with the initial backing in a previous restoration. (TS, JL, and JP)

蛍光X線分析

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1. 分析の概要

クリーブランド美術館所蔵の五秘密菩薩像について、ポータブル蛍光X線分析装置を用いて彩色材料の調査を行った。使用した装置はセイコーインスツルメンツ（株）製ポータブル蛍光X線分析装置SEA200（ロジウム管球）で、一次X線を $\phi 2\text{mm}$ に設定し、 $50\text{kV} \cdot 100\mu\text{A}$ のX線照射条件で1ポイント100秒間の測定を行った。今回の測定は大気中で行ったため、AlやSiあるいはそれ以下の軽元素を検出することは困難である。

2. 分析結果

特徴的な彩色を示している16箇所を選定して測定を行った結果を下表に示す。表中にはバックグラウンドを差し引いた正味のX線強度の数値を示したが、元素によって検出感度が異なるため、各元素間のX線強度比と濃度比は一致しない。

少量のCa, Fe, Cuがほとんどの箇所から検出された。例えば、白土などの材料の中にはこれらの元素を少量ずつ含んでいる場合があり、そのような材料が下地として全体に塗られていることが予想される。赤あるいは肌色については、No.1, 4ではPbが大きく検出されているが、No.10, 11ではHgが検出されており、異なる材料が用いられていることがわかる。後者はHg系赤色材料（例えば水銀朱など）が使われていると考えられる。白色部分（No.7,14,15など）ではPb強度が大きく、Pb系白色材料（例えば鉛白など）が使われていると考えられる。黄色部分（No.8, 9）についても、Pbが比較的大きく検出されているが、白色（No.7）の部分とほぼ同じ強度であり、黄色の彩色には今回の測定では検出不可能な染料が使われていると考えたほうがよい。また、緑色部分（No.12）、青色部分（No.16）からはCuが大きく検出されており、緑青、群青などCuを主成分とした材料が使われていることが推測される。

表 五秘密菩薩像彩色材料の蛍光X線分析結果

No.	測定箇所	色	蛍光X線強度 (cps)					
			カルシウム (Ca-K α)	鉄 (Fe-K α)	銅 (Cu-K α)	金 (Au-L β)	水銀 (Hg-L β)	鉛 (Pb-L β)
1	主尊 胸	肌		3.3	2.7			78.2
2	主尊 持物 五鈷鈴	金	13.5	3.9	4.7	4.8		2.3
3	仰蓮 蓮肉	褐	9.6	4.7	75.7			6.4
4	仰蓮 蕊	赤		1.5	4.4			104.0
5	蓮弁	白	3.4	4.2	20.0			35.3
6	蓮弁 金線	金	1.4	2.0	13.0	5.5		71.7
7	黄菩薩 光背	白	0.2	3.4	3.5			52.8
8	黄菩薩 頬	黄	0.2	3.7	2.2			58.6
9	黄菩薩 条帛	黄	0.1	13.1	4.2	2.7		53.6
10	赤菩薩 頬	赤	5.3	3.0	4.9		21.8	12.6
11	赤菩薩 条帛	赤	5.1	4.2	4.9	11.2	11.3	9.1
12	緑菩薩 頬	緑	3.5	4.8	139.3		0.4	14.6
13	緑菩薩 冠帯	青	1.6	2.3	3.2			69.8
14	界線	白		0.3	145.7			115.6
15	円相	白		0.1				128.7
16	背景	青	10.3	7.9	168.8			6.7

"The Secret Five Bodhisattva"

X-ray Fluorescence Analysis

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1. Outline of the analysis

The painting materials used in "The Secret Five Bodhisattva" in the collection of the Cleveland Museum of Art were analyzed non-destructively by a portable X-ray fluorescence spectrometer. The instrument SEA200, developed by Seiko Instruments Inc., was used. It was set for 100 sec measuring per 1 point using a primary X-ray beam with a $\phi 2\text{mm}$ at $50\text{kV} \cdot 100\mu\text{A}$. The present analysis was carried out atmospherically. As a result, the light elements, i.e. Al or Si, or those below were difficult to detect.

2. Analytical results

Sixteen positions of distinctive color were selected and measured. Analytical results are shown in the table below. The table values indicate the net intensity of the fluorescence X-ray signal, minus the background. The ratios of X-ray intensity between elements do not correspond with the concentration ratios because each element has a different sensitivity to X-ray analysis.

Small amounts of Ca, Fe, and Cu were detected at almost all positions measured. Since these elements are occasionally found in white clay, it is likely that was applied to the overall surface as a ground layer. For red-colored areas, large amounts of Pb were found in areas No.1 and 4, and Hg in areas No. 10 and 11. This suggests the use of different pigment material (most likely cinnabar in the latter areas). In the white-colored areas, large amounts of Pb were detected in areas No.7, 14, and 15, suggesting the use of Pb-included white pigment material such as white lead. Relatively large amounts of Pb were also detected from yellow-colored areas (No.8, 9) but the intensity was nearly the same as the white-colored areas (No.7). It is probable that undetected organic dyes were used. Large amounts of Cu were detected in the green (No.12) and blue (No.16) areas, suggesting the use of pigment materials containing Cu as the major component, such as Malachite and Azurite.

Table Analytical results of painting materials of "the Secret Five Bodhisattva"

No.	Position measured	Color	X-ray intensity (cps)					
			Calcium (Ca-K α)	Iron (Fe-K α)	Copper (Cu-K α)	Gold (Au-L β)	Mercury (Hg-L β)	Lead (Pb-L β)
1	Central image : chest	Light tan		3.3	2.7			78.2
2	Central image : five-pronged vajra bell	Gold	13.5	3.9	4.7	4.8		2.3
3	Lotus : pulp	Brown	9.6	4.7	75.7			6.4
4	Lotus : stamen	Red		1.5	4.4			104.0
5	Lotus petal	White	3.4	4.2	20.0			35.3
6	Lotus petal : gold lines	Gold	1.4	2.0	13.0	5.5		71.7
7	Yellow Bodhisattva : mandorla	White	0.2	3.4	3.5			52.8
8	Yellow Bodhisattva : cheek	Yellow	0.2	3.7	2.2			58.6
9	Yellow Bodhisattva : scarf	Yellow	0.1	13.1	4.2	2.7		53.6
10	Red Bodhisattva : cheek	Red	5.3	3.0	4.9		21.8	12.6
11	Red Bodhisattva : scarf	Red	5.1	4.2	4.9	11.2	11.3	9.1
12	Green Bodhisattva : cheek	Green	3.5	4.8	139.3		0.4	14.6
13	Green Bodhisattva : crown belt	Blue	1.6	2.3	3.2			69.8
14	Base line	White		0.3	145.7			115.6
15	Circular mandorla	White		0.1				128.7
16	Background	Blue	10.3	7.9	168.8			6.7

(The author and JL)

五秘密菩薩像

作品解説

東京文化財研究所
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五秘密菩薩は不空訳『理趣経』ならびに『理趣釈』にもとづいて描かれる曼荼羅のひとつである。本図は三幅一舗を画面とし、中央に大きく白色の月輪をあらわし、余白を群青地として四周に白・赤・白の三本のラインをもって縁取っている。月輪中の蓮華座上には周縁に火炎を巡らせた二重円相光をあらわし、中央にひときわ大きく金剛薩埵を描き、これを取り囲んで四金剛菩薩を配する。これらのうち、金剛薩埵は右手を胸前で構え五鈷杵を握り、左手は腹前で五鈷鈴を執って、右足を上に結跏趺坐する。四金剛菩薩はいづれも頭光のみをあらわし、赤身の欲金剛は金剛薩埵の右膝前で矢箭を両手で執って半跏趺坐し、白身の触金剛は右背後から金剛薩埵に抱きつき、緑身の愛金剛は金剛薩埵の左背後において摩竭魚の幢(旗)を執り、黄白身の慢金剛は金剛薩埵の左膝前にあって両手ともに腹前で金剛拳をつくって半跏趺坐する。いずれも条帛、腰布、裙を着け、五仏の宝冠を戴き、臂釧、腕釧、胸飾をつけるが、金剛薩埵はさらに瓔珞を装身具としている。

濃厚な賦彩は裏彩色と相まって色鮮やかな発色の効果を上げており、宝冠、臂釧、腕釧、胸飾には裏箔が施されている。なお、各菩薩の着衣にあらわれた文様は、金剛薩埵のそれが群青の線描を用い、四金剛菩薩のそれは金泥の線描を用いて、截金は台座蓮弁の葉脈に留めて意図的にその使用を抑えたようである。制作年代は十三世紀に遡るとみて大過ないであろう。



56 五秘密菩薩像

“The Secret Five Bodhisattva”

Description

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The Gohimitsu Bosatsu is one of the mandalas based on Fuku's (Sk : Amoghavajra) translation of the *Rishu-kyo* (Sk : Adhyarthaatika-prajñāparamita-sutra) and *Rishu-shaku*. This hanging scroll consists of three pieces of silk. It depicts a large white lunar ring in the center, with open spaces covered in azurite pigment. The pictorial field is demarcated with three lines of white, red, and white. Inside the lunar ring, a flame-fringed double circular mandorla provides the backdrop for the *Kongo Satta* (Sk: Vajrasattva), which is depicted in the center, and the *Four Kongo-Bosatsu* (*Shi Kongo-Bosatsu*) surrounding him. The *Kongo Satta* holds a five-pronged *vajra vara* in his right hand in front of his chest and a five-pronged *vajra* bell in his left. He sits in the lotus position. The *Kongo-Bosatsu* are shown with halos. The red-bodied *Yoku-kongo*, seated in front of the *Kongo Satta's* right knee, sits holds arrows in both hands. The white-bodied *Shoku-Kongo* holds on to the *Kongo-satta's* right shoulder. The green-bodied *Ai-Kongo*, behind *Kongo Satta's* left shoulder, holds a banner of *Makatsu-gyo*. The yellow-bodied *Man-Kongo* sits in front of *Kongo Satta's* left knee, with hands in a *kongo-ken* position. Each has a scarf that drapes over their upper body and a waist cloth and an inner garment cover their lower bodies. Each wears a crown of the five Buddhas and other adornments consisting of armlets, bracelets, and necklaces. The *Kongo Satta* further wears a “jewel string”.

Thick pigments together with the verso painting create a colorful and vivid effect. Gold foil was applied from the back behind the crowns, armlets, bracelets, and necklaces. Azurite was used for the *Kongo Satta* and gold paint for the *Four Kongo-bosatsu* in the patterns on the garments of the bodhisattvas. Cut gold-leaf decoration was apparently reserved strictly for the veins of the petals on the lotus pedestal, and used sparingly. The painting can be dated most likely to the thirteenth-century.

(TS and JL)