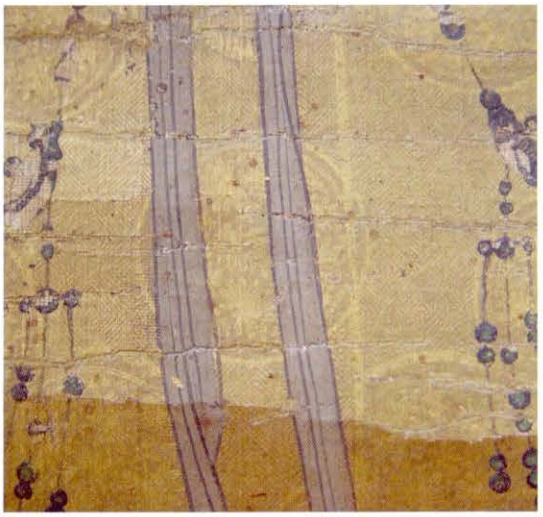
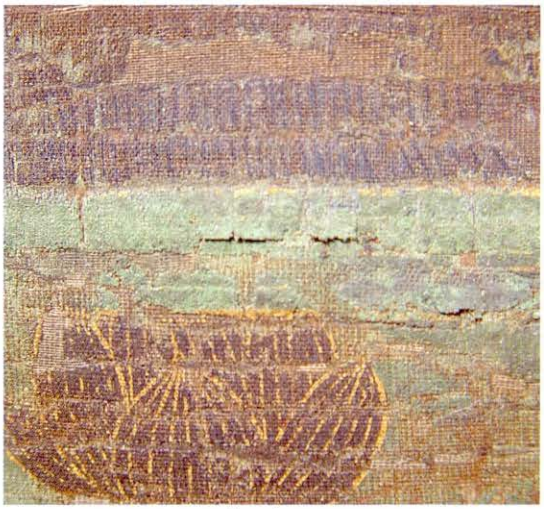
5　十一面観音菩薩像　修理前
(サンフランシスコ東洋美術館)
Eleven-headed Kannon (Ekadaśamukha) 〈Before Treatment〉
(Asian Art Museum of San Francisco)

6　修理後
〈After Treatment〉

7　修理前
〈Before Treatment〉



8　修理後
〈After Treatment〉



9　修理前
〈Before Treatment〉

10　修理後
〈After Treatment〉

十一面観音菩薩像

平成15年度修復事業

品名：十一面観音菩薩像　　1幅
所蔵：サンフランシスコ東洋美術館

十一面観音菩薩像

修理報告

(有)山口墨仁堂
山口聰太郎

Ⅰ．文化財の名称等

1．名称、員数　　十一面観音菩薩像　　1幅
2．所有者　　サンフランシスコ東洋美術館

Ⅱ．工期及び工費

1．工期　　平成15年度
2．場所　　静岡県焼津市栄町５丁目８－５
有限会社　山口墨仁堂

Ⅲ．文化財の構造

1．本紙寸法

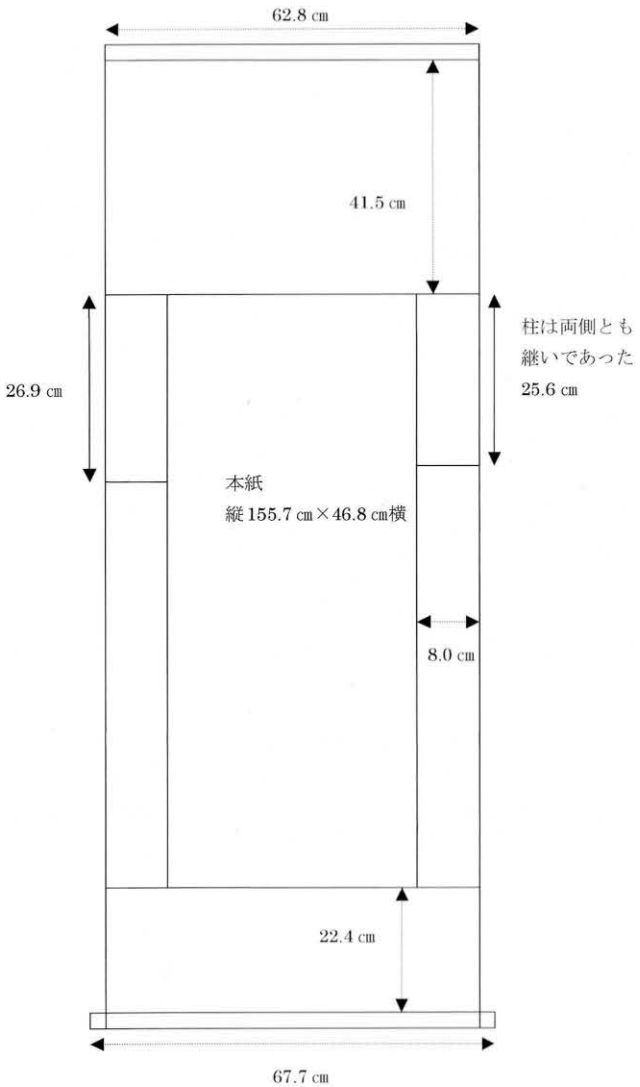
修理前	縦155.7cm×横46.8cm
修理後	縦157.1cm×横47.1cm

修理後寸法が修理前より大きくなっているが、それは裏打ちによって本紙が平面化した為と、旧付廻しよりも少し大きめに足し絹部分を出したためである。

2．本紙料絹
経糸：21中60枚２ッ入　　緯糸：21中×14中　　打ち込み：１寸間120
(ただし、むらがあるため、均一ではない)

3．表装
修理前
a．形式　掛幅装
b．表装裂地
総縁：丹地雲文綾
軸首：蓮華文金軸
箱：桐太巻添軸付一重屋郎箱

修理後
a．形式　掛幅装
b．表装裂地
総縁：丹地雲文綾（新調）
軸首：元使い　環：軸首にあわせ新調　軸木、紐：新調
箱：元使い



Ⅳ．修理前の状況

・十一面観音の足部に、大きく強い横折れがあり、その折れ山の頂点は、剝離を起こして、小口が一部浮き上がった状態であった。また、描き表具の下の部分では、本紙料絹から、絵の具層の剝離が起きており、欠落する危険性があった。

・観音像肉身部はすべて、厚い金泥と裏彩色によって塗り込められており、周りの背景に比べて大変厚く、横から見ると肉身部分が盛り上がっているような状態であった。

・旧修理の際に施された補絹及び補彩は、非常に緻密なもので、周りの絵に合わせ違和感の無く馴染んでいた。しかし、緑の部分の欠損箇所には、緑の絵具、茶の部分には茶の絵具、そして、描線を跨ぐ欠損部には、線を薄く描き入れるなど、意図的な補彩が行われており、オリジナル部分

分光測色計計測結果　ΔE*(ab)比較

	修理前			修理後			比較
計測箇所番号	L*	a*	b*	L*	a*	b*	ΔE*(ab)
4 補絹	33.85	0.77	9.49	32.73	1.66	10.31	1.65
11 描表具の鳥	36.03	6.12	15.14	38.17	6.49	15.59	2.22
14 描表具の地	29.51	−0.50	7.41	28.80	−1.22	6.25	1.54
28 暗い空	26.95	1.02	4.31	25.31	0.36	2.21	2.75
30 朝焼け、透けている部分	28.40	2.39	4.31	25.68	2.13	3.77	2.79
46 頭部の化仏 金	49.11	5.84	27.89	49.97	6.02	29.11	1.50
49 手に持った蓮 朱	32.84	7.08	9.92	34.29	7.60	12.19	2.74
51 後光	32.75	2.30	9.53	33.09	1.88	10.58	1.18
57 額	53.67	5.28	30.80	52.80	5.38	29.85	1.29
59 耳横のリボン	44.13	4.60	20.00	44.40	4.32	19.08	1.00
63 波	27.56	1.59	4.37	26.21	0.89	3.23	1.90
69 頬	54.86	4.81	30.16	52.99	4.57	28.86	2.29
73 光背内	31.31	3.60	8.94	29.73	3.09	8.59	1.70
83 衣服	55.51	5.09	31.32	54.36	5.42	31.56	1.22
93 山	30.53	−2.00	3.50	29.54	−2.01	4.08	1.15
97 手	55.84	4.89	31.89	55.29	5.00	31.85	0.56
103 衣服	57.24	5.37	30.70	58.77	4.80	32.72	2.60
113 薄絹のリボン	38.67	3.43	16.47	40.14	3.48	19.55	3.41
118 岩	29.74	3.20	8.47	28.25	2.87	6.70	2.34
131 足	59.95	4.62	33.77	60.73	4.48	34.68	1.21
133 山	30.23	−2.68	3.36	28.80	−2.59	4.38	1.76
136 蓮 緑の部分	37.02	−4.77	12.32	35.86	−3.60	12.68	1.69
139 蓮 桃色の部分	45.53	7.71	22.86	45.37	8.45	22.75	0.77
140 薄絹のリボン	39.38	4.95	18.50	39.31	4.37	18.76	0.64
156 童子の顔	41.83	6.84	20.97	41.81	7.40	19.37	1.70
157 童子の衣服	35.96	6.66	13.85	33.90	6.96	13.03	2.24
167 童子の衣服	39.88	8.11	16.66	37.71	7.75	14.64	2.99

光源:C 2°
測色器:CM-2600d
基底表色系:分光反射率
（SCI-UVカット測定）

との判別は大変に困難であった。金泥の欠損部分にも、金泥が厚く塗り込めてあった。

・修理前では、右側の柱が、下側が本紙の中側に入り込むように付け廻しされており、平行では無かった。また、表具裂は柱の部分が上25cmあたりの所で両側とも１カ所づつ継がれていた。

・軸首は汚れが付着していた。

Ⅳ．修理概要

１．修理方針

・足部に強い横折れがあること、絵具の剝離があること、旧修理での補彩が緻密に行われていてオリジナル部分との判別が困難であること、表具裂の柱が継いであることが、今回の修理のポイントであった。

・全体的には掛かりも良く、大きな損傷はないため、肌を打ち替えずに修理を行うことも考えられた。しかし、意図的に行われている補彩を除去し、新たに補絹をしてトーニングを行うことも、この修理で必要とされていたため、肌裏紙から打ち替える、根本修理を行うこととした。

・旧修理は新しいもので、電子線劣化絹を用いて埋められていた。細かいところまで緻密に埋められており、また、糊もまだ新しいために接着が固く、除去作業は慎重に行うことが求められた。通常の旧補絹除去作業の場合は、表打ち、肌裏除去後に、水を部分的に少量与えて、少しずつ除去していく。オリジナルの絹と補絹とに、強度や厚さに違いがあるために、補絹だけ除去しやすいように水分を与えることができ、また、たいていは、欠損箇所よりも大きく埋められているため、重なり部分のところは、補絹にだけ水を与え、下に重なるオリジナルには水が及ばないようにして、作業を行うことが出来る。しかし、今回の場合は、用いられている絹が電子線劣化絹である。それは、オリジナルと同様に脆く、欠損箇所の小口に対して突き付けで埋められていた。よって、除去の際の水分を与える時に、補絹だけに水分を与えようとしても、周りのオリジナル部分にまで水分が僅かに滲む。そして、旧補絹の際の糊の接着力がまだ弱っていないために、小口同士が離れない。補絹を除去しようとすると、オリジナル部分まで動き出してしまいかねない状態であった。そのような状態がみられるのは、主に細く小さい欠損部分の補絹であった。よって、細かく小さいところは、除去せずに、オリジナルの安全を第一に考え除去作業を行った。
・新たな補絹には、意図的な色を入れずに、トーニングのみをおこなった。
・表具裂は時代裂であり趣もあったが、柱に継ぎがあるため、同様の丹地の雲文綾を新調することとした。

2．修理仕様
・剝落の危険性が極めて高い描き表具下部分については、膠を注入し剝落止めを行う。
・通常の写真撮影のほかに、絵具粒子の顕微鏡写真、本紙透過写真、赤外写真を撮影する。
・絵具の発色が修理前後で変わることが無いよう、チェックするため、分光測色計にて修理前の色を計測する。計測結果については担当官に報告をする。
・採寸及び損傷等の調査を行い、現状を記録する。
・修理工程において使用する水に絵具層が耐え得るか、少量の水で絵具の変化を事前に見る。
・柔らかく細い刷毛を使ってドライクリーニングをし、埃や汚れを除去する。
・絵具層を固着するため、兎膠水溶液にて剝落止めを行う。
・画面全体の煤けに対して、少量の水通しを行い煤だしする。
・本紙の表打ちを行い、乾式肌上げ法によって、少量の水で肌上げを行う。
・旧補絹、旧足し絹は、担当官との協議の上で除去する。ただし、前回修理の補絹はまだ糊が新しく接着力が強かったため、除去の際に本紙の画絹を傷つけてしまうような部分については、触らずにそのまま残す。
・新しく天地左右に足し絹をする。幅は、描き表具の筋が左右均等になるようにする。天地は本紙が隠れない程度に仕立てられるように足す。
・補絹は本紙欠損部と同じ大きさに切り出して、欠損部繊維の小口に対して補絹の繊維小口が突き付けになるように埋める。
・肌裏紙には大判の美濃紙を用い、継がずに肌裏打ちをする。
・画面がもっとも良く見える色の裏打紙を選ぶため、墨・矢車染めの肌裏用美濃髪２種、墨染めの増裏用美栖紙２種を用意し、それぞれ組み合わせて４通りの色によって、部分的に仮裏打ちを行う。その上で担当官と協議し、最も画面に適した色合いを決定する。
・金泥の観音像部分は、非常に厚いため、全体の厚みのバランスを調節するために、増裏打の紙

を、像の部分のみ薄く残して除去する。
・横折れ箇所には、増裏打後に折れ伏せを入れて補強する。折れ伏せを入れるべき所が、非常に多く、その際の水分による伸縮が本紙に影響を与える可能性があるため、一度、仮貼りをしてから折れ伏せを入れることにする。
・補絹部分はトーニングを行う。
・中裏打後にも、厚み調整のため、観音像部分の紙を薄く残して除去する。
・表具裂は担当官と協議して、新調する。
・軸首はクリーニングをして元使いする。
・座金は弱っていたため、軸首に合わせて新調する。
・紐、軸木、八双、羽二重紗を新調する。
・桐太巻、一重屋郎箱は元使いする。
・修理後の完成品について旧状との比較が行える写真撮影を行う。
・修理後に使用した紙、絹、表具裂、紐等のサンプルを提出する。
・旧表具裂は資料として、元と同じ表具の形に仕立てる。

3．修理工程

1．修理前に写真撮影をした。
2．すでに浮き上がってきている、絵の具や料絹を応急的に糊をさして止めた。
3．本紙の損傷状況が一覧できる損傷地図を作成した。
4．下軸と上軸を取り外した。
5．本紙と表具裂とを外した。
6．筆を使って、本紙表面に付いている埃などを除去した。
7．分光測色計を用いて、本紙の色を計測した。
8．顕微鏡写真撮影を行って絵具の状態を記録した。
9．両面に湿した紙を当てて、裏面から少量の水分を加えて、煤出を一度行った。
10．２％の兎膠水溶液にて絵の具の落止めを２度行った。
11．表具全体に、スプレーを用いて少量の水を噴霧し、糊を緩ませて旧総裏紙、旧中裏紙、旧増裏紙、旧折れ伏せ紙を除去した。
12．布海苔とレーヨン紙を用いて本紙の表打をした。
13．乾式法により裏面から筆で少しずつ湿しながら、旧肌裏紙を除去した。
14．旧補絹を除去した。
15．本紙欠損箇所と同じ形に切り抜いた電子線劣化絹を、欠損箇所に添付した。また、天地左右に足し絹をした。
16．裏打ち紙の色を選択するため、仮の裏打ちを部分的に行い、最適な紙の色を選んだ。
17．矢車、墨染の美濃紙を用いて、新糊にて本紙の肌裏打ちをした。
18．表具裂を新調し、墨染美濃紙にて肌裏打ちをした。
19．表打のレーヨン紙を除去した。
20．本紙と裂を無染の美栖紙で、古糊を用いて増裏打ちをした。
21．全体の厚みのバランスを取るため、観音像部分の増裏紙を薄く除去した。
22．本紙の横折れ箇所に折れ伏せをいれた。

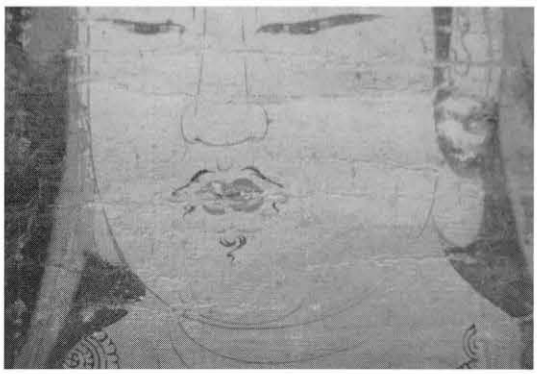


図55　修理前
Before treatment.

図56　修理後
After treatment.

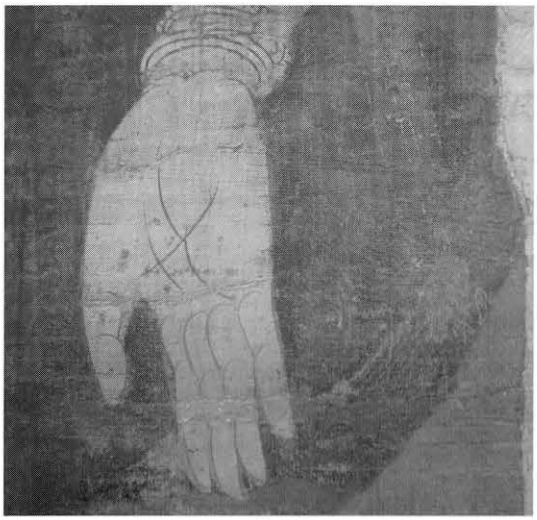


図57　修理前
Before treatment.

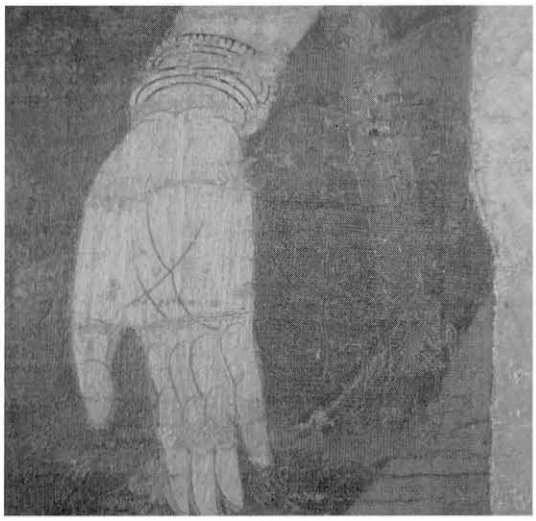


図58　修理後
After treatment.

23. 付廻しをして表具の形にした。
24. 本紙と裂それぞれを、美栖紙にて古糊を用いて中裏打ちした。
25. 矢車染宇陀紙にて古糊を用い、総裏打をした。
26. 仮貼りをして乾燥させた。
27. 補絹箇所にトーニングをおこなった。
28. 軸首は汚れを落として元使いし、軸木、八双、紐、環は新調して仕上げをした。
29. 羽二重包裂を新調し、元の保存箱に納入した。
30. 修理後に写真撮影を行った。

2．各工程における材料使用法律

名称		材料	使用法
本紙	肌裏紙	美濃紙	矢車染、媒染、水洗いし、墨で染めた。 厚0.08㎜
		新糊	水：新糊＝3：7　粘度11.0pa.S PH 6 ～ 7
	増裏紙	美栖紙	厚0.11㎜
		古糊	粘度22.1mpa.S　PH 6 ～ 7　水替 5 回
	補修絹	電子線劣化 絵絹	経糸：21中60枚 2 ツ入 緯糸：21中×14中 打ち込み：1 寸間120 電子線照射量：2100kGy
		布海苔、新糊	布海苔：新糊＝1：1
	中裏紙	美栖紙	厚0.05㎜
		新糊	粘度30.5mpa.S　PH 6　水替 5 回
総縁	肌裏紙	美濃紙	矢車染、媒染、水洗いした。厚0.07㎜
		新糊	水：新糊＝2：5　粘度16.0pa.S
	増裏紙	美栖紙	厚0.11㎜
		古糊	粘度22.1mpa.S　PH 6 ～ 7　水替 5 回
	中裏紙	美栖紙	厚0.11㎜
		古糊	粘度30.5mpa.S　PH 6　水替 5 回
本紙、 表具裂共通	折れ伏せ紙	美濃紙	厚0.07㎜
		新糊	水：新糊＝1：1　粘度2.1pa.S　PH 6 ～ 7
	総裏紙	宇陀紙	矢車染、水洗い　厚0.13㎜
		古糊	粘度31.0mpa.S　PH 6 ～ 7　水替 5 回

名称	材料	使用法
総縁裂	丹地雲文綾	蘇芳染、矢車染　媒染　水洗い
上巻絹	縹平絹	矢車染　水洗い

3．使用材料

材料	種別	製造元および販売元	
紙	美濃紙	岐阜県美濃	
	美栖紙	奈良県吉野	
	宇陀紙	奈良県吉野	
絹	絵絹 表具裂	京都	
糊	新糊 (小麦粉 澱粉)	長田産業株式会社製	700ｇの小麦粉澱粉糊を２リットルの水に溶かし、強火で20分間焚く。一晩冷ましてから使用する。
	古糊	自家製	焚いた小麦粉澱粉糊を瓶に入れて蓋をし、縁の下で保存する。 平成７年物。
	布海苔	韓国製	布海苔７ｇを水洗いして塩抜きし、700ccの水を加えて、布海苔が溶けるまで約15分間加熱する。その後二重ガーゼで濾過して、冷却する。
補彩用絵具	藍棒 洋紅 藤黄	京都	
補彩用絵具	墨	奈良	
染料	矢車・ 蘇芳	京都	
染料	墨	奈良	
軸木		京都	軸径30㎜
環		京都	軸首に合わせて新調
啄木		京都	三色三間組

Ⅴ．新発見等

1．軸書発見

下軸に昭和51年秋の修理銘を発見した。

2．旧補絹の補彩

観音像の肉身の金泥部分に施された補絹には、厚く金泥が塗り込められていた。除去する場合には、オリジナル部分を傷つける恐れがあるため、除去せずそのまま残した。(図59～64)

3．本紙裏面に下書きの線を発見した。(図65～68)

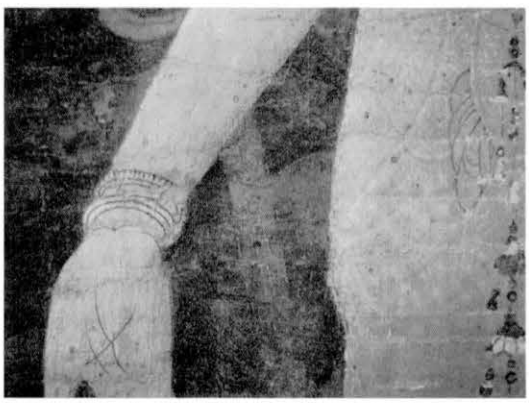


図59　修理前。金泥を盛り上げて補彩してある。
Before treatment. The gold paint was thickly reapplied.

図61　修理前
Before treatment.

図60　補絹後の状態。手首にある旧補絹部分は、表から厚く金泥が塗り込められているため、除去困難であり、そのまま残した。
After mending. Because there was a thick layer of gold paint in the area around the wrist that was mended in the past, it was difficult to remove, and therefore was left untouched.

図62　補絹後。指先に旧補絹を残す。
After mending. Previous mending around the fingertips was left untouched.

図63　修理前
Before treatment.

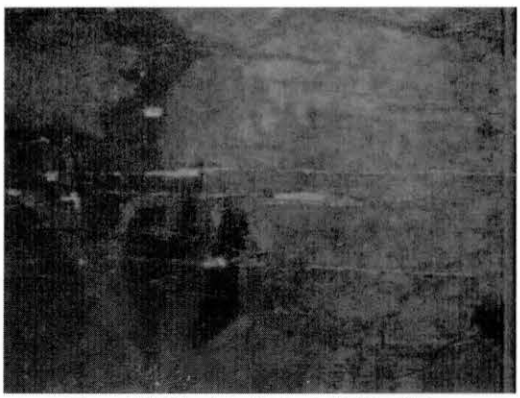


図64　補絹後。頬の部分に旧補絹が残る。
After mending. Former mending job is left around the cheek area.

図65　赤外線写真。本紙裏面に下書きの線を発見した。
Infrared photograph. Lines of a rough sketch were found on the reverse side of the painting.

図66　裏面 赤外線写真
Reverse side, infrared photograph.

図67　裏面 赤外線写真
Reverse side, infrared photograph.

図68　裏面 赤外線写真
Reverse side, infrared photograph.

4．透けて見える部分について
水平線部分と光背の中の一部分が、裏彩色が無くなっているかのように、透けていた。
状態を記録するため、写真撮影を行った。(図69～76)
修理前の赤外線写真から、光背内の透けている部分は、山のような絵が描かれていた。
水平線の部分は、裏面の顕微鏡写真から、絵具がほとんどのっていないことがわかった。
5．金軸は元使いとした。(図78～82)

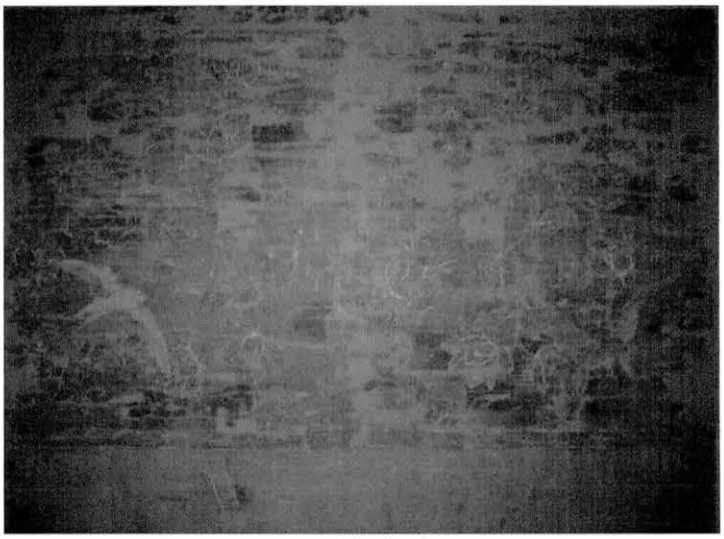
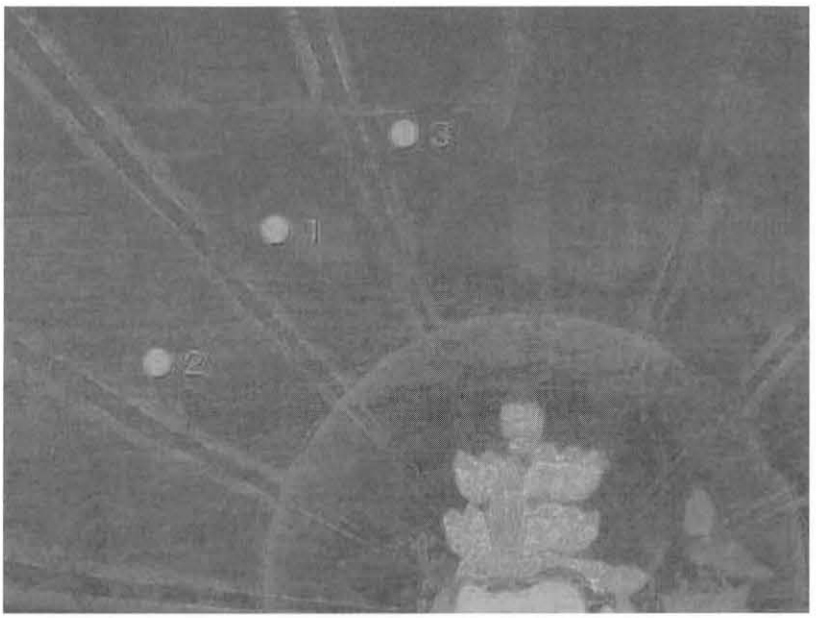


図69　赤外線写真
Infrared photograph.

図70　赤外線写真。頭部右側が、自然光の中では透けて見えていた。
Infrared photograph. In natural light, the right side of the head had looked transparent.

図71　水平線部分。
　　顕微鏡撮影を行ったポイント。
Horizon. A photomicrograph was taken.



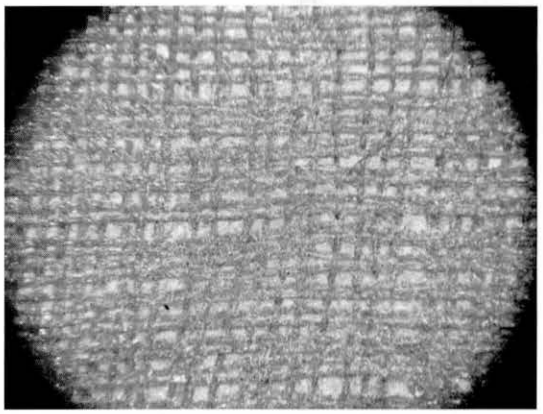


図72　朝焼け（ポイント１）顕微鏡写真　×25
Morning glow. (Point1) Photomicrograph×25 magnification

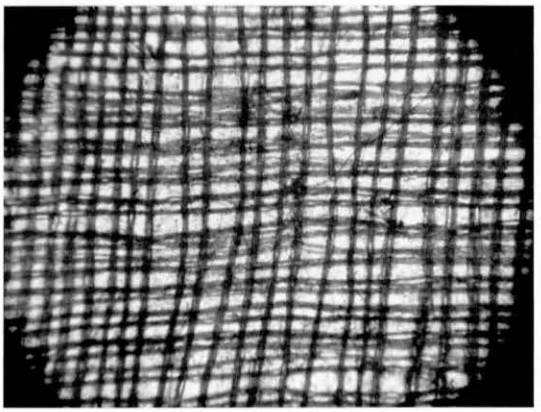


図73　朝焼け（ポイント１）顕微鏡写真 透過光　×25
Morning glow (Point1) Photomicrograph, transmitted light×25 magnification

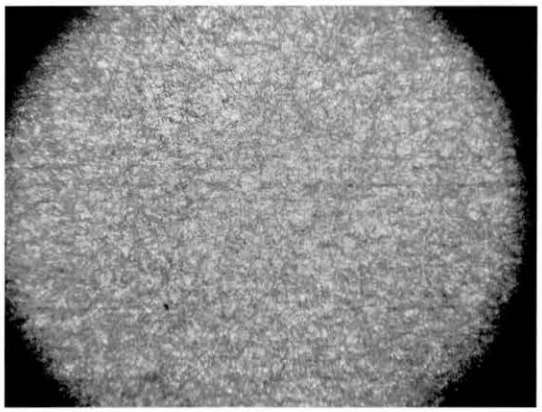


図74　海の部分（ポイント２）顕微鏡写真　×25
Sea. (Point2) Photomicrograph×25 magnification

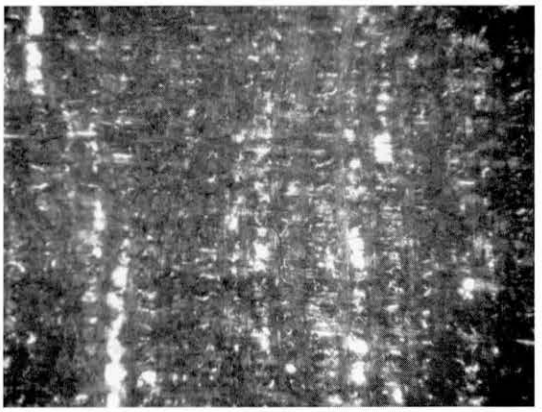


図75　海の部分（ポイント２）顕微鏡写真 透過光　×25
Sea. (Point2) Photomicrograph, transmitted light×25 magnification

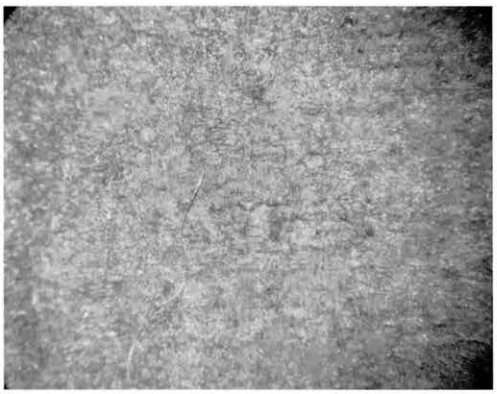


図76　空、暗闇（ポイント３）顕微鏡写真　×25
Dark sky. (Point3) Photomicrograph×25 magnification

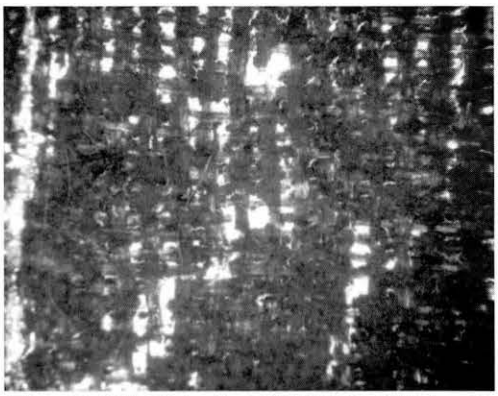


図77　空、暗闇(ポイント３)顕微鏡写真 透過光　×25
Dark sky. (Point3) Photomicrograph, transmitted light ×25 magnification

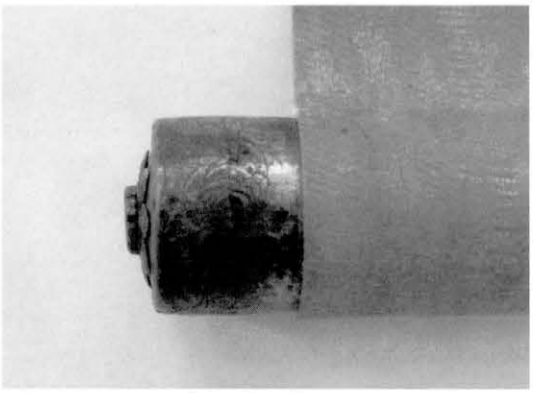


図78　金具　修理前
Metal fittings, before treatment.

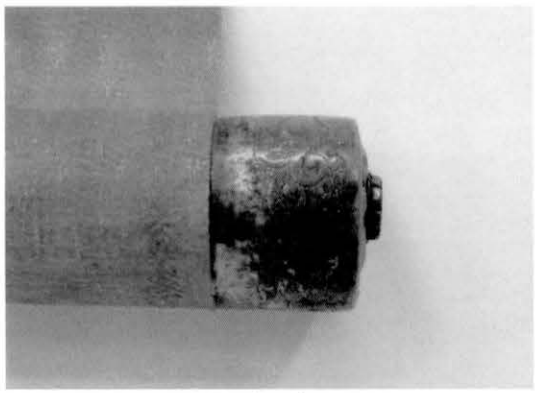


図79　金具　修理前
Metal fittings, before treatment.

図80　金具　修理後にクリーニングした。
Metal fittings, after treatment. Have been cleaned.

図81　金具　修理後
Metal fittings, after treatment.

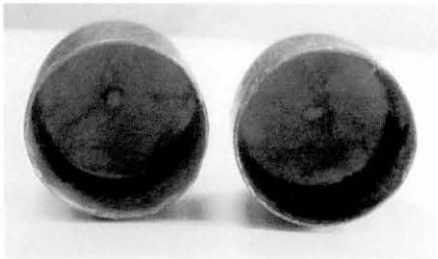


図82　金具　修理後。側面と天の部分が取り外せる構造だった。内側から楮紙で側面と天を接着した。
Metal fittings, after treatment. They were made in such a way that the side and top parts could be removed. The sides and top were joined from the inside with *kozo* paper.

図83　修理前
Before treatment.

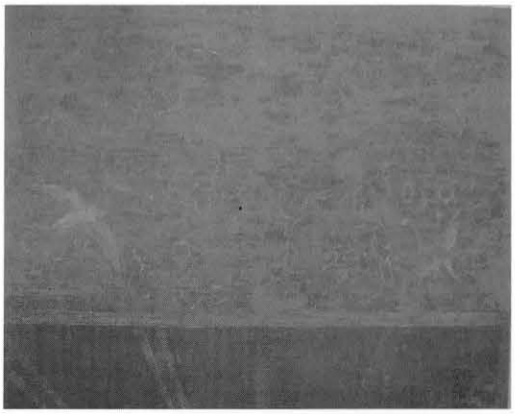


図84　修理後
After treatment.

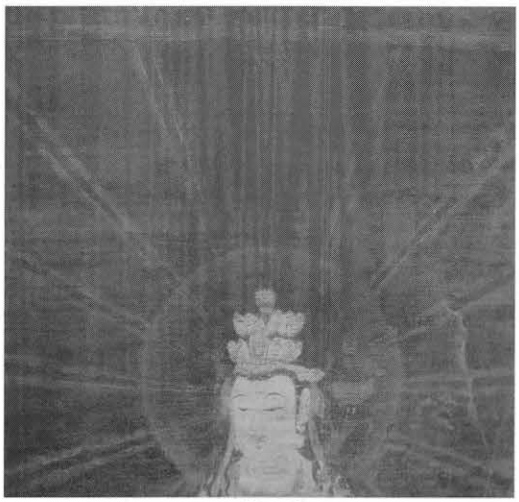


図85　修理前
Before treatment.

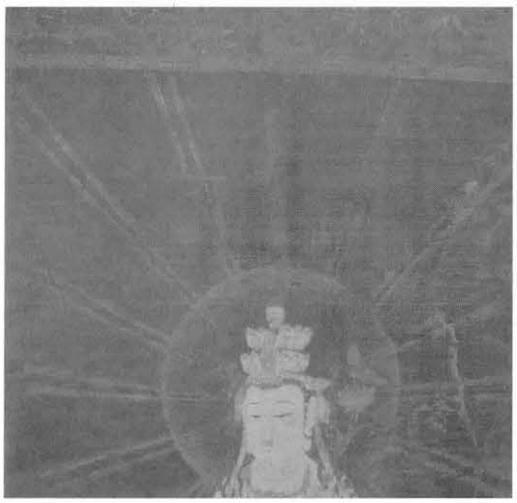


図86　修理後
After treatment.

図87　修理前
Before treatment.

図88　修理後
After treatment.

図89　修理前
Before treatment.

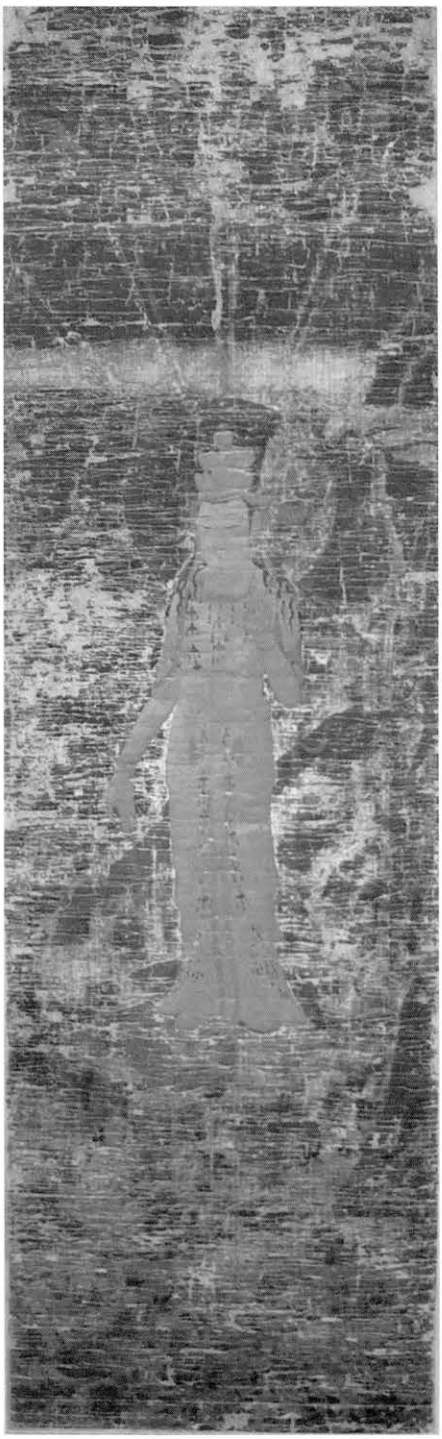


図90　修理中の透過写真
During treatment, radiography.

図91　肌裏除去後の裏面
Reverse side after removal of first lining.

図92　肌裏除去後の裏面　赤外線写真
Reverse side after removal of first lining, infrared photograph.

図93　肌裏除去後の裏面　透過写真
Reverse side after removal of first lining, radiography.

図94　補絹後の裏面
Reverse side after mending.

図95　トーニング前
Before toning.

図96　修理後
After treatment.

Eleven-headed Kannon (Ekadaśamukha)

Conservation Report

Sotaro Yamaguchi
Yamaguchi Bokujindo,Ltd.

Ⅰ. Description and title of object

1. Title, number of objects　Eleven-headed Kannon (Ekadaśamukha), one hanging scroll
2. Collection　Asian Art Museum of San Francisco

Ⅱ. Period and location

1. Period　FY2003
2. Location　Yamaguchi Bokujindo, Ltd.
5-8-5 Sakae-machi, Yaizu-shi, Shizuoka Prefecture

Ⅲ. The structure of the cultural property

1. Dimensions

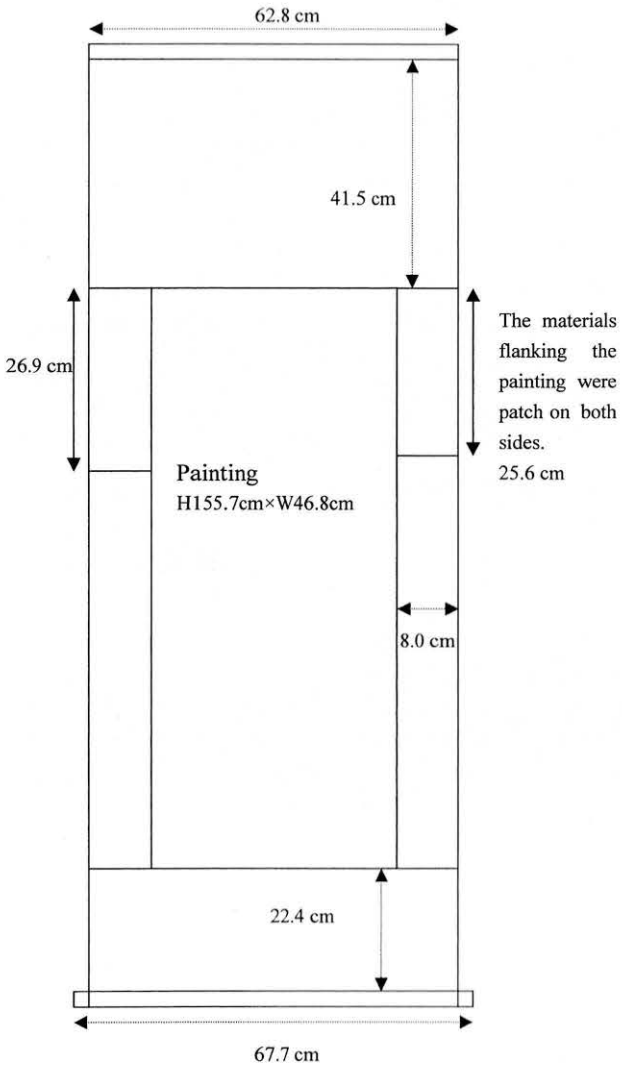
Before treatment	Height 155.7 cm× width 46.8 cm
After treatment	Height 157.1 cm× width 47.1 cm

The size of the scroll after treatment is larger than before treatment. This is because the scroll was flattened out during the lining process, and silk material was added.

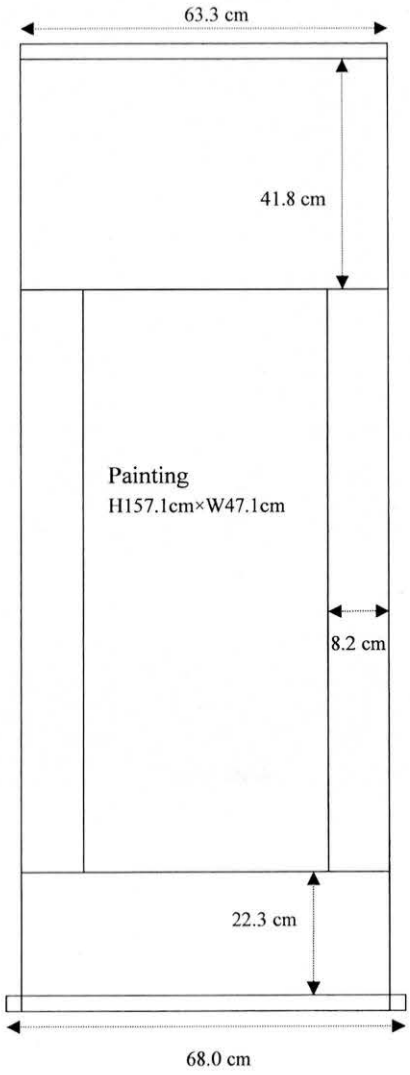
2. Silk support of the painting
Warp threads: 21 denier, 60 pairs with weft threads overlapping every two warp threads
Weft threads: 21 denier ×14 denier
Thread density: 120 per 3.03 cm
(There are irregularities, and therefore it is not even throughout)

3. Mounting 1
Before treatment
a. Format　Hanging scroll
b. Materials used for mounting
Souberi (outer framing fabric surrounding the painting): Reddish-brown, cloud patterned twill weave fabric.
Jikushu (knobs of bottom roller): Lotus patterned gold tips.
Box: Single-layer storage box with a large paulownia roller clamp.

Before treatment: Dimensions of the mounting



After treatment: Dimensions of the mounting



After treatment

a. Format Hanging scroll

b. Materials used for mounting

Souberi: Reddish-brown, cloud patterned twill weave fabric (newly made)

Jikushu: The original is reused.

Metal fittings: Newly made to match the *jikushu*.

Wooden roller, cord: Newly made.

Box: The original is reused.

Spectroscopic colorimeter, measurement results Comparison: ΔE*(ab)

	Before treatment			After treatment			Comparison
Measured location number	L*	a*	b*	L*	a*	b*	ΔE*(ab)
4 Area mended with silk	33.85	0.77	9.49	32.73	1.66	10.31	1.65
11 Bird on the painted mounting	36.03	6.12	15.14	38.17	6.49	15.59	2.22
14 Base of the painted mounting	29.51	-0.50	7.41	28.80	-1.22	6.25	1.54
28 Dark sky	26.95	1.02	4.31	25.31	0.36	2.21	2.75
30 Morning glow, transparent area	28.40	2.39	4.31	25.68	2.13	3.77	2.79
46 *Kebutsu* (a small Buddhist image attached to a larger image) on the head,	49.11	5.84	27.89	49.97	6.02	29.11	1.50
49 Lotus held in hand	32.84	7.08	9.92	34.29	7.60	12.19	2.74
51 Halo	32.75	2.30	9.53	33.09	1.88	10.58	1.18
57 Forehead	53.67	5.28	30.80	52.80	5.38	29.85	1.29
59 Ribbon next to the ear	44.13	4.60	20.00	44.40	4.32	19.08	1.00
63 Waves	27.56	1.59	4.37	26.21	0.89	3.23	1.90
69 Cheek	54.86	4.81	30.16	52.99	4.57	28.86	2.29
73 Inside the halo	31.31	3.60	8.94	29.73	3.09	8.59	1.70
83 Clothing	55.51	5.09	31.32	54.36	5.42	31.56	1.22
93 Mountain	30.53	-2.00	3.50	29.54	-2.01	4.08	1.15
97 Hand	55.84	4.89	31.89	55.29	5.00	31.85	0.56
103 Clothing	57.24	5.37	30.70	58.77	4.80	32.72	2.60
113 Thin silk ribbon	38.67	3.43	16.47	40.14	3.48	19.55	3.41
118 Rock	29.74	3.20	8.47	28.25	2.87	6.70	2.34
131 Foot	59.95	4.62	33.77	60.73	4.48	34.68	1.21
133 Mountain	30.23	-2.68	3.36	28.80	-2.59	4.38	1.76
136 Green part of the lotus	37.02	-4.77	12.32	35.86	-3.60	12.68	1.69
139 Pink part of the lotus	45.53	7.71	22.86	45.37	8.45	22.75	0.77
140 Thin silk ribbon	39.38	4.95	18.50	39.31	4.37	18.76	0.64
156 Attendant's face	41.83	6.84	20.97	41.81	7.40	19.37	1.70
157 Attendant's clothing	35.96	6.66	13.85	33.90	6.96	13.03	2.24
167 Attendant's clothing	39.88	8.11	16.66	37.71	7.75	14.64	2.99

Light source: C 2°
Colorimetric device CM-2600d
Base color system: spectral reflectance
(measures rate at which SCI-UV is cut)

Ⅳ. Condition of the painting before treatment

- There was a large horizontal crease at the foot of the Eleven-headed Kannon. The tip of the crease was cracked and partially peeling. Also, in the bottom portion of the painted mounting, the paint was peeling away from the silk support of the painting and in danger of flaking off.
- The entire body of the Kannon was painted with a thick layer of gold paint and also by *urazaishiki* (paint applied from the reverse side). The paint for this area was significantly thicker compared to the surrounding background, so that from the side, the body portion could be seen bulging from the surface.
- The silk infills and the in-painting added during the past treatment were extremely precise, and blended naturally into the painting. However, areas that were missing were treated by intentionally painting over them (for example, chipped areas that were green were filled with green paint, while brown portions were painted with brown paint, and areas with lost lines were fixed by adding thin lines), making it difficult to determine which part made up the original

painting. Chipped areas of gold were also filled with a thick layer of gold paint.

- Before treatment, the material on the right side of the painting had been attached in such a way that the bottom portion overlapped with the painting, making it uneven. Moreover, the mounting material on either side of the painting was found patched in one place at around 25 cm from the top.
- The roller knobs were soiled.

Ⅳ. Outline of treatment

1. Treatment plan

- This treatment focused on the major crease at the foot of the Kannon, the areas where paint was flaking off, the difficulty in deciphering which parts made up the original painting due to the precise nature of past treatment, and the patching done on the mounting material on either side of the painting.
- Overall, the painting hung well and did not have any major damages and therefore could have been treated without changing the first layer of backing. However, for this treatment, the in-painting that had been added during a former treatment also needed to be removed, as well as some additional mending and toning. Therefore, it was decided that a thorough treatment would be carried out that involved replacing the first lining.
- The previous conservation treatment was done recently, and irradiated silk was used for mending. Since the mending was done in a detailed and precise manner, and the paste used is still new and therefore strongly adhesive, much care was needed in removing it. Normally, the removal of the silk used in a former mending treatment is done gradually by adding a small amount of water to one section at a time, after a facing has been applied and the first lining removed. Due to the difference in strength and thickness between the original silk thread and that used for mending, water can be added to allow only the silk used for mending to be removed. Also, because the silk used for mending is placed over a larger area than the lost part of the original painting, it can usually be removed by adding water to the mended layer only, without affecting the overlapping portions of the original painting. However, in this particular case, irradiated silk, which is as brittle as the original material, was used and applied without overlapping. Therefore, even when water was placed only on the parts added for mending, a small amount of water would seep through to the original layer. In addition, because the adhesiveness of the glue used for mending had not yet weakened, the edges of the two layers could not be separated. To attempt to remove the mended portion ran the risk of taking away parts of the original painting. This problem was found mainly in the mending of small missing spots. Therefore, priority was placed on protecting the original painting, and the removal operation was carried out without touching those areas.
- Areas that required additional mending were toned and received no additional treatment.
- While the material used for mounting was antique and had a certain charm, because the areas on either side of the painting were patched, it was replaced with a new reddish-brown,

cloud patterned twill weave fabric similar to the original.

2. Treatment specifications
   - Apply animal glue to the bottom portion of the painted mounting that is highly in danger of peeling off in order to stop the peeling.
   - In addition to taking the standard photographs, also take photomicrographs of paint particles, radiographs of the main painting, and infrared photographs.
   - To ensure that the coloration of the paint before and after the treatment remains the same, measure the colors before treatment using a spectroscopic colorimeter. Report the measurement results to the director.
   - Examine the piece to determine its measurements and damaged areas, and record the findings.
   - Examine changes in the quality of the pigment made by a small amount of water before treatment to determine whether the paint layer will be able to tolerate the water used for treatment.
   - Clean using a dry, soft, thin brush to remove dust and grime.
   - Treat and consolidate the paint layer with rabbit glue solution to prevent peeling.
   - In order to remove the soot that is found on the entire surface, treat it with a small amount of water.
   - Apply a temporary facing to the painting. Then, remove the first lining, using the dry removal method, with a small amount of water.
   - Remove the silk infills from the previous treatment, based on decisions made with the director. However, areas in which the paste used in the previous treatment is still new and strongly adhesive, and any attempt to remove it could damage the original silk painting surface, should be left untouched.
   - Add new silk material to the top, bottom, left, and right edges of the painting. Make sure the widths of the painted mounting show evenly on the left and right sides. The top and bottom portions should be added without covering up the painting.
   - Cut the infill silk to the same size as the parts missing in the painting. Fit the silk pieces into the missing parts of the painting so that the edges meet without overlap.
   - Prepare a large-sized sheet of Mino paper without joints for the first lining, and apply it to the back.
   - In order to select the best color for lining paper to make the surface of the painting look the most attractive, prepare two types of *sumi* and *yasha*-dyed Mino paper used for the lining, and two types of *sumi*-dyed Misu paper for the subsidiary lining. Temporarily apply the four types of paper to different portions of the back, and consult with the director to decide on the color that best suits the painting.
   - Since the gold paint used for the Kannon is extremely thick, in order to adjust the thickness so that it balances out with the rest of the painting, the paper used for the subsidiary lining will be removed, except for portions of the Kannon body, where a thin layer of paper for the

subsidiary lining will be left.

- After attaching the subsidiary lining, reinforce the cracked areas by applying paper reinforcement strips. Since there are quite a few places that need reinforcement, and there is a possibility that the expanding and contracting of the paper caused by the water used for the process may affect the painting, the painting is first stretched before the paper reinforcement strips are added.
- Tone the silk infills.
- After the overall lining is added, again remove the paper, leaving a thin layer where the Kannon is located, in order to adjust the thickness.
- Select new mounting material upon consultation with the director.
- Clean and use the original roller knobs.
- Replace the *zagane* pieces (metal washers) with new ones, based on severity of their condition.
- Use a new cord, top and bottom rollers and *habutae*-silk wrapping.
- Use the original paulownia roller and single-layer storage box.
- After treatment is completed, take photographs so that comparisons may be made with the condition of the piece before treatment.
- After treatment is completed, submit samples of paper, silk, mounting material, cord, etc. that were used.
- The old mounting material is put back together into the original form to keep as reference.

3. Treatment process

1. Photographs were taken before treatment.
2. Paint and silk that was peeling back were temporarily reattached with paste.
3. A diagram that mapped out the damaged area was created so that the condition of the painting could be determined at a glance.
4. Top and bottom rollers were removed from the mounting.
5. The painting was separated from the mounting material.
6. Using a brush, dust found on the surface of the painting was removed.
7. Using a spectroscopic colorimeter, the colors on the painting were measured.
8. The condition of the paint was recorded by taking photomicrographs.
9. Soot was removed with a damp piece of paper placed on the front surface, and a small amount of water added from the reverse side.
10. A water solution with 2% rabbit glue was applied twice to prevent chipping of paint.
11. A small amount of water was sprayed onto the entire surface of the mounting in order to soften the paste, and the former final backing, overall lining, subsidiary lining and reinforcement strips were removed.
12. The temporary facing was applied to the painting using seaweed glue and rayon paper.
13. The former first lining was removed by gradually dampening the back side with a brush using the "dry method."
14. Old silk infills were removed.

15. Irradiated silk was cut to the same size as the missing parts and applied to the painting. Also, silk material was added to the top, bottom, left, and right edges.
16. Papers to be used for the first layer of backing were partially and temporarily attached in order to select the best possible color.
17. The *yasha* and *sumi*-dyed Mino paper was attached with wheat starch paste as the first lining.
18. New mounting material was used and *sumi*-dyed Mino paper was attached as the first lining.
19. The rayon paper used for the temporary facing of the painting was removed.
20. Subsidiary lining was attached to the painting and mounting using undyed Misu paper and aged wheat starch paste.
21. The subsidiary lining paper at the body of the Kannon was removed in order to balance out the thickness, leaving a thin layer.
22. Paper reinforcement strips were added to the horizontal cracks in the painting.
23. Parts were assembled to create the mounting.
24. An overall lining was applied to the entire mounting with Misu paper and aged wheat starch.
25. *Yasha*-dyed Uda paper was attached as the final overall lining using aged wheat starch paste.
26. The mounting was stretched and dried on *karibari*.
27. Toning was done in the infill areas.
28. The original roller knobs were cleaned to be reused. New top and bottom rollers, cord, and metal fittings were added to complete the hanging scroll.
29. New habutae-silk wrapping material was made and placed in the original single-layer storage box.
30. After the treatment was completed, photographs were taken.

2. Materials and their usage at each process

Name		Material	Method of use
Painting	First lining	Mino paper	Dyed with *yasha*, soaked in dye mordant, rinsed, then dyed with *sumi*. Thickness: 0.08 mm.
		Wheat starch paste	Water: wheat starch paste = 3:7 Viscosity: 11.0 Pa.s pH 6-7
	Subsidiary lining	Misu paper	Thickness: 0.1 mm
		Aged wheat starch paste	Viscosity: 22.1 mPa.s pH 6-7 Water changed 5 times.
	Silk used for mending	Irradiated silk	Warp threads: 21 denier, 60 pairs with weft threads overlapping every two warp threads Weft threads 21 denier×14 denier Density: 120 per 3.03 cm Amount of electron irradiation: 2100 kGy
		Seaweed paste, wheat starch paste	Seaweed paste: wheat starch paste = 1:1
	Overall lining	Misu paper	Thickness: 0.05 mm
		Aged wheat starch paste	Viscosity: 30.5 mPa.s pH 6 Water changed 5 times.

Souberi (outer framing fabric surrounding the painting)	First layer of lining	Mino paper	Dyed with *yasha*, soaked in dye mordant and rinsed in water. Thickness: 0.07 mm
		Wheat starch paste	Water: wheat starch paste = 2:5 Viscosity:16.0 Pa.s
	Subsidiary lining	Misu paper	Thickness: 0.11 mm
		Aged wheat starch paste	Viscosity: 22.1 mPa.s pH 6-7 Water changed 5 times.
	Second lining	Misu paper	Thickness: 0.11 mm
		Aged wheat starch paste	Viscosity: 30.5 mPa.s pH 6 Water changed 5 times.
For both the painting and mounting material	Paper reinforcement strips	Mino paper	Thickness: 0.07 mm
		Wheat starch paste	Water: wheat starch paste = 1:1 Viscosity: 2.1 Pa.s pH 6-7
	Final backing	Uda paper	Dyed with *yasha*, rinsed in water. Thickness: 0.13 mm
		Aged wheat starch paste	Viscosity: 31.0 mPa.s pH 6-7 Water changed 5 times.

Name	Material	Method of use
Outer fabric surrounding the painting	Reddish-brown, cloud patterned twill weave fabric	Dyed in purplish red, dyed with *yasha*, soaked in dye mordant, rinsed in water.
Uwamaki silk (on the reverse side of the scroll)	Light indigo plain weave silk	Dyed with *yasha*, rinsed in water.

3. Materials used

Material	Classification	Manufacturer/distributor	
Paper	Mino paper	Mino, Gifu Prefecture	
	Misu paper	Yoshino, Nara Prefecture	
	Uda paper	Yoshino, Nara Prefecture	
Silk	Silk support for painting Mounting material	Kyoto	
Paste	Wheat starch	Made by Nagata Sangyo, Corp.	700 g of wheat starch is dissolved in 2 liters of water and cooked over high heat for 20 minutes. It is cooled overnight before use.
	Aged paste	Homemade	Cooked wheat starch is poured in a jar and stored underground. Made in 1995.
	Seaweed paste	Made in South Korea	Salt is removed from 7 g of funori seaweed by rinsing with water. 700 cc of water is added and it is cooked for 15 minutes until the seaweed dissolves. It is filtered with a double-layered gauze and cooled.
Pigment used for repairing	*Aibou* (indigo sticks), *youkou* (carmine), *touou* (gamboge)	Kyoto	

Paint used for repairing	*Sumi* ink	Nara	
Dye	*Yasha*, purplish red	Kyoto	
Dye	*Sumi* ink	Nara	
Roller		Kyoto	Diameter: 30 mm
Loops		Kyoto	Newly made to match the roller.
Cord for hanging		Kyoto	Combination of three colors.

Ⅴ. New discoveries, etc.

1. An inscription on the roller

   An inscription was found on the bottom roller indicating that the scroll had undergone treatment in the fall of 1976.

2. Previous inpainting

   In the silk material that was used to mend the body area of the Kannon painted in gold, a thick layer of additional gold paint had been applied. To attempt to remove it ran the risk of damaging the original painting, and therefore the area was left untouched. (Images 59-64)

3. Lines used to create a rough sketch were found on the reverse side of the painting. (Images 65-68)

4. Transparent areas

   Parts of the horizon and the halo looked sheer, as if the *urazaishiki* had been lost.

   Photographs were taken to keep a record of the condition. (Images 69-76)

   Infrared photography taken before treatment shows that an image resembling a mountain had been drawn in the area where the halo had faded.

   In the horizon area, a photomicrograph taken from the reverse side showed that almost no paint remained.

5. The original gold roller knobs were reused. (Image 78-82)

Translated by Amy Mccaleb (Urban Connections), edited by Yasuhiro Oka and Regina Belard.

十一面観音像

作品解説

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本図は波涛打ち寄せる岩の上において緑色の踏み割り蓮華座に立つ金色の十一面観音を描いたものである。背後には苔むす懸崖を配し、ところどころに樹木が生い茂り、花々を咲かせ、懸崖の狭間からはまっすぐに細長く落下する滝を描く。画面は群青を交えた緑を基調にして、中央に十一面観音を金色でひときわ大きくあらわす。

その十一面観音像は髪を群青とし、腰布を白色とするほかは金泥地とし、肉身の輪郭を朱色の線で括り、頭上面、化仏、装身具（天冠台、胸飾の基部、臂釧、腕釧）、持物（錫持）を黒色の輪郭線で括る。着衣部には網目文、卍繋ぎ文、麻の葉文、団花文等を截金で緻密に描く。右手は五指を開き、掌を前に向けて軽く垂下し、左手は肘を屈して胸前で赤色蓮華の茎を挿した錫持を執る。頭光を金泥暈の円光とし、十三条の光芒が放射状にともなう。

足下の岩場には流れ込む滝水がうねり、水しぶきを上げており、水面には赤色の蓮弁を浮かべ立つ童子が十一面観音を見上げ合掌恭礼している。それらの様子は多分に『華厳経』入法界品に説かれるところの、観音の住所である補陀落山への善財童子歴参説話の投影があるようで、滝水をともない、樹木の生い茂る懸崖の表現は「其の西面の巌谷の中を見るに、泉流瑩映し樹木蓊鬱し、香草柔軟にして右に旋りて地に布き、観自在菩薩は金剛宝石の上において」を承けた表現といえよう。加えて、断崖に認められる白い小さな花々をつける樹木や紅葉する樹木の表現には、『華厳経探玄記』巻十九や『慧琳音義』巻下が観音の住所とされる補陀落山には山中に光明のある樹花や香気のある小白花樹があると解説することの反映がなされているようである。

本図にみる破綻のない描写力は画家の技量の高さを示し、その制作が鎌倉時代に遡ることを窺わせよう。ただし、土波に金泥暈をあらわすことや、画面の周囲を金線による卍繋ぎ文帯でもって縁取りすること、あるいは、上下を描表装（図様は緑青地に群青を交え、截金で輪郭線を括った蓮華唐草文に二羽の飛鳥をあしらう）とすることなどを勘案すると、制作は十四世紀初頭あたりが考えられそうである。

Eleven-headed Kannon (Ekadaśamukha)

Description of artwork

TSUDA Tetsuei
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This painting shows an eleven-headed Kannon depicted at the center in gold standing on two green lotus pedestals, one for each foot, atop a rock with large waves beating against it. In the background is a cliff covered with moss, thick growths of trees here and there, flowers in bloom, and a waterfall that cascades straight down in a thin line from a gap in the cliff. The overall tone of the piece is green with a mixture of light blue.

Other than the light blue hair and white waistcloth, the Kannon is painted in gold, with its body outlined in light red, while the *zujōmen* (overhead faces), *kebutsu* (transformed Buddha image), ornaments (crown, main portion of the chest ornament, and upper and lower arm rings), and *kunji* (vase) held in the hand are outlined in black. On the clothing are elaborate patterns of mesh, *manji* (swastika), *asa-no-ha* (repeating six-sided geometric design that resembles the leaves of the hemp plant), and *danka* (floral pattern) made of cut gold leaf. The right hand is open and angles down slightly, with palm facing upward. The left arm is bent, and in the hand is a *kunji* that holds a red lotus flower, held at the chest. There is a gold halo around the head with thirteen rays radiating outward.

Water that streams down from the waterfall undulates and splashes underfoot. Red lotus petals float on the water and a bowing *dōji* (child) stands among them with joining of the palms of his hands together, worshipping the Kannon. This scene most likely reflects the anecdote of the chapter *Nyūhokkaibon* found in *Kegonkyō* (the Garland Sutra), which is a tale of *Zenzai Douji's* visit to *Fudaraku (Potalaka)*, an island-mountain paradise inhabited by *Kannon Bosatsu*. The scenery of the waterfall and cliff covered with trees is probably taken from the passage, "Within the rocky valley to the west, there is water overflowing from a spring, dense growth of trees, fragrance of flowers in the air, and *Kannon Bosatsu* stayed atop a diamond seat." In addition, the painting shows trees above the cliff with small, white flowers and leaves that are turning color. This was seemingly taken from *Kegonkyō-Tangenki*, (volume 19) or *Erin-Ongi* (last volume), which describe *Fudaraku*, the home of Kannon Bosatsu, as having gleaming trees and trees with fragrant white flowers.

The ability to paint a scene with such unbroken strokes shows the artists high level of skills, the characteristic of which hints that the work was created as early as the Kamakura period. However, taking into consideration the golden gradation on the edge of the rocks, that the picture is framed with a band of *manji* patterns drawn in gold lines, and the use of painted mounting (a design of lotus blossoms and arabesque patterns outlined with gold leaf, and two flying birds on a base color of rust green mixed with light blue) at the top and bottom, the piece can be assumed to originate from around the beginning of the 14th century.

Translated by Amy Mccaleb (Urban Connections).