



4-1 側面 修理前
Side, before restoration



4-2 平面 修理前
Viewed from above, before restoration



4-3 かまど内部 修理前
Interior of the *kamado*, before restoration

唐草螺鈿空徳 (メトロポリタン美術館)
"Karakusa Raden Utsubo" (The Metropolitan Museum of Art)



4-4 のど 修理前
Nodo, before restoration



4-5 のど 修理後
Nodo, after restoration



4-6 穂先 修理前
Hosaki, before restoration



4-7 穂先 修理後
Hosaki, after restoration

唐草螺鈿空穂

平成15年度修復事業



品名：唐草螺鈿空穂

所蔵：メトロポリタン美術館

メトロポリタン美術館所蔵
唐草螺鈿空穂

(株)小西美術工藝社
岩本 元、南 美幸、岩崎寛子

名称等

指定区分 なし

名称 唐草螺鈿空穂

員数 1個

法量 長さ 96.5cm 幅 11.0cm 高さ 9.0cm (各最大値)

所蔵 メトロポリタン美術館

修理品の概要

「空穂」とは矢の雨に濡れ、物に触れて損ずるのを防ぐため、矢を入れて腰に着ける武具である。同様の道具として「鞆」「箆」があるが、いずれも「空穂」とは区別される。

その起源や語源には諸説あり詳らかではないが鎌倉期には既に発生し、中世には雨を防ぎ、矢の残りを知られない空穂が箆に代わって多く用いられるようになった。

発生当初は箆に様々な毛皮を付け足した実用的な「騎馬空穂」であったが、後に「大和空穂」と呼ばれる塗り空穂や、安土・桃山期には「土俵空穂」という豪壮なものが現れるなど様々な形態や加飾のものに発展する。江戸期には旅行行軍の際従者が担う武具のひとつとして様式化し、それらはいずれも家紋を施し、意匠を凝らすなど、一層多様な展開を見る。

そもそも弓関連の道具は実際に使用され消耗する頻度が高く、遺されたものは武具の中では比較的少ない。その中で本件は剥落し易い螺鈿がよく残る状態の良さのみならず、そもそも類例の少ない螺鈿の空穂であるという点においても貴重であるといえよう。(参照「弓道辞典」)



図36 雛形に見る付属品の取り付け状況
The way parts are assembled, as demonstrated on a model

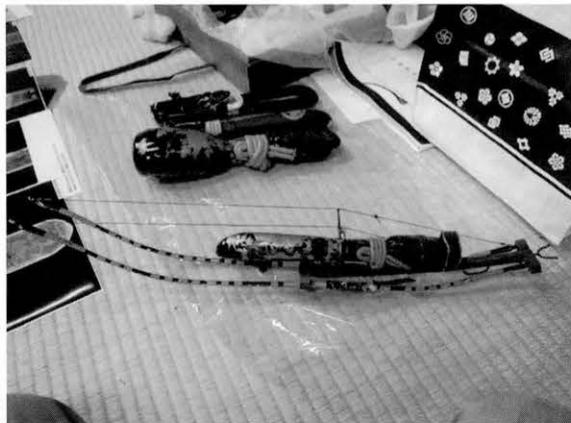


図37 弓との収納状況
Bow and *utsubo*

1. 素地

柿渋紙を貼り重ねたいわゆる「一閑張り」の素地。

墨書の一部と思われる紙が観察され、反故紙を使用した可能性がある。(図38)

貼り重ね層は不鮮明で枚数は正確に観察できないが、厚みから推測すると20~30枚ほどと思われる。

2. 下地

山科砥ノ粉様の下地を厚く付ける。 約0.5mm

3. 布着せ

本体上部の欠損部から一閑張り層に直接貼られた布着せが確認された。(図39)

糸目は5mm/9本

螺鈿加飾部には確認できず。

4. 中塗り

黒漆塗り。朱漆部には黒漆による中塗りは見られない。

5. 加飾

アワビ中厚貝による螺鈿技法。

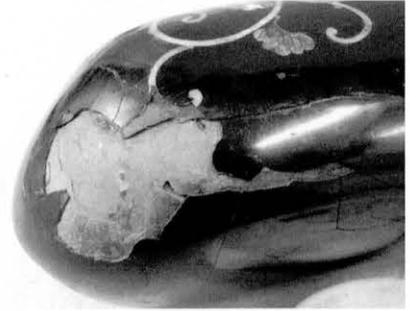


図38



図39

螺鈿技法

唐草文を切り透かしたアワビ中厚板貝(約0.3mm)を曲面に馴染ませるべく微細に亀裂を入れ、中塗り研ぎたて面に糊漆で貼る。伏せ彩色・箔等は見られない。葉・蔓共に図様の必然以上の分割をすることなく、大型で上質の一枚貝を多用した贅沢な仕様である。

更に段差を埋めるべく素地下地と同様の下地を全体に厚く塗布し、研ぎ込んで表面を平滑に仕上げ、黒漆上塗りを施す。

螺鈿の上にかかった漆の除去は剥ぎ起こしによるものか、研ぎによるものかは判然としないが、葉脈を表現した繊細な毛彫りに残っている漆や、滑らかに切り透かされた輪郭のシャープな表情などから、研ぎ込んだ可能性が高い。

後世修理

時期は不明であるが総体に数次にわたる修理の痕跡が見られる。

1 〔穂先〕(唐草文螺鈿周囲の塗膜について)

- ・微塵螺鈿の上に唐草文螺鈿周囲から連続する塗膜が被さっていることから、微塵螺鈿施工後に塗られている。(図40)
- ・唐草文螺鈿剥落箇所を覆う様に漆下地と漆塗りが随所に施されている。(図41)
- ・欠失した塗膜を補う為に上記と同様の仕様で随所に繕いが施されている。(図42)
- ・螺鈿の上に透漆がかかっていることから、最上層の漆は制作後に塗布されている。(図43)
- ・「母衣付の罫」を埋め、透漆塗りが施されている。(図44)

2 〔かまど〕(下部の矢を出し入れする部分)

- ・かまどの蓋を留める罫を内外共に埋め、漆塗りが施されている。(図45)

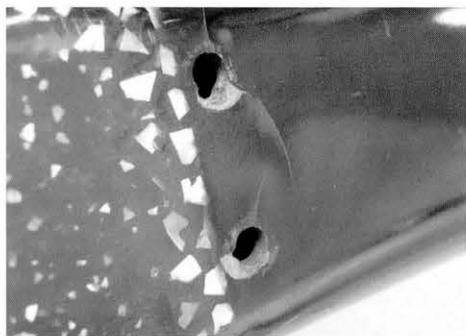


图40

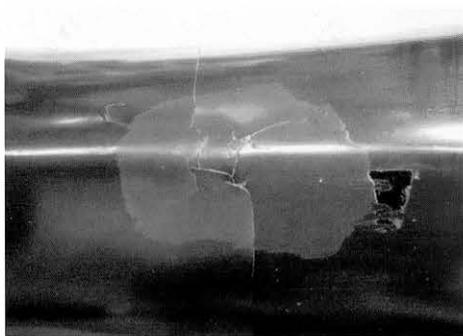


图44

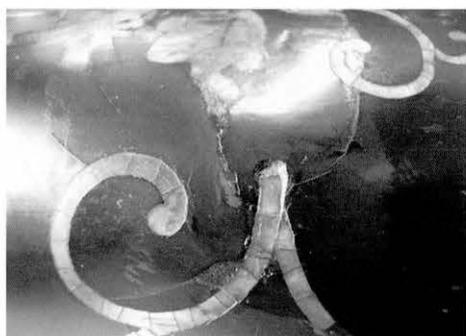


图41



图45



图42



图46



图43



图47

- ・当初の上塗り層の上に新たに下地を付け、上塗りを施している箇所が確認された。(図46)
かまど部の塗りは、総体に後塗りの可能性が高い。

3 [のど] (くびれ部分)

- ・穂先とかまどの接合線が確認できたが、空穂の制作に伴う当初からのものか、後世異なる二つの空穂を接合した事によるものかは不明である。(図47)

修理前の状況

- ・本体両端の大きな塗膜欠損が著しく美観を損なっていた。現状を放置すれば更に塗膜の剥落が進行する恐れがあった。
- ・後世修理の一部が周囲と違和感を生じており、また一部は螺鈿を覆っていた。
- ・螺鈿欠損部は周囲の剥落が進行する恐れがあった。
- ・総体に下地層を含む塗膜に深い亀裂が生じ、美観を損ねると同時に剥落が進行する恐れがあった。

修理方針

- ・美観の回復と展示効果の向上を主眼とした文化財保存修復的手法による漆工修理を行った。
- ・塗膜の亀裂に漆を含浸させ、圧力を加えることにより可能な限り平滑に圧着する。
- ・圧着が不可能な箇所は現状で固定する。
- ・一閑張り素地は若干の弾力を有するため、圧着・固定の際には周囲との弾性のバランスを崩さぬよう含浸させる漆は必要最小限に留める。
- ・欠失した塗膜は下地・塗り共に周囲と同様の仕様で繕い、復元する。
- ・新たに繕った塗膜は周囲と可能な限り違和感を生じぬよう仕上げを。
- ・不適切な後世修理は除去し、周囲と違和感を生じぬよう新たに繕う。
- ・螺鈿の上に被さった塗膜は除去する。

工期

平成15・16年度

修理内容

1 修理前調査・写真撮影

器体を仔細に調査し、修理計画を立てると同時に隈なく写真撮影を行った。

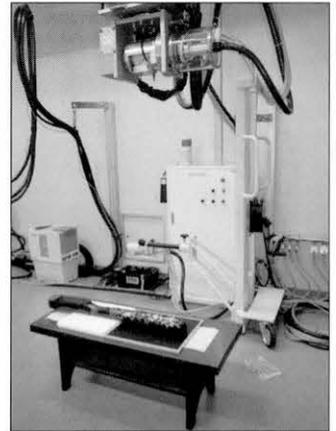


図48 デジタルX線透過撮影
X-ray radiography with imaging plate



図49 滑らかに切り透かされた螺鈿の輪郭と後世修理に覆われている文様が確認された。

Smoothly cut outlines of *raden* and design covered by past restorations were confirmed.

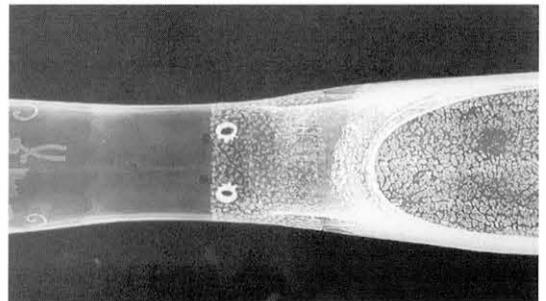


図50 器体の接合状況が観察された。

The way the parts are joined was observed.



図51



図52 作業により除去された付着物
Substances removed by cleaning



図53 ゴムバンドを活用し、圧力を持続的に加えた
Rubber bands were used to apply pressure continuously.

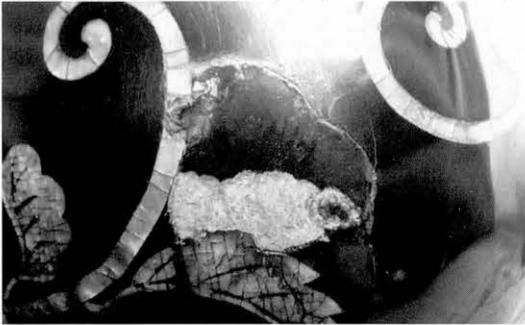


図54 盛り上がった後世修理を削り、周囲と連続した
曲面に整形する。

Raised traces of past restorations were shaved off and the area was adjusted to make a continuous curving surface with the surroundings.

また東京文化財研究所、三浦定俊氏の撮影によるデジタルX線透過撮影を行った結果、貴重な情報が得られた。(図49、50)

なお、写真撮影は修理中も必要に応じ適宜行った。

2 養生

修理作業中不用意に塗膜等を損なわぬよう剥落危険箇所には和紙の細片を姫糊で貼り付けた。

またこの作業は修理箇所のマーキングとしての意味も併せ持つ。(図51)

3 クリーニング

器体表面に付着した汚染物質を水・エタノール・微アンモニア水溶液を使用し、除去した。

本件の表面には漆の硬化を阻害する性質の物質が全面に付着或いは塗布されており、完全に除去する必要があった。(図52)

4 含浸

塗膜の亀裂・剥落箇所や不安定な螺鈿などに、希釈した生漆の濃度を徐々に濃くしながら数回含浸させた。表面に付着した漆はその都度エタノールにより完全に除去した。

剥離しなかった螺鈿は圧着による破壊の危険があるため、現状で漆の含浸により固定した。

5 圧着

圧着可能な箇所には器物に過度なストレスを加えぬよう注意しながら圧力を加え、適宜漆を含浸させながら時間をかけて可能な限り平滑な状態に戻した。(図53)

※ 本件は形状の特殊性や器体素地の弾性により、外的圧力を加えての塗膜の平滑化が困難である。更に局部的、且つ強固な接着を行うと、器体内に弾性の不均衡を招き、将来新たな部位の破壊を招きかねない。

したがって今回の修理では段差を生じた塗膜の圧着平滑化は最小限に留め、原則として剥落防止を主眼とした塗膜の含浸強化措置を行った。

6 後世修理の除去

美観を損なう繕い塗り等の後世修理は実体顕微鏡下各種刃物を使用し、層間剥離を利用しながら当初の塗膜を損なわぬよう慎重に除去した。

凸凹を生じている後世修理は切削し、整形を行った。(図54)

螺鈿の上に不用意にかかった塗膜もあわせて除去した。(図55—59)

7 後世修理除去後の塗膜繕い

後世修理除去後に現れた塗膜の欠失部には必要に応じて漆下地・摺り漆・塗りを施し、可能な限り周囲との違和感を緩和した。

8 欠失塗膜の復元

本体上下端に生じた塗膜欠失部は、希釈した生漆によりごく弱く漆固めを行った後、山科地の粉・砥の粉を使用した一般的な漆下地を施して成形した。修理箇所へ近接した当初の塗膜は一切損なわぬ様、切削・研ぎ作業は細心の注意を要する。

更に周囲と色艶共に近似した漆を調合し、塗りと研ぎを数回繰り返して、上塗りは塗り立てで仕上げた。(図60—65)

9 際錆

塗膜の表面に生じた段差に極僅かの錆漆を施し、段差を緩和すると同時にひっかかりによる破損を防止した。

10 摺り漆

素黒目漆を全体に摺った後完全に拭き取り、修理箇所の光沢を落ち着かせると同時に当初の塗膜表面に漆分を補い、強化・活性化を施した。なお摺り漆の際には器体に備わった古色を損なわぬよう注意して行った。

11 保存箱の制作

日本産良質桐材を使用した保存箱を制作した。蓋は印籠作りとし、内部に器体を保持する3つの桐製枕を取り付けた。(図66)

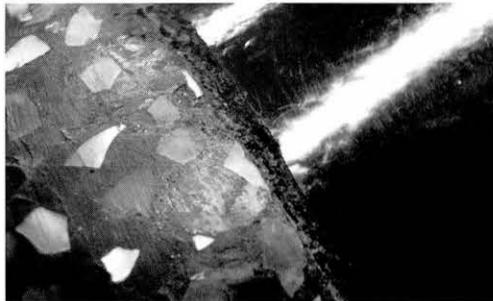


図59 除去作業中
During removal



図55 除去前
Before removal

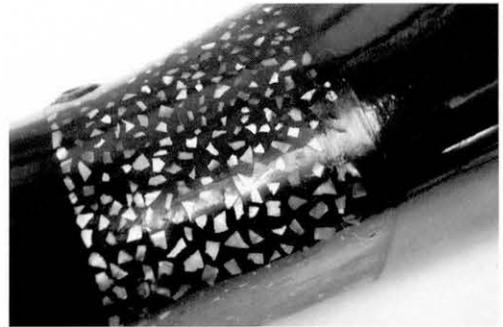


図56 除去後
After removal

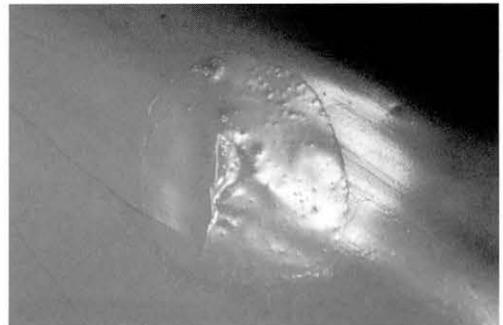


図57 除去前
Before removal



図58 除去後
After removal



図60 下地研ぎ
Polishing the foundation

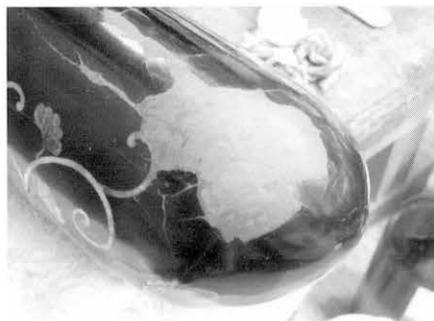


図61 下地研ぎ
Polishing the foundation



図62 下地研ぎ
Polishing the foundation



図63 中塗り研ぎ
Polishing the middle coating



図64 修理前
Before treatment



図65 修理後
After restoration



図66 保存箱
A storage box

主な使用材料

信頼性の高い修理素材を使用した。

名 称	製造会社	用 途
極下地生漆	合名会社高野漆工	漆下地・含浸強化
木地呂漆	合名会社高野漆工	含浸強化
黒呂色漆	合名会社高野漆工	中・上塗り
MR透素黒目漆	㈱斉藤漆店	中・上塗り
MR黒素黒目漆	㈱斉藤漆店	中・上塗り
弁柄	㈱日本弁柄工業	調色用
朱（各種）		調色用
無水エタノール	㈱今津薬品工業	希釈溶剤、クリーニング
ターペンタイン	㈱ホルベイン工業	希釈溶剤
アンモニア水	㈱健栄製薬	クリーニング
砥ノ粉	京都府砥之粉工業協同組合	漆下地
地ノ粉	京都府砥之粉工業協同組合	漆下地

修理実施場所

東京国立博物館内 漆工修理室

施工者

株式会社 小西美術工藝社

修理担当者

岩本 元・南 美幸・岩崎 寛子

費用

区 分	平成14年度	平成15年度	合 計
修理工事本体額	855,000円	1,795,000円	2,650,000円
消費税相当額	42,750円	89,750円	132,500円
合 計	897,750円	1,884,750円	2,782,500円

On the Restoration of “Karakusa Raden Utsubo”

Konishi Bijyutu Kogei-sya Co. Ltd.
IWAMOTO Hajime
MINAMI Miyuki
IWASAKI Hiroko

Designation: None

Name of the object: “Karakusa Raden Utsubo”

Number of items: 1

Dimensions (maximum) (cm) : Length 96.5 Width 11 Height 9

Owner: The Metropolitan Museum of Art

Description

Utsubo is a type of quiver to protect arrows from rain and damage due to impact. It is worn on the hip. *Yuki* and *ebira* are also similar objects, but are different from *utsubo*.

There are many theories about the origin of *utsubo* as well as the origin of the word itself, but not much is clear. However, *utsubo* already existed by the Kamakura period (13th century), and by the medieval period *utsubo* came to replace *ebira* because it protected arrows from rain and also prevented the enemy from knowing how many arrows were left.

When *utsubo* first began to be used, it was a very practical container for arrows with various types of fur covering on an *ebira* used on horseback. Later, *utsubo* coated with urushi and known as *yamato utsubo* appeared, and by the Azuchi-Momoyama period (16th century) magnificent *utsubo* known as *dohyo utsubo* appeared. In this way, *utsubo* of different shapes and decorations began to develop. By the Edo period (17–18th centuries), *utsubo* became stylized and was worn by attendants of *daimyo* lords when they traveled to Edo once every year. These were decorated with family crests and elaborate designs.

Tools associated with bows and arrows are often worn out with use so that comparatively few have been handed down. Among such objects, the *utsubo* restored in this project has been conserved well. The *raden*, which is often easily damaged or detached, has remained in a good condition. Moreover, the very fact that the object is a very rare example of *utsubo* with *raden* decoration makes it very valuable.

(ref. *Kyudo Jiten*, a dictionary of Japanese archery)

1. Substrate

Substrate is made of layers of paper coated with persimmon tannin, technique known as *ikkanbari*. (Figs. 38, 39)

Since part of a piece of paper with writings in *sumi* ink is observed, it is possible that some old paper was reused for the *utsubo*.

It is not possible to see how many layers of paper were used, but assuming from the thickness, it is believed that 20 to 30 layers were used.

2. Foundation

Yamashina *tonoko*-like foundation is applied thickly, about 0.5mm.

3. *Nunokise*

Nunokise directly applied to a layer of *ikkanbari* is observed on the missing portion of the upper part of the object.

Mesh: 9/5mm.

Nunokise is not observed on parts decorated with *raden*.

4. Middle coating

Black urushi coating. Middle coating with black urushi is not observed on the parts coated with vermilion urushi.

5. Decoration

Raden using medium thick abalone shell

Raden Technique

Very fine cracks are made on medium thick shell pieces of abalone (approximately 0.3mm) to fit the curved surface of the arabesque design. These pieces are fixed to the polished middle coating with *noru urushi*. *Fusezaishiki* (pre-coloring) and use of foils are not observed. The shell pieces for the leaves and vine are not cut into smaller pieces than necessary. Instead, large good quality single shell is used lavishly.

Foundation of the same type as that used for the substrate is applied thickly to level the difference between the *raden* and the surroundings. This is then polished to make the surface smooth, and finally coated with black urushi.

It is not clear whether the urushi that was attached unintentionally to the surface of *raden* was removed by scraping or by polishing. However, urushi found remaining on the very fine line carvings used to express the veins of the leaves and sharpness of the smoothly cut outline suggest a great possibility of polishing.

Past Restorations

Although the exact dates are unknown, there are traces of several past restorations on the entire object.

1. *Hosaki* (upper part of the *utsubo*)

- Since the urushi coating extending from around the *raden* arabesque design is also found on the *mijingai raden*, it is clear that the coating was applied after the *mijingai raden* was applied.
- Urushi foundation and urushi coating are applied at various places as if to cover the parts of the *raden* arabesque that had become detached. (Fig. 40)
- Repair similar to the one described above has been applied to replace missing coating film. (Fig. 41)
- Since *suki urushi* has been applied over the *raden*, it is clear that the uppermost layer of urushi

was coated after the object was made. (Fig. 42)

- Hole for a metal ring has been filled and coated with *suki urushi*. (Fig. 43)
2. *Kamado* (lower part of the *utsubo* for putting in and taking out arrows)
- Holes of rings for fastening the lid of the *kamado* are filled from the inside and outside, and coated with urushi. (Fig. 45)
 - Parts where a new foundation was applied over the original layer of final coating and then another final layer applied on top are observed. There is great possibility that the *kamado* was coated with urushi afterwards. (Fig. 46)
3. *Nodo* (constricted part)
- A line was observed on the joint between the *hosaki* and *kamado*, but whether it existed from the time of manufacture or is a trace of two *utsubo* having been joined at a later time is not clear. (Fig. 47)

Condition before Restoration

- Large areas on both ends of the object from where the coating film had been lost were greatly hindering appreciation of the object. If left untreated, there was great danger that the coating film would become detached further.
- Parts of past restorations did not match the surroundings, and there were parts that covered some of the *raden*.
- There was fear that the coating film around the missing *raden* may become detached.
- There were deep cracks on the coating film, all the way down to the foundation. These hindered appreciation. At the same time, there was danger of detachment advancing further.

Restoration Plan

Restoration was conducted following methods used for the restoration of cultural properties. The aim of restoration was to bring back the beautiful appearance of the *utsubo* and to improve its exhibition effect.

- Urushi would be impregnated into cracks on the coating film. Then pressure would be applied to press stabilize it and to make it as flat as possible.
- Places where press stabilization was not possible would be fixed in the present state.
- Since the *ikkanbari* substrate had some resiliency, minimum amount of urushi would be impregnated so that the balance of resiliency would not be broken at the time of press stabilization and fixation.
- Missing coating film would be repaired with the foundation and coating in a similar way with their surroundings and reproduced.
- Newly repaired coating film would be finished as much as possible in such a way that it would not cause disharmony with the surroundings.
- Inappropriate past restorations would be removed and those parts restored again in such a way as to match the surroundings.
- Urushi coating unintentionally covering the *raden* would be removed.

Duration of Restoration

Fiscal year 2003-2004

Contents of Restoration

1. Preliminary investigation and photographing

The object was investigated thoroughly and a restoration plan was made. Photographs were also taken of everything.

X-ray radiographs taken by Miura Sadatoshi of the National Research Institute for Cultural Properties, Tokyo revealed some very valuable information. (Figs. 49, 50)

Photographs were also taken during restoration whenever necessary.

2. Facing

Thin strips of Japanese paper were adhered with starch glue to prevent the coating film and *raden* from becoming detached due to unintentional contact during restoration.

This process also functions as a way of marking the parts restored. (Fig. 51)

3. Cleaning

A solution of water, ethanol and a very small amount of ammonia was used to remove the dirt and soiling on the surface of the object.

There were substances on the entire surface of the object that would hinder the hardening of urushi. These had to be removed completely. (Fig. 52)

4. Impregnation

Diluted raw urushi was impregnated into cracks and detached coating film as well as unstable *raden*. First, rather thin urushi was used, and then the concentration of urushi was increased gradually. Urushi that was unintentionally attached to the surface was completely removed with ethanol every time.

Urushi was used to adhere *raden* pieces that were at risk of becoming detached.

5. Press stabilizing

Parts of the coating film where press stabilization was possible were press stabilized, making sure that unnecessary stress would not affect the object. Urushi was impregnated appropriately and much time was given to return these parts to their original position as much as possible. (Fig. 53)

* It is difficult to make the coating film flat by applying pressure from the outside because of the unique shape of the object and the resiliency of the substrate. Moreover, if strong adhesion were to be applied in parts, it would cause imbalance of resiliency inside the object and cause new destruction. For this reason, flattening of the coating film that was not on level with the surroundings was kept at a minimum in this restoration. As a rule, reinforcement of the coating film by impregnation was done with the main focus on the prevention of detachment.

6. Removal of past restorations

Coatings applied in past restorations that were hindering appreciation were removed under a microscope by using a knife and by making use of the separation between layers. Care was taken so as not to damage the original coating film.

Past restorations that had caused unevenness of the coating film were shaved off and the shape was

adjusted. (Fig. 54)

Coating film that had been unintentionally attached to the surface of *raden* was also removed. (Figs. 55-59)

7. Restoration of the coating film after the removal of past restorations

Urushi foundation, *suri urushi* and coating were applied, where necessary, to parts where the coating film was found to be missing after removing past restorations. As much as possible these parts were adjusted to reduce an effect of disharmony with the surroundings.

8. Reproduction of the missing coating film

Parts on the top and bottom ends of the object from where the coating film had been lost were first very lightly consolidated with diluted raw urushi. Then the shape of these parts was reproduced by applying ordinary urushi foundation made of Yamashina *jinoko* and *tonoko*. Extra care was taken when shaving and polishing so as not to harm the original coating film around the parts restored. This was then followed by mixing pigment into urushi to match the color and gloss of the restored parts to those of the surroundings. Coating and polishing were repeated several times and the final coating was applied. (Figs. 60-65)

9. *Kiwasabi*

A very small amount of *kiwasabi* was applied to places where difference in level appeared on the surface of the coating film. By doing this, it was possible to reduce the difference and to prevent damage that might be caused by contact.

10. *Suri urushi*

After applying *sugurume urushi* over the entire surface, it was completely wiped off to settle the gloss of the restored parts and to reinforce and revitalize the original coating film.

11. Manufacture of a storage box

A storage box was made of good quality Japanese paulownia wood. Three paulownia pegs were placed inside the box to hold the *utsubo*. (Fig. 66)