
7. 螺鈿鶴形合子

7. Container in the Shape of Crane

アムステルダム国立博物館（オランダ王国）所蔵
Rijksmuseum Amsterdam (Kingdam of the Netherlands)

7.1. 修復報告

松本 達弥

7.1.1. 名称等

名称	螺鈿鶴形合子一合
制作年代	江戸時代 19 世紀
所蔵者	アムステルダム国立博物館（オランダ王国）
登録番号	AK-MAK-682

7.1.2. 工期及び施工者等

工期	平成 22 年 7 月 22 日～平成 23 年 3 月 25 日
施工場所	東京文化財研究所修復アトリエ（漆）
修復担当者	松本 達弥

7.1.3. 修復前の状態

- ・所蔵博物館の修復家クリスティーナ・ハーゲルスキャンブ氏が作成した資料の供与を受けた。資料には、現状の損傷状態、X 線透過撮影画像、紫外線撮影画像、漆塗膜片や貝片のクロスセクションなどのデータが収められていた。
- ・輸送時の剥離した貝や漆塗膜の安定を図るため所蔵博物館にて、小片の短冊に切った雁皮紙を糊貼りした養生が施されていた。
- ・螺鈿鶴形合子の塗膜表面に塗料が塗られ、本来の漆塗膜の艶や螺鈿の耀きと違って全体に黒ずんだ様相であった。
- ・塗膜表面は紫外線や経年変化による影響で劣化し、艶のない状態であった。
- ・梨子地漆塗りに使用された銀の梨子地粉や螺鈿の伏彩色に使われた金属粉の錆化が見られ黒ずんでいた。
- ・鶴の左肩や尾羽や足の素地接合部に亀裂を生じていた。
- ・漆塗膜や螺鈿は剥離剥落があり、胴の両側の膨らんだ部分にある螺鈿の殆どが剥離状態であった。
- ・螺鈿の剥落箇所には、合成素材で後補された箇所があった。
- ・本体や蓋の尾羽の先端部分に亀裂があり、合成接着剤による修復が行われていた。
- ・合口部分や胴裏部分には擦傷や打損が多く見られ、下地や素地が露出していた。

7.1.4. 修復方針

修復は現在、文化庁の指導のもとで行われている「今ある文化財を、現状を損なうことなく保存し、永く後世に伝える」という、漆工文化財保存修復の原則に則り、現状維持修復を基本に行う。また、修復工程変更や問題点が生じた際は、東京文化財研究所の担当者、所蔵美術館の担当者と修復者の三者で協議し、修復作業を遂行するものとした。

- 本資料は特殊な形体をしている為、より安全に効率よく作業を遂行できるよう設置台やクッションを制作し修復を行うこととした。
- 本来の修復であれば、後補で塗られた塗料を除去したうえで剥離した螺鈿や塗膜を接着するべきであるが、現状の状態ですら塗料除去を行うと損傷を拡大する恐れがあるため、先に塗膜や螺鈿の安定を計ったうえで塗料除去を行うこととした。
- 表面塗膜に塗られた塗料は、除去するための溶剤テストを行い、漆塗膜や螺鈿部分に損傷を与えない溶剤を選択し作業を行うこととした。
- 合成素材で後補された部分ではできるだけ除去することとした。

7.1.5. 修復工程

(1) 現状調査及び作業工程確認

素地構造、下地、装飾と現状の損傷部分を調査記録し、これからの修復作業工程を確認した。

(2) 修復前の記録写真

修復前と修復後の比較が出来るよう写真撮影を行った。

(3) 設置台の制作

現作品を寝かせた状態や立てた状態で修復作業が進められるよう数種類のクッションと設置台を制作した。

(4) 分析

所蔵館で作成した調査資料を基に、木地構造や塗膜表面に塗られた塗料などを確認し、今後の作業を遂行するうえでの参考とした。

(5) 仮止め養生

所蔵館が輸送前に養生した部分以外で今後の作業上で剥落しそうな箇所をチェックし、小片に切った雁皮紙を水で薄めた糊で養生し剥落を防止した。

(6) クリーニング

クリーニングは本資料の表面を覆っている埃を毛棒で取り去った。尚、貝や塗膜表面には塗料が塗られているため、クリーニングは塗料除去と同時にすることにした。

(7) 亀裂及び剥離塗膜の圧着

亀裂や剥離塗膜の圧着は本資料を木枠内に設置し、損傷を与えないよう綿布団を緩衝材とし、竹ひごの弾力を利用した芯張り方法で行った。接着剤は、小麦粉から抽出したグルテンと生正味漆を調合した麦漆を使用した。また、亀裂部の圧着と同時に剥離した周辺塗膜も安定させた。

(8) 螺鈿の圧着

螺鈿部分の接着は、麦漆を使用すると色調が変わる恐れと作業上の利便性を考え、膠を使用した。螺鈿の圧着も、本資料を木枠内に設置し、竹ひごの弾力を利用した芯張り方法で行った。

(9) 後補塗料の除去

本資料は、ヨーロッパでの修復の際に、塗膜表面には塗料が塗られていた。後補で塗られた塗料が劣化し、漆塗膜は艶のない状態で貝の表面は黒ずんでいた。また、貝が剥落し欠失した部分には、合成素材で修復されていた。しかしその材料も殆どの部分でひび割れを起こし、剥落した部分もあった。後補の塗料除去は漆塗膜への影響を考慮し、先ず蒸留水～エタノール（25%）～エタノール（50%）へとテストをした結果、蒸留水もしくは若干のエタノールを混合した溶剤で除去できると判断し作業を進めた。

貝の欠失部分にある後補に関しては、ピンポイントで除去できる刃物を使い除去を行った。

(10) 中間視察

修復作業中の中間視察として2011年1月に、所蔵館担当者のポールバンデュイン氏が来日し、東京文化財研究所の修復アトリエにおいて修復作業の進行状況の確認と修復方針の検討をした。

貝が欠失した箇所の後補材を除去した部分の修復は、可逆性のある材料を選択し色合わせを行なう修復方針となっていた。この修復方針に関して所蔵館、東京文化財研究所と修復者の三者で最終仕上げをどのようにするかを協議した。その結果、貝が欠失した箇所の色合わせをせずに漆下地で仕上げることにした。木地露出部分は刻苧を充填し際錆を行うことにとどめ、貝下の漆塗膜がある部分は周辺の貝の際のみに際錆を施すことにした。

(11) 欠損部分の刻苧充填

亀裂部分の戻しきれない隙間や塗膜や貝の欠損部分には、麦漆に木粉や麻の繊維を混入した刻苧を充填し形態を復元した。刻苧の充填は必要に応じて荒さを変えて数回に分けて行い、塗膜や貝の欠損部分の刻苧面は下地の高さとした。

(12) 際錆

接着した部分の際や亀裂部分に、マコモの粉末（# 270）に漆分の多い麦漆を調合した錆漆を塗り再剥落の防止をした。貝が剥落して刻苧で充填した部分も、砥石で刻苧肌を整えて際錆を行った。

(13) 漆固め

漆塗膜面の強化と艶を取り戻すために、数種類の漆を調合し漆固めを行った。黒色の塗膜面に使用した漆は、木地呂漆7:生正味漆3を混合し、石油系の溶剤で4倍ほど希釈したものを使用した。また、梨子地漆塗部分は、梨子地漆6:木地呂漆2:生正味漆2を混合し、溶剤で希釈した漆を吸わせて塗膜の強化をした。漆を吸わせた部分は、塗膜表面に残らないよう丁寧に拭取った。

(14) 記録写真及び修復記録

修復後の写真撮影を行い、修復工程及び技術分析の記録をまとめ修復を完了した。

7.1.6. 修復後の状態

詳細は Table 7.1 を参照のこと。

7.1. Restoration Report

Tatsuya Matsumoto

7.1.1. Data

Title	<i>Container in the Shape of a Crane</i>
Period	19th century, Edo period
Owner	Rijksmuseum Amsterdam (Kingdom of the Netherlands)
Inventory number	AK-MAK-682

7.1.2. Restoration Data

Duration	July 22, 2010 – March 25, 2011
Place	Restoration Studio (Urushi), National Research Institute for Cultural Properties, Tokyo
Conservator	Tatsuya Matsumoto

7.1.3. Condition before Restoration

- Documents and data compiled by Ms. Christina Hagelskamp, a restorer at Rijksmuseum Amsterdam, accompanied the object. The present condition of damage, images of the object photographed by X-ray transmission and with ultraviolet light as well as cross-sections of fragments of the urushi coating film and *raden* shell pieces were included.
- In order to stabilize lifted shell pieces and urushi coating film during transport, the Museum had faced these by adhering them temporarily with small strips of *gampi* paper with paste.
- Some coating material had been applied over the surface coating film of this container in the shape of a crane. Overall, the surface appeared dark compared with the normal gloss of an urushi coating film and the brilliance of *raden*.
- The surface of the coating film had deteriorated with the passage of time and ultraviolet rays, and its gloss had been lost.
- The silver *nashiji* powder used for *nashiji urushi* and the metal powder used in *fusezaishiki* to color the underside of the *raden* shell pieces had corroded and darkened.
- Cracks had formed around the joints of the substrate on the crane's left shoulder, tail and feet.
- The urushi coating film and *raden* pieces had become lifted and some were missing. Almost all of the *raden* pieces on both sides of the swollen part of the body had become detached and were missing.
- Traces of later additions using synthetic material were found on parts where the *raden* pieces had fallen.
- There were cracks on the body and the tail portion of the lid, and these had been restored using synthetic adhesive.
- There were many traces of damage caused by abrasion and impact around the parts where the lid and body meet and on the bottom surface of the crane, causing the foundation and substrate to become exposed.

7.1.4. Restoration Plan

Restoration of urushi objects today is executed according to the guideline set by the Agency for Cultural Affairs, that is, “to preserve existing cultural properties without changing the present condition as much as possible and to transmit them to future generations.” In other words, maintenance of the present condition is the norm. In addition, when problems arise or when changes become necessary during the process of restoration, a discussion is held among the persons in charge at the National Research Institute for Cultural Properties, Tokyo, the museum that owns the object to be restored and the restorer before continuing with the restoration work.

- Since the shape of the object to be restored is unique, a decision was made to manufacture a stand and cushions to place the object during restoration so that work might be conducted more safely and efficiently.
- In a normal restoration, coating material that had been applied in restoration would be removed before adhering the lifted *raden* and original coating film. However, since there was a risk of expanding damage by removing the coating film under the present condition, it was decided to stabilize the original coating film and *raden* first before proceeding to the removal of the coating film applied in past restorations.
- Solvents for removing the coating film that had been applied on the surface urushi would be tested to choose ones that would not damage the urushi coating film or the fine parts of *raden* shell pieces.
- Additions made to the object with synthetic materials would be removed as much as possible.

7.1.5. Restoration Process

(1) Investigation of the present condition and confirmation of the work process

The structure of the substrate, foundation, decoration and the present condition of the damaged parts were investigated and recorded. Restoration process to be followed were confirmed.

(2) Photographing before restoration

Photographs were taken so that the object before restoration might be compared with that after restoration.

(3) Manufacture of a stand

Several types of cushions and a stand were made so that restoration work might be done with the object laid down or standing up.

(4) Analysis

The structure of the substrate and the coating material that had been applied on the surface urushi coating film were confirmed, based on the investigation documents made by the Museum. These were used as reference in continuing the restoration work.

(5) Temporary facing

Places other than those already faced by the Museum before transport were checked for possible detachment of the coating film and *raden* pieces. These were faced with small pieces of *gampi* paper that were adhered with diluted paste.

(6) Cleaning

At this point, cleaning was limited to brushing off the dust from the surface. Since coating material had been applied on the *raden* shell pieces and the surface of the urushi coating, it was decided to

execute further cleaning at the time the coating material would be removed.

(7) Press-stabilization of cracks and lifted coating film

To press-stabilize the cracks and lifted coating film, the object was placed in a wooden frame and protected with cotton cushions to prevent damage. *Shimbari* method using the resiliency of bamboo sticks was used. *Mugi-urushi* made by mixing gluten extracted from wheat flour and *kijomi urushi* was used as adhesive. In addition to the cracks, the lifted coating film and coating film around the cracks were also stabilized.

(8) Press-stabilization of *raden* pieces

Since there was a risk of the color tone changing if *mugi-urushi* were to be used to adhere the *raden* pieces, and considering the convenience, animal glue was used to press-stabilize the *raden* pieces. This was also done by placing the object in the wooden frame and employing the *shimbari* method using the resiliency of bamboo sticks.

(9) Removal of additional coating material

Coating material had been applied on the surface of the object during a restoration in Europe. This material had deteriorated and the gloss of the urushi coating film could not be observed. The surface of the shell pieces had darkened. Parts with detached shell pieces had been restored with synthetic materials. But in almost all cases, cracks had appeared in these areas and some of the synthetic materials had also become detached.

Considering the influence the removal of the coating material that had been applied later might have on the urushi coating film, possible ways were first tested: using distilled water alone, water with 25 % ethanol and water with 50 % ethanol. As a result, it was decided that either distilled water alone or a solvent made by adding a small amount of ethanol would be effective.

To remove coating material that had been added later from parts where the shell pieces were missing, a knife small enough to work on very limited space was used.

(10) Interim inspection

In January 2011, Mr. Paul van Duin, the person in charge at the Rijksmuseum Amsterdam, visited Japan for interim inspection. He confirmed the progress of the restoration work at the Restoration Studio (Urushi) of the National Research Institute for Cultural Properties, Tokyo and discussed the restoration process.

(11) Filling of losses with *kokuso*

Gaps in the cracks that could not be returned to the original position and parts where the coating film and shell pieces had been lost were filled with *kokuso*, made by mixing sawdust and *mugi-urushi*, to reproduce the shape. The coarseness of the *kokuso* was adjusted according to need, and *kokuso* was applied several times. The surface of the *kokuso* on areas where the coating film and shell pieces had been lost was adjusted to the height of the foundation.

(12) *Kiwasabi*

Sabi-urushi made by mixing *makomo* (wild Indian rice) powder no. 270 to *mugi-urushi* that has more urushi content than usual was applied to the edges of parts that had been adhered and the cracks in order to prevent them from becoming detached again. Parts where the shell pieces had been lost and thus filled with *kokuso* were adjusted by grinding the surface of *kokuso* with a whetstone; *kiwasabi* was also applied.

(13) *Urushigatame*

In order to consolidate the surface of the urushi coating film and to bring back the gloss, *urushigatame* was executed by using urushi made by mixing several types of urushi. For the surface coating film, 7 parts *kijiro urushi* and 3 parts *kijomi urushi* were mixed. This was diluted approximately to four times with a petroleum-based solvent. For the *nashiji* urushi portion, 6 parts *nashiji urushi*, 2 parts *kijiro urushi* and 2 parts *kijomi urushi* were mixed and diluted with a solvent. Urushi thus mixed and diluted was applied and made to infiltrate the coating film for consolidation. Excess urushi was wiped off carefully from the surface.

(14) Photographing for documentation and compilation of a record of restoration

Photographs were taken after restoration, and a record of the restoration process and technical analysis were compiled.

7.1.6. Condition after Restoration

See Table 7.1.

7.2. 作品解説

東京国立博物館
竹内 奈美子

頭を上げ、翼をたたんでうずくまる鶴を象った合子。鶴の背部を蓋として、胴の内部を長方形丸角の容器とする。外側の表面は黒漆塗として、螺鈿で鶴の羽毛を表す。細長く線状に切り出した貝を並べたり、毛彫りを施すなどして、羽毛を表現している。また白い羽や頭頂部の貝は、裏面に銀泥や赤い彩色を伏せる。鶴の目は玉眼とし、容器内面は銀の詰梨子地としている。鶴の首などの微妙な曲面を精細な螺鈿で埋め尽くしたところに、確かな技術が認められる。

裏彩色を施した薄貝螺鈿の技法は、長崎で制作された輸出漆器によく見られる装飾である。ただし、長崎製輸出漆器は西洋家具の形式に花鳥文様を華やかに描いたものが多く、このように動物を象った例は珍しい。国内用に作られたとすれば、金属製の灰を入れる容器や火屋を伴う香炉と同様の用途が考えられるが、現在のところ類例は見られず、輸出用に注文制作されたとみるのが妥当だろう。

7.2. Description of the Artwork

Namiko Takeuchi
Tokyo National Museum

The object discussed is a container in the shape of a crane scrunched with its head raised and its wings folded. The back of the crane serves as the lid of the container, and the inside of its body is hollowed into a rectangular container with rounded corners. The outer surface is coated with black urushi and the feathers of the crane are expressed with *raden* using shell pieces cut into long thin lines or decorated with fine line carvings. Silver or red color is applied to the reverse side of the shell pieces for the white feathers and the top of the head. Crystal is used for the eyes. The inside of the container is decorated densely with silver *nashiji*. Genuine skill is apparent in the technique of completely filling delicately curved surfaces like that of the crane's neck with very fine *raden* shell pieces.

Usugai raden to which *urazaishiki* has been executed is a type of decoration found frequently on export urushiware manufactured in Nagasaki. However, most of them are in the style of Western furniture and decorated elaborately with designs of flowers and birds so that an object in the shape of an animal like this one is unique. If this type of container had been made for domestic use, it would have been used in a way much like that of a metal container for ash or incense container accompanied by a lid that would allow smoke to escape, but since similar examples have not been found as of now, it would be considered reasonable to think that this container was made by order for export.

Table 7.1 寸法
Dimensions

長さ (cm) Length (cm)	幅 (cm) Width (cm)	高さ (cm) Height (cm)
57.8	17.5	39.7



a 修復前 Before restoration



b 修復後 After restoration

Fig. 7.1 前面 Front side



a 修復前 Before restoration



b 修復後 After restoration

Fig. 7.2 背面 Back side

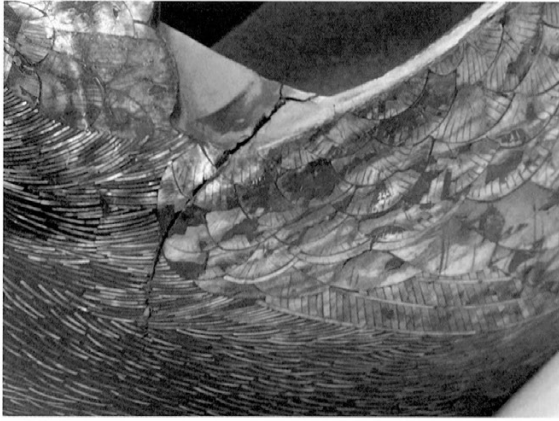


a 修復前 Before restoration

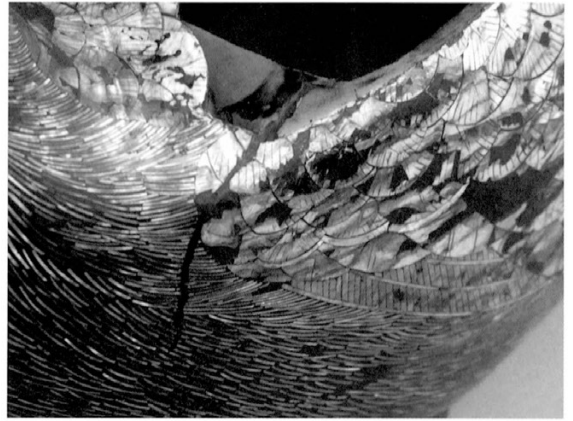


b 修復後 After restoration

Fig. 7.3 蓋、身 Lid and body

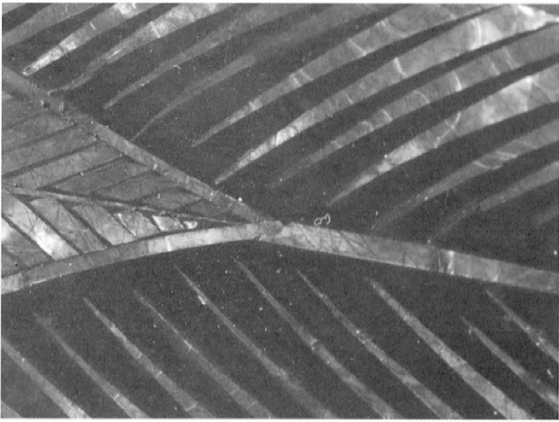


a 修復前 Before restoration



b 修復後 After restoration

Fig. 7.4 木地接合部の亀裂 Crack on the joint of the substrate



a 修復前 Before restoration



b 修復後 After restoration

Fig. 7.5 漆塗膜と貝 Urushi coating film and shell pieces



Fig. 7.6 顔、嘴 修復後
Face and beak, after restoration



Fig. 7.7 尾羽 修復後
Tail feathers, after restoration



Fig. 7.8 貝欠損部 後世修復 塗料の劣化
Part with missing shell pieces, deteriorated coating material from a past restoration

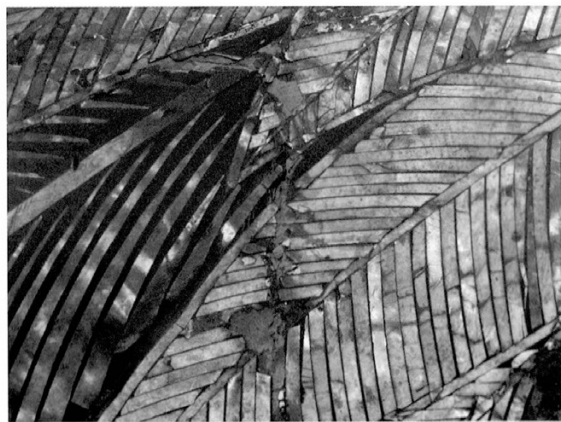


Fig. 7.9 亀裂及び貝、塗膜の剥落
Crack and parts where the shell pieces and coating film have been lost



Fig. 7.10 貝欠損部 後補の貝
Part with missing shell pieces and a shell piece applied in a past restoration

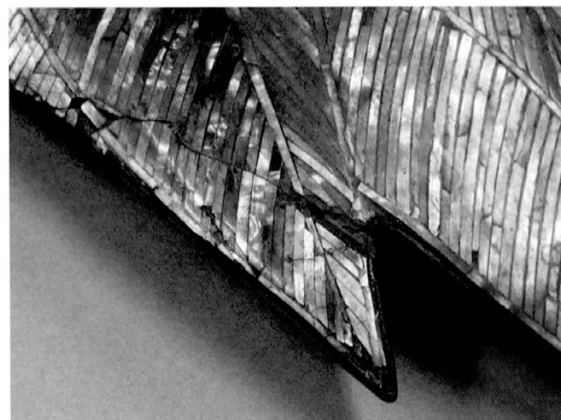


Fig. 7.11 蓋 尾羽部分の亀裂
Lid, cracks on the tail feather



Fig. 7.12 尾羽 亀裂及び後補部分
Tail feathers, cracks and parts added later



Fig. 7.13 貝欠損部 後世修復
Part with missing shell pieces, restored in the past

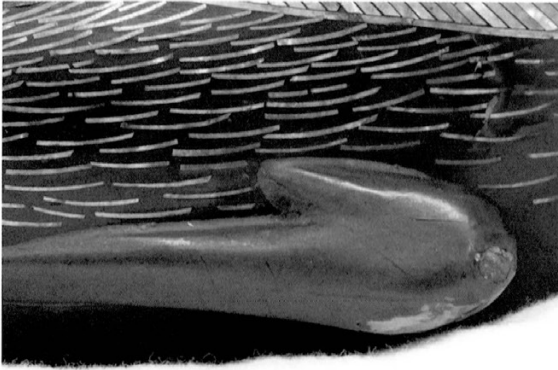


Fig. 7.14 後足部分 漆塗膜の損傷
Hind leg, damage to the urushi coating film

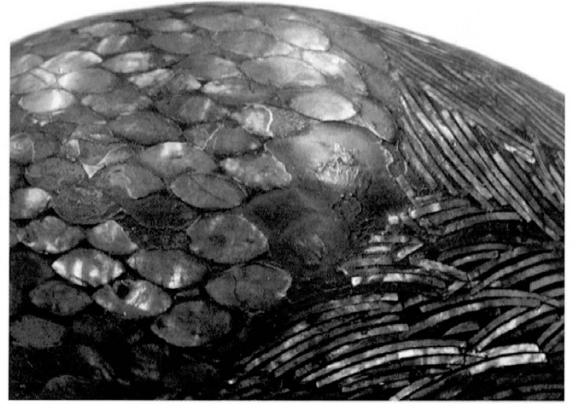


Fig. 7.15 頭部 伏彩色した貝の欠損
Head, missing shell pieces with *fusezaishiki*

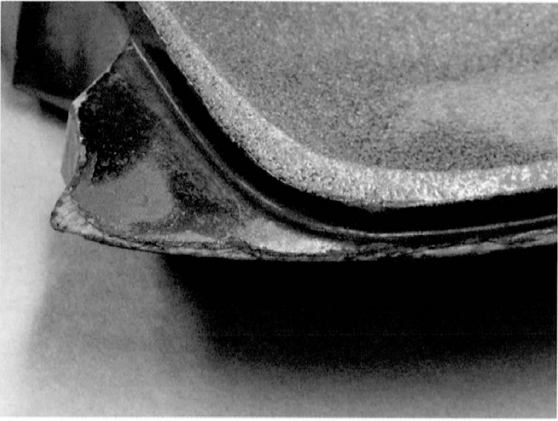


Fig. 7.16 蓋裏 縁部分の損傷
Backside of the lid, damage along the edge

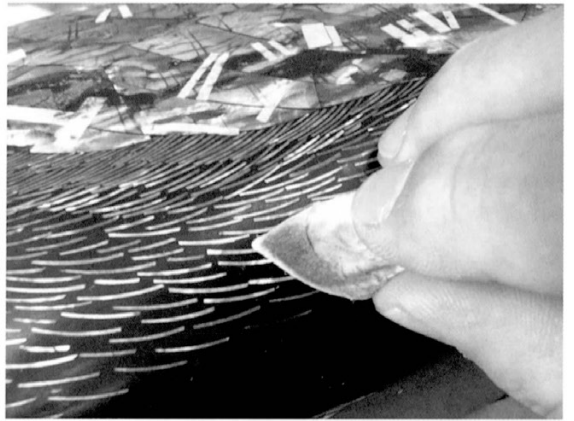


Fig. 7.17 クリーニング
Cleaning



Fig. 7.18 亀裂部分 希釈した麦漆含浸
Impregnating diluted *mugi-urushi* into the cracked portion



Fig. 7.19 亀裂部分 麦漆含浸
Impregnating *mugi-urushi* into the cracked portion

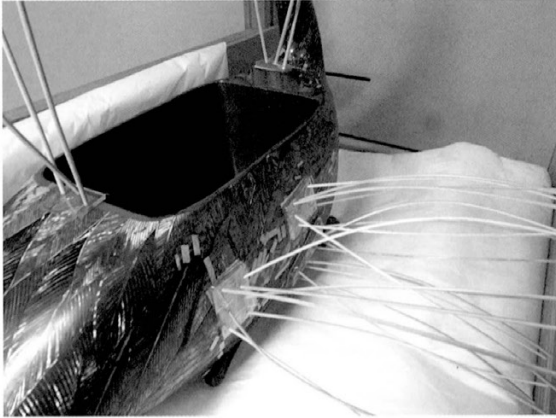


Fig. 7.20 亀裂部分 芯張り圧着
Press-stabilizing the cracked portion

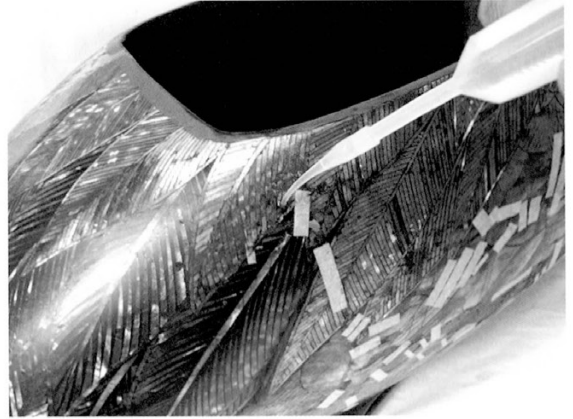


Fig. 7.21 エタノール含浸
Impregnating ethanol

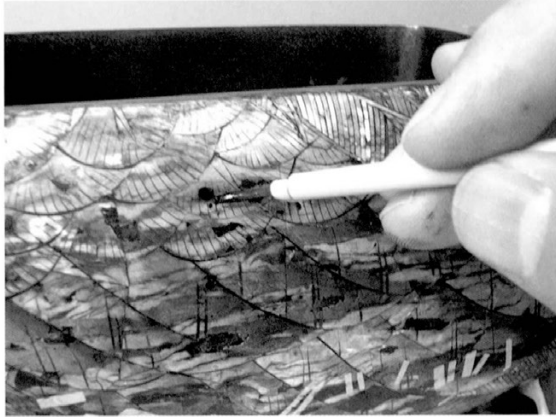


Fig. 7.22 膠含浸
Impregnating animal glue



Fig. 7.23 芯張り圧着 木枠内設置
Press-stabilizing with *shimbari* method, the object placed within a wooden frame

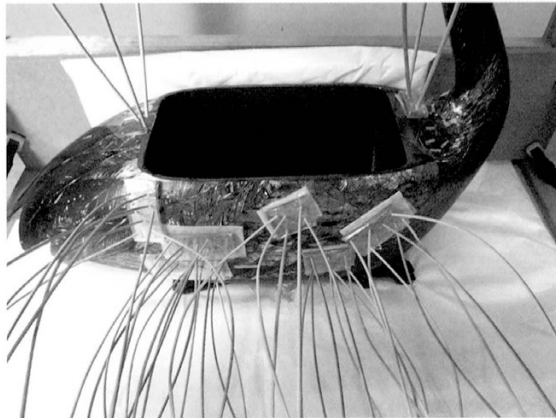


Fig. 7.24 貝の剥離 側面部分の圧着
Pres-stabilizing the shells on the side that have become lifted



Fig. 7.25 貝の剥離 曲面部分の圧着
Pres-stabilizing the shells on the curved surface that have become lifted



Fig. 7.26 圧着後 和紙剥がし
Removing Japanese paper after press-stabilizing

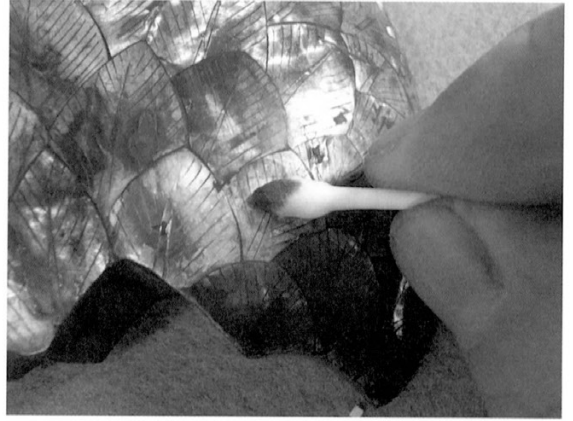


Fig. 7.27 塗料除去 貝部分
Removing the coating material from the surface of shell pieces

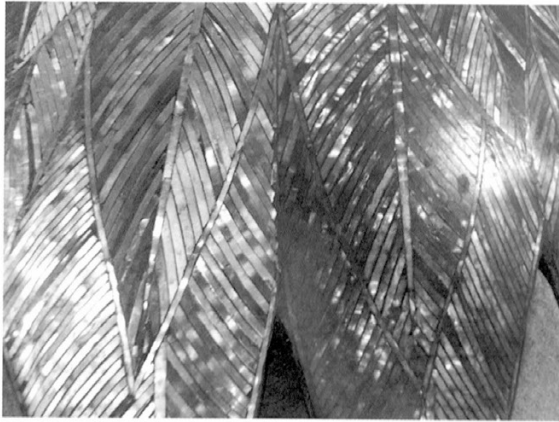


Fig. 7.28 塗料除去 (左 除去後、右 除去前)
Removing the coating material (left, after removal; right, before removal)

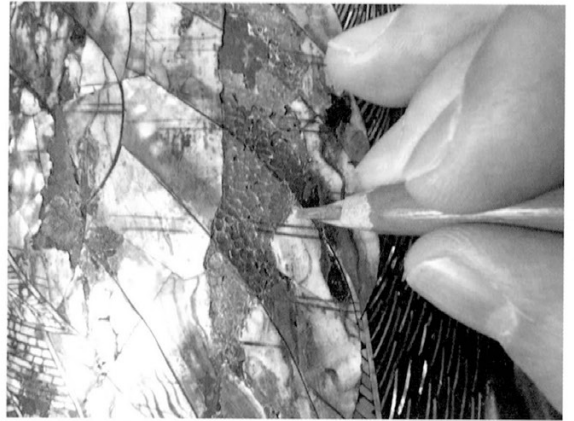


Fig. 7.29 後補材の除去
Removing material that was added later

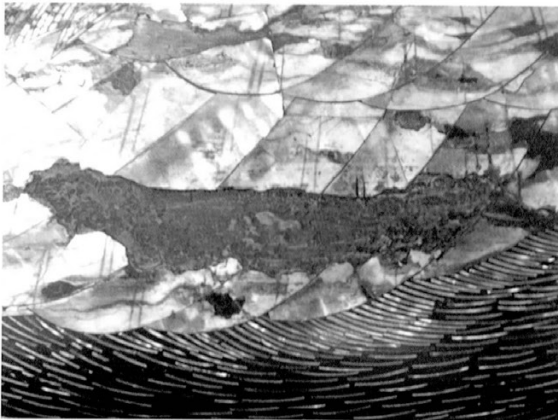


Fig. 7.30 後補材の除去後
After having removed the material that was added later

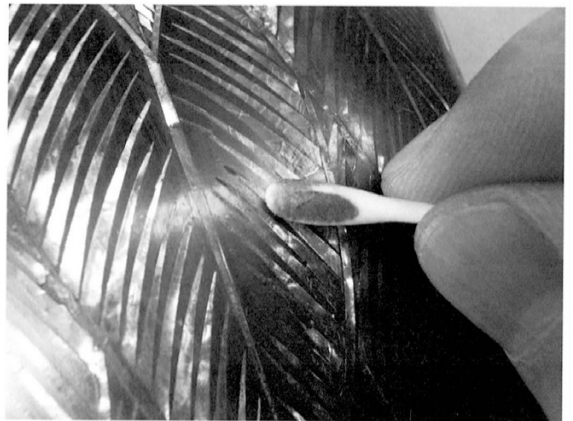


Fig. 7.31 塗料除去 漆塗膜部分
Removing the coating material from the urushi coating film

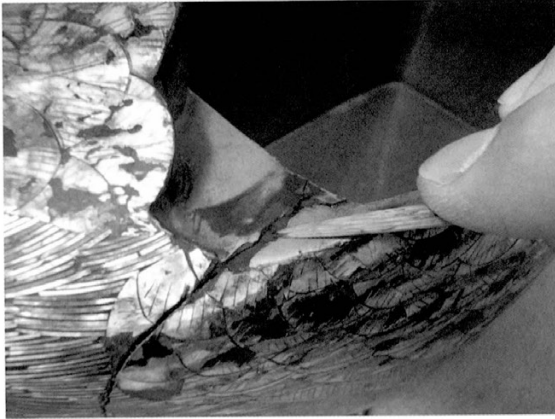


Fig. 7.32 亀裂部分 刻苧充填
Filling a crack with *kokuso*

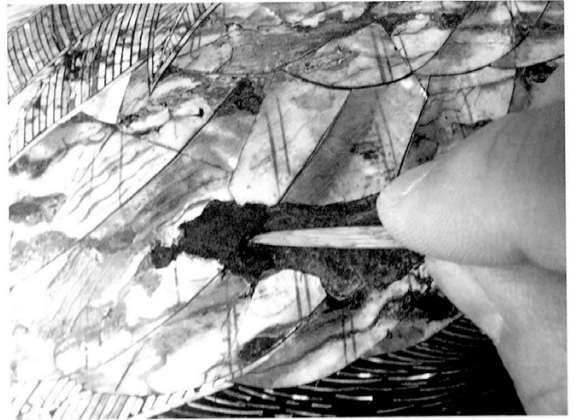


Fig. 7.33 刻苧付け
Applying *kokuso*



Fig. 7.34 刻苧付け部分
Part where *kokuso* has been applied

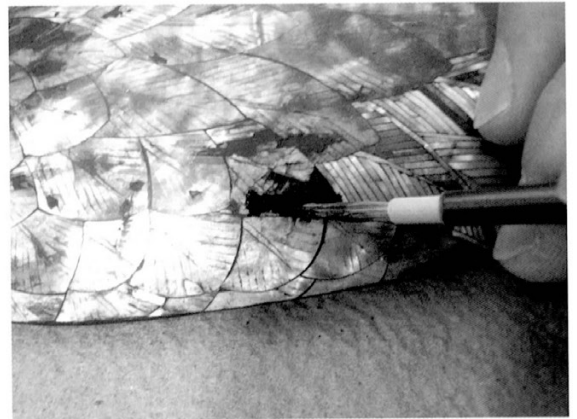


Fig. 7.35 際錆
Kiwasabi



Fig. 7.36 梨子地部分の漆固め
Urushigatame on the *nashiji* portion



Fig. 7.37 中間視察
Interim inspection



a 修復前
Before restoration



b 修復後
After restoration

C7.1 螺鈿鶴形合子
Container in the Shape of a Crane



a 修復前
Before restoration



b 修復後
After restoration

C7.2 螺鈿鶴形合子 - 蓋、身 -
Container in the Shape of a Crane, lid and body