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## 8. 花鳥螺鈿枕

### 8. *Pillow with Birds and Flowers Design*

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ライデン国立民族博物館（オランダ王国）所蔵  
Museum Volkenkunde (Kingdam of the Netherlands)

平成 22 年度修復事業  
The 2010 Japanese Fiscal Year

## 8.1. 基台 修復報告

山下 好彦

### 8.1.1. 名称等

名称	花鳥螺鈿枕一基
制作年代	江戸時代 19 世紀
所蔵者	ライデン国立民族学博物館（オランダ王国）
登録番号	354-32

### 8.1.2. 工期及び施工者等

工期	平成 22 年 6 月～平成 23 年 3 月
施工場所	東京文化財研究所修復アトリエ（漆）
修復担当者	山下 好彦

### 8.1.3. 修復前の状態

損傷状態を下記に列記する。

- 全面に埃が付着していた。特に、天板の布団の下には埃や繊維が薄く被っていた。
- 引出し内部に黴の付着が認められた。
- 螺鈿の剥離が広い面積に広がっていた。
- 螺鈿の剥落が各所にあり、塗膜や下地が露出していた。
- 素地の収縮や変形が原因と考えられる亀裂が素地接合部にあった。
- 亀裂の周囲に漆塗膜の剥離が認められた。
- 亀裂の周囲に漆塗膜や下地の剥落が認められ、一部で木地が露出していた。
- 引傷、擦損や打損が認められた。
- 塗膜表面が紫外線等によって劣化していた。
- 引出し外面が茶色く変色していた。
- 螺鈿裏側の金属箔が錆化し、螺鈿の変色が認められた。
- 螺鈿の剥落片が付属した。
- 上部を除く全面に後世修復の修復材料が認められ、一部には指紋が付着していた。
- 布団に用いられた裂が劣化し、退色やほつれがあった。

### 8.1.4. 修復方針

花鳥螺鈿枕の内基台の修復方針は事前に東京文化財研究所から提示を受けた。実際の修復にあたって再度検討を加えた後、変更が生じた部分についてはその都度東京文化財研究所の担当者と修復者が協議して決定した。

作品の修復方針を以下に列記する。

- 現状維持修復を基本とした。

- 欠損した螺鈿は補わないこととした。
- 西洋修復材料は出来る限り除去することとした。
- 亀裂や下地欠損箇所は充填し、展示上違和感のない程度に色合いを合わせることにした。
- 基台内部の木地が露出している箇所はそのままとすることとした。
- 同じ螺鈿技法で制作された別作品を用いて修復材料の検討をすることとした。
- 上部に付く紐は薄葉紙で養生して修復を進めることにした。
- 引き出し内部の資料ラベルと文字はそのままとすることとした。
- 桐箱と絹の包装を作製する。箱は基台、オリジナルの布団と新調した布団を保管する形式とすることとした。
- 蛍光X線による材料分析を行うことにした。

### 8.1.5. 修復工程

#### (1) 修復前調査

損傷状態と技法に関する調査を行い、現状を記録した。

木地の損傷は側面と底板との接合部で著しく、木地が収縮することで接合部がずれて亀裂が広がったものと考えられた。この原因は底板を厚い一枚板を使用していることや、引き出し以外の内部に漆を塗っていないことから低湿度の環境に著しく影響を受けたと考えられた。また、正面と背面の螺鈿の剥離が広い面積に及んでおり、剥離は左右に広がっていることから、木地が縦方向に収縮したものと判断出来た。基台の木地は内部の調査から松の板目材を使用し、右側面内側に木片が付けて引き出し面が内側に入りすぎないように微調整をしているのが分かった。

表面観察および紫外線ランプによる調査を行った結果、漆塗膜表面に何らかの塗料が斑に被っていることが確認された。また、引き出し表面は斑になっていたが、蛍光しないことから後世修復時に何らかの問題で変色したものと考えた。

#### (2) 分析

蛍光X線分析を行い、螺鈿に使われた材料や金具の材質などを調査した。この調査は東京文化財研究所保存修復科学センターの早川泰弘が行った。その結果、螺鈿には伏彩色に顔料と染料を併用していることが分かった。螺鈿の裏側に貼り込まれた金属は特定できなかった。金具は真鍮製で鍍金と鍍銀していることが判明した。

#### (3) 修復前写真

修復前にカラー写真用デイトランプと自然光を使って作品全体と損傷状態をデジタル写真で記録した。次に紫外線蛍光写真を撮影し、後世修復の状態を記録した。蛍光写真はブラックランプとゼラチンフィルターを使用して、デジタルで記録した。

#### (4) 養生

剥落の危険のある螺鈿箇所にパラロイド B72 を含浸させた雁皮紙を小片に切って貼った。養生は後のクリーニングとの兼ね合いから最小限とし、主に正面と背面の剥離の著しい螺鈿部分に処置した。

#### (5) 溶剤テスト

後世修復の塗料除去に関する溶剤テストを行った。テストには無水エタノール、消毒用エタノール、ミネラルスピリット、酢酸エチルを使用した。後世修復は表面の薄い層と下部の層の2度にわたって行われたと考えられ、下層の方に指紋が付着していた。後世修復を除去できる効果は消毒用エタノール、無水エタノール、酢酸エチル、ミネラルスピリットの順で効果があり、酢酸エチルでは表面の後世修復のみが除去できることが分かった。

#### (6) クリーニング

初めに、塗膜表面に付着した埃を毛棒で払った。落ちていた布団の繊維は別保管した。クリーニングは天板と引出しを対象とし、濾過水と消毒用エタノールを用いて埃やカビを除去した。箱内側のラベルと文字部分は避けてクリーニングを行った。その他の部分は西洋修復材料の除去と同時に行った。

#### (7) 螺鈿の剥落止め実験

同じ螺鈿技法で制作された別作品を用いて修復実験を行い、修復材料と技法を考察した。実験では、螺鈿の剥落止めに膠水溶液を含浸し、ゲルシートとシリコンシートを用いて木杵とヒゴで圧着した。螺鈿の剥落止め完了後に養生紙を溶剤で取り除いた。この結果、膠、ゲルシートとシリコンシートの使用が適切であると判断できた。

#### (8) 受け台制作

この作品は底が湾曲し、しかも側面が台形をしていて非常に不安定なことから、螺鈿の剥落止めのための受け台をMDFボードとシリコンで制作した。基台の正背面を木杵と木か竹のヒゴで抑えるための横向きの台と左右側面を抑える形状の台を2個考案した。

#### (9) 螺鈿の剥落止め

螺鈿の剥落止めは剥離した螺鈿の際から15%程度に濃度を調整したパールグルー(大王)水溶液を含浸し、すぐに余分な膠をケイドライで拭き取った。次に、新吉野紙、ゲルシートとシリコンシートを置き、上から木杵とヒゴを用いて抑えた。余分な膠はすぐに拭き取り、再度同様の方法で抑えた。螺鈿の抑えは数日置いた後に丁寧に取り外した。

#### (10) 螺鈿片の照合と接着

付属した螺鈿の剥落片を照合した。その結果、剥落片は正面の鳥部分の一部と判明した。剥落片は他の螺鈿の剥落止めと同様な処置で再接着した。

#### (11) 漆塗膜の剥落止め

初めに、有機溶剤(リグロイン)が後世修復塗料を溶解しないことを確認した。次に、剥離した塗膜部分に有機溶剤(リグロイン)で希釈した麦漆を含浸し、木杵と木か竹のヒゴで圧着した。漆塗膜の剥落止めは3日程度置いた後に取り外した。

#### (12) 亀裂の補強と接着

素地の亀裂箇所に薄い麦漆を含浸して亀裂を補強した。同時に濃い麦漆を含浸して亀裂を接着した。この時、基台内側に漆塗りが施されていないことから、麦漆が基台の内側に回らないように注意した。

#### (13) 西洋修復材料の除去

全面に塗布されていた西洋修復材料の除去に先立ち、溶剤実験を行った結果、後世修復はそれぞれ異なる材料で2回行われていたことが分かった。表面の1層目は酢酸エチル、2層目は数種類のエタノールを混合した溶剤がもっとも有効と判断できた。しかし、2層目の下層にある漆塗膜は損傷が著しく、西洋塗料をすべて除去しようとするとう漆塗膜に損傷を与えかねないことがわかった。エタノールを使用しての西洋塗料の除去では塗料のべたつくことからアセトニトリル水溶液と綿棒を用いて塗料のべたつきがとれるところまで除去した。

#### (14) 成形

塗膜や下地の欠損部分を細かい刻苧や漆下地を用いて成形した。

#### (15) 際錆

著しく剥離していた螺鈿の際に僅かに漆下地を施し、再剥落を予防した。

#### (16) 螺鈿の養生

漆塗膜の劣化が著しく、漆固めの技法では塗膜が復旧出来ないことが明確になったことから、全体に摺漆を行う方向で検討した。摺漆を全体に行うには螺鈿を可逆的な材料で伏せることが必要と考えた。数種類の合成樹脂を実験した結果から、ポリビニールアセテート(PVA)を使用して螺鈿の養生

を行った。

(17) 摺漆

摺漆は木地呂漆と生正味漆を混合した漆や木地呂漆のみを用い、クリーンソルGで希釈して数回行った。

(18) 螺鈿養生の除去

螺鈿の上に伏せたPVAを綿棒と濾過水を使って丁寧に除去した。

(19) 色調整

成形箇所を漆塗りと摺漆を行い、色調を整えた。

(20) 外覆の作製

枕を被せる外覆を羽二重で作成した。基台を安定させるため、枕底の両側に羽二重で包んだ円柱の綿を置き包裂を上から被せる形式とした。

(21) 桐箱の作成

修復後に台差し形式の桐箱を作製した。基台には新調した枕を乗せ、修復した布団を横に置ける形式とした。

(22) 修復後写真

修復前に合わせて修復後の写真撮影を行った。

(23) 修復報告書の作成

修復記録をまとめて報告書を2部作成した。

### 8.1.6. 修復後の状態

詳細は Table 8.1 を参照のこと。

## 8.1. Pillow Stand, Restoration Report

Yoshihiko Yamashita

### 8.1.1. Data

Title	<i>Pillow with Birds and Flowers Design</i>
Period	19th century, Edo period
Owner	Museum Volkenkunde (Kingdom of the Netherlands)
Inventory number	354-32

### 8.1.2. Restoration Data

Duration	June 2010 – March 2011
Place	Restoration Studio (Urushi), National Research Institute for Cultural Properties, Tokyo
Conservator	Yoshihiko Yamashita

### 8.1.3. Condition before Restoration

The condition of damage is listed below.

- The entire object was covered with dust. Dust and fibers covered the top board under the cushion in particular.
- There were molds on the inner side of the drawer.
- *Raden* had become lifted over a wide area of the stand.
- *Raden* had become detached and lost at many places, exposing the coating film and foundation.
- There were cracks around the joints of the substrate caused by what seems to have been the shrinkage and consequent change in shape of the substrate.
- Lifting of the urushi coating film was found around the cracks.
- The urushi coating film and the foundation around the cracks had been lost, partially exposing the wooden substrate.
- There were scratches, abrasions and damage caused by impact.
- The surface of the coating film had deteriorated because of ultraviolet rays and passage of time.
- The color of the outer side of the drawer had changed and become brown.
- The metal leaf on the back of the *raden* had corroded and the color had changed.
- Fragments of *raden* that had fallen accompanied the pillow.
- There were traces of past restorations over all the sides except the top; finger prints were found on parts.
- The fabric used for the cushion had deteriorated, causing fading of the color and fraying.

### 8.1.4. Restoration Plan

The restoration plan for the pillow had been presented beforehand by the National Research Institute for

Cultural Properties, Tokyo. In beginning the actual work of restoration, details of the plan were discussed once again, and changes that were considered necessary were decided upon deliberation between the person in charge at the Institute and the conservator.

The following is a summary of the restoration plan.

- Maintenance of the present condition would be followed.
- Missing *raden* would not be supplemented.
- Western restoration materials would be removed as much as possible.
- Cracks and parts with missing foundation would be filled and the color adjusted so that they would not affect appreciation when the object is exhibited.
- Parts inside the stand where the substrate was exposed would be left untouched.
- An object using similar *raden* technique would be used to test restoration materials.
- The cord attached to the upper portion of the stand would be faced with tissue paper during restoration.
- The label and writings found inside the drawer- would be left untouched.
- A paulownia box and silk wrapping cloth would be made. The box would be used to hold the stand, the original cushion and the reproduced cushion.
- Material analysis will be performed by X-ray fluorescence.

#### 8.1.5. Restoration Process

##### (1) Investigation before restoration

Condition of damage and techniques were investigated and the present condition was recorded.

There was significant damage to the substrate, especially on the joint of the side and bottom boards. It was believed that this was caused by cracks that had formed as the joints slipped due to the shrinkage of the substrate. The fact that a thick single piece of board was used for the bottom and that *urushi* had not been coated on the inner side of the stand other than that of the drawer seemed to have made the stand significantly prone to be influenced by low humidity environment. In addition, there was a wide area on the front and back sides where the *raden* decoration had become lifted, and this lifting had extended to the right and left of the *raden*. It was decided that the cause of this phenomena was the vertical shrinkage of the substrate. Investigation of the inner side showed that cross-grain cut pine was used for the substrate of the stand and that a piece of wood was attached inside the right side to make fine adjustment so that the drawer would not go in too far.

As a result of observation of the surface and investigation using a UV lamp, it was confirmed that some type of coating material was covering the surface *urushi* coating film in blotches. The surface of the drawer was also in blotches, but since it did not fluoresce it was thought that the color had changed for some reason during past restorations.

##### (2) Analysis

Materials used for *raden* and the metal fittings were investigated by X-ray fluorescence analysis. This was done by Yasuhiro Hayakawa of Institute. As a result, it was found that pigments and dyes were used for *fusezaishiki* on *raden* shell pieces, but the metal adhered to the back of the shell pieces could not be identified. The metal fittings were made of brass and gilded with gold and silver.

##### (3) Photographing before restoration

Before restoration, digital photographs were taken of the entire pillow and the condition of its damage using a daylight lamp for color photographs and natural light. Then, UV fluorescence

photographs were taken to record the condition of past restorations. Fluorescence photographs were taken using a black lamp and a gelatin filter, and recorded digitally.

(4) Facing

*Gampi* paper impregnated with Paraloid B72 was cut into small pieces and adhered to parts of the *raden* decoration where falling was feared. Facing was kept to the minimum, taking into consideration cleaning that would follow, and was executed only to the *raden* decorations on the front and back where lifting was significant.

(5) Solvent tests

Solvents for removing coating materials from past restorations were tested. Absolute ethanol, ethanol for disinfection, mineral spirit, ethyl acetate were used for the tests. Restoration was believed to have been done twice, once on the thin surface layer and once on the lower layer. Fingerprints were found on the lower layer. Solvents that could be used to remove past restorations effectively were in the order of ethanol for disinfection, absolute ethanol, ethyl acetate and mineral spirits. It was found that ethyl acetate would enable the removal of traces of past restoration on the surface alone.

(6) Cleaning

First, dust that had accumulated on the surface of the coating film was brushed. The fibers of the cushion that were found on the top board of the stand were stored separately. Cleaning was performed on the top board and the drawer. Filtered water and ethanol for disinfection were used to remove dust and molds. The label inside the box and the writings were not cleaned. Cleaning of other parts was done when the Western restoration materials were removed.

(7) Consolidation test for lifted *raden*

Another object made by using similar *raden* technique was used to consider suitable restoration materials and techniques. In the experiment, an animal glue solution was impregnated to consolidate the *raden*, and a gel sheet and silicon sheet were used in press-stabilizing the pieces with wooden frame and bamboo/wooden sticks. After this step was completed, facing paper was removed with a solvent. As a result, it was confirmed that a combination of animal glue, gel sheet and silicon sheet was most suitable.

(8) Manufacture of a working stand

Since the bottom of the pillow stand is curved and the sides are in a trapezoid, the stand is extremely unstable. For this reason, two working stands were made from MDF board and silicon: one to hold the pillow stand on its side when working on the front and back, the other to hold the right and left sides.

(9) Consolidation of the lifted *raden*

In order to prevent *raden* pieces from becoming lost, a solution of Pearl Glue (Daio) adjusted to about 15 % concentration was impregnated from the edges of the lifted *raden*. Excess animal glue was immediately wiped off with Kaydry. Then, Shin-yoshinogami, gel sheet and silicon sheet were placed on the shell pieces, which were then held down with bamboo/wooden sticks against a wooden frame. Excess animal glue was immediately wiped off, and the process was repeated. The items used to hold down the shell pieces were carefully removed several days later.

(10) Checking and re-adhesion of a *raden* fragment

A piece of *raden* fragment that had fallen and accompanied the pillow when it was transported was checked. As a result, it was found that this piece had been used for the bird in the front. It was treated similarly with other pieces that had been consolidated and re-attached.



## (11) Consolidation of the lifted urushi coating film

First, it was confirmed that organic solvent (ligroin) does not dissolve materials from past restorations. Next, *mugi-urushi* diluted with organic solvent (ligroin) was impregnated into the lifted coating film, which was then press-stabilized with a wooden frame and bamboo/wooden sticks. These were removed after about 3 days.

## (12) Reinforcement and adhesion of cracks

Thin *mugi-urushi* was impregnated into cracks on the substrate in order to reinforce them. Then thicker *mugi-urushi* was impregnated to adhere the cracks before the previously applied *mugi-urushi* had hardened. Since the inner side of the stand was not coated with urushi, care was taken so that *mugi-urushi* would not infiltrate the inside.

## (13) Removal of Western coating materials

Before removing the Western coating materials that had been applied over the entire surface, solvents were tested. As a result, it was found that restoration had been done twice in the past, using a different material each time. It was decided that ethyl acetate is the most effective for the first layer on the surface while a solvent using several types of ethanol would be most effective for the second layer. However, the urushi coating film below the second layer was severely damaged and attempts to completely remove the Western coating materials might damage the urushi coating film. Since using ethanol to remove the Western coating materials might make the coating material sticky, an acetonitrile solution and cotton swabs were used to remove the coating materials to a point that the stickiness would also be removed.

## (14) Shape adjustment

Fine *kokuso* and urushi foundation were used to adjust the shape of the areas where the coating film and foundation had been lost.

(15) *Kiwasabi*

A very small amount of urushi foundation was applied to the edges of *raden* that had been significantly lifted in order to prevent them from falling.

(16) Facing *raden*

Since it became clear that *urushigatame* would not be effective in reproducing the urushi coating film that had become so severely deteriorated, applying *suri-urushi* over the entire surface was considered. In order to do this, it was decided that the *raden* had to be first covered with some reversible material. After testing several types of synthetic resin, polyvinyl acetate (PVA) was selected to face the *raden*.

(17) *Suri-urushi*

For *suri-urushi*, a mixture of *kijiro urushi* and *kijomi urushi* or *kijiro urushi* alone was used. They were diluted with Cleansol G and applied several times.

(18) Removal of the facing from *raden*

PVA that had been applied over the *raden* was carefully removed with filtered water and cotton swabs.

## (19) Color adjustment

Urushi was coated and *suri-urushi* performed on places where the shape had been adjusted in order to further adjust the color.

## (20) Manufacture of a cover

*Habutae* silk was used to make a cover for the pillow. In order to stabilize the pillow stand, which

has a curved bottom, cotton packed into a silk *habutae* bag would be placed on both ends of the stand. The cover would be used over the pillow.

(21) Manufacture of a paulownia box

A paulownia box was made after the pillow was restored. It consisted of a base and a lid that would cover the pillow entirely. The reproduced cushion would be placed on the stand and the restored cushion would be stored in the same box next to the pillow.

(22) Photographing after restoration

Photographs were taken after restoration for comparison with the pillow before restoration.

(23) Compilation of a restoration report

Two copies of the restoration report were compiled.

### 8.1.6. Condition after Restoration

See Table 8.1.

## 8.2. 布団 保存処置報告

石井 美恵

### 8.2.1. 名称等

(8.1.1. 参照)

### 8.2.2. 工期及び施工者等

工期 平成 23 年 1 月 31 日、2 月 4 日、9 日、10 日  
 施工場所 東京文化財研究所 修復アトリエ (漆)  
 処置担当者 石井 美恵

### 8.2.3. 概要

花鳥螺鈿枕 1 基に付随する青色錦 (絹) の布団。両端にページュ (元は桃色) の絹房が付く。中袋は和紙で作られ、その中に詰め物が入っている。

#### <作品の内容>

表布：斜紋織

経糸 白絹、右撚単糸 (S)

緯糸 青 (藍) 絹、撚りなし引きそろえ

縫製糸：房と同じ

中布：平織

経糸 木綿 (茶) 8 本/cm

緯糸 木綿 (茶) 16 本/cm

内袋：和紙

詰め物：不明 (固く、ギシギシした感触)

房：絹糸 (元は桃色、おそらく紅花染め)

製作手順として、表に錦、裏に綿をそれぞれ二枚はぎ合わせて筒状に縫製したものに和紙で包んだ詰め物をいれ、両端を三角に畳んで糸で縫い合わせ、房を付けたと推定される。

#### <損傷状態>

表の錦の経糸 (白) が切れて緯糸 (藍) がむき出していた。また摺れて中の綿布があらわになっている箇所も見られた。緯糸がぼろぼろと落ちていた。劣化の原因は、使用や接触による摺れに加え、経糸に張力を掛けて織る製作工程、内側からの圧力による伸張が考えられた (Fig. 8.23 (a))。

### 8.2.4. 保存処置方針

布団の表布である絹布の糸が劣化してほつれていた。布団は別置するが、現状のままで取り扱いが難

しいので、ほつれを整えた後、薄青に染色した半透明の絹でくるみ布団を保護することとした。

### 8.2.5. 保存処置工程

- (1) 作品およびその状態を記録した。デジタルカメラにて処置前の状態を撮影した。
- (2) 薄絹（クレペリン）を合成染料（ラナセット染料）で染色した。色は覆ったときに底辺のオリジナルに近い色に見える色に染色した。色は2010年1月31日のライデン国立民族学博物館担当者との協議により決定した。
- (3) 布団を薄絹で覆い、絹糸で縫い合わせた。縫い代は底辺にくるようにしたが、損傷していない錦の文様を覆わない位置にしたので、底辺の中心から少しずらした。
- (4) 両端は布団の襷に折り込み、端を絹糸で留めた。薄絹は布団に直接縫い付けていないので取り除けば処置前の状態に戻る。
- (5) デジタルカメラにて処置後の様子を撮影した (Fig. 8.23(b))。
- (6) 報告書を作成した。

### 8.2.6. 保存処置材料

- クレペリン (silk crepeine)            TALAS USA
- ラナセット染料 (Lanaset dye)        田中直染料店
- 絹糸 (silk thread) 勝山織物(株)      絹織製作研究所

## 8.2. Pillow Cushion, Conservation Report

Mie Ishii

### 8.2.1. Data

(See 8.1.1.)

### 8.2.2. Conservation Data

Duration January 31, February 4, 9, 10, 2011  
 Place Restoration Studio (Urushi), National Research Institute for Cultural Properties, Tokyo  
 Conservator Mie Ishii

### 8.2.3. Description

The light blue pillow cushion is made of figured silk (*nishiki*) with design of birds and flowers. There are beige (originally pink) tassels attached on both ends. The inner bag is made of Japanese paper with stuffing inside.

#### <Material makeup>

Outer fabric : figured twill (*nishiki*)  
     Warp - white silk, S twist single  
     Weft - blue (indigo) silk, untwisted  
 Sewing thread : same as the tassels  
 Inner fabric : plain weave  
     Warp - cotton (brown) 8 per centimeter  
     Weft - cotton (brown) 16 per centimeter  
 Inner bag : Japanese paper  
 Stuffing : unknown (hard, fibrous feel)  
 Tassels : silk thread (originally pink, probably dyed with safflower)

The steps employed in making the pillow cushion are as follows: Two pieces of *nishiki* for the outside and two pieces of cotton for the lining were sewn together into a cylindrical shape to which stuffing wrapped in Japanese paper was inserted. After folding and sewing both ends in a triangle, tassels were attached.

#### <Condition of Damage>

The weft (white) of the *nishiki* had become fragile and the warp (indigo) was exposed. There were also places where abrasion had worn down the fabric so that the cotton lining was exposed. The warp was severely damaged and falling out in pieces. In addition to abrasion by use and contact, the process of making the cloth in which tension was applied to the warp and stretching of the silk from the stuffing are considered

to have been the causes of deterioration (Fig. 8.23(a)).

#### 8.2.4. Conservation Plan

The silk yarn, which comprises the outer fabric of the pillow cushion, had deteriorated and frayed. The pillow cushion is planned to be set aside, but since it is difficult to handle it in its deteriorated state, decision was made to cover it with a semi-translucent silk dyed light blue after aligning the fraying yarns.

#### 8.2.5. Conservation Process

- (1) The material makeup of the pillow cushion and its condition was recorded. The condition before treatment was photographed with a digital camera.
- (2) Silk crepe line was dyed with a synthetic dye (Lanaset® dye). The color of the silk crepe line was dyed to a color similar to that of the less faded side of the bottom of the pillow cushion. Decision concerning color was made after discussion with the conservator of Museum Volkenkunde, Leiden on January 31, 2010.
- (3) The pillow cushion was covered with fine silk and sewn with silk thread in such a way that the seam would be at the bottom. However, since it was sewn so that the undamaged design would not be hidden, the seam is slightly off the bottom center.
- (4) Both ends of the fine silk were folded into gathers and were sewn down with silk thread. Since the fine silk is not directly sewn to the pillow cushion, the pillow cushion can be returned to the condition before treatment if it is removed.
- (5) Condition after treatment was photographed with a digital camera (Fig. 8.23(b)).
- (6) A report was compiled.

#### 8.2.6. Conservation Materials

- Silk crepe line      Talas USA
- Lanaset® dye      Tanakanao Senryoten, Co., Ltd.
- Silk thread        Research Institute for the Manufacture of Silk Textiles of Katsuyama Co., Ltd.

## 8.3. 布団 新調報告

一般社団法人 国宝修理装潢師連盟  
依田 尚美

### 8.3.1. 名称等

(8.1.1. 参照)

### 8.3.2. 工期及び施工者等

工期 平成22年10月13日～平成23年3月7日  
 施工者 一般社団法人 国宝修理装潢師連盟 関東支部 支部長 山本 記子  
 施工場所 東京文化財研究所修復アトリエ(漆)  
 担当者 依田 尚美

### 8.3.3. 製作方針

損傷した本作品の布団は損傷が著しいため、別保管するものとした。それにともない花鳥螺鈿枕の展示活用を目的とした布団を新調することとした。布団の生地は本作品と違和感の出ない肌合いと色調で整えるため、無地絹を染色して使用することとした。使用する生地と色は東京文化財研究所の担当者と協議して決定することとした。寸法も本作品と同様の、長さ22.0cm、幅5.2cm、高さ6.8cm(中央部)とすることとした。

### 8.3.4. 製作工程

#### (1) 事前準備

表地の候補裂2種(平織と綾織)を用意し、本体に似寄りの色味に染色した。

本作品の布団は経年により変色し、地紋もあるため多様な色に見える(Fig. 8.24)。そこで、本体に由来した2色を決め、それぞれの候補裂を化学染料にて染色した(Fig. 8.25)。房の糸は、経年変色した現在の色と房の付け根に残る赤みの強い色に合わせて2種類の候補の絹糸を用意した。布団の芯は、枕の文献などを参考に重量感と質感を考慮して数種の材料を用意した。

#### (2) 色及び素材の決定

所有者、東京文化財研究所、布団修復担当者と共に候補材料を確認検討した。その結果、表地は綾織生地を使用し、本体の下面に残る青みの強い色に合わせることを決定した。また、布団の芯は真綿を麻生地で包む形となったが、枕修復担当の調査結果を基に東京文化財研究所と再検討した結果、真綿を包む生地を木綿布に変更した。

#### (3) 仕立て

上記の材料で、本体と同様の形状・寸法に仕立てた(Fig. 8.26、Fig. 8.27)。仕立てあがり後、房の色を決定し、取り付けた(Fig. 8.28、Fig. 8.29)。

### 8.3.5. 使用材料

- ・表地生地：綾地絹 100横(廣信織物(有)製) 使用量 3.2g

染料：酸性染料（デルクス）三原色

助剤：酢酸 80%（(株)田中直染料店にて購入）

- 中布 木綿布（アジア綿糸手紡ぎ手織生成り染色なし西銘通商(株)）  
使用量 14.4g
- 芯 真綿（勝山織物(株) 絹織製作研究所にて製作の玉繭を福島県の工房にて加工）  
使用量 36.7g
- 糸
  - ①表地 絹手縫い糸 9号（タイヤーNo.125）
  - ②中布 木綿とじ糸
  - ③房 絹手縫い糸 9号（タイヤーNo.061）



## 8.3. Making of a New Pillow Cushion

The Association for Conservation of National Treasures  
Naomi Yoda

### 8.3.1. Data

(See 8.1.1.)

### 8.3.2. Data about the making a new pillow cushion

Duration	October 13, 2010 — March 7, 2011
Contractor	The Association for Conservation of National Treasures, Kanto Branch Branch Director, Noriko Yamamoto
Place	Restoration Studio (Urushi), National Research Institute for Cultural Properties, Tokyo
Maker	Naomi Yoda

### 8.3.3. Plan for making a new pillow cushion

Since the original pillow cushion is severely damaged, decision was made to store it separately. However, a new pillow cushion would be made for exhibition and utilization. Plain silk would be used and dyed to match the texture and color of the original fabric so that there would be no feeling of discomfort when compared with the original. Dimensions would be kept the same as those of the actual pillow cushion: Length 22.0 cm Width 5.2 cm Height 6.8 cm (in the middle).

### 8.3.4. Process of making a new pillow cushion

#### (1) Preliminary work

Two types of fabric (plain weave and twill) were prepared as candidates and dyed to a tone of color close to that of the original cushion. The cushion that accompanied the pillow had changed color with the years and appeared to be of various colors, possibly because of the ground design as well (Fig. 8.24). So, two colors were chosen, and each of the candidate fabrics was dyed with chemical dye (Fig. 8.25). Two types of silk thread were also prepared for the tassels to match the current color of the tassels that had changed color due to time and the color near the root of the tassels which had a strong reddish tint. Several types of materials were also prepared for the core of the cushion, taking into consideration its body and texture and based on information obtained from documents on pillows.

#### (2) Decision making on color and material

Candidate materials were examined and discussed with the owner, person in charge at the National Research Institute for Cultural Properties, Tokyo and the person in charge of the restoration of the original cushion. As a result, it was decided to use twill fabric and to match its color with the color found on the underside of the original cushion which has a strong blue tone. For the core of the cushion, at first it was decided to wrap floss silk with linen, but as a result of discussion with the Institute based on an investigation made by the person in charge of the restoration of the pillow, this was changed to

cotton.

(3) Stitching

Using the materials mentioned above, a pillow cushion of the same shape and dimensions was made (Fig. 8.26, Fig. 8.27). After it was completed, the color of the tassels was decided and the tassels were attached (Fig. 8.28, Fig. 8.29).

**8.3.5. Materials Used**

- Outer fabric : twill silk 100 weft (Hironobu Orimono Co., Ltd.); amount used - 3.2 g  
Dye : acid dye (Delx), three primary colors  
Dyeing aid : acetic acid 80 % (Tanakanao Senryoten, Co., Ltd.)
- Inner fabric : cotton (Asian cotton thread, hand spun and hand woven, unbleached and undyed, Saimei Trade Co., Ltd.); amount used - 14.4 g
- Core : floss silk (dupion manufactured at the Research Institute for the Manufacture of Silk Textiles of Katsuyama Co., Ltd. processed at a studio in Fukushima prefecture); amount used - 36.7 g
- Thread : 1) Outer fabric silk handstitch thread no. 9 (TIRE No. 125)  
2) Inner fabric cotton thread, cotton thread used for stitching  
3) Tassel silk handstitch thread no. 9 (TIRE No. 125)

## 8.4. 作品解説

東京国立博物館  
竹内 奈美子

底面を丸く曲面に作った台形の基台部に、円筒形の布団を乗せた枕。基台部の短側面に引き出しを収め、小物を入れられるようになっている。袋の中に綿や蕎麦殻を入れ、両端を括って作った枕を括り枕というが、このように木製の箱形の上に括り枕を載せたものは、箱枕と呼ばれる。箱枕の底面は、寝返りをうつ際の首の負担を軽減するため、丸く弧を描くように作られたものが多い。

この枕の基台部の表面は黒漆塗として、裏彩色を施した螺鈿で梅に鶯、椿や牡丹、菊などの花鳥を表わしている。彩色は紅・黄・緑・青と多彩であり、モチーフにあわせて色が使われ、細部は墨の細い線によって描写されている。例えば、鶯や植物の葉の部分では、貝片は裏側に墨で輪郭や羽毛、葉脈を描き、緑の彩色を施し、銀箔を貼ってから、器面に装着されている。鮮やかな発色と賑やかな図柄が、誠に華やかな装飾である。

このように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、元来は国内で使用される漆器にも用いられていた加飾法であり、この枕は伝統的な形をとっているため、特に輸出用に作られたものではないだろう。オランダ東インド会社の日本商館長ヨセフ・ヘンリー・レフィスゾーンの収集品で、その在任期間（1845～50年）により、制作年代が推定できる。

## 8.4. Description of the Artwork

Namiko Takeuchi  
Tokyo National Museum

The object discussed is a pillow in which a cylindrical cushion is placed on a trapezoid stand with a ship bottom shape. On one of the shorter sides of the stand is a drawer to hold small items. Pillows made by putting cotton or buckwheat husks into a bag and binding up the ends are called *kukuri-makura*; when *kukuri-makura* is placed on a wooden box-type stand, it is called *hako-makura*. The bottom of *hako-makura* is often formed into an arc in order to reduce stress on the neck when turning over in sleep.

The surface of the stand for this pillow is coated with black urushi and decorated with design of birds and flowers, like nightingale on a Japanese plum tree, camellia, peony and chrysanthemums, expressed in raden to which *urazaishiki* has been executed. Diverse colors - such as red, yellow, green and blue - are used according to different motifs and details are expressed with fine lines drawn in Chinese ink. For example, for the nightingale and the leaves of plants, first, *sumi* lines are drawn on the reverse side of a shell piece to express the outline, feathers and the veins of a leaf; then green color is applied, followed by silver leaf; finally, the shell pieces are adhered to the surface of the object. Brilliant colors and elaborate motifs create a truly magnificent decoration.

*Usugai raden* to which *urazaishiki* has been executed is a type of decoration found frequently on export urushiware manufactured in Nagasaki. However, it is a method of decoration that had been used basically on urushiware for domestic use. Moreover, since the shape of the pillow is traditional, it seems that this pillow was not especially made for export. It is among the collection of Joseph Henry Levyssohn who headed the trading house of the Dutch East India Company in Japan. The year of manufacture can be assumed based on the term of his office (1845 – 1850).

## 付録 8.1. 蛍光 X 線分析結果

東京文化財研究所  
早川 泰弘

### 分析日時・場所

2011 年 3 月 22 日 (火)、東京文化財研究所 修復アトリエ(漆)

### 分析装置・条件

装置：ポータブル蛍光 X 線分析装置 SEA200 (セイコーインスツルメンツ)  
 X 線管球：Rh (ロジウム)  
 管電圧・管電流：50kV、100 $\mu$ A  
 X 線照射径： $\phi$  2mm (フィルタなしコリメータ使用)  
 測定時間：100 秒  
 測定雰囲気：大気  
 装置ヘッド～資料間距離：約 10mm  
 測定箇所：Table 8.2、Fig. 8.30 参照

### 分析結果

- 得られた蛍光 X 線強度を Table 8.3 に示した。
- 今回の測定結果に関しては、下記の事項を十分考慮した上で、測定結果の解釈が必要である。
  - (1) 蛍光 X 線分析では試料に含まれている元素を特定することはできるが、その構造 (化学式) を知ることはできない。
  - (2) 今回の測定では、有機物 (主元素 C, N, O, H) や染料などの検出は行えない。
  - (3) 無機物であっても、軽元素 (例えば Al, Si, S, Cl など) の検出は行えない。
  - (4) 得られた蛍光 X 線強度は表面からある深さまでの組成情報である (金属銅の場合: 数 10 $\mu$ m 程度)。
  - (5) 単一部位の測定結果だけからは、複数の元素が混合されているのか、それらが層状に存在しているのかの判断はできない。
  - (6) 蛍光 X 線の検出効率はエネルギーによって大きく異なるため、元素間での蛍光 X 線の強度比は実際の濃度比とは一致しない。

### <コメント>

- 測定箇所 No. 1、2 の Ag 検出量は小さく、貝の裏に金属 (銀) 箔が存在しているかどうかは確認できない。
- 測定箇所 No. 3 の赤色は Fe 系材料 (ベンガラ) によるものであると考えられる。
- 測定箇所 No. 4 青色、No. 5 黄色部分からは Ca と Fe 以外の元素は検出されない。染料による着色が行われていると思われる。
- 測定箇所 No. 6、7、8 の地金は Cu-Zn 合金 (真鍮) である。測定箇所 No. 7 ではその上に鍍金がなされ、測定箇所 No.6 ではさらに鍍銀が施されている。

## Appendix 8.1. Results of X-ray Fluorescence Analysis

Yasuhiro Hayakawa  
National Research Institute for Cultural Properties, Tokyo

### Date and place of analysis

Tuesday, March 22, 2011  
Restoration Studio (Urushi),  
National Research Institute for Cultural Properties, Tokyo

### Apparatus and conditions for analysis

Apparatus :	Portable X-ray fluorescence spectrometer SEA200 (Seiko Instruments Co. Ltd)
Target :	Rh (rhodium)
Tube voltage, current :	50 kV, 100 $\mu$ A
X-ray radiation diameter :	$\phi$ 2 mm (collimator without filtering)
Measuring time :	100 sec.
Measuring atmosphere :	Air
Distance between the apparatus and the sample :	approximately 10 mm
Measuring points :	See Table 8.2 and Fig. 8.30

### Analytical results

- X-ray fluorescence intensity obtained is shown in Table 8.3.
- The following points should be taken into careful consideration when interpreting the measured results.
  - (1) With X-ray fluorescence analysis, it is possible to identify elements contained in a sample but it is not possible to find their structure (chemical formula)
  - (2) It is not possible to detect organic substances (major elements C, N, O, H) or dyes in this measurement.
  - (3) It is not possible to detect light elements even if they are inorganic substances (i.e. Al, Si, S, Cl)
  - (4) X-ray fluorescence intensity obtained shows an average composition from the surface to a set depth (for metallic copper, approximately several 10  $\mu$ m in depth).
  - (5) It is difficult to determine only from a single measurement whether several elements are combined or whether they are in layers.
  - (6) Since detection efficiency of X-ray fluorescence differs greatly by energy, the ratio of intensity in X-ray fluorescence and the actual ratio of concentration do not coincide.

### <Comments>

- The amount of Ag detected from measuring points Nos. 1 and 2 is very small. It is not possible to confirm whether there is metal (silver) leaf on the reverse side of the shell pieces.

- The red color at measuring point No. 3 is thought to be from Fe-based material (bengala)
- No element other than Ca and Fe could be detected from the blue at measuring point No. 4 and yellow at measuring point No. 5. Color seems to be from a dye.
- The base metal at measuring points Nos. 6, 7 and 8 is Cu-Zn alloy (brass). At measuring point No. 7, this alloy is gilded with gold and at measuring point No. 6 with silver over the gold gilding.

Table 8.1 寸法  
Dimensions

幅 Width (cm)	奥行 Depth (cm)	高さ Height (cm)
26.6	12.9	19.6

布団も含む

including the cushion

Table 8.2 蛍光 X 線分析位置  
Measuring points for X-ray fluorescence analysis

測定箇所 No.	部位 Measuring point
1	花びら 白色 Blossom, white
2	花びら 白色 Blossom, white
3	花びら 濃赤色 Blossom, dark red
4	葉 青色 Leaf, blue
5	花芯 黄色 Center of a flower
6	引手座金 銀色部 Pull, washer, silver
7	引手座金 金色部 Pull, washer, gold
8	引手頂部 地金露出部 Top of pull, bare metal exposed

Table 8.3 蛍光 X 線分析結果  
Results of X-ray fluorescence analysis

測定箇所 No.	蛍光 X 線強度 (cps)								
	カルシウム Calcium (Ca-K $\alpha$ )	クロム Chromium (Cr-K $\alpha$ )	鉄 Iron (Fe-K $\alpha$ )	銅 Copper (Cu-K $\alpha$ )	亜鉛 Zinc (Zn-K $\alpha$ )	銀 Silver (Ag-K $\alpha$ )	金 Gold (Au-L $\beta$ )	水銀 Mercury (Hg-L $\beta$ )	鉛 Lead (Pb-L $\beta$ )
1	278.4		4.6			0.1			
2	211.8		5.0			0.1			
3	243.0		26.5						
4	452.8		7.7						
5	249.4		68.6						
6	32.3		18.2	1375.7	142.6	0.2	0.2		
7			2.4	485.8	68.3	0.2	154.2		
8			24.6	3358.3	591.5				



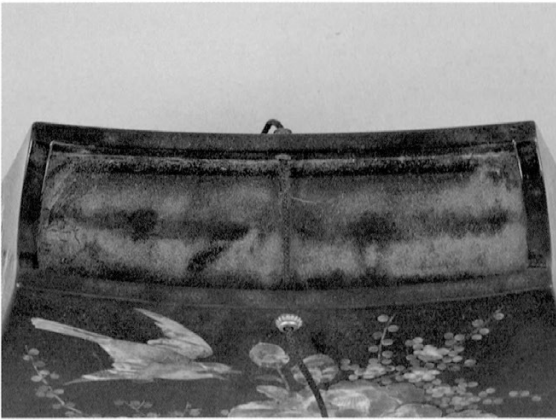


a 修復前 Before restoration

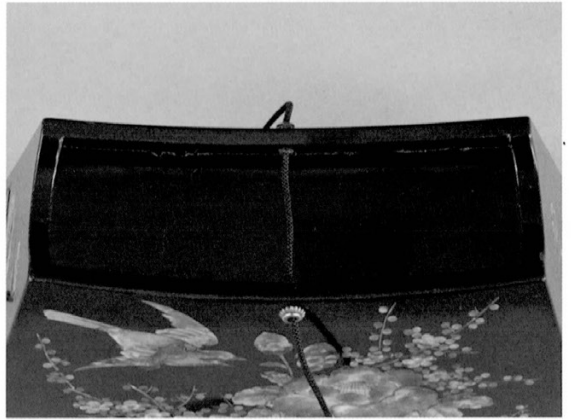


b 修復後 After restoration

Fig. 8.1 全体 Whole



a 修復前 Before restoration

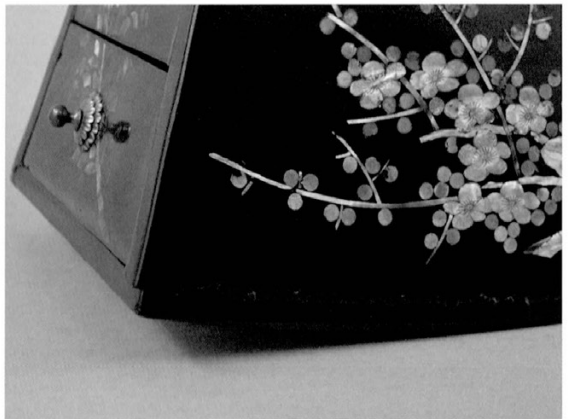


b 修復後 After restoration

Fig. 8.2 天板 Top board

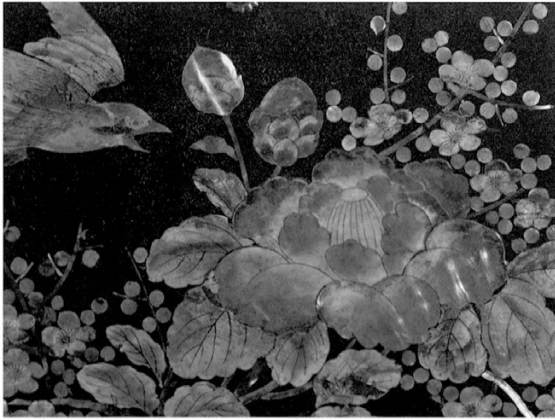


a 修復前 Before restoration

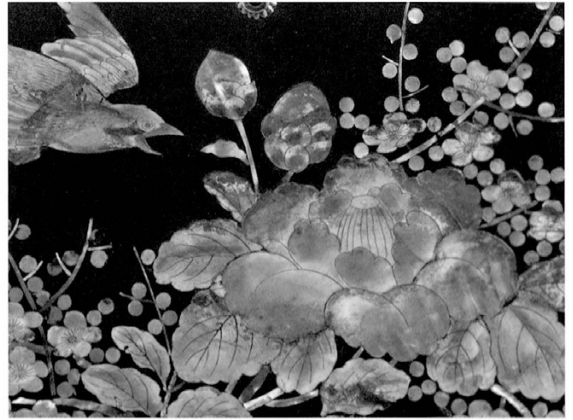


b 修復後 After restoration

Fig. 8.3 側面と底板間の亀裂 Cracks between the side and the bottom boards

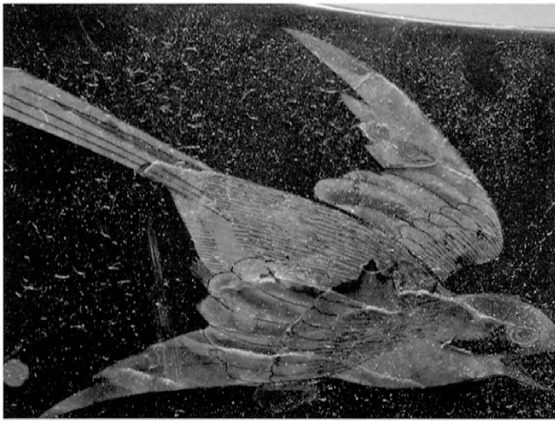


a 修復前 Before restoration

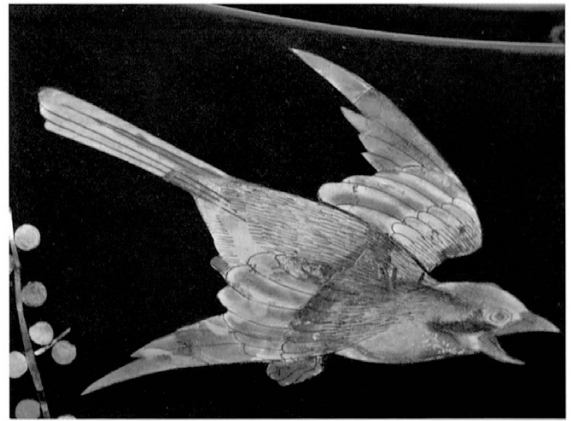


b 修復後 After restoration

Fig. 8.4 螺鈿の剥離 正面 Lifted *raden* decoration



a 修復前 Before restoration



b 修復後 After restoration

Fig. 8.5 螺鈿の剥離と剥落 正面 Lifted *raden* and parts where the *raden* shell pieces have fallen, front



Fig. 8.6 紫外線光による蛍光 修復前  
Fluorescence under UV light, before restoration



Fig. 8.7 紫外線光による蛍光 引き出し周辺 修復前  
Fluorescence under UV light, around drawer, before restoration



Fig. 8.8 毛棒による埃の除去 天板 修復中  
Removing dust with a brush, top board, during restoration

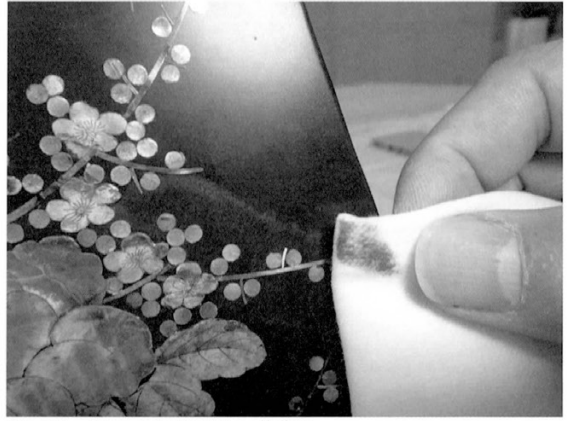


Fig. 8.9 クリーニングテスト 修復中  
Cleaning test, during restoration



Fig. 8.10 パラロイドB72と雁皮紙による螺鈿の養生 修復中  
Facing *raden* shell pieces with ParaloidB72 and *gampi* paper, during restoration

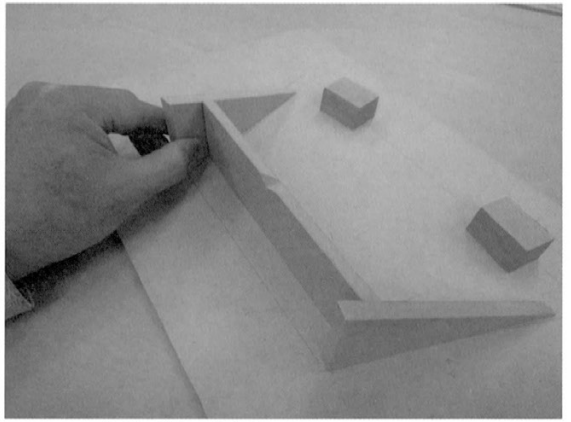


Fig. 8.11 受け台制作 修復中  
Manufacturing a stand



Fig. 8.12 螺鈿剥離箇所の膠含浸 修復中  
Impregnating animal glue into parts of lifted *raden* shell pieces, during restoration



Fig. 8.13 木か竹による螺鈿の剥落止め 修復中  
Consolidating lifted *raden* shell pieces with bamboo/wooden sticks, during restoration



Fig. 8.14 付属した螺鈿片の接着 修復中  
Attaching a *raden* fragment that accompanied the pillow, during restoration

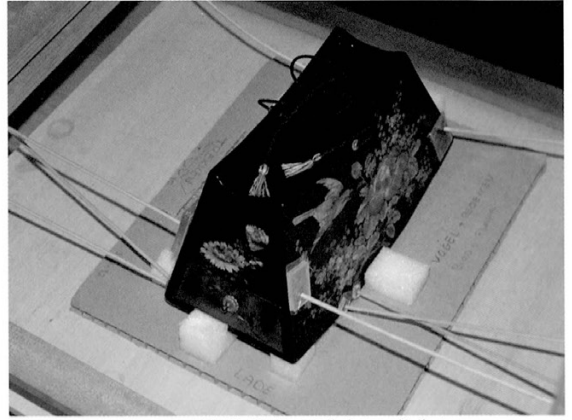


Fig. 8.15 麦漆による剥離漆塗膜の剥落止め 修復中  
Consolidating the lifted coating film with *mugi-urushi*, during restoration

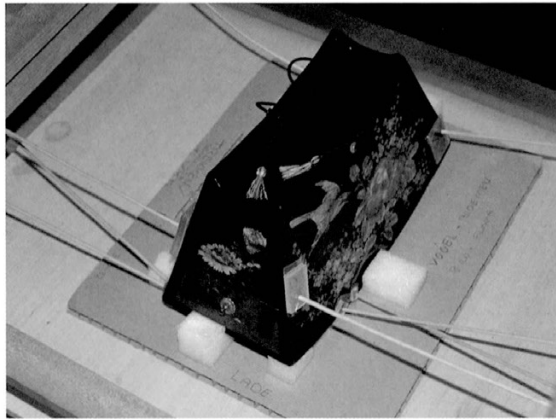


Fig. 8.16 麦漆による亀裂の接着 素地亀裂部分 修復中  
Adhering a crack with *mugi-urushi*, crack on the substrate, during restoration



Fig. 8.17 刻字の充填 正面と底木地接着部分の亀裂 修復中  
Filling with *kokuso*, crack on the joint of the front and the bottom, during restoration



Fig. 8.18 下地の充填 正面と底木地接着部分の亀裂 修復中  
Filling with *oundation*, crack between the front and the bottom, during restoration

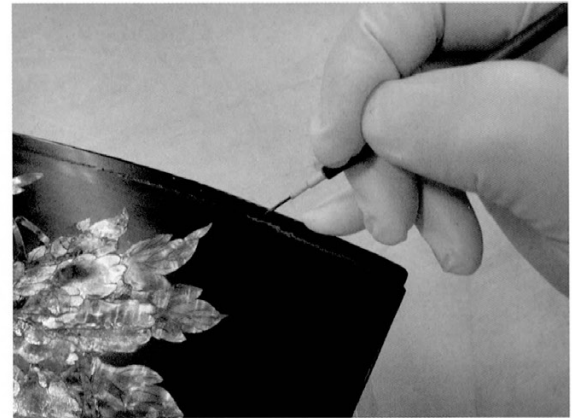


Fig. 8.19 亀裂部分の漆塗り 修復中  
Coating *urushi* on cracks, during restoration



Fig. 8.20 塗膜の復旧 修復中  
Applying *suri-urushi*, during restoration

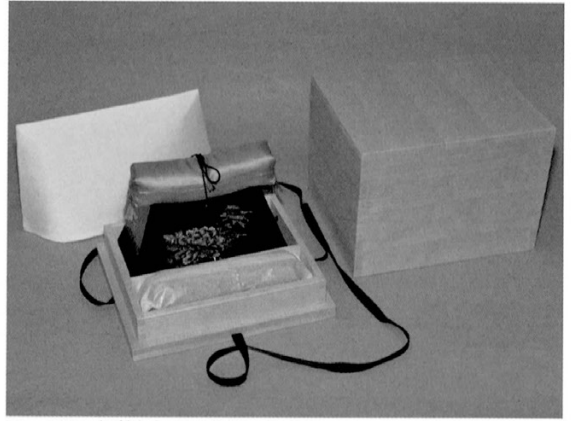


Fig. 8.21 桐箱と包装の作製 修復後  
Paulownia box and outer cover, after restoration

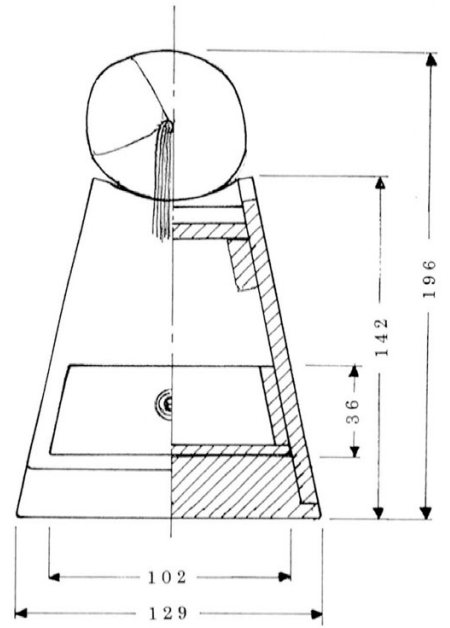
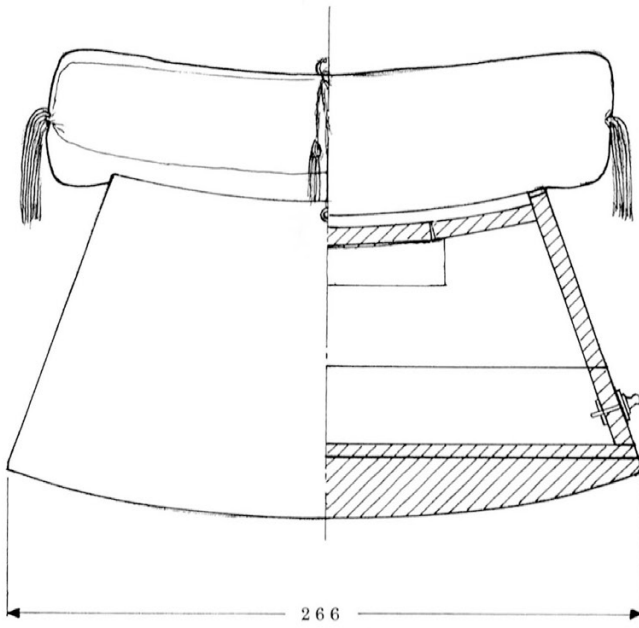
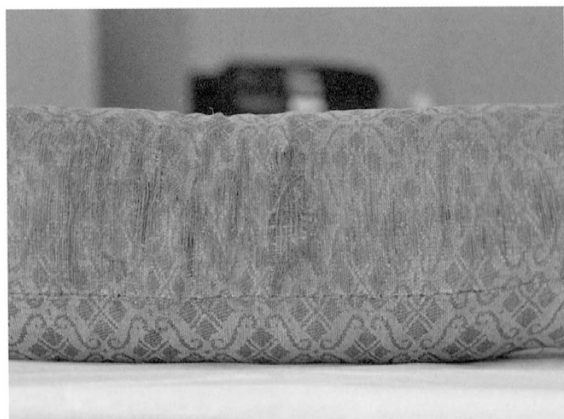
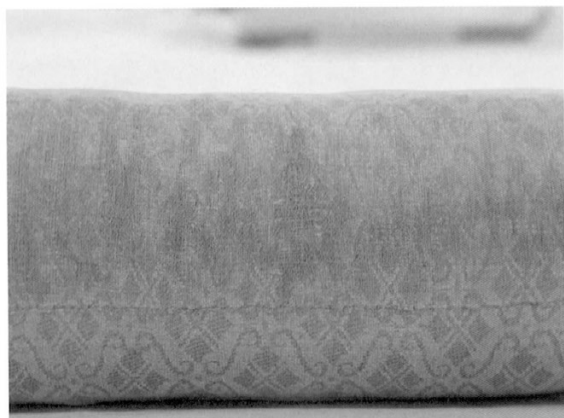
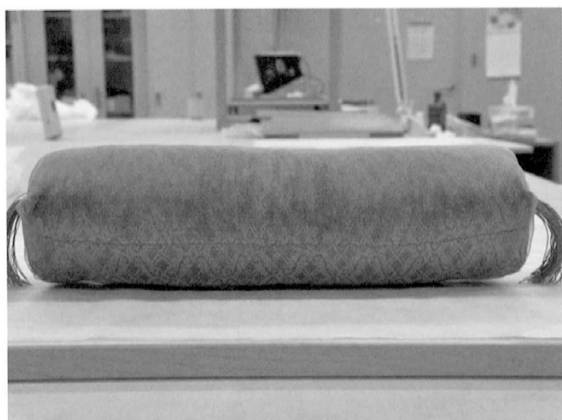


Fig. 8.22 花鳥螺鈿枕 正面図・右側面図  
Figures of *Pillow with Birds and Flowers Design* : front and right side



a 保存処置前 Before conservation



b 保存処置後 After conservation

Fig. 8.23 布団 保存処置 Pillow cushion, conservation



Fig. 8.24 枕  
Pillow

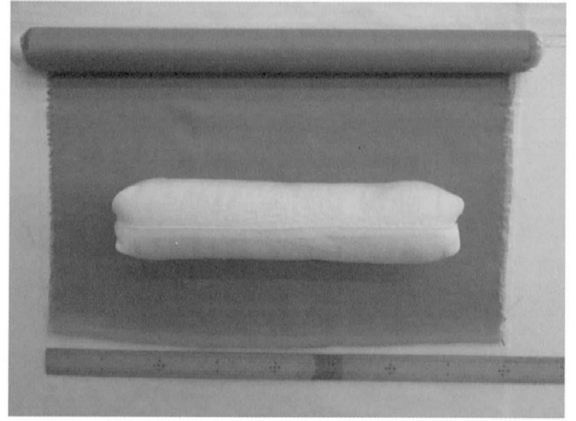


Fig. 8.25 生地は候補のうちの1つ。載せているのは枕の見本  
One of the candidate fabrics with a sample of a pillow cushion



Fig. 8.26 中の真綿と木綿布仕立て中  
Sewing the cotton fabric around the floss silk

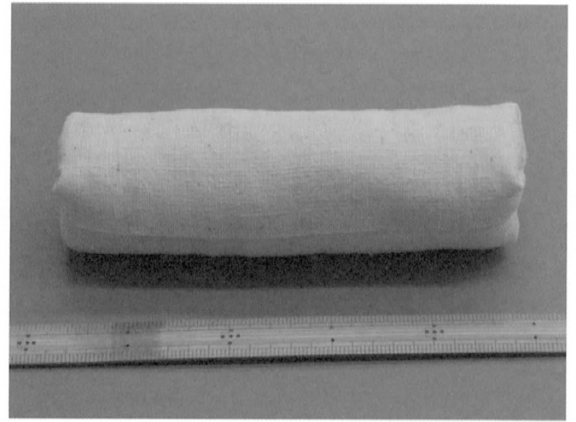


Fig. 8.27 芯仕立て後  
Core after completion



Fig. 8.28 新調した枕 (手前)  
New pillow, front



Fig. 8.29 房取り付け後  
Pillow with tassels

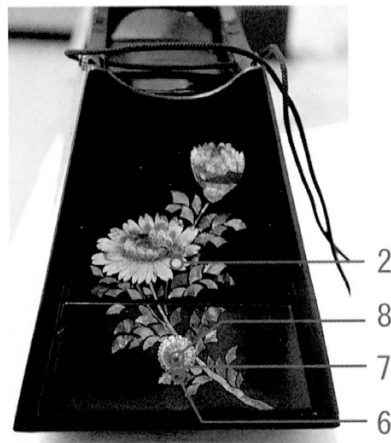


Fig. 8.30 蛍光 X 線分析位置  
Measuring points for X-ray fluorescence analysis





a 修復前  
Before restoration



b 修復後  
After restoration

C8.1 花鳥蝶鈿枕  
*Pillow with Birds and Flowers Design*



a 修復前  
Before restoration



b 修復後  
After restoration