
花卉螺鈿ライティングビューロー

平成 18・19 年度修復事業



所蔵：クラコウ国立博物館

クラコウ国立博物館蔵

花卉螺鈿ライティングビューロー

株式会社 小西美術工藝社
岩本 元・表 美幸・共田鈴香

1. 概要

- 名 称：花卉螺鈿ライティングビューロー
 所 蔵：クラコウ国立博物館（ポーランド）
 （日本美術技術センター マングアコレクション）
 時 代：19世紀 江戸時代
 法 量：幅 54.3cm 奥行 56.0cm 高さ 115.4cm
 修復期間：平成 19 年 6 月～ 20 年 3 月

2. 損傷状態

本件の様相は、不適切な保存環境により生じた漆塗膜の劣化や打損箇所へのヨーロッパに於いて施された修復手法・修復素材に起因する要素が大きいと思われる。

蓋によって長期間密閉されていたと思われる内部便箋差し周囲の状態は極めて良好であること等から推測すると、後世修復以前の損傷原因の主たるものは過度の紫外線暴露であった可能性が高い。

同時に密閉部に膠切れによる螺鈿の剥離が殆ど見られないことから、本件の保存環境は長期間安定した湿度が保たれていたことを示唆している。

螺鈿欠損部にはヨーロッパの技法による巧みな補填・補彩がほどこされているが、その一部は不用意に当初螺鈿の上に掛かっていた。

扉取り付け金具一対の内 1 本が欠失し、開け閉めが不十分な状態であった。また、その取り付け基部の金具は、軸を曲げ釘で代用した極めて簡便なものが取り付けられていた。（図 1. 2）

- ・総体に汚れ・後世の修復・ニス状塗布物の変色により色調が低下し、著しく美観を損なっていた。（図 3. 4）
- ・塗膜随所に浮きが見られ、一部に剥落が認められた。（図 5. 6. 7. 8）
- ・螺鈿随所に浮きが見られ、一部に剥落が認められた。（図 9. 10）
- ・木地接合部は目立った緩みは見られず、輸送・展示活用には支障無しと判断した。

3. 修復仕様

美観の回復を主眼とした文化財保存修復的手法による修復を行った。

欠失螺鈿の補填は行わないこととした。

4. 修復作業工程

①金具の取り外し

随所に施された金具の釘を本体を傷めぬよう引き抜き、取り外した。

錠前金具の受け座は、当初性が高いと思われるので温存した。（図 11）

②クリーニング

作業に先立ち、作業中の剥落を予防するため、剥落危険箇所には雁皮紙の細片を姫糊で貼り付ける養生を行った。

次に筆で埃やゴミを払った後、綿棒を使用して表面の汚れを取った。

クリーニングは、まずエタノール水溶液によるアルコール可溶物質の除去を行い、次に微アンモニア水溶液を使用してアルコール不可溶物質を除去した。

濃度はクリーニング状況を観察しながら適宜慎重に選択した。(図12:写真は下部クリーニング後)なお、塗膜・木地・螺鈿周囲に不必要な水分を含ませない事と、綿棒等による過剰な摩擦で漆塗膜や螺鈿を痛めぬことを留意して処置を施した。

溶解除去が困難な物質は、メス等の刃物を使用して切削除去した。

ヨーロッパに於いて施されたと思われる螺鈿の養生紙も同様の処置法により除去した。

この養生紙はデンプン様の糊で貼り付けられていた。

当初螺鈿や漆塗膜の上に掛かった後世の修復材料は、切削除去した。

③漆塗膜の剥落止め

剥離箇所に適宜アルコールで希釈した麦漆や生漆を含浸させ、圧力を長時間掛けて可能な限り平滑になるよう圧着した。

麦漆と生漆は、空隙の大小により使い分けた。

④螺鈿の剥落止め

修復前の熟視調査では螺鈿剥落の危険が憂慮されたが、その後の調査により健全部位が多く、危険度は小さいことが判明した。

本件は伏彩色が施されたデリケートな螺鈿が多い為、一層のミニマムトリートメントであることが望ましく、その方針に則って処置を施した。

素地の収縮に起因する螺鈿の隆起は、非破壊平滑化が不可能な為、新たな剥落が生じぬ程度の強度を付加し、現状で固定する処置を行った。

螺鈿は伏彩色の有無によって状況が二分される。最も危険が憂慮される伏彩色螺鈿の固定には、湿潤時間の長い膠液を浸透させると彩色層へ影響を与える危険性が高い為、より低分子で揮発速度の速い熱可塑性アクリル樹脂のアセトン溶液を使用して処置を施した。

伏彩色の無い螺鈿部については膠液により処置を施した。

後に行う摺り漆の際、微細な空隙から漆が侵入することを予防するため、念のため螺鈿全周に錆漆による目止めを行った。

⑤塗膜欠損部の繕い

下地が露出した欠損部は、漆による吸い込み止めを十分に行った後、コクソ・錆漆による充填・整形を施した。

整形に際しては既存の塗膜を損なわぬ様、実体顕微鏡下の精密切削整形を行った。

なお、切削整形は本体塗膜や螺鈿への不必要な水分の浸透を招かぬよう水研ぎを行わない乾式手法を執った。

本件にはヨーロッパに於いて施されたと思われる下地欠損部へのプラスター状物質による充填が見られたが、素材の整合性を優先し、漆下地による修復に置き換えた。(図13)

⑥摺り漆による漆塗膜の活性化

クリーニングにより露出した劣化漆塗膜の強化とマイクロクラックの固定、及び色調・光沢の向上、修復箇所と当初箇所の親和を目的とした摺り漆を行った。

まず生上味漆をペトロール希釈したものを塗布後完全に拭き取り、十分に硬化を計った後、同様に

希釈したMR透素黒目漆をその都度十分に硬化させながら6回程摺り込んだ。

希釈は回数を重ねるごとに徐々に濃度を上げたものを使用した。(図14)

最後に修復箇所の色・艶を周囲と馴染ませる為、適宜漆を摺り込み、調色を行った。(図15)

摺漆に際しては螺鈿表面の着色を防ぐ為、塗布の都度アルコール等によりクリーニングを行った。

⑦金具の復元・クリーニング・修復

取り外した隅金具等は変形を修正した後、温水・表面活性剤・獣毛ブラシを使用して表面に生じた錆や汚れを除去し、当初の銀メッキを可能な限り現した。

扉板の本体との取り付け金具は一对の内1本が欠失していたので、当初材同様に復元したものを取り付けた。その際使用した木ねじは時代性を考慮し、マイナス皿木ねじを製作のうえ使用した。

なお、復元金具は回転機能に十分耐えうる強度を持たせた。(図16、17)

5. 修復実施場所

東京国立博物館内 小西美術工藝社 修復室

6. 主な使用材料

信頼性の高い修復素材を使用した。

材料名称	製造社名	使用目的
生上味漆	高野漆行	塗膜圧着
黒呂色漆	〃	調色摺り
MR黒素黒目漆	斉藤漆行	調色摺り
MR透素黒目漆	〃	調色摺り
パラロイドB72		螺鈿圧着
兎膠	ホルベイン工業	螺鈿圧着

7. 施工者

株式会社 小西美術工藝社

8. 修復担当者

岩本 元 表 美幸 共田 鈴香



図1
Fig. 1



図2
Fig. 2



図3
Fig. 3



図4
Fig. 4



図5
Fig. 5



図6
Fig. 6

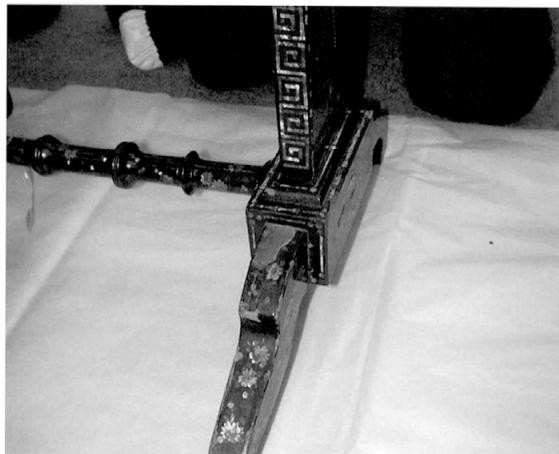


图 7
Fig. 7



图 8
Fig. 8



图 9
Fig. 9



图 10
Fig. 10



图 11
Fig. 11



图 12
Fig. 12



図 13
Fig. 13



図 14
Fig. 14



図 15
Fig. 15



図 16
Fig. 16



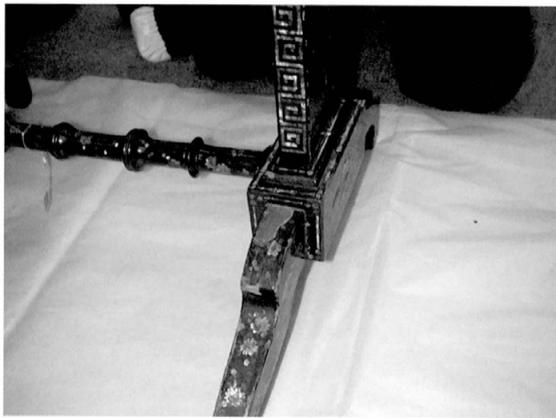
図 17
Fig. 17



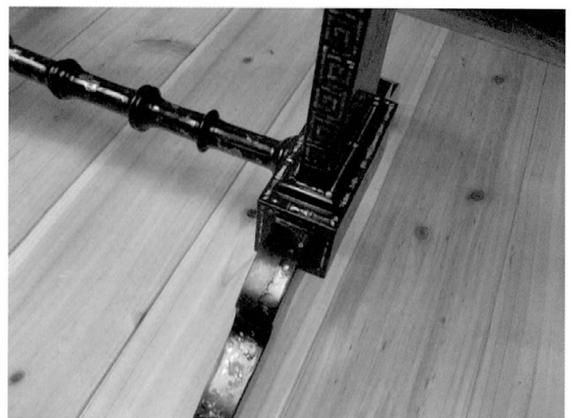
修復前
Before restoration



修復後
After restoration



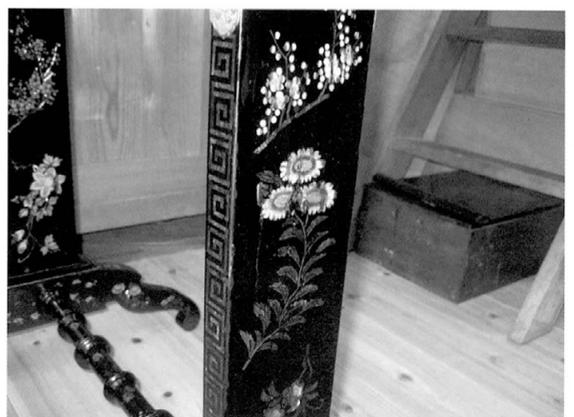
修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



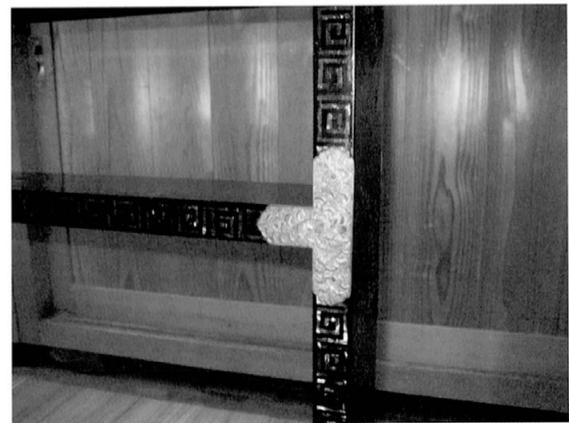
修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



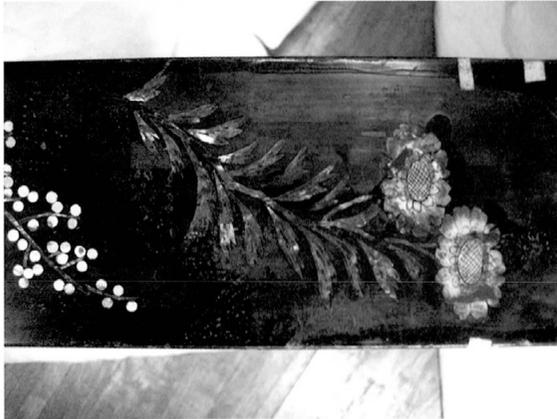
修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



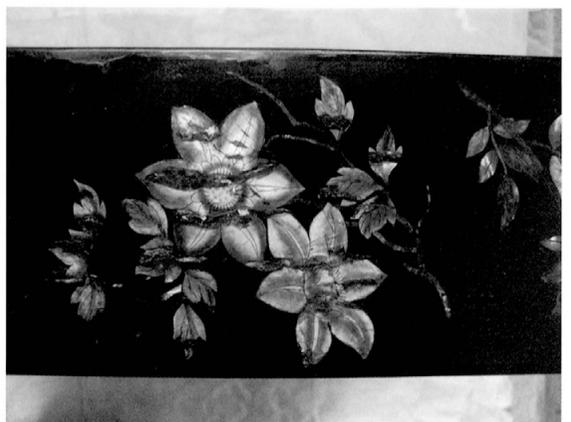
修復前
Before restoration



修復後
After restoration



修復前
Before restoration



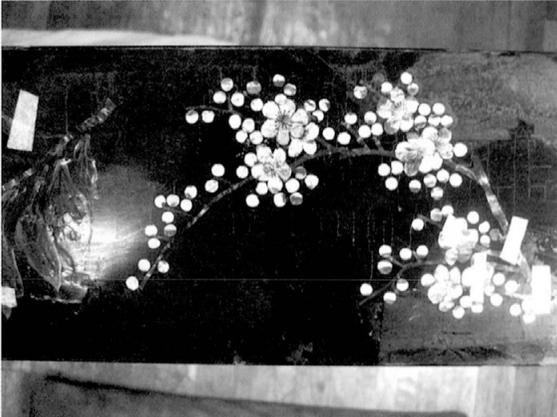
修復後
After restoration



修復前
Before restoration



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After restoration



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After restoration



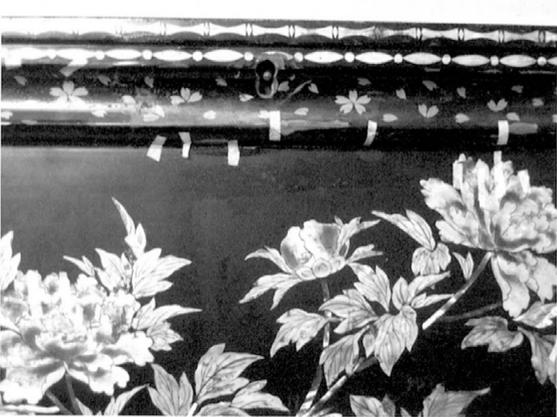
修復前

Before restoration



修復後

After restoration



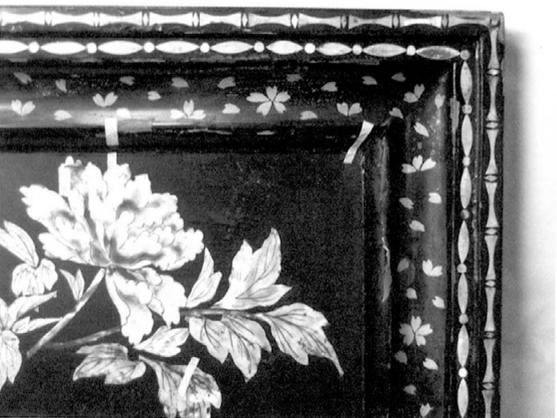
修復前

Before restoration



修復後

After restoration



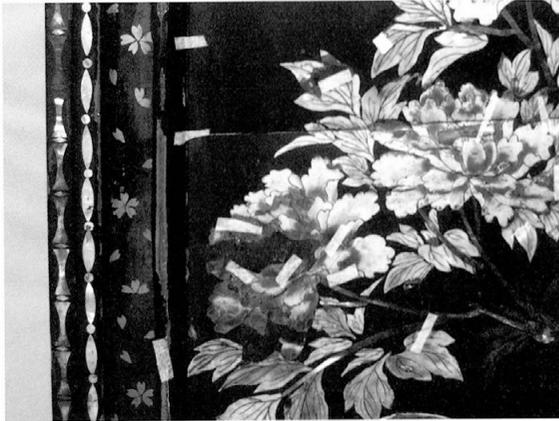
修復前

Before restoration



修復後

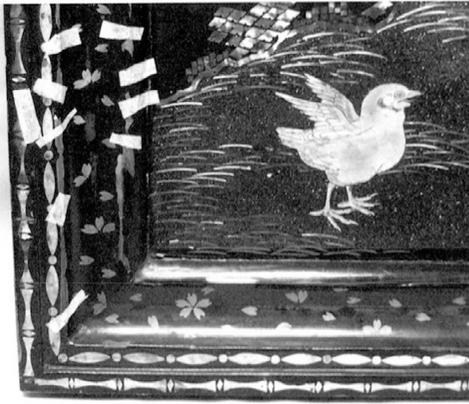
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



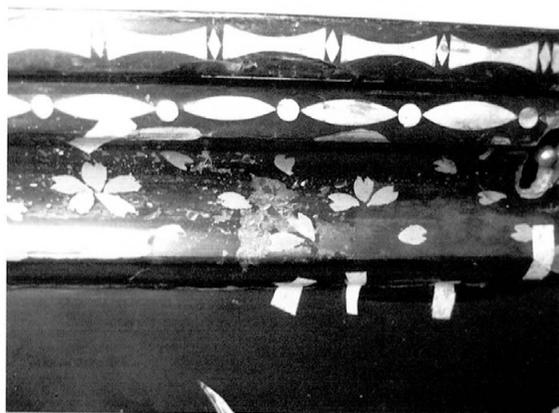
修復後
After restoration



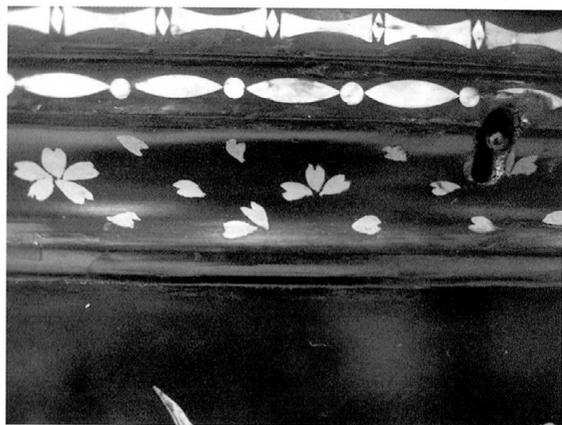
修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



修復前
Before restoration



修復後
After restoration



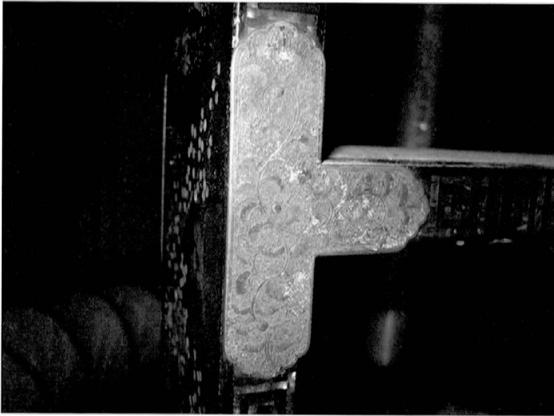
修復前

Before restoration



修復後

After restoration



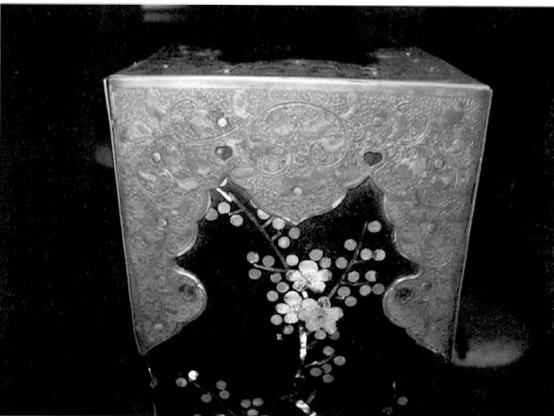
修復前

Before restoration



修復後

After restoration



修復前

Before restoration



修復後

After restoration



修復前
Before restoration



修復後
After restoration

On the Restoration of
Writing Bureau with Flower Design with Nagasaki Raden Technique

Konishi Decorative Arts and Crafts Co., Ltd.

Name of the object: *Writing Bureau with Flower Design with Nagasaki Raden Technique*

Collection: National Museum in Krakow

Period of manufacture: 19century, Edo period

Dimensions: Width 54.3cm Depth 56.0cm Height 115.4cm

Duration of restoration: June 2007- March 2008

1. Observations before restoration

Deterioration of the urushi coating film caused by inappropriate conservation environment was observed. In addition, the choice of materials and method of restoration made in Europe in restoring damaged areas seemed to have had a large part to play in its condition prior to the present restoration work.

Since the condition of the areas around the pocket for writing paper, which was believed to have been closed tightly for a long time with the lid, was extremely good, there was great possibility that the major cause of damage before previous restorations was excessive exposure to ultraviolet rays.

In addition, since detachment of *raden* pieces on parts that had been tightly closed due to the loss of animal glue was almost negligible, it appeared that stable humidity was maintained in the conservation environment for a long time.

Although filling and retouching had been executed skillfully on missing *raden* parts using European techniques, some had been carelessly applied over the original *raden*.

One of the pair of metal hinges for the door had been lost, making it difficult to close and open the door. Moreover, a very simple device using a bended nail was used to replace that metal fitting. (Figs.1, 2)

- The overall appearance of the writing bureau had been significantly lost because of staining, past restorations and the loss in the quality of color that had deteriorated due to the change in color of the varnish. (Figs.3, 4)
- The coating film had become lifted at many places and some had been lost. (Figs.5, 6, 7, 8)
- Lifting of *raden* pieces was observed and some had become detached. (Figs.9, 10)
- The joints of the substrate had not become loose, so it was decided that there would be no problem in transporting or exhibiting the writing bureau.

2. Aim of the restoration

Restoration was conducted in order to recover the aesthetics and in accordance with the principle of restoration of cultural properties.

It was decided not to apply new shell pieces for the missing *raden* areas.

3. Restoration process and contents

a. Removing the metal fittings

Nails used on metal fittings of the writing bureau were removed, taking care not to damage the bureau itself.

The metal fitting of the lock was preserved since the possibility of its being the original was considered to be great. (Fig.11)

b. Cleaning

In order to prevent detachment of any sort during restoration, places where such risk was great was first faced by adhering thin pieces of *gampi* paper with starch paste.

Then surface dust and dirt were brushed off. This was followed by further cleaning of the surface with cotton swabs.

Cleaning was done first by using a solution of water and ethanol to remove alcohol-soluble substances. Then ammonia solution was used to remove substances that are not soluble with alcohol. Ratio of concentration was selected carefully and appropriately by observing the effect of cleaning. (Fig.12 after cleaning)

Care was given to make certain that unnecessary moisture would not be applied to the coating film, the substrate and the areas around the *raden*. Care was also given so as not to damage the coating film and *raden* with excessive rubbing caused by the use of cotton swabs and other tools.

Substances that were difficult to dissolve were scraped off by using sharp tools like a surgical knife.

Similar treatment was done to remove facing paper that seemed to have been used in restoring *raden* in Europe. Starch paste-like material had been used to attach this facing paper.

Traces of past restorations found over the original *raden* and coating film were removed.

c. Consolidating the urushi coating film

Mugiurushi or raw urushi appropriately diluted with alcohol was impregnated to places where lifting was observed. Pressure was applied for a considerable amount of time to make the surface as flat as possible.

The choice of *mugiurushi* or raw urushi in this process was decided by the size of the lifting.

d. Consolidating the *raden* pieces

Although detachment of *raden* was feared during a careful investigation made before the start of restoration work, investigation that followed revealed that many parts were in good condition and that the risk of detachment was small.

Since there are many delicate *raden* pieces to the reverse side of which color had been applied (*fusezaishiki*), minimum treatment was preferred and executed.

Raden that had become lifted due to expansion and contraction stresses within the substrate could not be flattened completely into place without damage. So only enough force was applied to prevent further lifting and the shell pieces were treated to maintain the present condition.

The condition of *raden* could be categorized into two depending on the presence or absence of

fusezaishiki. Consolidation of *raden* pieces to which *fusezaishiki* had been applied was considered to be most risky. If animal glue which had been dissolved for a long time was used, there was fear that it would have an adverse effect on the paint layer. So acetone solution using low molecular, thermoplastic acrylic resin which would evaporate quickly was used. *Raden* pieces with no *fusezaishiki* were treated with animal glue solution.

Sabiurushi was applied to the entire area around the *raden* so as to ensure that urushi would not permeate inside from very fine gaps.

e. Treating places with missing coating film

After having treated parts where the foundation had become exposed due to the loss of coating film so as to prevent urushi from being absorbed, *kokuso* and *sabiurushi* were applied and the shape corrected. Reshaping of the missing area was done under a microscope so as not to damage the existing coating film.

Dry method was used in reshaping so that moisture would not permeate into the coating film and *raden* unnecessarily.

Plaster-like substance that had been used in Europe to fill missing areas was removed and urushi foundation was used for restoration. (Fig.13)

f. Revitalizing the urushi coating film with *suriurushi*

Suriurushi was applied in order to reinforce the deteriorated urushi coating film that had become exposed by cleaning, to consolidate micro-cracks, to improve the quality of color and luster and to harmonize the restored areas with the original areas.

First, *kijomi urushi* (finest quality Japanese raw urushi) diluted with a refined petroleum-based solvent was applied and then completely wiped off. After sufficient hardening, similarly diluted MR translucent *sugurume urushi* was applied 6 times, hardening it sufficiently each time.

The ratio of concentration of the solvent was increased every time. (Fig.14)

Finally, urushi was rubbed in so as to adjust the color and luster of the restored area with their surroundings in order to prevent the surface of *raden* from becoming tinted in the process. (Fig.15)

Alcohol was used to clean the surface every time urushi was applied.

g. Reproducing, cleaning and repairing the metal fittings

The shape of the corner metal fittings that were removed was corrected. Then warm water, surface activator and a brush were used to remove the rust and dirt that had appeared on the surface in order to expose the original silver plating as much as possible.

Since one of the pair of metal fittings that was used to attach the door panel was missing, a similar one was reproduced. Period fastenings were used instead of flat head wood screws.

The reproduced metal fittings were made so that they would bear opening and closing movements. (Figs.16, 17)

4. Place of restoration

Restoration Studio, Konishi Decorative Arts and Crafts Co., Ltd., Tokyo National Museum

5. Major materials used

Materials	Manufacturer	Purpose
<i>Kijomi urushi</i>	Takano Shikko	To press-stabilize the coating film
Black <i>roiro urushi</i>	Takano Shikko	To adjust color
MR black <i>sugurome urushi</i>	Saito Shikko	To adjust color
MR translucent <i>sugurome urushi</i>	Saito Shikko	To adjust color
Paraloid B72		To press-stabilize <i>raden</i>
Rabbit glue	Holben Works, Ltd.	To press-stabilize <i>raden</i>

6. Contractor

Konishi Decorative Arts and Crafts Co., Ltd.

7. Restorers in charge

Hajime IWAMOTO, Miyuki OMOTE, Suzuka TOMODA

花卉螺鈿ライティングビューロー (クラコウ国立博物館)
Writing Desk with Flower Design with Nagasaki Raden Technique
(National Museum in Krakow)



修復前 全景
Before restoration, overall view



修復後 全景
After restoration, overall view



修復前 正面
Before restoration, front



修復後 正面
After restoration, front