

在外日本古美術品保存修復協力事業
The Cooperative Program for the Conservation of
Japanese Art Objects Overseas

秋野蒔絵硯箱
*Suzuribako with design
of an autumn field in maki-e*

ブロツワフ国立博物館 (ポーランド共和国)
漆工品

National Museum in Wrocław, The Republic of Poland
Urushi craft work

No.2013-1

平成 25 年度修復事業
The 2013 Japanese Fiscal Year

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1. 修復報告

東京文化財研究所 山下 好彦

1.1. 名称等

名称	秋野蒔絵硯箱
制作者	五十嵐道甫
制作年代	江戸時代（17世紀）
所蔵者	プロツワフ国立博物館（ポーランド共和国）

1.2. 工期及び施工者等

工期	平成26年2月19日～平成27年7月15日
施工場所	独立行政法人国立文化財機構 東京文化財研究所 修復アトリエ（漆）
保存修復担当者	山下 好彦

1.3. 状態 (Fig. 1.1 (a)、Fig. 1.2 (a)、Fig. 1.3 (a)、Fig. 1.4 (a)、Fig. 1.5 (a)、Fig. 1.6 (a)、Fig. 1.7 (a)、Fig. 1.8 (a))

1.3.1. 構造と技法

<素地>

素地構造は檜の指物造り、蓋甲板は五枚剥ぎで天地部分に30mmの幅の端喰を設ける。底板も二枚剥ぎで端喰や木釘は認められない。側面は留めで接合する。几帳面は幅6mmほどあり、硯箱覆輪金属の厚みは、蓋と身は2mm、懸子は1.5mm。

<加飾技法>

硯箱にはさまざまな加飾技法が使い分けられる。

甲板上部に0.3mm厚の銀金貝で満月、下部に岩を置き、蓋の甲板と側面や身の側面を金丸粉と平目粉を併用した打込み金地とする。短冊や秋草、雲は漆上げ薄肉高蒔絵とし、岩や梅の折れ枝には炭粉上げ（地の粉）高蒔絵を用いる。高蒔絵の際は屹立しており、肉上げた後に針などを用いて成形した可能性がある。秋草の葉脈や岩など蒔絵文様に細かな線があり、その技法は描割りだけではなく針描きも併用したと考えられるほど細い線が認められる。秋草のうち桔梗の花や蕾は真珠貝の中厚貝を用いる。螺鈿は青味のある貝と赤味のある貝を意識的に使い分け、螺鈿の厚みを周囲と比較してわずかに薄くした花芯部分に雄蕊を金の高蒔絵で入れる。懸子梅花は螺鈿として厚貝を使い、菊花は金銀の金貝を貼り分け、花芯や蕾のがくには細かな金切金を並べる。女郎花は花を平目粉で描き、その周囲に青金や銀の切金を置く。花岩や地面には金銀の切金を多用するが、金切金は蕪の実、芒の穂などや女郎花に用いる。

1.3.2. 損傷状況

<付着物>

- ・資料の内側を中心に埃や汚れが付着していた。
- ・螺鈿、蒔絵や金貝の際、几帳面の隅に黒色の付着物が溜まっていた。
- ・硯の周囲、懸子や身の内側面に硯の墨と考えられる付着物が認められた。

<後世修理>

- ・底と身の側面にヨーロッパの塗料の付着、身底周囲の几帳面には塗料が溜まっていた。
- ・硯下部の亀裂周辺に蒔絵修理が入っていた。

<劣化>

- ・金地表面に紫外線による漆の劣化が認められ、金粉が露出していた。

<擦損>

- ・全体に擦損が著しく、金地の上だけでなく内部の漆塗膜にも傷が入っていた。
- ・使用したことによる擦損が身の内側を中心に入り、水滴はほとんどの鍍金がなくなっていた。
- ・蓋や身の隅は擦損によって金地がなくなり、塗膜と下地が露出していた。

<打損>

- ・全体に細かい打損が多く入っていた。蓋甲板では月の下に楕円形の打損が認められた。
- ・懸子は打損により木地が数ミリまで鋭角に沈み、木地が露出していた。
- ・背面の蓋蔓では打損により金地が大きく凹み、複数の断片に分かれて周囲に剥離が広がっていた (Fig. 1.7 (a))。

<錆化>

- ・置口や加飾に用いられた金属が錆化し、変色していた。
- ・水滴の受け部分が錆化して、緑青錆が付着していた。

<剥離>

- ・金貝や切金が剥離し、一部で欠失していた。蓋表菊花の金の金貝は剥離し皺になっていた。

<欠失>

- ・桔梗の花芯や梅花の上に描かれた金の付描き線が欠失していた。
- ・金や銀の切金の多くが剥落し、欠失していた。

<木地痩せ>

- ・全体に素地の痩せが認められ、漆塗膜部分だけでなく金地面にも凹凸を作っていた。

<変形>

- ・置口の鉛の一部に変形が見られた。
- ・身の底板は僅かに凸面に変形していた。

<亀裂>

- ・桔梗花の螺鈿は一部で亀裂が入るだけでなく、多くの部分で剥離し、一部は欠失していた。
- ・蓋裏に素地の亀裂が認められ、素地が剥ぎ合わされた部分近くに蜘蛛状に広がっていた。
- ・身の二隅に亀裂が入り、一部で下地と金地が欠失していた (Fig. 1.8 (a))。
- ・硯の下部に亀裂が認められた。

<その他>

- ・所蔵番号が蓋裏と底に赤色塗料で描かれていた。
- ・底裏には丸い紙製のシールが貼られていた。

1.4. 修復方針

現状維持修復を基本に行うものとした。

- ・後世修理によって付けられた塗料は可能な限り除去することとしたが、硯縁の蒔絵による後世修理はそのままとした。
- ・打損により塗膜や蒔絵が欠失した部分や、断片化して元の位置に戻すことが出来ない場合は、簡易的に

漆塗や蒨絵粉を用いて色調整を行うものとした。

- ・剥離の際が蒨絵で塞がれていた金具部分は修復対象外とした。
- ・底裏の所蔵番号等は現状のままとした。
- ・修復材料は日本産の天然材料を用いることを基本とした。

1.5. 修復工程

(1) 修復前調査および記録

硯箱の状態を調査し、デジタル写真で修復前の状態を記録した。

(2) X線透過写真撮影

硯箱の素地構造技法を明確にするためX線透過写真を撮影した（付録）。

(3) 養生（Fig. 1.9.1）

蓋蔓背面の打損部分と螺鈿の剥離箇所に小片に切った雁皮紙を上新粉糊で貼った。

(4) クリーニングテスト

アセトン、酢酸エチル、リグロイン、無水エタノール、消毒用エタノール、テトラヒドロフランを用いてクリーニングテストを行った。蒨絵際や身底の塗料、その他の付着物を対象に、綿棒に溶剤を少量付けて一部分除去した。その結果、各所に被る黒色の付着物はアセトン、消毒用エタノール、テトラヒドロフランを用いてある程度除去が可能であることが分かった。また、身底の塗料は消毒用エタノールで拭けることが分かった。

(5) クリーニング（Fig. 1.9.2、Fig. 1.9.3）

全体に被った埃を毛棒で払った。クリーニングテストの結果を受けて、全体のクリーニングには消毒用エタノール、高蒨絵際の付着物には消毒用エタノールとアセトンの他に蒸留水を併用することとした。クリーニングは溶剤等を僅かに綿布と綿棒に付けて行い、蒨絵際に溜まった付着物を出来る限り除去した。水滴など金具に付着した錆をエタノールで除去した。

(6) 蓋蔓の亀裂接着（Fig. 1.9.4、Fig. 1.9.5、Fig. 1.9.6）

蓋蔓背面の亀裂は僅かに上下に段差が出来ていたため、ラミン丸棒を対面の蓋蔓内側からプレスして段差を持ち上げた。亀裂部分にリグロインで希釈した接着用の麦漆を含浸し、蒨絵表面はアクリル板とサランラップ、裏面はシナ合板、黒ゴム板とサランラップを組み合わせた板をクランプで抑えた。余分な漆はリグロインで拭き取り、十分乾燥させた。

(7) 蒨絵断片の養生（Fig. 1.9.7）

打損部分に当初行った養生を取り外し、修復方法を検討した。その結果、蓋蔓背面部分で打損により金地が大きく凹んだ断片は一旦取り外すこととした。取り外し時に養生紙がはがれないようにするためポパール（PVAL 3500、7.5%水溶液）を用い、レーヨン紙やポリエステル紙を併用して断片表面に接着した。

(8) 蒨絵断片の取り外し（Fig. 1.9.8）

歪んだ蒨絵断片の際に木綿針を加工した道具を差し込み、崩れないように断片を取り外した。断片は取り外すことは可能であったが、打損時の衝撃で細かい亀裂が入っていたことから亀裂部分の下地から崩れた。

(9) 蒨絵断片の形状修正（Fig. 1.9.9）

取り外した断片は歪んでいたため、形状修正を行った。取り出した断片をシャーレに伏せて入れ、アクリル板を被せて錘を置き、そのまま1か月間放置した。

(10) 漆塗膜の剥落止め (Fig. 1.9.10)

打損部周囲の剥離した漆塗膜にリグロインで希釈した接着用の麦漆を含浸し、蒔絵表面はアクリル板とサランラップ、裏面はシナ合板、黒ゴム板とサランラップを組み合わせた板をクランプで抑えた。余分な漆はリグロインで拭き取り、十分乾燥させた。

(11) 打損箇所の充填 (Fig. 1.9.11, Fig. 1.9.12)

蓋裏背面の打損箇所は取り外した断片下に木地の損傷が認められた。木地凹部に刻苧（麦漆+蝦夷松木粉）を木地表面の高さまで充填した。懸子打損箇所は漆塗膜が大きく凹んでおり、損傷は木地にまで及んでいたため漆塗膜を取り出すことはできないと判断した。そこで、打損部に残る漆塗膜を保護するために楮紙をフノリで塗膜表面に貼り込んだ。次に抹香漆（水練抹香1:0.04 生正味漆）で凹部に充填した。

(12) 蒔絵断片の貼り戻し (Fig. 1.9.13)

形状修正した蒔絵断片を確認し、麦漆と柔らかく調整した刻苧を用いて本来の位置に再接着した。再接着するにあたって金地表面が平滑になるように努めた。蒔絵表面はアクリル板とサランラップ、裏面はシナ合板、黒ゴム板とサランラップを組み合わせた板をクランプと端金で抑えた。余分な漆はリグロインで拭き取り、十分乾燥させた。

(13) 螺鈿の剥落止め (Fig. 1.9.14, Fig. 1.9.15)

剥離した螺鈿に膠水溶液（パールグルー15%）を含浸して余分な膠は蒸留水で拭き取った。膠が乾燥しないうちにシリコンとビニールシートを重ねた抑え板を剥離部分に当てて木枠とラミン棒を用いて圧着した。

(14) 漆固め (Fig. 1.9.16)

漆塗膜と蒔絵粉の強化のため漆固めを行った。硯箱全体の漆塗膜にはクリーンソルGで4~5倍に希釈した生正味漆を溜み刷毛で塗布し、リグロインで拭き取った。蒔絵表面にはクリーンソルGで4~5倍に希釈した透漆（生正味漆を2割程度混合）を溜み刷毛で塗布し、リグロインで拭き取った。漆固めは湿度を70%前後に調整した漆風呂で十分に乾燥させた。

(15) 亀裂の接着 (Fig. 1.9.17, Fig. 1.9.18, Fig. 1.9.19)

蓋裏木地の亀裂によってできた塗膜の亀裂部分にリグロインで希釈した接着用の麦漆を亀裂含浸した。身側板接合部の亀裂にも同様の麦漆を含浸し、端金で抑えた。硯下部の亀裂にも同様の麦漆を含浸しよく乾燥させた。

(16) 色調整 (Fig. 1.9.20, Fig. 1.9.21, Fig. 1.9.22)

懸子打損部分は漆下地を施した後に黒名倉砥石で平滑に研ぎ、黒蠟色漆塗りの後に透漆を塗り込んだ。磨き工程（研ぎ、摺り、胴摺り、磨き、摺り）を行い漆表面の艶を周囲に合わせた。蓋裏打損部分と身側板亀裂部分には透漆に金延粉を練り込んだ金色下地を薄く付けて色調整を行った。

(17) 漆固め (Fig. 1.9.23, Fig. 1.9.24)

漆塗膜部分と蒔絵表面に再度漆固めを行った。硯箱全体の漆塗膜にはクリーンソルGで4倍程度に希釈した生正味漆と透漆を混合した漆を溜み刷毛で塗布し、リグロインで拭き取った。蒔絵表面にはクリーンソルGで4倍程度に希釈した透漆、梨地漆と生正味漆を混合した漆を溜み刷毛で塗布し、リグロインで拭き取った。漆固めは湿度を70%前後に調整した漆風呂で十分に乾燥させた。

(18) 修復後の調査および記録 (Fig. 1.1 (b), Fig. 1.2 (b), Fig. 1.3 (b), Fig. 1.4 (b), Fig. 1.5 (b), Fig. 1.6 (b), Fig. 1.7 (b), Fig. 1.8 (b))

修復後の状態を確認し、修復前に合わせてデジタル写真撮影を行った。

(19) 修復報告書の作成

修復記録をまとめ、簡単な修復報告書を作成した。

1. Restoration Report

Yoshihiko Yamashita

National Research Institute for Cultural Properties, Tokyo

1.1. Artwork

Title	<i>Suzuribako</i> with design of an autumn field in <i>maki-e</i> ^{1.1} .
Artist	Igarashi Doho
Period	17 th century, Edo era
Owner	National Museum in Wroclaw, The Republic of Poland

1.2. Duration, Place and Conservator

Duration	19 February 2014 - 15 July 2015
Place	Restoration Studio (Urushi) of the National Research Institute for Cultural Properties, Tokyo
Conservator	Yoshihiko Yamashita

1.3. Condition (Fig. 1.1 (a), Fig. 1.2 (a), Fig. 1.3 (a), Fig. 1.4 (a), Fig. 1.5 (a), Fig. 1.6 (a), Fig. 1.7 (a), Fig. 1.8 (a))

1.3.1. Structure and Techniques

<Substrate>

The substrate is a *sashimono*^{1.2}, or an assembled woodwork, made of cypress wood. The upper face of the lid is composed of 5 pieces of wood joined vertically and 30mm wide *hashibami*,^{1.3} the boards attached horizontally to the top and to the bottom. The bottom of the body of the box is also composed of 2 pieces of wood, but with no *hashibami* or wooden nails. Miter joint technique is used to join the sides of the box. The chamfered edge, *kichomen*,^{1.4} is about 6 mm wide. The metal for the ornamental borders on the lid and the body is 2 mm thick, and that on the inner tray is 1.5 mm.

<Decorative techniques>

Various techniques are employed to decorate the box.

On the upper face of the lid, silver *kanagai*^{1.5} with 0.3 mm thick metal sheet is used for the full moon

^{1.1.} *maki-e* Traditional way of decorating urushi ware. Motifs are drawn with urushi on the surface and *maki-e* powder is sprinkled before the urushi has hardened. The term is also used to refer to an urushi decoration applied in this way.

^{1.2.} *sashimono* A substrate made by assembling wooden boards or sticks.

^{1.3.} *hashibami* Structural component attached to the edge of an object for reinforcement.

^{1.4.} *kichomen* A type of rounded edge.

^{1.5.} *kanagai* A technique in which a plate of gold, silver, tin, lead or other metals are attached to further decorate *maki-e*. The term is also used to refer to an urushi decoration applied in this way.

on the upper part and the rocks on the lower part. Gold *maru-fun*^{1.6} and *hirame-fun*^{1.7} are used in combination to make the *uchikomi*^{1.8} *kinji*^{1.9}. on the upper face of the lid, the side faces of the lid and the side faces of the body. *Usuniku takamaki-e*^{1.10}, using urushi to raise the design, is employed for the *tanzaku*^{1.11}, the autumn plants and clouds. *Sumikoage takamaki-e*, using *jinoko*^{1.12} to raise the design, is employed for the rocks and the branches of the Japanese apricot tree.

The edges of the *takamaki-e* are raised; it is possible that their shapes were adjusted with a needle or some other tool after the design had been first raised. There are fine lines on the *maki-e* designs, such as the veins of the leaves of the autumn plants and the rocks. Some of the lines are so fine that it suggests that the techniques employed were not limited to *kakiwari*^{1.13} only; *harigaki*^{1.14} may also have been used. Mother of pearl of medium thickness is used for the blossoms and buds of the bellflowers among the autumn plants. For the *raden*^{1.15}, bluish shells and reddish shells were intentionally used for different purposes. The stamens of the bellflowers at the center of the flowers, for which slightly thinner *raden* pieces are used, are expressed with gold *takamaki-e*. Mother of pearl of medium thickness are used for Japanese apricot blossoms on the inner tray. Gold and silver *kanagai* are used for the chrysanthemums, and fine gold *kirikane*^{1.16} is used for the center of the flowers and the calyces of the buds. The flowers of the golden lace are expressed with *hirame-fun* surrounded with *aokin*^{1.17}, and silver *kirikane*. Gold and silver *kirikane* are used in abundance on the rocks, the flowers and the ground. Gold *kirikane* is used for the ivy fruits, the ears of Japanese pampas and the golden lace.

^{1.6} <i>maru-fun</i>	A type of <i>maki-e</i> powder which is globular in shape.
^{1.7} <i>hirame-fun</i>	A type of <i>maki-e</i> powder which is made by grating metal and flattening the filings into flakes.
^{1.8} <i>uchikomi</i>	A technique in which a small amount of <i>hirame-fun</i> is sprinkled on <i>kinji</i> .
^{1.9} <i>kinji</i>	A type of <i>maki-e</i> in which fine gold powder is sprinkled densely and polished.
^{1.10} <i>takamaki-e</i>	A type of <i>maki-e</i> decoration technique in which urushi or urushi foundation material is used to raise designs. Gold or silver powder is sprinkled on the surface to highlight the designs. The term is also used to refer to an urushi decoration applied in this way.
^{1.11} <i>tanzaku</i>	Strips of fancy paper for writing poems.
^{1.12} <i>jinoko</i>	A natural earth powder that is used in the foundation layers.
^{1.13} <i>kakiwari</i>	A type of <i>maki-e</i> decoration technique in which details and lines are depicted by intentionally not painting them with urushi before powder is sprinkled.
^{1.14} <i>harigaki</i>	A type of <i>maki-e</i> decoration technique in which fine lines are drawn by scraping the <i>maki-e</i> surface with a needle, a pine needle or other pointed instruments, after coating the entire design with urushi and sprinkling powder over it.
^{1.15} <i>raden</i>	A technique in which the pearl layer of a shell cut into shapes is used to express a design. The term is also used to refer to an urushi decoration applied in this way.
^{1.16} <i>kirikane</i>	A technique in which a thin metal sheet is cut into a square and applied for decoration, used much in combination with <i>maki-e</i> ; urushi decoration applied in this way. The term is also used to refer to an urushi decoration applied in this way.
^{1.17} <i>aokin</i>	An alloy of gold and silver.

1.3.2. Condition of damage

<Accretions>

- Dust and dirt were found on the interior and other parts of the object.
- Black substances were found on the *raden*, *maki-e*, the edges of *kanagai* and the corners of *kichomen*.
- Accretions thought to be ink were found around the ink stone, inner tray and inside the body.

<Traces of past restoration>

- Coating materials used in a restoration in Europe were found on the bottom and the sides of the body; there was more coating material on the recesses of the *kichomen* around the bottom of the body.
- A trace of *maki-e* having been used to repair a crack on the brim of the ink stone was found.

<Degradation>

- Degradation of urushi due to UV was found on the surface of the *kinji*, causing the gold powder to become exposed.

<Damage due to abrasion>

- Damage due to abrasion was significant; scratches were found not just on the *kinji* but also on the urushi coating film inside.
- Abrasive damage due to use was found on the inside of the body and other parts. Most of the gilding was lost on the water dropper.
- *Kinji* on the corners of the lid and the body had been lost, causing the foundation layer to become exposed.

<Damage due to physical impact>

- There were many traces of the object having been damaged because of physical impact. There was a trace of an oval-shaped damage caused by physical impact below the moon on the upper face of the lid.
- Parts of the inner tray had dented severely to a depth of several millimeters, causing the substrate to become exposed.
- The *kinji* on the side of the lid at the back had also dented largely causing it to separated into several fragments. This had led to further exfoliation in the surrounding parts (Fig. 1.7 (a)).

<Rusting>

- The metals used for the *okikuchi*^{1.18}, and decoration had rusted, leading to a change in color.
- The mouth of the water dropper had rusted and greenish blue patina was found around it.

<Exfoliation>

- The *kanagai* and the *kirikane* had exfoliated and were partly lost. The gold *kanagai* of the chrysanthemums on the lid had exfoliated and become wrinkled.

<Losses>

- Lines of gold *tsukegaki*^{1.19} on the center of the bellflowers and the apricot flowers were missing.
- Much of the gold and silver *kirikane* had exfoliated and was lost.

^{1.18} *okikuchi* A technique of decorating the edge of an object with gold, silver or other metals.

^{1.19} *tsukegaki* A type of *maki-e* decoration technique in which details in the design are depicted by using *hiramaki-e* (flat *maki-e*) on top of other decorations.

<Shrinking of the substrate>

- The substrate had shrunk over all, so that not only the urushi coating film but also the *kinji* had become uneven.

<Distortion>

- Part of the lead on the *okikuchi* had become distorted.
- The bottom board of the body had become somewhat warped causing it to swell outwardly.

<Cracking>

- The *raden* of the bellflowers had not only cracked in parts but had also exfoliated at many places. Some were missing.
- Cracking of the substrate was found on the underside of the lid. Cracks had spread near the joints of the substrate in a spider web-like manner.
- There were cracks on two corners of the body, and the foundation and *kinji* were missing partially (Fig. 1.8 (a)).
- Cracking was observed on the lower part of the ink stone.

<Others>

- Acquisition number was written with red paint on the underside of the lid and the bottom of the box.
- A round paper label was attached to the bottom of the box.

1.4. Restoration Policy

Restoration was to be based on the principle of maintenance of the present condition.

- Although it was decided to remove the coating material that had been used in a past restoration as much as possible, the trace of restoration on the edge of the ink stone by *maki-e* was to be left untouched.
- In cases where it would not be possible to reproduce parts of the coating film and *maki-e* that had been lost or had become fragmentized by physical impact, it was decided that urushi coating or *maki-e* powder would be used for simple color adjustment.
- Parts of the *kanagai*, the exfoliated edges of which had been covered with *maki-e*, would not be restored.
- The acquisition number on the bottom was to be left untouched.
- Basically, natural domestic urushi was to be used for the restoration.

1.5. Restoration Process

(1) Investigation before restoration and documentation

The condition of the box was investigated and recorded with a digital camera for documentation.

(2) Photographing

X-ray transmission images were taken in order to clarify the structural technique used for the substrate of the box (Appendix).

(3) Facing (Fig. 1.9.1)

Small pieces of *gampi* (*Diplomorpha sikokiana*) paper were adhered with rice flour paste to the parts of the side of the lid at the back that had been damaged by impact and the exfoliated *raden*.

(4) Cleaning tests

Acetone, ethyl acetate, ligroin, absolute ethanol, ethanol for disinfection and tetrahydrofuran were tested for cleaning. Cotton swabs were moistened with small amounts of solutions in order to remove parts of the coating material on the edges of the *maki-e* and on the bottom of the body as well as other accretions. As a result, it was found that the black substances that covered many parts of the box could be removed to some degree with acetone, ethanol for disinfection and tetrahydrofuran and that the coating material on the bottom of the body could be wiped off with ethanol for disinfection.

(5) Cleaning (Fig. 1.9.2, Fig. 1.9.3)

Dust that had covered the entire box was removed with a brush. Based on the results of the cleaning tests, ethanol for disinfection was used to clean the entire object, and ethanol for disinfection, acetone and distilled water were used in combination to clean the accretions on the edges of the *takamaki-e*. Cleaning was done by slightly moistening cotton cloth or cotton swab with a solvent. As much of the accretions that had accumulated on the edges of the *takamaki-e* as possible was removed. Ethanol was used to remove the rust on the *kanagai* of the water dropper and on the board on which it was placed.

(6) Adhering the cracks on the side of the lid (Fig. 1.9.4, Fig. 1.9.5, Fig. 1.9.6)

The cracks on the side of the lid at the back had created a slight difference in level, so a round stick made of ramin (*Gonystylus bancanus*) was used from the inside of the lid to press and level the difference. *Mugi-urushi*^{1.20} for adhesion diluted with ligroin was impregnated into the cracks. The surface of the *maki-e* was covered with acrylic board and polyethylene wrap and the back side was covered with a board made of Japanese linden tree (*Tilia japonica Simonka*), a black rubber board and polyethylene wrap. Then this was held in place with a clamp. Excess of urushi was wiped off with ligroin and the remaining urushi was allowed to harden completely.

(7) Facing the *maki-e* fragments (Fig. 1.9.7)

Facing that had been applied to the parts damaged by impact was removed and the method for restoration was debated. As a result, it was decided to temporarily remove the fragments on the back edge of the lid where there was a large dent on the *kinji* caused by impact. In order to ensure that the facing paper would not come off when removing this part, POVAL (PVAL 3500, 7.5% aqueous solution) was used to adhere the facing paper, rayon paper and polyester paper, to the surface of the fragments.

(8) Removing the *maki-e* fragments (Fig. 1.9.8)

A tool made by modifying a sewing needle for cotton was inserted into the edge of the distorted *maki-e* fragments, and the fragments were removed carefully so as not to break them. It was possible to remove the fragments, but because there were small cracks caused by impact, they were broken from the foundation.

(9) Correcting the shape of the *maki-e* fragments (Fig. 1.9.9)

Since the removed fragments had been distorted, their shapes were corrected. The removed fragments were placed face down in a Petri dish and covered with an acrylic board. Then a weight was put on the top and kept there for a month.

^{1.20} *mugi-urushi* An adhesive made by mixing raw urushi into wheat flour that has been kneaded with water into a dough.

(10) Consolidating urushi coating film (Fig. 1.9.10)

Mugi-urushi for adhesion diluted with ligroin was impregnated into the urushi coating film around the parts damaged by impact. The surface of the *maki-e* was covered with an acrylic board and polyethylene wrap, and its back was covered with a board made of Japanese linden tree, a black rubber board and polyethylene wrap. Then this was held in place with clamps. Excess of urushi was wiped off with ligroin and hardened completely.

(11) Filling the damaged parts due to impacts (Fig. 1.9.11, Fig. 1.9.12)

Damage was found on the wooden substrate under the fragment on the side of the lid at the back that had been damaged by impact. The dents were filled with *kokuso*^{1.21} to the level of the surface of the substrate. Since the urushi coating film on the parts of the inner tray damaged by impact had largely become dented and the damage had extended to the substrate, it was determined that the urushi coating film could not be removed. Therefore, in order to protect the urushi coating film remaining on the damaged parts, *Kozo* paper was adhered to the surface of the coating film with seaweed paste. Then the dents were filled with *makko*^{1.22} *urushi* (*makko* kneaded with water and *kijomi-urushi*^{1.23} in a ratio of 1: 0.04).

(12) Adhering the *maki-e* fragments (Fig. 1.9.13)

The *maki-e* fragments whose shape had been corrected were checked and re-attached to their original positions by using *mugi-urushi* and softened *kokuso*. Care was taken to make sure that the surface of the *kinji* would be smooth. The surface of the *maki-e* was covered with an acrylic board and polyethylene wrap while its back was covered with a board made of Japanese linden tree, a black rubber board and polyethylene wrap. Then this was held in place with a Japanese bar clamp. Excess of urushi was wiped off with ligroin and the remaining urushi was allowed to harden completely.

(13) Consolidating *raden* (Fig. 1.9.14, Fig. 1.9.15)

An animal glue solution (pearl glue 15 %) was impregnated into the lifted *raden* and excess animal glue was wiped off with distilled water. A board made of silicon and vinyl sheet was placed against the exfoliated part before the animal glue had dried, and a wooden frame and a round stick made of ramin were used for adhesion with pressure.

(14) Consolidating urushi (Fig. 1.9.16)

Urushi was used to consolidate and reinforce the urushi coating film and the *maki-e* powder. *Kijomi-urushi* diluted to four to five times with Cleansol G was applied to the entire box with *damibake*^{1.24} and wiped off with ligroin. The *maki-e* surface was coated with *suki-urushi*^{1.25} (mixed with about 20 % *kijomi-urushi*) that had been diluted to four to five times with Cleansol G using a *damibake*. Then the object was placed in a humidifying chamber adjusted to approximately 70 %RH in order to allow the urushi harden completely.

^{1.21} *kokuso* Urushi filler made by kneading sawdust into *mugi-urushi*.

^{1.22} *makko* A type of incense.

^{1.23} *kijomi-urushi* Japanese raw urushi.

^{1.24} *damibake* A type of flat brush used to apply a thin coating of urushi.

(15) Adhering the cracks (Fig. 1.9.17, Fig. 1.9.18, Fig. 1.9.19)

Cracks of the coating film that had developed as a result of the cracking of the wooden substrate on the underside of the lid were re-attached by impregnating *mugi-urushi* for adhesion diluted with ligroin into the cracks. *Mugi-urushi* was similarly impregnated into the cracks on the joints of the side boards of the body. These were held in place with Japanese bar clamps. Same *mugi-urushi* was impregnated into the crack on the lower part of the ink stone.

(16) Color adjustment (Fig. 1.9.20, Fig. 1.9.21, Fig. 1.9.22)

Urushi foundation was applied to the part of the inner tray damaged by impact. It was then grinded flat with black Nagura whetstone and coated with *kuro-roiro*^{1.28} *urushi* followed by a coating of *suki-urushi*. After polishing procedures (polishing, rubbing, *dozuri*^{1.29}, polishing and rubbing) were done, the gloss of the urushi surface was adjusted to that of the surroundings. Gold foundation made by kneading gold *nobe-fun*^{1.30} into *suki-urushi* was applied thinly to the part on the edge of the lid damaged by impact and the cracks on the side board of the body in order to adjust the color.

(17) Consolidating urushi (Fig. 1.9.23, Fig. 1.9.24)

The urushi coating film and the surface of the *maki-e* were consolidated again. A mixture of raw urushi diluted to about four times with Cleansol G and *suki-urushi* was coated with a *damibake* on the urushi coating film of the entire box and then wiped off with ligroin. *Suki-urushi* diluted to about four times with Cleansol G and a mixture of *nashiji*^{1.31} *urushi* and *kijomi urushi* were coated on the surface of the *maki-e* and then wiped off with ligroin. The object was then placed in a humidifying chamber whose humidity was adjusted to about 70 %RH and left for urushi to harden completely.

(18) Investigation after restoration and documentation (Fig. 1.1 (b), Fig. 1.2 (b), Fig. 1.3 (b), Fig. 1.4 (b), Fig. 1.5 (b), Fig. 1.6 (b), Fig. 1.7 (b), Fig. 1.8 (b))

Condition after restoration was checked and digital photographs were taken as was done before restoration.

(19) Compiling a restoration report

Restoration documents were put in order and a simple restoration report was compiled.

^{1.25} <i>suki-urushi</i>	Translucent urushi made by removing water from <i>ki-urushi</i> (raw urushi) in a process called <i>kurome</i> ^{1.26} and stirring the urushi in a process called <i>nayashi</i> ^{1.27} .
^{1.26} <i>kurome</i>	A process by which water in <i>ki-urushi</i> is removed by heat from the sun, a charcoal fire or electric heat source.
^{1.27} <i>nayashi</i>	A process by which <i>ki-urushi</i> is stirred and homogenized so that the coated urushi surface will have gloss and even thickness.
^{1.28} <i>kuro-roiro</i>	Black urushi made by using chemical reaction of iron.
^{1.29} <i>dozuri</i>	Polishing, rubbing with a straw brush; part of the process of polishing urushi-coated surface using oil and polishing powder after polishing with charcoal.
^{1.30} <i>nobe-fun</i>	<i>Maru-fun</i> which has been lightly flattened; the powder itself has glossiness.
^{1.31} <i>nashiji</i>	A type of <i>maki-e</i> decoration technique in which <i>nashiji</i> powder is sprinkled on thinly coated urushi, covering it with <i>suki-urushi</i> and smoothing the surface by abrading it after the urushi has dried.

Table 1.1 寸法
Dimensions

横 Width (cm)	奥行 Depth (cm)	高さ Height (cm)
22.2	24.2	4.4

覆輪含む

Including the ornamental border

Table 1.2 修復材料
Restoration materials

水 Water	蒸留水 Distilled water
小麦粉 Flour	南部小麦粉 (岩手阿部製粉) <i>Nanbu flour</i> (manufactured by Iwate Abe Seifun)
膠 Animal glue	牛膠 (粒膠大王、サンオリエント化学) Cow glue (Daiou, pellet-type animal glue, manufactured by San Orient Chemical)
フノリ Seaweed	フクロフノリ、マフノリ、ハナフノリ (金開堂) <i>Fukurofunori</i> (<i>Gloiopeltis furcata</i>), <i>Mafunori</i> (<i>Gloiopeltis tenax</i>), <i>Hanafunori</i> (<i>Gloiopeltis complanata</i>) (purchased through Kinkaido)
漆 Urushi	生正味漆 (渡邊商店) <i>Kijyomi-urushi</i> (purchased through Watanabe Shoten) 透漆 (木地呂漆、渡邊商店) <i>Suki-urushi</i> (purchased through Watanabe Shoten) 黒蠟色漆 (渡邊商店) <i>Kuro-roiro-urushi</i> (purchased through Watanabe Shoten)
充填 Filler	楮紙 (美濃紙、長谷川聡) <i>Kozo paper</i> (<i>mino paper</i> , made by Satoshi Hasegawa) 木粉 (エゾマツ) <i>Mokufun</i> (<i>ezo-matsu</i> (<i>Picea jezoensis</i>)) 抹香 (高野山大師堂) <i>Makko</i> (Koyasan Daishido)
色調整 Color adjustment	金延粉 (浅野商店) <i>Kin nobe-fun</i> (purchased through Asano Shoten) 砥粉 (進藤謙商店) <i>Tonoko</i> (purchased through Shindouken Shoten)



Fig. 1.1 全体 (a)修復前
Artwork (a) before restoration

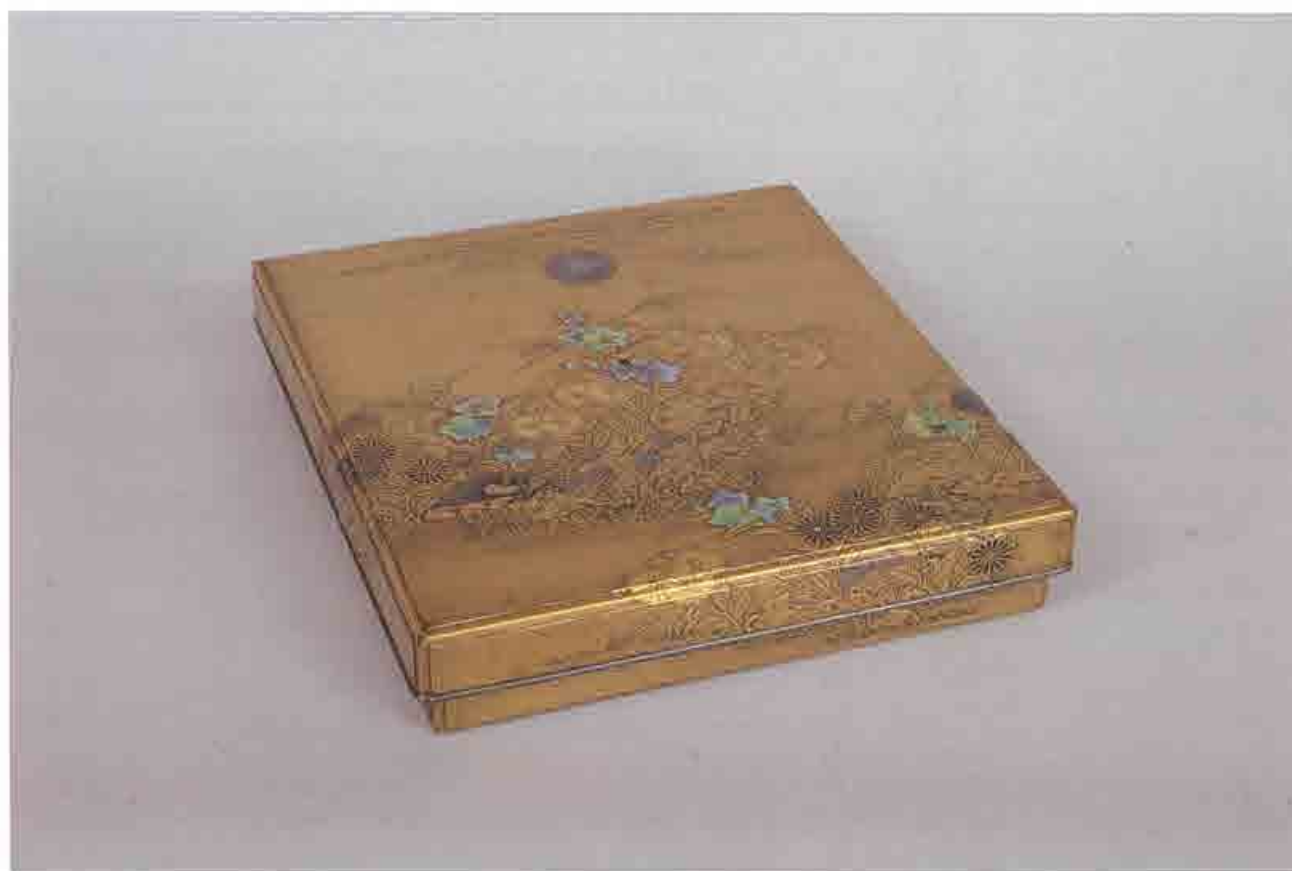


Fig. 1.1 全体 (b)修復後
Artwork (b) after restoration



Fig. 1.2 蓋甲と内部 (a)修復前
Upper face of the lid and inside of the body (a) before restoration



Fig. 1.2 蓋甲と内部 (b)修復後
Upper face of the lid and inside of the body (b) after restoration



Fig. 1.3 背面 (a) 修復前
Back side (a) before restoration



Fig. 1.3 背面 (b) 修復後
Back side (b) after restoration



Fig. 1.4 底面 (a)修復前
Bottom (a) before restoration

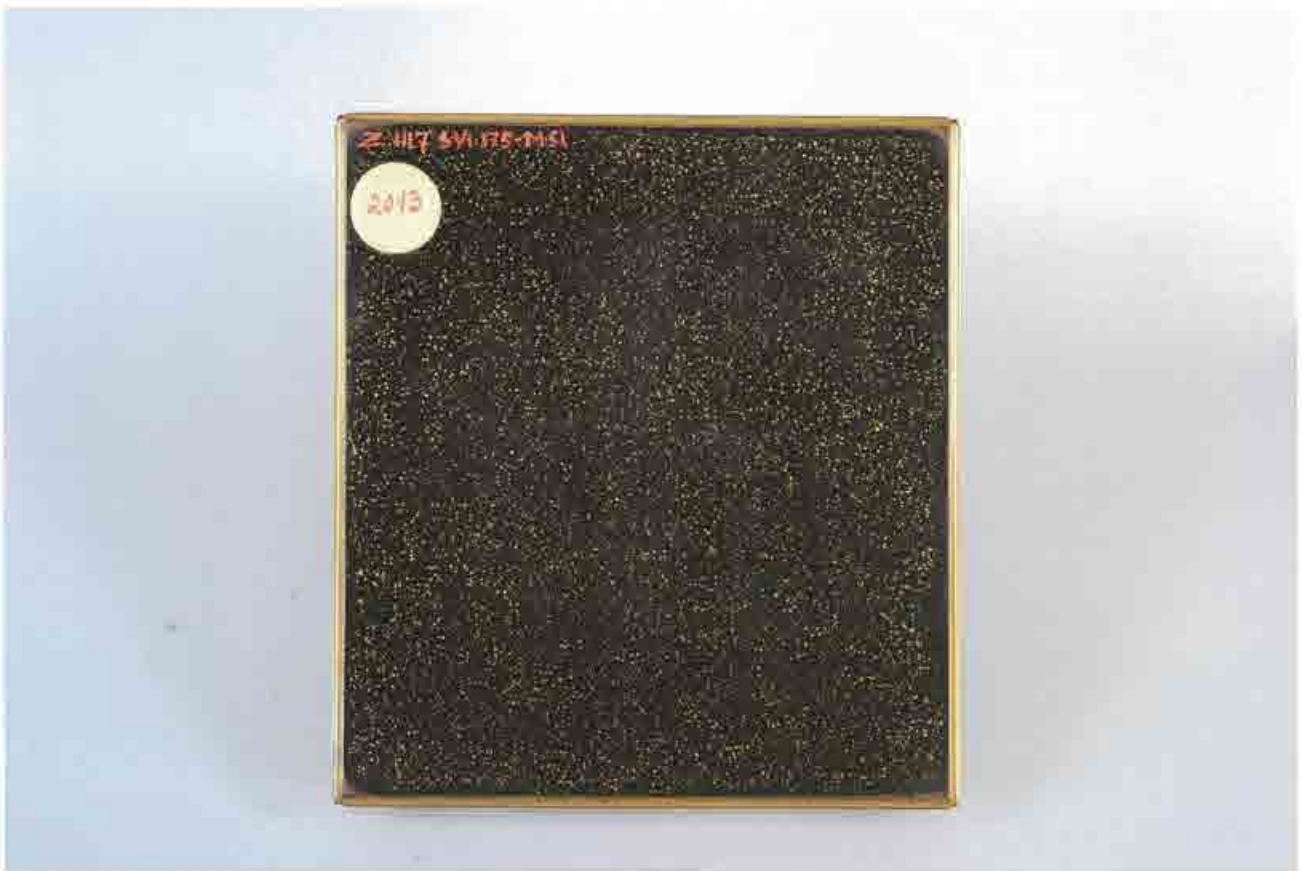


Fig. 1.4 底面 (b)修復後
Bottom (b) after restoration



Fig. 1.5 懸子上部 (a)修復前
Upper part of the inner tray (a) before restoration



Fig. 1.5 懸子上部 (b)修復後
Upper part of the inner tray (b) after restoration



Fig. 1.6 蓋甲中央部 (a)修復前
Central part of the upper face of the lid (a) before restoration



Fig. 1.6 蓋甲中央部 (b)修復後
Central part of the upper face of the lid (b) after restoration

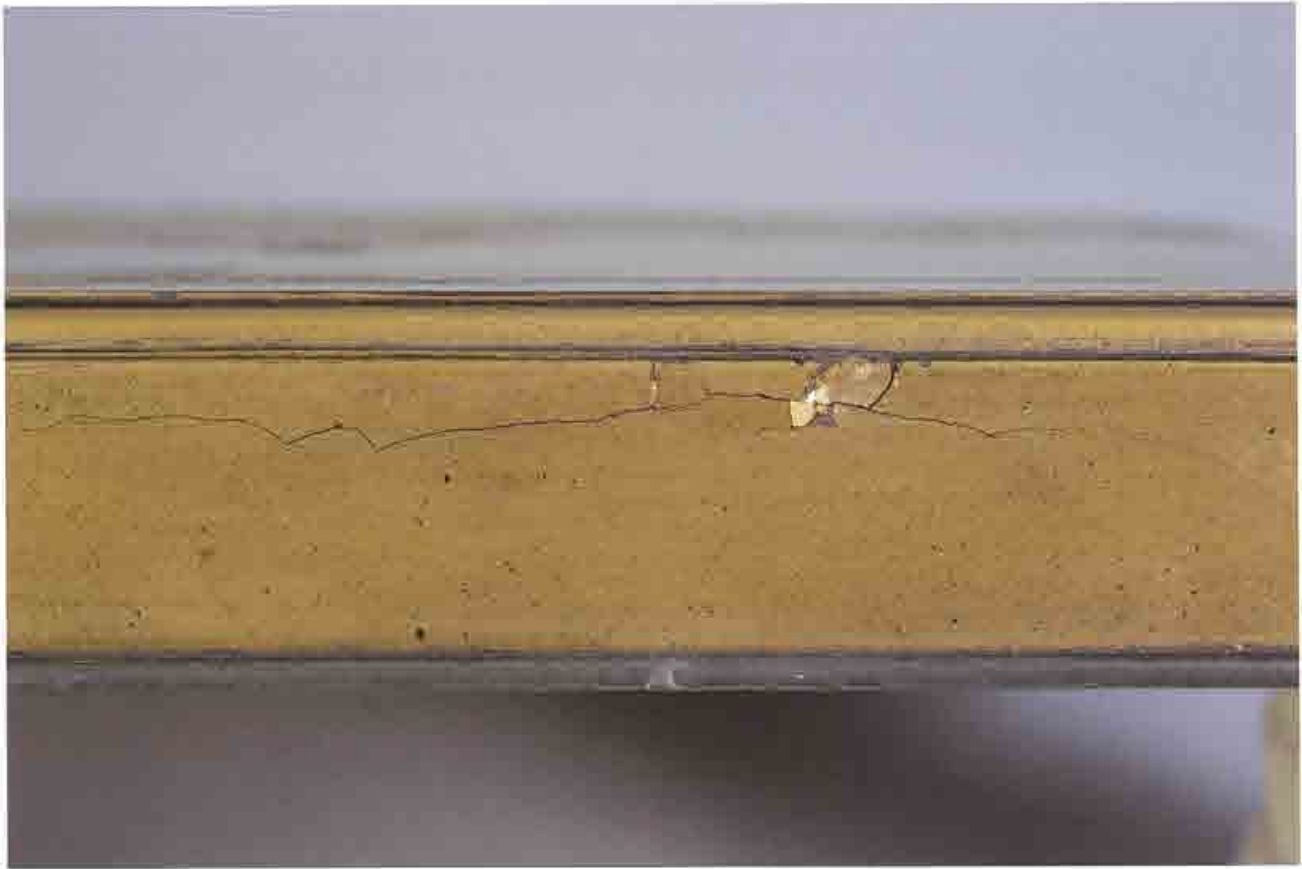


Fig. 1.7 蓋蔓背面の打損 (a)修復前
Damage due to impact on the edge of the lid at the back (a) before restoration



Fig. 1.7 蓋蔓背面の打損 (b)修復後
Damage due to impact on the edge of the lid at the back (b) after restoration



Fig. 1.8 身側板角の亀裂 (a)修復前
Crack on the corner of the side board of the body (a) before restoration



Fig. 1.8 身側板角の亀裂 (b)修復後
Crack on the corner of the side board of the body (b) after restoration



Fig. 1.9.1 養生
Facing



Fig. 1.9.2 クリーニング 1
Cleaning 1



Fig. 1.9.3 クリーニング 2
Cleaning 2



Fig. 1.9.4 蓋蔓の亀裂段差修正
Correcting the gap made by the crack
on the side of the lid



Fig. 1.9.5 亀裂部分の麦漆含浸
Impregnating *mugi-urushi* into a crack



Fig. 1.9.6 蓋蔓の亀裂接着
Adhering the crack on the side of the lid

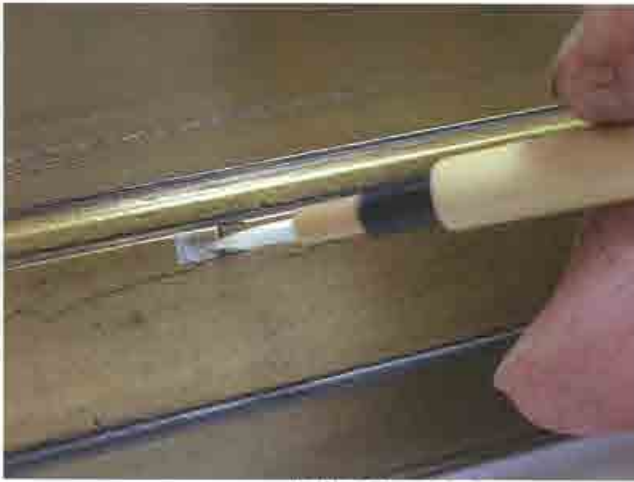


Fig. 1.9.7 蒔絵断片の養生
Facing the *maki-e* fragment



Fig. 1.9.8 蒔絵断片の取り外し
Removing the *maki-e* fragment



Fig. 1.9.9 蒔絵断片の形状修正
Correcting the shape of the *maki-e* fragment



Fig. 1.9.10 漆塗膜の剥落止め
Consolidating the urushi coating film



Fig. 1.9.11 打損箇所の充填 (楮紙による塗膜保護)
Filling the part damaged by impact (protecting the coating film with *kozo* paper)



Fig. 1.9.12 抹香漆による打損箇所の充填
Filling the part damaged by impact with a mixture of *makko* urushi



Fig. 1.9.13 蒔絵断片の貼り戻し
Re-attaching the *maki-e* fragment



Fig. 1.9.14 螺鈿の剥落止め (膠水溶液の含浸)
Consolidating *raden* (impregnating aqueous animal glue solution)



Fig. 1.9.15 木枠とラミン棒による螺鈿の剥落止め
Consolidating *raden* with a wooden frame and ramin sticks



Fig. 1.9.16 蓋の漆固め
Consolidating urushi on the lid



Fig. 1.9.17 蓋裏の亀裂接着
Adhering the crack on the underside of the lid



Fig. 1.9.18 身側板角の亀裂接着
Adhering the crack on the corner of the side board of the body



Fig. 1.9.19 硯の亀裂接着
Adhering the crack on the inkstone



Fig. 1.9.20 色調整 1 懸子打損部の下地研ぎ
Color adjustment 1, polishing the foundation on the damaged part of the inner tray



Fig. 1.9.21 色調整 2 懸子打損部の漆塗り
Color adjustment 2, coating urushi on the part of the inner tray damaged by impact.



Fig. 1.9.22 色調整 3 身側板角の金色下地付け
Color adjustment 3, applying gold foundation to the corner of the side boards on the body



Fig. 1.9.23 漆固め 1 蓋裏の漆塗膜部分
Consolidating urushi 1, part of the urushi coating film on the underside of the lid



Fig. 1.9.24 漆固め 2 蓋表蒔絵部分
Consolidating urushi 2, part of the *make-e* on the lid

2. 作品解説

東京国立博物館
竹内奈美子

長方形、被蓋造の箱で、蓋の肩から身の四角にかけて几帳面とする。蓋と身の縁には錫覆輪を廻らし、身の内左半に下水板を嵌めて木瓜形縁金地の硯と金銅製入隅形魚々子地朝顔文線刻の水滴を納め、右半には懸子を一枚納める。

箱の外側は蓋表から身の側面にかけて金沃懸地として、岩に秋草、月に雲など秋の野の図柄を金高蒔絵を主体に付描・描割・金銀切金などを交えて表わす。菊花には金金貝、桔梗の花には螺鈿、女郎花には金・銀切金、山帰来の実には金金貝、月と岩場（岩の平らな部分）は銀平文を用いている。岩・雲には様々な大きさの金銀の切金を置いており、菊の花芯にもごく小さな金切金を入れる。岩の皴や秋草の葉脈は精細な描割で表わし、菊花の輪郭や桔梗の花芯は肉持ちのある付描で描く。

蓋裏から下水板の表・懸子の見込にかけては黒漆塗として、蓋裏と懸子の見込に金銀高蒔絵に螺鈿・金銀切金・付描・描割を交えて短冊を結んだ梅枝を描く。梅枝は描割で樹皮の皺を表わし、所々に金銀切金を置いている。梅花は螺鈿で表わし、付描で花芯を描く。短冊は料紙装飾の切箔を金銀切金で表わし、下絵の手鳥文を付描で描いている。底裏や懸子の裏面は黒漆塗として大きな平目粉を疎らに蒔き、懸子の立ち上がり外側にはやや密に大型の平目粉を置いている。

この硯箱に見るような秋草表現は、江戸時代前期に加賀前田家の御用を勤めた京都の有名蒔絵師、五十嵐道甫が始めたものと考えられている。菊を金貝、桔梗は螺鈿、女郎花は切金の技法を用いて表わすのがその特色で、道甫作の伝承を持たないもの、また時代の下った様相を示すものまで含めると、類例は30余件に及ぶ。

ただし、本作は重要文化財「秋野蒔絵硯箱」（個人蔵）に酷似し、秋草の表現に形式化が認められず、最も早い時期まで遡ると見なされ、初代五十嵐道甫（～1678）の作に比定しうる。五十嵐道甫は江戸時代前期の代表的蒔絵師であり、この硯箱はその代表作品の一つと位置づけることができる。

2. Description of the Artwork

Namiko Takeuchi
Tokyo National Museum

The object is a rectangular box with a lid that extends over the body. From the shoulders of the lid to the four corners and same places of the body consists of *kichomen*. The edges of the lid and the body are surrounded with a tin ornamental border. In the left half of the body is a board that holds the ink stone, which is in the shape of a Japanese quince with a gold rim, and a gilt bronze water dropper with recessed corners decorated with engraved design of morning glory on a *nanako*^{2.1} ground. In the right half is an inner tray.

The exterior of the box from the face of the lid to the sides of the body is in gold *ikakeji*^{2.2} with a design of an autumn field in which rocks, autumn plants, the moon and clouds are expressed mainly using *takamaki-e* and other techniques such as *tsukegaki*, *kakiwari* and gold and silver *kirikane*. In addition, gold *kanagai* is used for chrysanthemums (*Chrysanthemum morifolium*), *raden* for bellflowers (*Platycodon grandiflorus*), gold and silver *kirikane* for golden lace (*Patrinia scabiosifolia*), gold *kanagai* for Smilax china (*Smilax china*), and silver *hyomon*^{2.3} for the moon and the flat part of the rocks. Gold and silver *kirikane* of various sizes are used on the rocks and clouds; very small gold *kirikane* is used on the center of the chrysanthemums. Creases on the rocks and veins of autumn glass are expressed with delicate *kakiwari* while the outline of the chrysanthemums and the center of the bellflowers are expressed with *tsukegaki* using urushi that has much viscosity.

The underside of the lid, the surface of the board in the left half of the body and the inside of the inner tray are coated with black urushi. On the underside of the lid and the inside of the inner tray are designs of a branch of Japanese apricot with *tanzaku* tied to it. These are expressed with gold and silver *takamaki-e* and further decorated with *raden*, gold and silver *kirikane*, *tsukegaki* and *kakiwari*. The creases on the bark of the Japanese apricot branch are expressed with *kakiwari* and scattered gold and silver *kirikane*. *Raden* is used for the apricot flowers and the center of the flower is depicted with *tsukegaki*. Gold and silver *kirikane* are used for the decorative parts of the strips of *tanzaku*; *tsukegaki* is used for the plovers. The underside of the box itself and of the inner tray are coated with black urushi and sprinkled with *hirame-fun*. *Hirame-fun* is also sprinkled rather densely on the exterior of the sides of the inner tray.

^{2.1} *nanako* A grain-like design for urushi ware made by using rapeseed.

^{2.2} *ikakeji* A type of *maki-e* decoration technique in which the surface is coated with urushi; then *maki-e* powder is densely sprinkled, covered with urushi and abraded with an abrasive such as charcoal, in order to reveal the powder.

^{2.3} *hyomon* A technique in which patterns are cut out of a thin metal plate, such as gold and silver.

The design of autumn plants as is found on this box is said to have been started by Igarashi Doho, a famous *maki-e* artist from Kyoto who worked for the Kaga Maeda family in the early Edo era. The characteristic of the design is to use certain techniques for certain motifs, such as *kanagai* for chrysanthemums, *raden* for bellflowers and *kirikane* for golden lace. It is said that there are 30 or some similar designs, including those not said to have been made by Doho and those of later time.

Since this particular object closely resembles another *suzuribako* in a private collection that is designated an important cultural property and since the expression of the autumn plants are not formalized, it is possible to date the design to the earliest time of such a design and to assume that the object is the work of Igarashi Doho (-1678), a representative *maki-e* artist of the early Edo era. It may be said that this particular object is one of his masterpieces.

付録 Appendix

東京文化財研究所 犬塚 将英

Masahide Inuzuka

National Research Institute for Cultural Properties, Tokyo

透過 X 線撮影

X-ray Transmission Image Photography

目的

秋野蒔絵硯箱の木地構造及び損傷状態の調査

撮影条件等

撮影者	犬塚 将英
撮影日	平成 26 年 9 月 5 日
撮影場所	東京文化財研究所 X 線撮影室
撮影機材	エクスロン社製 X 線発生装置 MCN165
管電圧	30kV
管電流	3mA
照射時間	30 秒
照射距離	150cm

Purpose of investigation

To investigate the structure of the wooden substrate of *Suzuribako* with design of an autumn field in *maki-e* and the condition of its damage

Conditions of analysis

Photographer	Masahide Inuzuka
Date	5 September 2014
Place	Radiography Laboratory, National Research Institute for Cultural Properties, Tokyo
Apparatus	X-ray generator MCN165, YXLON International GmbH
Tube voltage	30 kV
Tube current	3 mA
Radiation time	30 seconds
Radiation distance	150 cm



Fig. A.1.1 (1) 蓋
Lid



Fig. A.1.1 (2) 身
Body



Fig. A.1.1 (3) 中身
Contents

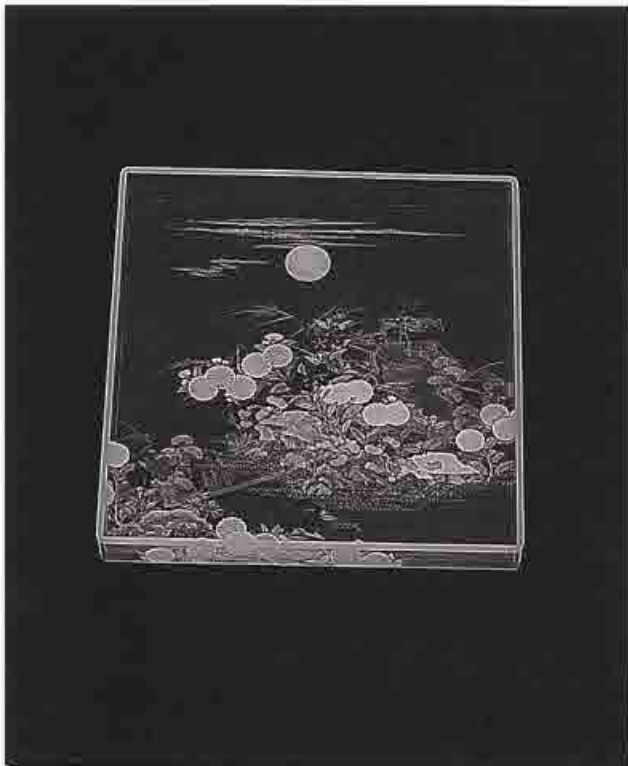


Fig. A.1.2 (1) 蓋 (斜めから X線放射)
Lid (X-ray radiation from an angle)

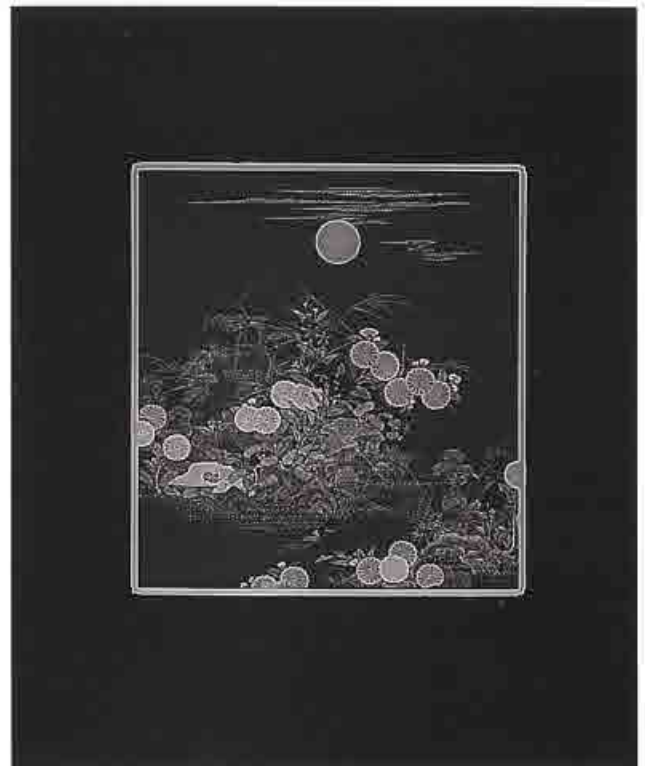


Fig. A.1.2 (2) 蓋 (真上から X線放射)
Lid (X-ray radiation from directly above)



Fig. A.1.3 (1) 身 (斜めから X線放射)
Body (X-ray radiation from an angle)

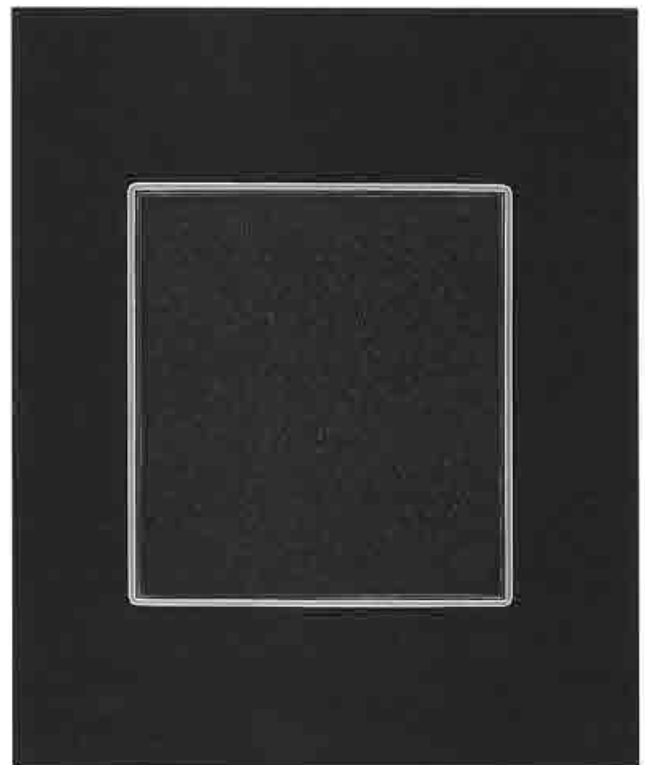


Fig. A.1.3 (2) 身 (真上から X線放射)
Body (X-ray radiation from directly above)

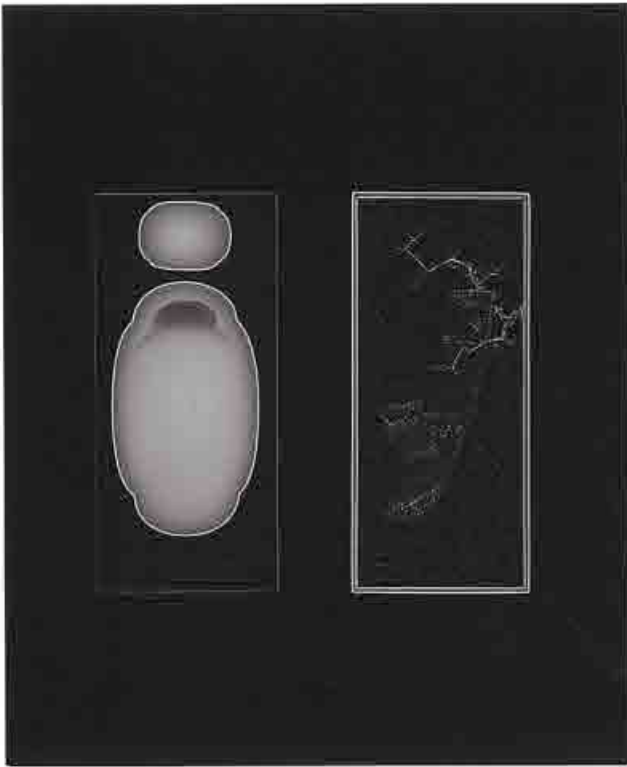


Fig. A.1.4 中身 (真上から X 線放射)
Contents (X-ray radiation from directly above)

所見

- ・ 秋野蒔絵硯箱の蓋の構造、特に上面と側面の部材の境界部分を調べるために、X線を斜めから照射する必要があり、蓋を傾けて撮影を行った (Fig. A.1.2 (1))。Fig. A.1.2 (1)から、蓋に布が貼られていることが確認できた。また、真上からX線を照射して撮影をした画像 (Fig. A.1.2 (2)) からは、蓋を構成している木の構造を確認することができた。
- ・ 蓋と同様に、身に対して斜めからX線を照射した場合の画像が Fig. A.1.3 (1)である。側面部分に布が貼られていることを確認することができた。また、真上からX線を照射して撮影をした画像 (Fig. A.1.3 (2)) では、底板の面に細かい木目を確認することができた。
- ・ Fig. A.1.4 には、硯箱の中に収納されている硯と箱のX線透過画像を示す。

Findings

- ・ In order to investigate the structure of the lid of the box with design of an autumn field in *maki-e*, especially the bordering area of the components of the upper face and the side face by radiating X-ray obliquely, the lid was placed at an angle (Fig. A.1.2 (1)). As a result, it was confirmed that fabric had been adhered to the lid. Moreover, the image obtained by radiating X-ray from directly over the lid (Fig. A.1.2 (2)) might confirm the structure of the wood used for the lid.
- ・ Fig. A.1.3 (1) shows the image obtained by radiating X-ray obliquely on the body in the same way as was done for the lid. It was possible to confirm that fabric had been adhered to the side face. The image obtained by radiating X-ray directly from above (Fig. A.1.3 (2)) reveals fine grains of wood on the bottom board.
- ・ Fig. A.1.4 is the X-ray transmission image of the ink stone inside the box and of the box.

東京文化財研究所

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