„Birdcage Vase” from the Dresden Porcelain Collection as an example of Japanese conservation techniques

Magdalena Kozar

A cooperative project between the Dresden Porcelain Collection and the Tokyo National Research Institute for Cultural Properties TOBUNKEN

Introduction

The Japanese Birdcage Vases are amongst the most notable works in the Dresden Porcelain Collection. The museum owns nine Birdcage Vases which belong to a larger group of over sixty Imari porcelain pieces decorated with Japanese lacquer *urushi*, produced in around 1700 in Arita. Although the vases were manufactured for European trade and reflected the Western taste, they were produced in Japan, using local techniques and materials.

Fig. 1. Birdcage Vases in the Dresden Porcelain Collections.

Between 2016 and 2017 the Dresden Porcelain Collection and the Tokyo National Research Institute for Cultural Properties TOBUNKEN undertook a collaborative conservation project of a selected Birdcage Vase. The aim of the conservation works which were carried out by Japanese experts at TOBUNKEN, was to preserve the present condition of the vase and prevent it from further damages.

Here, we show the most significant parts of the conservation project as well as preparation of pattern samples of lacquered ornaments.

Evaluation of Damage

Diverse materials were used to manufactue the Birdcage Vase: porcelain, metal, wood, paper, gold leaf and Japanese lacquer *urushi*. The exhibit was decorated using *kawari-nuri* technique (*urushi* coating covered with different components). While the use of a wide variety of materials gave the object a prestigious appearance, it also imposed multiple challenges on its conservation. According to the inventory, the organic lacquer had started to come away from the sturdy porcelain body already in the 18th century. The uneven shrinkage rates of different materials also caused a lot of damages. Lacquer pieces detached from over 60 vases were found inside the objects. They resembled a huge puzzle consisting of some thousand pieces**.** The fragments were temporarily fixed in the original position with Japanese paper and wheat starch paste.

Fig. 2. Lacquer pieces detached from over 60 porcelain vases.

Fig. 3. Fragments of lacquer temporarily fixed in the original position.

Examination

Fig. 4. Vertical tomographic image around the centre of the vase.

Fig. 5. Cross section image of the protrusion part:
a) transmission image,
b) polarized image.

The X-ray Computer Tomography investigation enabled us to identify not only the specific materials but also the depth and density differences within the same material[1].

Based on the results of the cross section analysis of the lacquer pattern, we prepared sample boards repeating the original process of manufacture[2]. The sample boards will be a useful tool during potential reconstruction of the missing parts.

Materials and Methods

Cleaning and consolidation

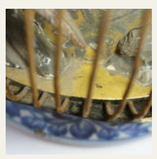


Fig. 6. Condition of the vase during cleaning treatment of *urushi* coating.

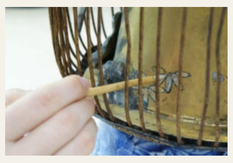


Fig. 7. Fixing of the paint layer.

The golden backdrop and the wooden rocks were decorated according to Japanese traditional painting techniques. The pigment layer was powdered and cracked. Before the cleaning treatment, these fragile parts were fixed with Hydroxypropyl cellulose diluted in ethanol. The dust and dirt was removed using soft brushes. The dirt from the golden *urushi* layer was removed with a water and ethanol solution, using a brush or melamine sponge. The fragile pigment layer was consolidated with several layers of *nikawa*.

Consolidation of lacquer coating: (*urushi-gatame*) and filling the crack in the wooden substrate

Fig. 8. Application of *urushi-gatame*.

In order to strengthen the surface and stop the formation of micro-cracking, the *urushi* coating in the wooden hoop was reinforced with *urushi-gatame* technique.

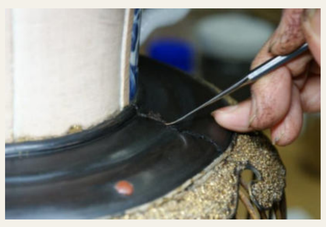


Fig. 9. Filling the crack with *kokuso*.

For reinforcement, drops of diluted *mugi-urushi* were applied into the crack in the wooden hoop. The gap was filled with several layers of *kokuso.* Lacquer hardened under controlled conditions in a humidity chamber.

Test for adhering *urushi* to the porcelain body

Several adhesives were applied to two sample boards (one made of porcelain, the other covered with *urushi* foundation). After drying/hardening the surface of the adhesive was cut with several horizontal and vertical lines. A cellophane tape was put on the sample and pressed down. The amount of sample stuck to the tape upon its removal was an indication of the strength of the adhesive used[3]. **French fish glue** turned out to be the most suitable adhesive for both *urushi* and porcelain foundation.

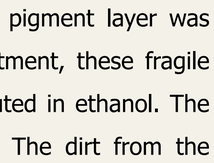


Fig. 10. Cross-cut test:
a) Cutting the surface of an adhesive.
b) Peeling state after removing the cellophan tape.

Adhering of detached fragments with *shimbari* technique

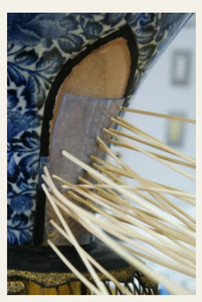


Fig. 11. Adhesion of the decoration with *shimbari* technique.

Fig. 12. Condition after adhering the decoration in the original position.

The detached lacquer parts and the three-dimensional decoration were fixed in the original position using a *shimbari* technique. Flexible wooden sticks braced against the surrounding frame allowed to provide a controlled pressure to the broken parts of the object.

Results I – Birdcage vase conservation

Fig. 13. Condition of the Birdcage Vase before (left) and after (right) conservation.

Results II – Preparation of pattern samples

Preparing sample boards of lacquer decoration: sand pattern (type A) and *sayagata* pattern (type B)

a. Applying ground layer. Type A, B.

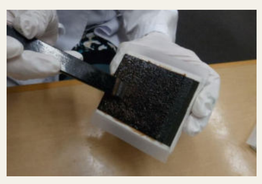
b. Polishing the foundation surface. Type A, B.

c. Preparing paper stencils for the pattern decoration using *kakishibugami.* Type B.

d. Pressing the *sayagata* pattern through the paper stencil. Type B.

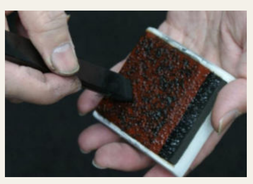
e. Applying *urushi* in order to fix the sand grains. Type A, B.

f. Sprinkling the stones on the still wet lacquer surface. Type A, B.



g. Fixing the pattern with *kijoumi-urushi.* Type A, B.

h. Applying a layer of red *bengara-urushi* . Type A, B.



i. Polishing the lacquer surface. Type A, B.

j. Application of red urushi *shu-urushi* . Type A, B.

k. Hardening of *shu-urushi* layer. Type A, B.

l. Application of gold leaf with. Type A, B.

Fig. 14. Sand pattern – working steps (sand pattern – left, *sayagata* pattern – right).

Conclusion

- Due to the wide variety of materials used to manufacture this Birdcage Vase, its conservation was particularly challenging.
- We performed successful conservation of this object and, with the use of cold fish glue, we reattached the lacquer decoration to the porcelain body.
- This unique Birdcage Vase is now available for viewing at the Dresden Porcelain Collection under controlled conditions.
- Sample boards repeating the original process of manufacture, which may be a useful tool during potential reconstruction of the missing parts.
- The project will make an excellent starting point in restoration of the remaining lacquered vases from the Dresden Porcelain Collection which we hope to perform in the future.
- This cross-cultural undertaking was a great opportunity to discuss and integrate Eastern and Western points of view regarding conservation of cultural property.

References

1. X-ray Computer Comography image taken by Mr. Tomonori Araki (Research Analysis Section, Curatorial Research Department Tokyo National Museum).
2. Cross section image taken by Mr. Takayuki Honda (Department of Applied Chemistry, School of Science and Technology, Meiji University).
3. Cross cut test was undertaken by Mr. Yoshihiko Yamashita.

Acknowledgements

I would like to gratefully acknowledge the generous support of the Tokyo National Research Institute of Cultural Properties. I owe my deep gratitude to the team from the Dresden Porcelain Collection. My deepest appreciation goes also to to all the teachers, especially Mrs. Noriko Yamamoto and Mr. Yoshihiko Yamashita who shared with me their knowledge and skills. I would like to express my special thanks to all the conservators, researchers and scientists who contributed to the conservation of the Birdcage Vase.

Contact Information

Magdalena Kozar
Tel: +49 160 93159888
+48 695 741 246
Email: magda.kozar@gmail.com

Staatliche Kunstsammlungen Dresden