

# 〔報告〕 Scientific Analysis on Two Christian Lecterns in Portugal: A Wooden Substrate Investigation

KOBAYASHI Koji · NAKAMURA Ichiro<sup>\*</sup> · TORIGOE Toshiyuki<sup>\*\*</sup> ·  
NOSHIRO Shuichi<sup>\*\*\*</sup>

## 1. Introduction

This article reports results of a scientific investigation and analysis of two Christian lecterns for mass book reading that were passed down over at least decades in Portugal. The scientific investigation and analysis was conducted during January 2024 in Japan. Lectern (1) is a makie and mother-of-pearl decorated Nanban lacquer with pine-tree pattern (Fig. 1, hereinafter, “Lectern (1)”), and Lectern (2) is an urushi and mother-of-pearl decorated IHS insignia on a Luso-Asian Nanban style lacquer with Chinese inscription (Fig. 2, hereinafter, “Lectern (2)”).

### 1 – 1. Investigation background and details concerning the lecterns examined

Both lecterns examined in this investigation are owned by individuals living in Lisbon, Portugal. Before 2018, Dr. Alexandra Curvelo of the Departamento de História da Arte, Faculdade de Ciência Sociais e Humanas Universidade Nova de Lisboa (DHA-NOVA FCSH),



**Figure 1** Makie and Mother-of-Pearl Decorated Nanban Lectern (1) with Pine-Tree Pattern  
(Photo: NAKAMURA Ichiro)



**Figure 2** Urushi Lacquer and Mother-of-Pearl Decorated IHS Insignia on a Luso-Asian Nanban Style Lectern (2) with Chinese Inscription  
(Photo: NAKAMURA Ichiro)

<sup>\*</sup> Independent Administrative Institution, Nara National Research Institute for Cultural Properties, <sup>\*\*</sup> Nara National Museum, <sup>\*\*\*</sup> Meiji University

from 2019 to 2020, Dr. Ulrike Körber of the Instituto de História da Arte, Faculdade de Ciência Sociais e Humanas Universidade Nova de Lisboa/ Investigação e Inovação em Património, Artes, Sustentabilidade e Território (IHA-NOVA FCSH/IN2PAST), who have been conducting research on Nanban or Luso-Asian Objects for many years, confirmed existence of these lecterns by happenstance and later shared this information with several acquaintances, including Koji Kobayashi, who are interested in and conducting research in this field<sup>†1 1) †2 2)</sup>.

First, we briefly describe the particularly distinctive features of these objects. Lectern (1) is a Nanban lacquer made in Japan, and, differing from almost all other Nanban lecterns, the center of the backboard with the IHS insignia<sup>†3</sup> is thickly re-coated with lacquer in a circular shape with a pine-tree pattern inside it. Lectern (2) classified as a Luso-Asian Nanban Style lacquer influenced by Nanban lacquer seems to have been made in Macau or the Ryukyu Islands but, unfortunately, much of the lacquer and *raden* mother-of-pearl decoration have fallen off on both sides, revealing many Chinese characters written in black ink on wooden surfaces. Dr. Julie Chang of the UCL Institute of Archaeology at that time who was informed of the existence of this lectern together with the first author, attempted to decipher the ink inscriptions and indicated that the two characters “澳門” (the Chinese hanzi characters for Macau) were written in the text. Based on the first author's view of the period, Lectern (1) is estimated to be made around the 1630s, while Lectern (2) is estimated to be made from the end of the sixteenth to the beginning of the seventeenth century<sup>3)</sup>.

The significant meaning of this report, differing from the academic implication mentioned below, lies in offering fundamental information beneficial for the preservation and restoration of Nanban lacquer and Luso-Asian wooden objects. Namely, this is the first English report presented in the academic journal specializing in the conservation science of cultural properties, that shows X-ray CT images together with other data of two kinds of Christian lecterns that are still preserved in countries outside Japan<sup>†4 4) †5 5)</sup>. The information mentioned later will provide helpful information for maintaining and handling these rare and important specimens.

Because these two lecterns have been stored in very simple packaging by their respective owners, in light of their importance, the first author ordered a custom-made double archival box fashioned from archival boards and specially made polyester cushions from Archival Conservation & Enclosures Co., Ltd. to ensure their safe long-term storage in the stable environment, slow down the aging process at the site and prevent any unforeseen accidents during future domestic or international transport. These boxes were brought to the site in January 2023, and the lecterns have been stored there.

## 1 – 2. Purpose of the investigation and investigations conducted in this report

A brief overview of the main purpose of the various investigations are as follows.

As mentioned above, various features of these two lecterns have not been found in the other lecterns. The center of the backboard of Nanban lacquer lecterns usually features the IHS insignia, the symbol of the Society of Jesus, differing from Lectern (1). This society is a Catholic religious order that has been almost solely responsible for the evangelization in Japan

since the mid-sixteenth century, and almost the Nanban lecterns have this insignia without exceptions, especially in later lecterns dominated by geometric patterns<sup>6)</sup>. Deviating from these trends, the central part for an IHS insignia of this lectern is re-coated over with lacquer as if to hide the IHS insignia. However, the historical meaning of hiding the insignia in this lectern can be discussed only with an objective proof that the insignia exists beneath the lacquer coating.

Lectern (2) is a Luso-Asian Nanban Style Lectern, as previously mentioned, and has the two characters “澳門” (Macau) written on it. Thus, this probably show the place of production of this type of *raden* mother-of-pearl lacquer, which has been so far thought to be produced in Macau (including not only the small peninsula of Macau, but also its border region, Guangdong) or in the Ryukyu Islands now in Japan. To examine these issues, more reliable reading the ink-written characters, not only some of the words, but also the entire inscription, is important.

To solve these problems, optical investigations including infrared photography, conducted by Ichiro Nakamura of the Nara National Research Institute for Cultural Properties (hereinafter, “Nabunken”), and X-ray CT examination, operated by Toshiyuki Torigoe of the Nara National Museum, were essential techniques. The identification of wood species, examined by Dr. Shuichi Noshiro of Meiji University, provides basic information for wooden objects and needed to consider or confirm the origins of these lecterns.

Various other examinations focusing on materials and techniques of surface decorations were also conducted during the January 2024 investigation at the Tokyo National Research Institute for Cultural Properties (hereinafter, “Tobunken”), such as X-ray Fluorescence (XRF), cross-section analysis, Pyrolysis Gas Chromatography/Mass Spectrometry (Py-GC/MS), and scanning electron microscopy (SEM). In the present paper, however, results of three examinations targeting on wooden substrate are presented, because the wooden substrate is made before surface decoration and the results of the analyses do not contradict with each other<sup>† 6 7)</sup>.

The first author plans to report the analytical results of the surface decorations in the next issue of this journal. Based on these scientific analyses, he seeks to report various humanities studies in Tobunken’s journal *The Bijutsu Kenkyu*, *The Journal of Art Studies* as well<sup>† 7)</sup>.

## 2. Optical investigation

From 2019 to 2022 when Kobayashi and Dr. Körber conducted intermittent on-site research, Kobayashi requested Dr. Körber to conduct an infrared optical examination in Portugal for the Lectern (1) to confirm the original pattern underneath the lacquer re-coating layer applied to the center, but unfortunately, this goal could not be achieved. Then Kobayashi requested Nakamura to travel to Lisbon to conduct infrared and visible light photography for both lecterns. Unfortunately, this examination conducted in January 2023 also failed to confirm the original pattern of the Lectern (1).

Thus, Kobayashi decided to conduct an X-ray CT examination in the next investigation. However, without any knowledge about the examination of cultural properties in Portugal with an X-ray CT, he decided to conduct such examination in Japan. In January 2024, the authors carried out an infrared photography at Nabunken in a more stable environment and an X-ray

CT examination at the Nara National Museum.

## **2 – 1 . Infrared optical examination and results**

### **2 – 1 – 1 . Methods**

The main purposes of an optical examination of these lecterns were confirming the existence of a hidden pattern underneath the re-coated lacquer of the Lectern (1) and characters on both the front and back sides of the Lectern (2) wooden substrate. An optical investigation is done with the specific wavelengths of light, a type of electromagnetic wave, by capturing the responses on a film or sensor. Generally ultraviolet and infrared rays outside the visible light range are used, and they will allow confirmation of the presence of objects the human eyes cannot see.

Infrared photography that uses infrared-sensitive film has been widely used in the field of cultural property investigations since the technology was developed in the early twentieth century. Currently, the photosensitivity of sensors built into digital cameras extends to infrared light, and in normal photography, the image quality deteriorates when the sensor detects infrared light range due to overlapping with the visible light range image; thus, infrared wavelengths are cut off. By removing this cut-off device (filter) and using a filter that transmits only infrared wavelengths, infrared photography has become possible.

An infrared optical examination with wavelengths that penetrate the lacquer coating was done to confirm the materials beneath of it. These wavelengths will be reflected by the wooden substrate and be absorbed by the pattern and characters under the coating. The second author has investigated numerous lacquered artifacts excavated from archaeological sites and was familiar with this analysis. However, the author did not have experience in examining lacquered objects that were not excavated artifacts, and the examination was conducted after performing various test samples.

### **2 – 1 – 2 . Preliminary preparations**

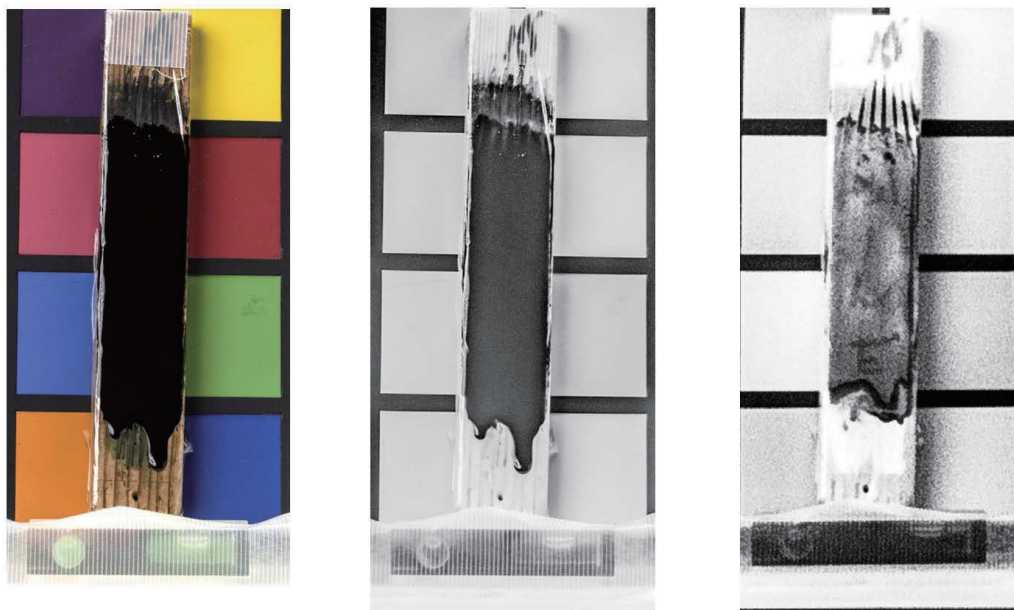
A preliminary test was performed to confirm if infrared rays could penetrate the lacquer coating. In the preliminary test using black Roiro-urushi lacquer (raw urushi sap for finish coating, processed by Hariyo-Shikko Co. Ltd, purchased in Jan. 2023.) that in which an ink drawing was painted on a wooden substrate, multiple infrared images were taken with the lacquer coating of varied thickness to confirm the penetration of infrared rays through.

The second author confirmed that the near-infrared light of 850 nm–970 nm in wavelength that are typically used for excavated artifacts can penetrate an extremely thin coat layer, but that penetration becomes more difficult as the coat layer becomes thicker. Thus, a vidicon tube TV camera system that can capture images at approximately 1300 nm in wavelength penetrating even thicker coatings was also used (Fig. 3). The thickness of the test samples was, however, not measured.

### **2 – 1 – 3 . Examination and results**

In Lisbon, Package-type infrared examination equipment was brought in, and an optical examination was conducted using local lighting to make the inked-on characters on the wooden





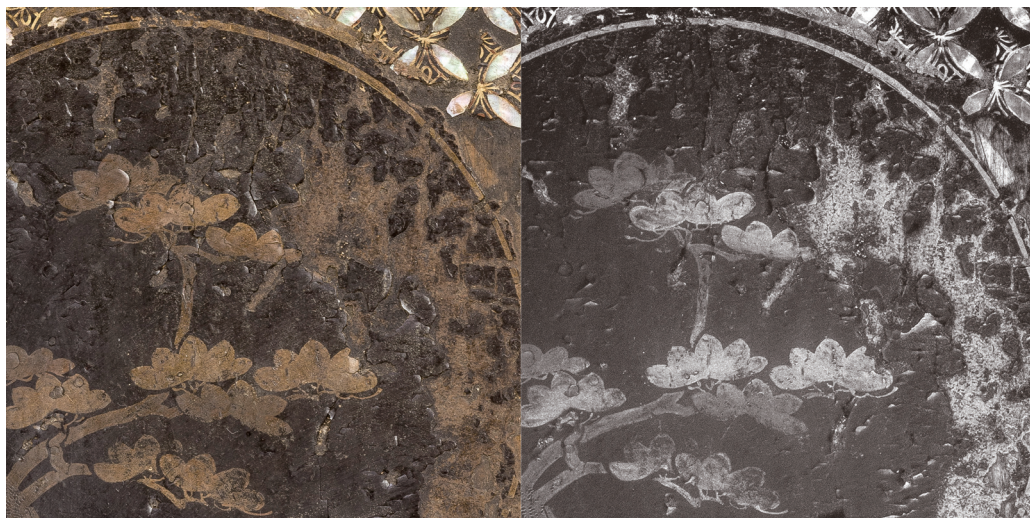
**Figure 3** Preliminary photography test results (left: visible light, center: digital infrared, right: vidicon tube TV camera)



**Figure 4** Infrared photography in Lisbon

surface of the Lectern (2) clearer. At the same time, the second author also examined the material beneath the lacquer coating of the Lectern (1) (Fig. 4), but the condition of this layer could not be confirmed because the lacquer re-coating was thicker than expected (Fig. 5).

During the re-examination at Nabunken, a vidicon TV camera system that could not be used in the on-site examination was used to penetrate the lacquer re-coating of the Lectern (1). A long-wavelength infrared light source was used as the light source, and the optical examination was on the longer wavelength side than the sensor system. However, penetrating the thick lacquer re-coating that appears to have been applied in multiple layers was not possible (Fig. 6).



**Figure 5** Visible light photograph (left) and infrared photograph (right) of the Lectern (1) lacquer coating (Photo: NAKAMURA Ichiro)



**Figure 6** Infrared photography of the Lectern (1) using a vidicon TV camera (Photo: NAKAMURA Ichiro)

Carbon component contained in the re-coated black urushi lacquer layer may have inhibited the infrared penetration, but the thickness of the coating seems to have affected the penetration more.

Near-infrared photography made it possible to clearly visualize the ink-written characters of the Lectern (2) that had been lost in the color of the wood (Fig. 7). The infrared light reflected by the wood substrate layer and absorbed by the carbon component of the ink used in the inscription allowed the acquisition of an image that clearly confirmed the inked-on lettering.

Besides the infrared examinations, both lecterns were recorded by visible light photography





**Figure 7** Visible light photograph (left) and infrared photograph (right) of the Lectern (2)  
(Photo: NAKAMURA Ichiro)



**Figure 8** Front view of the Lectern (1)  
(Photo: NAKAMURA Ichiro)



**Figure 9** Front view of the Lectern (2)  
(Photo: NAKAMURA Ichiro)

with high resolution simultaneously in Lisbon (Figs. 1, 2, Figs. 8, 9). Unfortunately, the conditions of these two lecterns, especially surface decorations, are not very well, but visible light photography of these lecterns will be an important archive, recording the situation of the

lecterns at the time of investigation.

The equipment used and Photographing Conditions are as follows:

○ Camera, Lighting System

- |                |           |   |
|----------------|-----------|---|
| • Camera       | Lisbon:   | PENTAX645Z IR Specification (RICOH Imaging Co. Ltd.)  |
|                | Nabunken: | Digital View Camera (Sakai Machine Tool Co. Ltd.)<br>IQ4-100Mpix. IR Specification (PhaseONE Co. Ltd.)  |
| • Lens         | Lisbon:   | HD-PENTAX-DFA645MACRO 90 mmF2.8ED AW SR   |
|                | Nabunken: | Specially Specified lens for Cultural Properties Photography*<br>*A specially designed lens that matches the focus of visible light range and infrared light range by optical coating design. |
| • Filter       |           | For visible light photography, 780 nm or longer wavelength cut filter<br>For infrared photography, 960 nm or shorter wavelength cut filter  |
| • Light Source | Lisbon:   | Interior light bulb type LED (purchased on-site)  |
|                | Nabunken: | Stroboscope light (Sunstar Strobo Co. Ltd.)   |

○ Photographing Conditions

- |           |   |
|-----------|---|
| Lisbon:   | ISO 100, Aperture F11 1/3, Shutter speed 1.6 sec. |
| Nabunken: | ISO 50, Aperture F11 1/6, with Strobo             |

- Vidicon Tube TV Camera      IRRS-200 Super Eye (Hamamatsu Photonics Co. Ltd.)  
Micro Nikkor 55 mm with IRDS80 Visible light cut filter

## 2-2. X-ray CT examination and results

### 2-2-1. Methods

This examination was conducted on January 15, 2024, using the X-ray CT system (Comet Yxlon GmbH) at the Nara National Museum (Fig. 10). Imaging was conducted under the following conditions: voltage 320 kV, current 2 mA, 900 images per rotation, and 0.4 seconds per



Figure 10 X-ray CT examination at the Nara National Museum



image. Additionally, the central part of the Lectern (1) was examined at 2.2x magnification. The obtained data were analyzed with VGStudioMAX 3 created by VolumeGraphics.

## 2 – 2 – 2 . Results

### (1) Lectern (1)

The CT image of the Lectern (1), which is believed to have been made in Japan based on its decorative features, showed that it was made from a single wood board<sup>†8 8)</sup> with a *hashibami* (horizontal bar) attached to the top of the backboard for preventing warp (Fig. 11). Comparing this to the results of previous CT examination of lecterns showed that this Lectern (1), like other Christian lecterns of this form, was produced by carving out hinges from a piece of thick wood board and vertical cutting it in half from the top and bottom. Further, the presence of a horizontal *hashibami* bar showed that this lectern matches the structure of a Nanban lectern made in Japan. An interesting fact we can see from the CT image is that no nails, usually connecting the bar to the body<sup>9)10)</sup>, was found on this piece<sup>11)</sup>, showing the bar is attached by resin.

Regarding the pattern beneath the re-coated lacquer layer, which was one of the main objectives of the investigation, images were taken at an enlarged scale such that information of 0.1 mm or less could be distinguished. The data were then corrected and calculated to increase the resolution, allowing the confirmation of some traces of the *raden* mother-of-pearl fragments (such as the isosceles triangles consisting of a halo, the three nails piercing the heart, and the IHS monogram) that had originally been attached to the surface (Figs. 12<sup>12)</sup>, 13, 14). As expected, the IHS insignia—the symbol of the Jesuit, Christian Society of Jesus—that had originally been represented over the circular area was later re-coated to a thickness of approximately 0.2 mm. As no unevenness was observed on the overlaid lacquer surface in the center of the backboard and no attached *raden* mother-of-pearl fragments were found on the surface of the lectern's wooden substrate, the *raden* mother-of-pearl fragments that initially constituted the IHS insignia were believed to have been completely stripped off. Traces of shapes such as isosceles triangles captured via X-ray CT examination are probably the

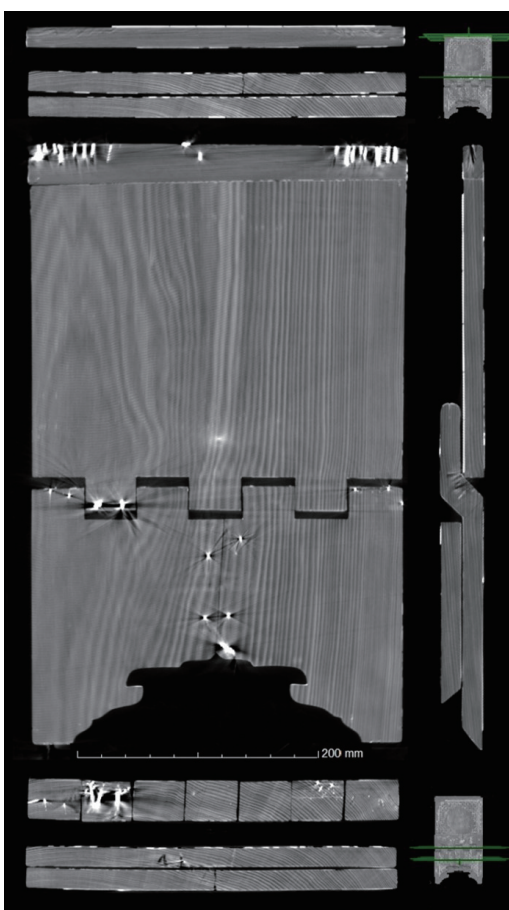


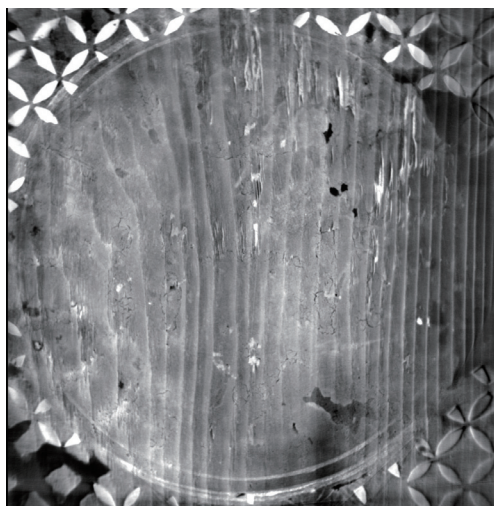
Figure 11 CT image of the Lectern (1)

result of detecting contents of urushi lacquer or other resins used for their adhesive properties. Moreover, patterned dotted lines in some parts of the rim of individual components, such as the IHS monogram and three nails piercing the heart, are probably traces of the removal of mother-of-pearl fragments from the lectern's *raden* pattern that were firmly bonded to the surface possibly by lacquer.

Some cracks and later repairs were confirmed. Severe cracks are found on the hinge, the back leg center, and the book rest center, and each part was firmed by iron nails or clamps.



**Figure 12** IHS Insignia on the Nanban lectern owned by Musée Cernuschi, Paris @Musée Cernuschi



**Figure 13** High-Resolution X-Ray CT image of the center part of the Nanban Lectern (1)



**Figure 14** Attached traces of *raden* mother-of-pearl fragments of the center part of the Lectern (1)



Many iron pins recognized, especially on both the ends of the top horizontal bar and some on the both ends of the hinge part, might be vestiges of the device that prevented mass book pages from turning over.

## (2) Lectern (2)

Lectern (2) thought to have been made in Macau (China) is also made from a single thick wood board, like Lectern (1), but no top horizontal bar, *hashibami*, was found on the top edge of the backboard (Fig. 15).

A wooden structure similar to this lectern has been found in a lectern in the collection of the Nanban Bunkakan Museum in Osaka<sup>13)</sup>, which has a similar shape, decorative materials, and techniques to this specimen. The identical wooden substrate construction between these two lecterns suggests reconsidering of the production area of the Luso-Asian Nanban style object.

By this examination, some small holes were recognized in the wooden substrate, and these holes can be considered as old insect defects, not ongoing ones. Though some short cracks are found on the surface, the wooden substrate condition was relatively healthy.

The inked-on characters on the surface could not be recognized in a CT examination because X-rays penetrate through the lectern.

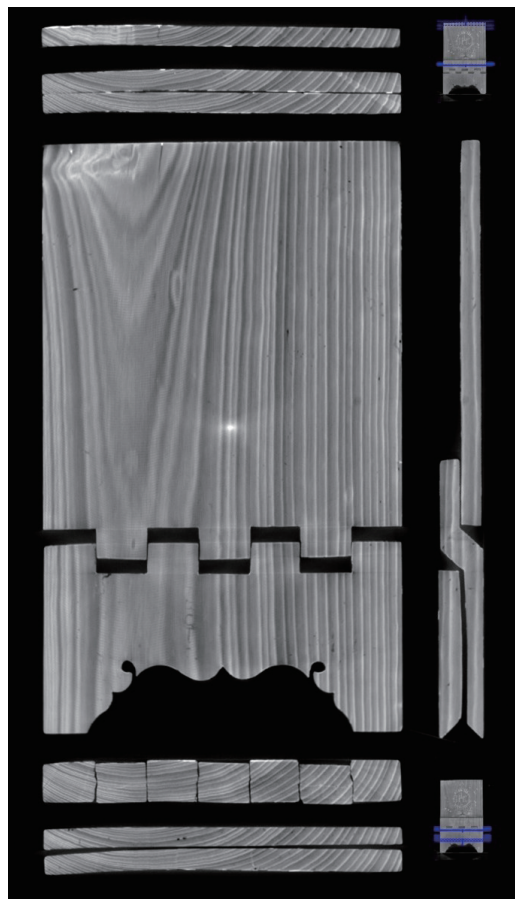


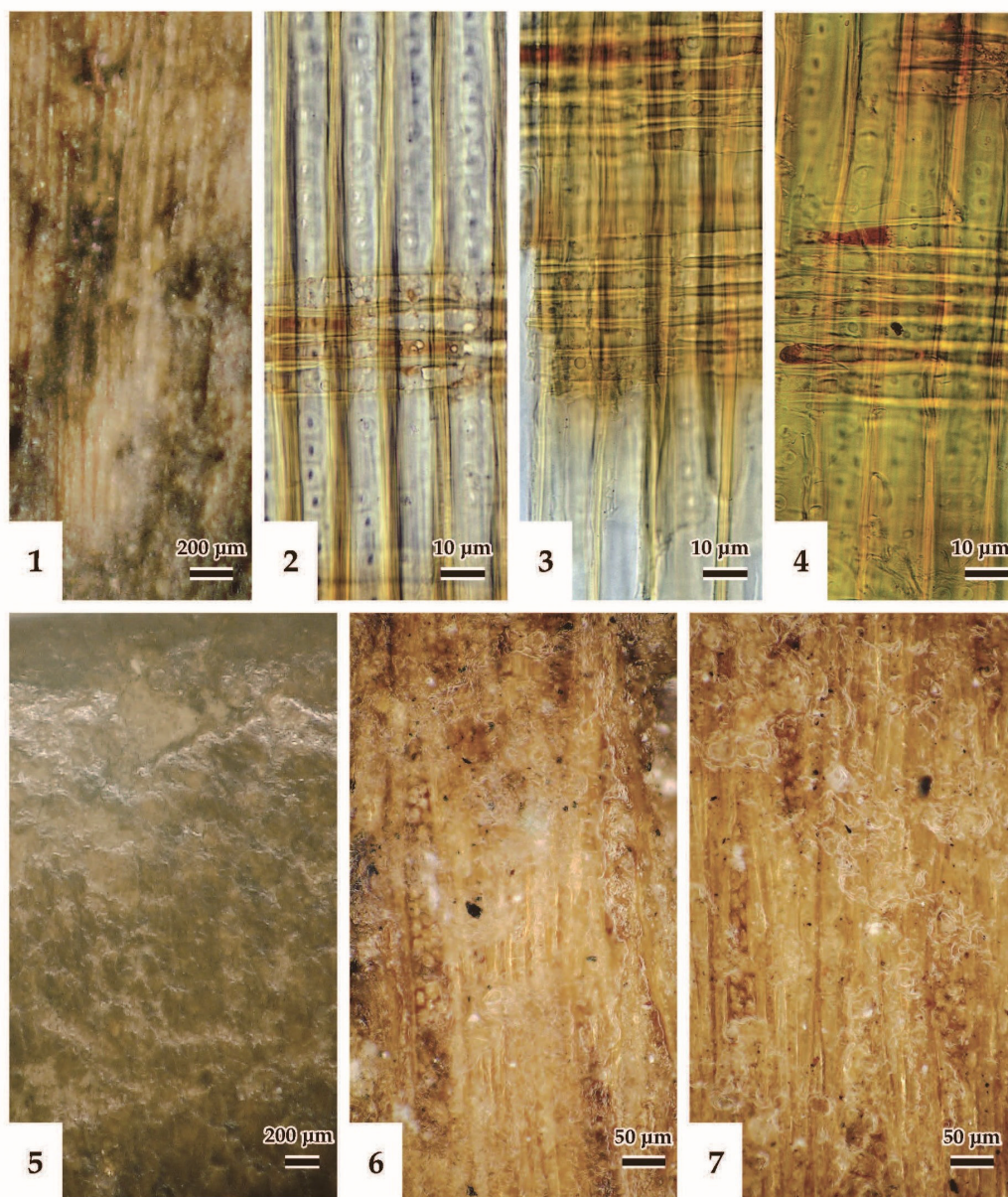
Figure 15 CT image of the Lectern (2)

## 3. Wood Identification and its result

### 3-1. Methods

Wood identification was mainly conducted at the Tobunken, after moving from Nara to Tokyo in January 2024 investigation.

The wood sample was taken only from the broken part of the top horizontal bar of the Lectern (1) and the wood structure was observed in three sections by an optical microscope (BX53, Olympus Co., LTD). The wood structure of the Lectern (1) and the Lectern (2) was also observed by the Digital Microscope with downward light (RH-2000, HIROX Co. Ltd., lens MXB-2500REZ) on the suitable Magnifications as shown on Fig. 16.



**Figure 16** 1–4: Lectern (1) (1: digital microscope image of radial section of the backboard, 2–4: optical microscope image of radial section of the top horizontal bar).

5–7: Lectern (2) (5: digital microscope image of cross section of the backboard, 6–7: digital microscope image of tangential section of the backboard).

### 3–2. Results

Lectern (1) was possibly made of coniferous wood. The backboard had distinct growth rings marked by dark brown latewood (Fig. 16-1) and was made with coniferous wood obtained from trees growing in an area with distinct seasons. The top horizontal bar was made with the wood of *Thujopsis dolabrata* Siebold et Zucc. In the radial sections, ray cells often had

dark brown resin, and cross-field pits were small cupressoid to taxodioid, 2–3 per cross-field (Fig. 16-2–4). Axial parenchyma could not be observed in the obtained material. *Thujopsis dolabrata* is an endemic conifer in Japan, and no conifers in China have a similar wood structure to this species.

Lectern (2) was made with a dicotyledonous wood. In the cross-section of the backboard, a few solitary vessels, ca. 50–100  $\mu\text{m}$  in diameter, could be observed, but other features of vessels or parenchyma could not be observed (Fig. 16-5). In the tangential sections of the backboard, rays were homocellular and 2–3 cells wide (Fig. 16-6–7).

#### 4. Report summary and discussion

The following presents a simple summary and discussion of the results.

Unfortunately, infrared photography could not capture traces of the original pattern on the central surface of the Lectern (1)'s backboard. We believe that this is because the approximately 0.2 mm thick re-coated lacquer layer and carbon component contained in the re-coated black lacquer prevented infrared light from penetrating the lacquer layer, and because techniques such as rear-side transparent photography were impossible. Contrarily, in the Lectern (2), the wooden substrate reflecting the infrared light and the carbon in the lectern's ink absorbing it enables the acquisition of an image clearly showing the lettering. As in the Lectern (2), this method of infrared light photography proved highly effective in similarly inked wooden objects. We hope that the inscriptions in obtained images to be deciphered and interpreted in future.

The X-ray CT examination revealed the wooden structures of both lecterns and re-confirmed the difference between the lectern of Nanban lacquer made in Japan and the lectern of Luso-Asian Nanban style lacquer<sup>14)15)</sup> thought to be produced somewhere in a wide area from south Asia to east Asia. Although the existence of the top horizontal bar on Nanban lectern has been pointed out by illustration<sup>†9 16)</sup> or by the actual Nanban lecterns with surface decoration dropped off so far, the CT image here clearly showed the difference between the lecterns accurately.

The on-site ingenuity and judgment based on the research expertise proved fruitful. This lead to revealing that the original IHS insignia existed in the center of Lectern (1)'s backboard of the area of the later applied lacquer as expected. This showed the overcoating was done after the original decoration with the explicit intention of concealing the Jesuit symbol.

This study also showed that infrared or X-ray examinations are important for grasping the object's materials and conditions. We hope that this study will serve as a reference case for determining which of these techniques is more effective and suitable, rather than conducting such analysis blindly<sup>†10 17) †11 18)</sup>.

A microscopic observation of the wood structure is necessary for wood identification. However, a wood sample cannot be taken usually. Differing from the identification of the broken point on the *hashibami* top horizontal bar of the Lectern (1), wood identification is done through observing wood structure using a digital microscope. We showed that the *hashibami* top horizontal bar of the Japanese Nanban Lectern (1) was made with Japanese *Thujopsis dolabrata* Siebold et Zucc., and the substrate was possibly made of coniferous wood, and the

Lectern (2) was made of dicotyledonous wood. Thus, the two lecterns used wood from different tree species for their production. The distribution of the used tree species, and the existence of Chinese characters on the Lectern (2) strongly suggested that these lecterns were made in Japan and possibly outside Japan, respectively. These results show that even rough wood species data like coniferous wood or dicotyledonous wood, can be important.

Finally, the authors believe that this report can show the basic data of the two lecterns' wooden substrate. This investigation proves the high usefulness of these examination techniques not only for academic research, but also for conservation of works by allowing condition checking and current situation recording. This is specifically useful for wooden objects, especially when people apply these mutually related techniques together. Although it is not easy to get these different experts or facilities together for every research, it would be desirable to conduct research for important or rare objects with such recognition.

### Acknowledgment

We are grateful to Akiko Iwato (岩戸 晶子), Clement Onn (溫 俊玉), Julie Chang (張 倚竹), and Ulrike Körber for their tangible and intangible support and suggestions. (Alphabetical Order)

### Postscript

This work was supported by JSPS KAKENHI, Grant-in-Aid for Scientific Research (A), Exploring the Cultural Exchange History of Mother-of-Pearl Decoration in Asia: From the Viewpoint of Material and Cultural History (Principal Investigator: Kobayashi Koji), Grant Number 20H00037.

### Notes

- † 1 Dr. Körber outlines the existence of the Lectern (2) in 2022 and the recognition of the characters “澳門 (Macau)” in reference no. 1).
- † 2 This lectern is also referred to in the same author's article of reference no. 2).
- † 3 The “IHS” insignia adopted by Ignazio de Loyola, founder of the Society of Jesus, is said to be an abbreviation for the name of Jesus in Greek—IΗΣΟΤΣ [iota-eta-sigma]—and devised by Bernardino da Siena in the fifteenth century.
- † 4 The first author presented some X-ray CT images of a Nanban lectern, a Luso-Asian Nanban style lectern, and Islamic Qur'an lecterns in reference no. 4).
- † 5 In reference no. 5), the authors showed X-ray CT images of two Nanban lecterns.
- † 6 The reason for discussing only the wooden substrate in this paper, particularly concerning Luso-Asian Nanban style wooden object, is as follows. Those objects are generally believed to feature mother-of-pearl lacquer decoration applied to their surface in Macau (China). This assumption is based on detecting laccol component and other supporting considerations as shown in reference no. 7). In contrast to this, the origin or processing location of the wooden



substrate remains inconclusive, with possibilities ranging from India to China. This uncertainty is supported by findings such as using possible tropical wood in the same style lectern (unpublished research) or engraved wooden patterns resembling Indo-Portuguese objects. Due to this reason, it is necessary to separate consideration of the wooden substrate from the surface decoration.

- † 7 The investigation and quick report based on the examination results were presented at the Tobunken Monthly Report (<https://www.tobunken.go.jp/materials/ekatudo/2065706.html>). Accessed January 9, 2025.
- † 8 Teresa Canepa mentions that the Nanban lectern's construction originated from the Islamic Qur'an lectern in reference no. 8). And this consideration is substantiated by the X-ray CT examination in reference no. 4).
- † 9 Although the illustration of a lectern consisting of three wooden parts is shown in reference no. 16), no such example has been recognized by the first author so far.
- † 10 In reference no. 17), examinations using both near-infrared photography and X-ray photography of a modern Japanese oil painting have shown that the originally painted hand on the painting, erased by the painter himself, was re-confirmed by the X-ray examination, not by the near-infrared one.
- † 11 Many images of the examination are shown in reference no. 18).

## References

- 1) Ulrike Körber, India, Japan, or China? The Complex Origins of Chinese Lacquered Luso-Asian Objects in the Scope of the Jesuit Missions in Asia, in *Bernardo Ferrão e as Artes Decorativas no Oriente e no Mundo - Estudos e Homenagem*, eds. José Augusto de Sottomayor-Pizarro & Ana Cristina Sousa, Porto: Círculo Dr. José de Figueiredo, pp. 221-241. (2022).
- 2) Ulrike Körber, Messengers of Early Modern Circulations: Lacquered Luso-Asian Objects at the Asian Civilizations Museum, in *The Oriental Ceramic Society Newsletter*, No.32, The Oriental Ceramic Society, pp.10-11. (2024).
- 3) Koji KOBAYASHI, A Consideration of Namban Lacquer Lecterns and Their Dating, *The Bijutsu Kenkyu: The Journal of Art Studies*, No.417, Tokyo National Research Institute for Cultural Properties. pp. 44-64 (2016). (in Japanese) <https://tobunken.repo.nii.ac.jp/records/6096> Accessed January 9, 2025.
- 4) Koji KOBAYASHI, The Origin and Production Techniques of Christian Namban Lacquer: Focusing on The Wooden Substrates of Lecterns and Pyxis, Oita Prefectural Center for Archaeological Research Bulletin, No.4, Oita Prefectural Center for Archaeological Research. pp. 1-28 (2021). (in Japanese) [https://researchmap.jp/b\\_b/published\\_papers/32008298?lang=en](https://researchmap.jp/b_b/published_papers/32008298?lang=en) Accessed January 9, 2025
- 5) Hiroko FUKUDA, Satoko OKAJI, Koji KOBAYASHI, Mariko ANDO, Toshiyuki TORIGOE, Masahiro MIYATA., Report on the Nanban Lacquer Lectern in the Collection of the Hiroshima Prefectural Art Museum - through Comparison with the Results of the CT Survey of the Nanban Lacquer Lectern in the Tokyo National Museum Collection. *Bulletin of Hiroshima Prefectural Art Museum*, No.26, pp.1-36 (2023). (in Japanese) <https://www.hpam.jp/museum/wp-content/up>

- loads/2023/03/R5%E5%BA%bB3%B6%E7%9C%8C%E7%AB%8B%E7%BE%8E%E8%A1%93%E9%A4%A8%E7%A0%94%E7%A9%B6%bB4%80%E8%A6%8126%E5%8F%B7-1s\_compressed.pdf Accessed January 9, 2025
- 6) Ibid. 3), KOBAYASHI (2016), table 2 and 3.
- 7) Birte Koehler, Lynn Chua, Clement Onn., Examination of lacquer layers on a 16th-century missal stand. *ICOM-CC Beijing, 19th Triennial Conference Preprints*, Beijing (2021). <https://www.icom-cc-publications-online.org/4405/Examination-of-lacquer-layers-on-a-16th-century-missal-stand> Accessed January 9, 2025.
- 8) Teresa Canepa, 3 Lectern (Shokendai), *After the Barbarians, an Exceptional Group of Namban Works of Art*. Lisbon: Jorge Welsh, Porcelana Oriental e Obras de Arte. p.38. (2003).
- 9) Ibid. 4), KOBAYASHI, (2021), Fig. 14.
- 10) Ibid. 5), FUKUDA, et al. (2023).
- 11) Toshiyuki TORIGOE, Koji KOBAYASHI, Ulrike KÖRBER, Saya KATO.: X-Ray CT Examination of the Makie and Mother-of-Pearl Decorated Nanban Lectern with Pine-Tree Pattern passed down in Portugal (ポルトガルで伝えられた松樹 IHS 蒔絵螺鈿書見台の CT 調査)., *The 46th Annual Meeting of the Japan Society for the Conservation of Cultural Property Abstracts.*, pp. 112–113 (2024). (in Japanese)
- 12) <https://www.cernuschi.paris.fr/en/https%3A/www.cernuschi.paris.fr/fr/collections/collections-japonaises/bois-et-laques/lutrin-pliable> Accessed January 9, 2025.
- 13) Toshiyuki TORIGOE, Koji KOBAYASHI, Shuichi NOSHIRO, Shigeru KITAMURA, Ken SHIMIZU, Azusa TAZAWA, Mariko ANDO, Takako YANO.: X-ray CT Investigation of Namban Lacquer owned by Namban Bunkakan Museum., *The 35th Annual Meeting of the Japan Society for Scientific Studies on Cultural Property Abstracts.*, pp. 224–225 (2018). (in Japanese) and Ibid. 4) KOBAYASHI, (2021) pp. 10–11.
- 14) Ibid. 4), KOBAYASHI (2021).
- 15) Ibid. 5), FUKUDA, et al. (2023).
- 16) Pedro de Canela ABREU, The Construction Techniques of Namban Objects. In Luisa VINHAIS, Jorge coord WELSH. *After the Barbarians II. Namban Works of Art for the Japanese and Dutch Markets*. London: Jorge Welsh Books, p.59. (2008).
- 17) Akiko YOSHIDA, A Close Examination of KISHIDA Ryusei's Still Life (with Erased Hand) - Report on Optical Survey Results and Thoughts on Imagery Inspiration for the "Hand", *The Bijutsu Kenkyu, The Journal of Art Studies*. No.441 Tokyo National Research Institute for Cultural Properties. pp. 17–37 (2023). (in Japanese)
- 18) YOSHIDA Akiko, et al. Kishida Ryūsei, *Still life with a hand drawn*, Private collection, 1918., *Tokyo National Research Institute for Cultural Properties, Optical Research Note vol. 1*. Tokyo: Tokyo National Research Institute for Cultural Properties. (2024). (in Japanese)

Keywords: 南蛮漆器 (Nanban lacquer) ; ポルトガル・アジア南蛮様式漆器 (Luso-Asian Nanban Style Lacquer) ; 赤外線撮影 (Infrared Photography) ; X線 CT (X-ray CT examination) ; 樹種同定 (Wood Identification) ; 文化財保全 (Conservation for Cultural Properties)



# Scientific Analysis on Two Christian Lecterns in Portugal: A Wooden Substrate Investigation

KOBAYASHI Koji, NAKAMURA Ichiro<sup>\*</sup>,  
TORIGOE Toshiyuki<sup>\*\*</sup> and NOSHIRO Shuichi<sup>\*\*\*</sup>

The present report shows a scientific analysis of two private Christian Lecterns in Portugal. We report on an optical investigation using visible light, infrared photography, and X-ray CT examination and wood identification conducted in January 2024 in Japan.

Lectern (1) is a Japanese Nanban lacquer, possibly made in the 1630s, after the Christian ban. The center part of the backboard, where the IHS insignia of the Society of Jesus, one of the catholic orders is usually places, is thickly re-coated by urushi lacquer in a circular area covering the insignia with a pine-tree pattern after the original decoration. Lectern (2) is a Luso-Asian Nanban style lacquer possibly produced in Macau or Ryukyu islands, likely made from the late sixteenth to early seventeenth centuries. Chinese hanzi ink inscriptions can be recognized on both the front and back wooden substrate surfaces, because the surface decoration have fallen off broadly. Another researcher has pointed out earlier that the inscription includes two Chinese characters, “澳門” meaning Macau. Those unique features presented the exclusive historical importance of these two lecterns, so the first author conducted the various kinds of research, aiming to record the detailed situation, elucidate the original pattern underneath the re-coated urushi lacquer on the center part, decipher the full-text of the Chinese sentences, and understand the substrate structure or making techniques.

As a result, the authors confirmed the presence of the IHS insignia, which had been expected, underneath the urushi re-coating for Lectern (1) by X-ray CT examination, and the ink inscription was visualized much more clearly by infrared photography. Furthermore, we confirmed again that each of these lecterns was made from one wood board, and that a *hashibami* top horizontal bar was attached only on Lectern (1). By wood identification of the sample taken from a broken part, it became clear that the *hashibami* top horizontal bar of Lectern (1) uses *Thujopsis dolabrata* Siebold et Zucc. - and its wood substrate is possibly coniferous wood, both of which are to be Japanese woods. In contrast, Lectern (2) utilizes dicotyledonous wood, though the lectern's production area is obscure. These wood differences between the two lecterns with different styles suggest that the probability of Lectern (1) being made in Japan and Lectern (2) produced overseas is much higher.

This report is the first English-language publication, with a special focus on Nanban lecterns and Luso-Asian Nanban style lecterns, providing their X-ray CT images, along with visible and infrared photography and wood identification results. The authors believe that these data are highly effective in the conservation of cultural properties of the same kind, many of which are possessed in countries outside Japan. We also expect that this kind of investigation is necessary and that the investigation techniques would be generally considered useful among researchers, especially for important or rare objects research.

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<sup>\*</sup>Independent Administrative Institution, Nara National Research Institute for Cultural Properties

<sup>\*\*</sup>Nara National Museum

<sup>\*\*\*</sup>Meiji University

## ポルトガルに伝えられたキリスト教書見台二基の科学分析 —木胎に対する調査—

小林 公治・中村 一郎\*・鳥越 俊行\*\*・能城 修一\*\*\*

本稿は、ポルトガルに伝世した個人蔵キリスト教書見台2基の木胎に対して、2024年1月に日本国内にて実施した光学調査（赤外線・可視光撮影およびX線CT）および樹種調査についての報告である。

書見台（1）は、キリスト教禁教後の1630年代に製作されたとみられる日本製の南蛮漆器で、通常、カトリック修道会であるイエズス会の標章 IHS 紋が表される背板中央部を当初の装飾後に漆で厚く円形に塗り重ね、松文様を表している。書見台（2）は、マカオあるいは琉球製の可能性が指摘されてきたポルトガル・アジア南蛮様式の漆器で、16世紀末から17世紀初めの製作年代が想定される。表面の装飾がかなり剥落していることで表裏木胎面の墨書中国語文が露出しているが、文中にマカオを意味する「澳門」2文字の存在が指摘されていた。こうした特徴から、これらの書見台はきわめて重要な歴史資料であると考えられたため、現状の詳細な状態記録、中央部漆塗膜下の当初文様や漢字文の全容把握、木胎構造や製作技術理解を目指して上記諸調査を実施した。

その結果、書見台（1）についてはX線CTによって塗り重ねられた漆塗膜下に予想通り IHS 紋が確認された。書見台（2）については赤外線撮影によってかなり鮮明に墨書文字全体を捉えることができた。さらにX線CTによって両者が一枚板から造られていることが明らかになったほか、日本製の南蛮漆器書見台には頂部に端喰材が追加されていることが確認された。また樹種調査により、書見台（1）は端喰材に日本産のアスナロが、また木胎には日本産とみられる針葉樹が、書見台（2）では産地は明確でないものの広葉樹が使われていることが判明した。様式を異にする両書見台には明らかに異なる木材が選択されていることから、両者が日本と海外でそれぞれ製作された蓋然性を示していると推定された。

今回の報告は、南蛮漆器とポルトガル・アジア南蛮様式漆器それぞれの書見台に対して実施したX線CT画像を、赤外線および可視光線画像、また樹種調査結果とともに、初めて英文で報告するものである。この報告により、こうした情報が海外に多く所蔵される同種の文化財保全に対しても寄与するきわめて有効性の高いものであることが示されるのみならず、特に重要な文化財、あるいは希少性が高い文化財の調査において、こうした総合的調査実施の必要性や方法の有効性が広く共有されることを期待したい。

\* 奈良文化財研究所、\*\* 奈良国立博物館、\*\*\* 明治大学