

## STITAH Case Studies

**Object:** Standing Bodhisattva on Lotus Base

**Date:** Qing Dynasty (1644-1912)

**Culture:** China

**Owner:** Columbia University

**Accession Number:** S3829

**Name of Conservator:** Kathryn Brugioni

**Name of Supervisor:** Michele Marincola

**Treatment Location:** Conservation Center, Institute of Fine Arts, New York University

**Dimensions [cm]**

**H:** 33.75 in. (85.7 cm)

**W (at arms):** 8 .5 in. (21.6 cm)

**D (at base):** 8.25 in (21 cm)

**Material(s):** Polychrome wood and glass cabochon gems

### Slide 1: TITLE SLIDE

The proceeding case study presents a summary of a the technical study and conservation treatment of a polychrome-wood Bodhisattva figure from the collections of the Avery Library at Columbia University. Students will receive a brief introduction to the iconography at hand, issues related to the art market and previous restoration, and analysis used to study this object.

The condition images, the illustrations, and the content of this presentation, were generated as part of a graduate course at the Conservation Center, Institute of Fine Arts, New York University. The content has been adapted for classroom use.

This document serves as a companion to the PowerPoint presentation; please refer to slides as numbered in the presentation.

### Slide 2: Before- and After-Treatment, Front

Here you see the object in question, from the front...

### **Slide 3: Before- and After-Treatment, Back**

...and from the back, as it appeared both before and after treatment.

The client in this case, Columbia University, wanted to clean and stabilize the object as well as to obtain observational and instrumental data that could solidify a date and location for the manufacture of this object.

### **Slide 4: OUTLINE**

### **Slide 5: Outline; Art-Historical Analysis**

When an art historian first looks at an object, he or she may note its formal qualities and its iconography, postulating as to its date of facture and its original function.

### **Slide 6: Outline; Condition**

That is not to say that conservators don't also think of these things; however, a conservator may first notice an object's condition—the way in which the object or artifact has been handed down through time.

When documenting the condition of an artifact before treatment, *condition maps* and diagrams are useful to visualize the extent of degradation as well as to detect patterns therein.

### **Slide 7: Outline; Technical Analysis**

Conservators will also note material evidence that speaks to how an object was made and used. These data, gleaned from careful observation and instrumental analysis, can be used to explore issues of function and provenance which may be overlooked by other methods.

### **Slide 8: Outline; Conclusions**

By combining the findings of the art-historical, observational, and technical data, new understandings can be reached and an appropriate treatment intervention can be designed.

## **Slide 9: ART HISTORICAL STUDY**

## **Slide 10: Iconography and Typology**

## **Slide 11: Missing Elements and Attributes**

Art-historical inquiry is important when completing a well-informed condition report: By understanding how the object may have looked one can understand how the object has changed.

In this case, the Bodhisattva sculpture arrived at the lab with various detached wooden elements. It was initially unclear where—or if—all of these pieces belonged to the sculpture.

## **Slide 12: Missing Elements and Attributes**

More careful study was required to reconstruct the sculpture's original appearance and to identify which attributes were rightfully associated with the Bodhisattva. Although not all missing elements were extant, study of the relevant iconography directed the proper restoration of the Bodhisattva's attributes.

It is for these reasons, among others, that an art conservator may choose to consult with an art historian with the appropriate expertise. Professor Hsueh-man Shen, Assistant Professor and Ehrenkranz Chair in World Art at the Institute of Fine Arts, was able to advise in this case.

## **Slide 13: Bodhisattva Guanyin**

When the sculpture arrived from the Avery Library collection, it was simply designated "Bodhisattva." *Bodhisattvas*, central to *Mahayana* Buddhism, are enlightened beings who delay entering paradise to help others attain salvation. There are many different Bodhisattvas with different appearances, attributes, and functions.

This sculpture of a Bodhisattva most likely depicts *Guanyin*, the Chinese manifestation of Indian *Avalokitesvara*.

Avalokitesvara's teachings and image were imported to China from India during the Sui Dynasty (581-618) where they gained great popularity. On the left here is an image of

Avalokitesvara from Nalanda, India, as it compares with the Chinese Guanyin on the right. The two stone images share interesting iconographical similarities to each other as well as to the Avery Library example. All three are stand on a lotus pedestal, holding a lotus bud. They are bare-chested, are bejeweled in similar fashion, and are wearing sleeve or scarf elements to either side of their body.

### **Slide 14: Iconography in China and India**

The iconography and attributes of this figure are ruled by very subtle variations in representation, as seen here. Both the Indian (right) and the Chinese (left) representation of the Bodhisattva use subtle hand positions and attributes to identify particular aspects of the Bodhisattva. As here, when Avalokitesvara is depicted as a standing male, he usually holds a lotus, which is an attribute of his salvic form, Padmapani. Statues depicting a lotus-bearing Guanyin found their roots in early Indian forms and gained popularity in the Sui Dynasty, parallel to the increasing prominence of the Lotus Sutra in Chinese translation. The twenty-fifth chapter of the Lotus Sutra on the right shows the thirty-three specific forms that Guanyin can assume to assist other beings seeking salvation.

### **Slide 15: Iconographic Evolution in China**

Further associations and meanings accrued over time to make the figure of Guanyin significantly different in appearance than the imported image of Avalokitesvara. Here you see that the so-called “Thousand-Armed Guanyin” and Guanyin in the “Water-Moon Aspect,” which are unique, culturally specific inventions, which possibly subsumed deities of local significance.

As on the left, Guanyin even appears as a female in most Qing-dynasty representations, as shown here on the right.

### **Slide 16: Later Comparanda**

After examining the iconographic attributes of the Avery Library Guanyin, the date of the sculpture was still elusive. As on the right, formal comparison with an object from the late-Ming or early-Qing dynasties was promising, as both share a similar columnar and frontal format, with a similar gesture and similarly flat surface embellishment. However, this representation of Guanyin as male was rare during the Qing Dynasty. Instead the female form of the deity, as seen earlier, was preferred for production during this time for use in private devotion.

### **Slide 17: Art Historical Study; Context of Use**

The rarity of *any* Qing dynasty polychrome sculpture is due to the former use-contexts of these types of sculptures, but also to their destruction during the Cultural Revolution, which started in 1966.

### **Slide 18: Context of Use**

Over the course of Chinese history, polychromed wood and clay sculptures of various sizes were deployed outside in theological tableaux, which were often quite elaborate.

These figures of varying date show the surface loss and the industrial and ambient soiling that results from their display and veneration outdoors.

### **Slide 19: Context of Use**

As they were exposed to the weather, these were very often repainted with traditional or modern materials to renew the surfaces. The top two images of Tang-dynasty figures show the bright colors and smooth surfaces of a recent repainting campaign.

Below the slightly soiled figures of the Buddha flanked by his court of Bodhisattvas and Heavenly Kings are visible beneath the eaves of an open-air temple.

### **Slide 20: CONDITION**

#### **Slide 21: Condition due to Context**

The image on the right shows a surface condition similar to that of the Avery Library Guanyin, while the image on the left shows the terrible extent of loss and surface porosity that can occur with these objects. The fact that figures such as the Avery Library Guanyin may have possibly been displayed and used outside makes its survival even more remarkable.

#### **Slide 22: Condition of the Avery Bodhisattva**

Here you see a color-coded condition map showing losses to the surface (in blue, green, and pink), blistering paint (yellow), and structural cracks. Study of the structural losses has informed important points of iconography, and study of the surface losses hints at the

object's possible history. Study of the cracks will give us important information about the object's manufacture and use.

### **Slide 23: TECHNICAL STUDY**

Having discussed the complexity of the iconography and use context of the Avery Library's Guanyin as it relates to provenance, we will now proceed to explore the way a conservator uses technical and instrumental analysis to complement these observations.

The date of the object, it will be demonstrated, can be established both by formal comparison and material analysis.

### **Slide 24: Technical Study; Structure**

To begin the technical study, we review the structure of the sculpture and its various component parts.

### **Slide 25: Structure**

Because of its columnar shape, it initially seemed likely that this object consisted of a single cylindrical block of wood with joined arms and sleeves. However, an extended examination of the x-radiographs taken of the object revealed a complex multi-block construction as well as several modern nails and brads used in repairs, indicated in the map on the left.

The structural joins reveal something important about its use, as the component parts are arranged to form a concealed compartment inside the object, seen in the front and side x-radiographs and indicated in the map to the left. This indicates its possible use as a reliquary.

The examination was limited, however, both by the fact that some joins indicated by the x-radiograph were either invisible or barely visible on the object. Because x-radiographs are a two-dimensional representation of a three-dimensional object, it is often difficult to determine the relationship between different volumetric elements. It was difficult to visualize, for example, the shape of the compartment at the center of the object.

## **Slide 26: Stereoradiography**

In order to more accurately visualize the configuration of these blocks, sets of stereoscopic x-rays were created and viewed with anaglyph “3D glasses.” The two images—when joined algorithmically in Photoshop and viewed through the glasses—imitate the way the eye sees in three dimensions. This technique improved the resolution of the structure...

## **Slide 27: Structural Maps**

...which was more complicated than initially expected. A total of at least twenty-four blocks comprise the overall structure. The compartment in the figure’s chest was revealed to be shallow and key-hole shaped, but the x-radiographs did not reveal any contents inside. It could be that the contents are not dense enough to be visible with x-radiography or that the contents were removed in the past.

## **Slide 28: Technical Study; Materials Analysis**

To determine how the manufacture of this Bodhisattva compared to others in the Chinese tradition, instrumental analysis was performed on a number of the material components.

## **Slide 29: Materials Analysis: Wood**

Although the option was discussed, the conservation team and the Curator of Art Properties at Avery Library, Roberto Ferrari, decided not to perform wood-identification analysis. Wood identification can help secure provenance or dating in comparison to other known objects from a period or culture. Additionally, wood choice varied according to availability, geography, or preference.

In the areas where sampling would usually be permitted, however, the wood fibers were in poor condition: at the bottom the wood was deteriorated by rot (top left) and the exposed wood on the detached pieces were covered in glue. Additionally, many of the detached pieces were painted differently and were determined not to belong to the statue. Sampling from here would have given a false result.

## **Slide 30: Materials Analysis: Image Layer**

To better determine the original appearance of the polychrome surface treatment, pigment identification was conducted with various analytical methods.

### **Slide 31: PLM and XRF**

After obtaining permission from Dr. Ferrari, dispersed pigment samples were selected from discrete locations, indicated on the left.

“PLM” or “Polarized-Light Microscopy” uses a polarized-light microscope to identify dispersed pigment samples by certain inherent mineralogical characteristics. Only a few grains of pigment are necessary to identify many possible colorants and mixtures. The sample can be kept for future verification or study. “XRF” or “x-ray fluorescence spectrometry” uses x-rays to identify elements in a sample. This non-destructive technique was used over object’s surface to identify materials or to confirm PLM results.

### **Slide 32: XRF spectrum**

Here is an example of an XRF instrumental readout identifying vermilion by the presence of mercury (Hg). Each peak represents the intensity of a characteristic energy, which is unique for each element.

### **Slide 33: Color Reconstruction**

Three-or-more separate greens can be resolved on this object—namely in the leaves of the lotus flower, the skirt, and the crown. These pigments remain unidentified, and the literature remains undecided on the question of Chinese use of greens, referring to them merely as “copper trihydroxychlorides,” the chemical family to which malachite belongs.

The presence of gilding, multiple blues—ultramarine, azurite, and indigo—as well as multiple greens—malachite and green earths—indicated that the surface of this object was once very brightly and subtly colored.

A color reconstruction created in Adobe Creative Suite 6 helps to visualize the findings of the visual, microscopic, and spectroscopic examination of the polychrome layers of the sculpture. To reconstruct the color scheme digitally, reflected-light photomicrographs were taken of the dispersed PLM samples. Points on these images of the pigment particles as well as points on images of pigment paint-outs were converted into RGB values. Associating RGB values with each pigment present allowed for an approximation of the original appearance of this sculpture. The color saturation and opacity of each value were slightly adjusted in certain areas for realistic effect.



### **Slide 34: Restoration**

It is important to remind ourselves of the bright colors with which such objects would have been painted. Often, when such objects were acquired they were modified by dealers and collectors in accordance with contemporary aesthetics.

During the technical study of this object, evidence of restoration to “patinate” the surface and to integrate losses was recovered. An application of mud was applied, as viewed on the left, to dull areas of bright color.

A photomicrograph of a sample of applied dirt is visible in the top center. Red and blue pigment particles, along with flecks of gilding were mixed in with the dirt layer as it was smeared over the surface. Additionally, painted features were sanded and scraped, as is visible on the right. This was performed either to remove paint campaigns to recover an “original” layer or to mute the polychromed surface to increase salability in the Western art market.

### **Slide 35: Glass; Blue**

Two glass imitation gems applied to the object—one blue and the other pink—also add color to the object. Under magnification small bubbles in the glass matrices confirm that they are not indeed stone cabochons. The blue cabochon is set into the middle of the central necklace tassel with an ornamented gesso bezel.

The blue-glass colorant was identified as cobalt, which was expected after visual analysis, as cobalt has a history as a glass and ceramic glaze colorant since the Tang Dynasty.

### **Slide 36: Glass; Pink**

The pink cabochon is set into the center of the crown and is also held in place with an ornamented gesso bezel.

Pink glass, however, is more unusual. The XRF spectrum showed the presence of gold, indicating that it could have been colored using colloidal gold. This technique for coloring so-called “ruby-red” glass was imported to China by the Jesuits during the early Qing dynasty.

### **Slide 37: Ruby-Red Glass**

Introduced during the Yongzheng reign (1723-1735), it was especially popular during the Qianlong/Jiaqing Period (1760-1820) for use in glass snuff bottles and in so-called *famille rose* porcelain glazes. In 1696 a glass factory was also built and put under the direction of German Jesuit Kilian Stumpf (1655-1720), who is credited with introducing German enamel and coloring recipes to this first Chinese glasshouse. Recipes for ruby glasses were of Germanic origin, and were produced with both copper and gold, which is the elemental combination seen in the XRF spectrum of the pink glass cabochon on the Columbia University Bodhisattva.

Still, the possibility exists that this cabochon, and others like it, were not produced in these neophyte Chinese glass workshops, but rather were imported from Europe—as was the case for many early “ruby red” objects. Either being true, the presence of a “ruby red” glass cabochon on this object dates it to after the Chinese began expressing an interest in such a technology, during the Qing Dynasty.

### **Slide 38: Conclusions**

Integrated study of the condition, structure, materials used, and restoration history of the object was essential to an accurate identification and understanding of this rare object-type. X-radiography illuminated the structure of the object and its possible use as a reliquary. Instrumental analysis of the pigments informed a recreation of the original color scheme, while analysis of the glass cabochons provided data which informed the dating of the sculpture. Material evidence of restoration and modification revealed the way the object changed over time. This combination approach of art history, science, and conservation helped arrive at a more subtle understanding of the object, its manufacture, its appearance, its use, and its history.