

CONDITION EXAMINATION & TREATMENT PROPOSAL



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2025.193

Tabouret, c. 1907. Carlo Bugatti (Italian, 1856–1940). Mahogany, parchment, gilt bronze, mother-of-pearl; overall: 69.8 x 61 x 44 cm (27 1/2 x 24 x 17 5/16 in.). The Cleveland Museum of Art, Gift of Greg Manocherian, 2025.193.

Examined by: Daisy Diamond, Objects Conservation Graduate Intern

Completed on: 11/23/2025

Consulted: Ada de Wit, PhD, Ellen S. and Bruce V. Mavec Curator of Decorative Arts;
Beth Edelstein, Senior Conservator of Objects and Head of Objects Conservation



Summary

This examination and treatment proposal were completed following acquisition.

Description

The bench is made of sawed, joined, and carved wood, likely mahogany. A rectangular seat is supported by arched side frames that act as both legs and arms. The legs, arms, and underside of the seat contain structural ornamentation in the wood composed of carved, open latticework patterns that contain mother of pearl inlay and cast copper alloy ornamentation, likely gilt (ormolu). The wood appears primarily carved to imitate bent structures. The seat of the bench is a replacement composed of a firm, parchment-upholstered panel attached to the frame with ferrous slotted screws. A brush-applied coating on the parchment is visible in ultraviolet (UV) light. The four legs are capped in cast metal mounts, likely ormolu, that give the bench a slightly floating appearance. However, each wooden leg actually sits inside its cast metal foot, coming close to but not quite touching the surface beneath it. These cast elements contain zoomorphic features, incorporating bird beaks, scales, eyes, insect wings (dragonfly?), as well as more general features reminiscent of animal anatomy. These metal components are attached to the wood with various types of non-ferrous screws and pins. The wood and mother of pearl inlaid components are coated. There is no signature on this bench, which is notable since there is a signature on the front shelf of a similar work in the Cleveland Museum of Art collection (1991.45; refer to “Historical Context” for additional information). The underside of the bench has a black dust cover, likely attached during the reupholstery campaign.

Materials and Manufacture

The coated wood has a rich, red-brown appearance. Sawn marks are visible in the latticework patterns when viewed in raking light (fig. 1). These areas of carved latticework were set into the frame within a carved groove. There is one area of a plug and branch node (fig. 2). Most of the wood is from radial and tangential planes. Distinct latewood and earlywood pores are visible without magnification, indicating the material was sourced from a hardwood tree. On areas of the wood sectioned tangentially, there are horizontal rays of even height and spacing (storied rays) that produce

distinct ripple marks. On the transverse plane, distinct growth rings are discernible, potentially due to the distinguishable line of marginal parenchyma typical of Central American mahogany. The visual appearance with 0-10x magnification is consistent with mahogany, which is a commonly used wood for traditional furniture (Rivers and Umney 2003, 66; Hoadley 1990, 29, 43, 171). Bugatti is known to have used walnut, mahogany, beechwood, and oak in his furniture work (Hawley 1999).



Figure 1. Sawn marks in raking light.



Figure 2. Plug and branch node on foot interior.

The metal components are likely gilt copper alloy, also referred to as ormolu. Ormolu typically is used to describe gilt brass, especially in reference to gilded mounts on 18-19th century French furniture. This combination has been noted to accelerate galvanic corrosion, particularly in the presence of moisture, as the gold can act as a cathode in contact with the anodic copper alloy (Rivers and Umney 2003, 696). One detail on the feet is of note in relation to contextualizing the casting process: on two feet opposite each other, there is a gap in top of the ornament where the screw is inserted. This may indicate that these two feet were cast from the same mold, since they exhibit the same casting flaw.

Mother of pearl is the term used to describe pearly, iridescent “nacreous” inner layers produced by many types of mollusks. This non-porous and brittle keratinous material is organic with a high inorganic composition. To create inlays like the ones on this bench, the shell could have been cut with hard abrasives or formed using a small saw (Rivers and Umney 2003, 204). There are minor gaps near the edges of the inlay, likely attributed to manufacturing. Some areas also exhibit pitting, likely attributed to the original shell structure.

The parchment used for the replacement seat is cream colored, opaque, and relatively inelastic. The hair side faces outwardly with visible follicles present. These follicles are evenly spaced with slightly irregular lines of pores. The appearance of this seat is consistent with sheep or goat parchment (figs. 3-4). The spacing between follicles is larger than what would be expected for a cow or calf skin pattern. Although goat and sheep parchment may appear similarly, follicle patterns for goat skins are typically clustered in groups of 3, a feature which is not discernable here. This parchment was likely prepared by liming washed skins to soften the hair and the epidermis before dehairing with knives and then stretching the material on a frame to be further scraped and carefully dried under tension. The grain may have been further reduced by flattening and drying, possibly against glass, which limits the ability to make conclusive species identification (O’Brien-Miller 2019; Kaplan and Pouliot 2025). In the gap between the seat and the exterior wooden frame, small pins are visible from the upholstery process. There are holes on the underside of the wooden seat consistent with where the original parchment cover may have been tacked down.

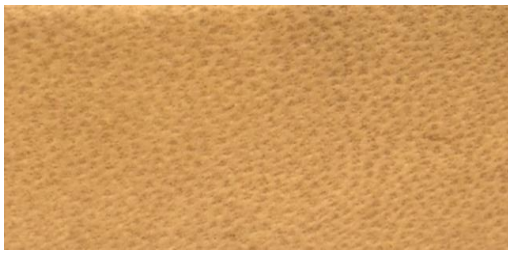


Figure 3. Replacement parchment seat. Taken with an iPhone zoomed in.



Figure 4. Replacement parchment seat. Captured with a Dinolite Edge and DinoCapture 2.0 software.

Historical Context

Carlo Bugatti (Italian, Milan 1856 – Bas-Rhin, France 1940) studied architecture at the Brera Academy in Milan before he transitioned to designing furniture and metalwork. His work often drew influence from stylized plants and animals, European Romanesque architecture, as well as motifs and patterns that originate from Islamic and Japanese cultural heritage. For instance, the latticework of this bench somewhat resembles lancet archways and the geometric arrangements of Islamic architecture. Bugatti often worked with wood and used more unusual materials for decorative elements, such as leather, silk, parchment panels, metal plaques, ebony, ivory, and mother of pearl. At the time that Bugatti was working, his style was extremely unique in comparison to his peers. He rarely duplicated his own designs, instead slightly modifying basic furniture forms to create work in a series and gaining a reputation as a “Renaissance man” based on his wide-ranging skillset, use of materials, and artistic voice. His awards included a diploma of honor from the organizers of the Italian Exhibition. Carlo Bugatti's sons Rembrandt (1884-1916) and Ettore (1881-1947) achieved significant success in their careers in the fields of art and design: Rembrandt became a celebrated sculptor, and Ettore manufactured luxury cars (Hawley 1999, 2-11, 122).

Although the seat of this bench is not original, the use of parchment over wood frequently appears in Bugatti’s designs, with later works including geometric decoration on the parchment (fig. 5). Bugatti’s tea and coffee service, salver, and table (fig. 6) represent major works within the Cleveland Museum of Art’s European decorative arts collection, of which the legs and latticework represent similar motifs to the bench. The similarities between these works indicate that the bench is likely from Bugatti’s Parisian period and was made perhaps around 1907 (Hawley 1999, 30). A photograph exists of an earlier version of the seat, which may have been original (fig. 7). There is curatorial interest in determining whether this bench represents a high-quality example of Bugatti’s work (de Wit, personal communication, October 2025).



Figure 5. *Library Stool*, c. 1899. Carlo Bugatti. Inlaid wood with copper, pewter, and brass and parchment top; overall: 48.3 x 104.1 x 40.6 cm. The Wolfson, 1983.11.11. Image source: Hawley 1999, 11.



Figure 6. *Tea Table*, c. 1907. Carlo Bugatti. Inlaid wood (mahogany?), cast and gilded bronze mounts, inlays of ivory or bone, metal, and mother-of-pearl (marine mussels or pearl oysters); overall: 71.5 x 67.1 x 41.3 cm (28 1/8 x 26 7/16 x 16 1/4 in.). Image source: Cleveland Museum of Art, 1991.45.



Figure 7. *Bench*, c. 1907. Wood, parchment, gilt bronze, mother of pearl; overall: 70 x 61 x 43 cm. Le Pavillon de Sèvres Ltd., London. Image source: Hawley 1999, 30.

Analysis

Portable X-ray Fluorescence (XRF) Spectroscopy

With the Burkert Tracer 5i portable XRF (Rhodium target source), copper, zinc, gold, and nickel were detected on the cast foot of the bench (fig. 8). This is consistent with ormolu, a gold gilt brass.

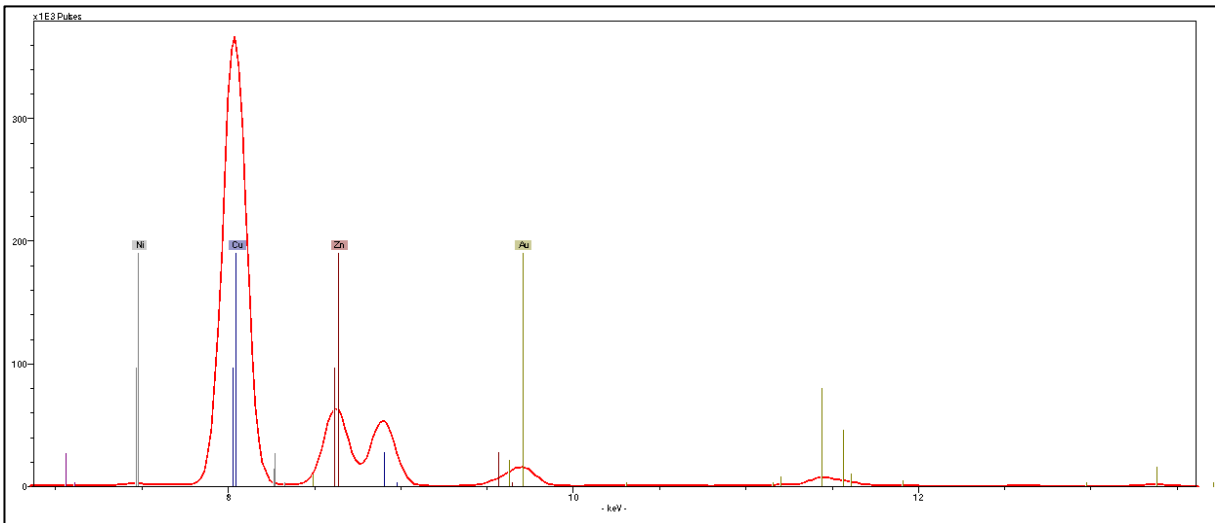


Figure 8. Portable XRF spectrum. 40 kV, 35 mA, and 60s.

Condition

Overall, the bench is structurally stable for handling and movement. However, there are many minor to moderate aesthetic condition concerns of note (figs. 9-10), particularly related to differences between the bench and the similar *Tea Table* (1991.45) in the Cleveland Museum of Art Collection.

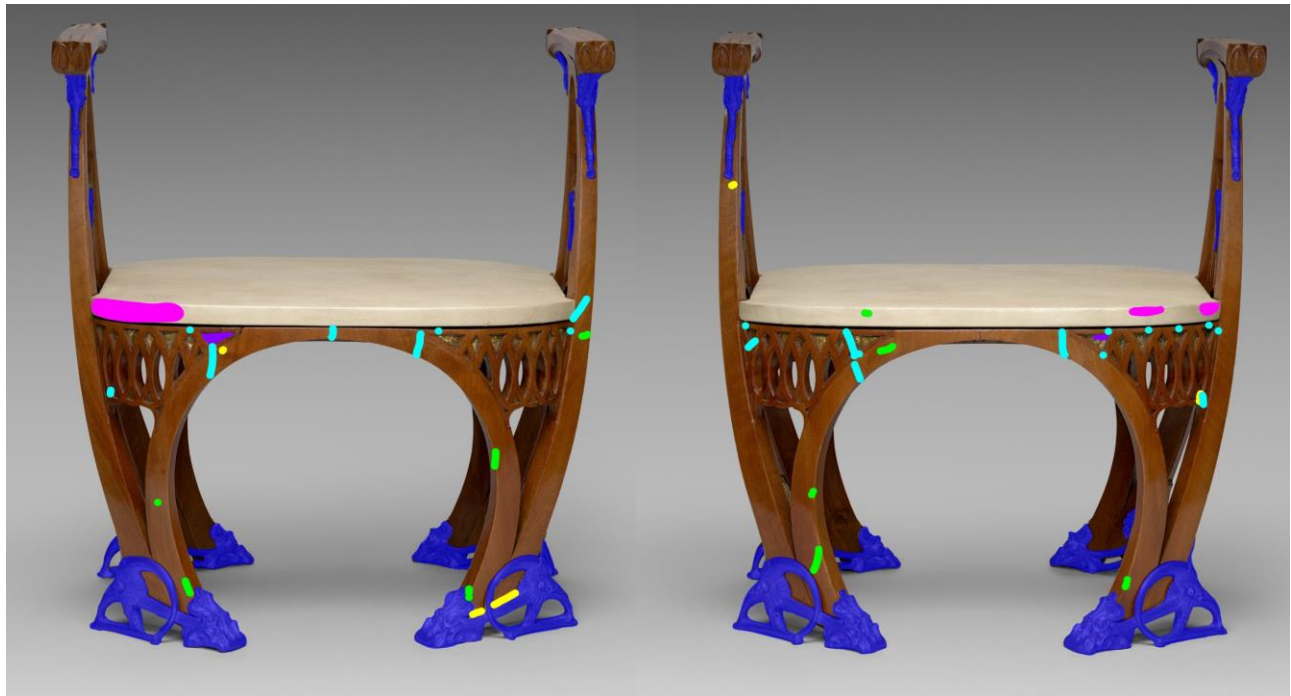


Figure 9. Condition diagram: long side. **Cyan: cracks**, **pink: scuff marks**, **green: indents/abrasions**, **purple: missing elements (screws, inlay, paint layer)**, **yellow: fill/adhesive residue**, **blue: corrosion**.

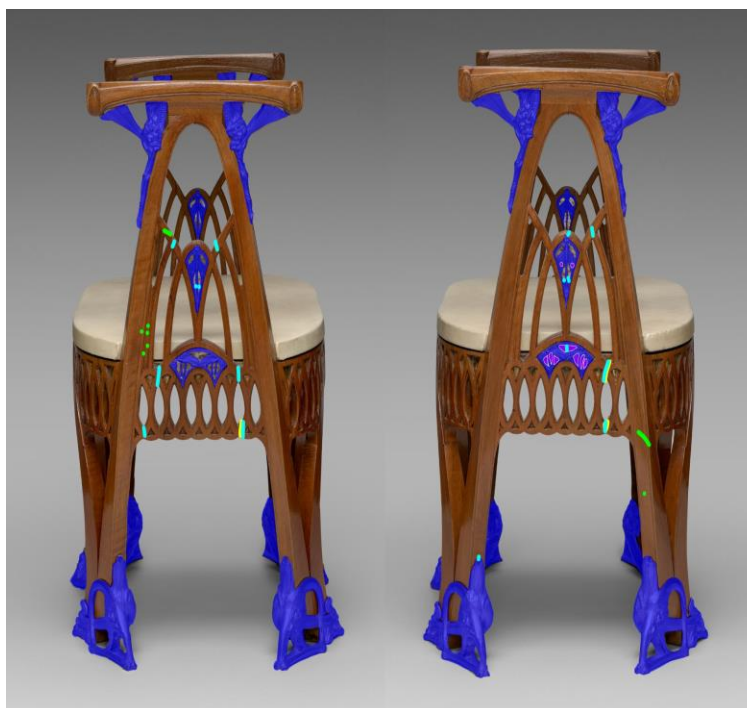


Figure 10. Condition diagram: short side. **Cyan: cracks, pink: scuff marks, green: indents/abrasions, purple: missing elements (screws, inlay, paint layer), yellow: fill/adhesive residue, blue: corrosion.**

Wooden structure

The wooden framework has approximately 30-35 splits/partial cracks < 4 cm in length with gaps < 0.1 cm. Some of the spaces between these splits and cracks contain old fill material or adhesive residues including wax, adhesive, and inpainting media. These prior treatment residues are distracting, since the color, gloss, and brittle adhesive spill out detract from the appearance (fig. 11). Overall, there are minor areas of abrasion and indents. A dark, unknown residue is visible at the feet near the metal ornamentation. The coating on the wood is consistently glossy and saturates the surface. Under UV examination, there is evidence of multiple coating applications and/or removal of prior coatings with orange (potentially shellac) and white (potentially a modern coating) fluorescence (fig. 12). On the underside of the wooden seat, there are minor overall scratches, a brittle adhesive residue that fluoresces blue-white, and two missing screws.



Figure 12. Built-up accretions from prior treatment.



Figure 11. UV evidence of multiple coating applications/removal of prior coatings. Left: visible light. Right: UV (365 nm) uvBeast V3 flashlight.

Cast ormolu ornamentation

The cast ormolu ornamentation has a dull, varied surface patina that differs from the appearance of the metal

components on the *Tea Table*, particularly for the darker patina of the arm ornamentation. One ornament is wobbly. Another is missing two screws; however, it is securely attached in place potentially with adhesive. There are two holes in the shell consistent with where screws were once located. Under UV examination, there are white deposits potentially indicative of a partially removed coating or another adhesive residue. On one foot, the cast metal is split near the screw, potentially caused by the pressure the screw created.

Inlay

There are two areas of missing inlay: one partial and one complete. There are complete cracks in multiple of the inlay components. One area of shell inlay is missing a painted layer present on other non-nacreous shell components, potentially from overcleaning (fig. 13). The coating over the nacreous inlay is yellowed and obscures the iridescence, contrast, and color of the underlying shell (fig. 14). However, this coating may also have prevented or slowed the production of white powdery water-soluble salt efflorescence on the surface (“Byne’s efflorescence”) and resulting etched surfaces due to the offgassing of volatile organic compounds (i.e. acetic and formic acid) from the surrounding wood components. Since most shell inlay on furniture is coated, the formation of these salts and etched surfaces on mother of pearl is somewhat uncommon (Rivers and Umney 2003, 316).



Figure 13. Missing paint on shell inlay (black arrow), with painted component above and nacreous shell below.



Figure 14. Yellowed coating over the inlay, particularly visible in this area of incomplete coating. Left: visible light. Right: UV (365 nm) uvBeast V3 flashlight.

Parchment seat

The replacement seat is in good structural condition: it is securely attached, and the tension of the stretched parchment is maintained. The black dust cover on the underside is also taut and secured at all edges. There are minor areas of mechanical damage and residues, including: overall scuff marks, one area of abrasion that breaks through the grain and exposes the flesh, minor stains, minor accretions, and dust accumulation. The coating covering the seat is in good condition, although in areas where it is more thickly applied, it has darkened slightly.

Purpose of Treatment

The purpose of this treatment is to address distracting aesthetic condition concerns (i.e. corrosion, missing elements). This will improve the comparability between this bench and the *Tea Table* within the CMA collection, while reducing residues from a prior treatment campaign.

Treatment proposal¹

1. **With curatorial consultation, compare the appearance of Bugatti's *Tea Table* (1991.45) to this bench. Establish the desired extent of treatment for aesthetic compatibility** (est. 2 hours).
 - Of particular interest are the following: the color of the ormolu mounts, type of screws used, and the condition of the coating on the mother of pearl inlay. It is worth noting that these two pieces of furniture have had different lives and are not expected to look identical.
2. **Overall surface clean with HEPA-filtered, low-speed vacuum and cosmetic sponges** (est. 2 hours).
3. **Reduce excess adhesive residue around current breaks and inpaint distracting fills on the wood cracks as needed. In areas where no prior fill was completed, fill gaps to minimize distracting areas of damage. As possible, breaks could be realigned** (est. 5 hours).
 - Potential fill materials could include balsa wood since it is flexible and easy to carve. These can be adhered with water-based collagen glue, following testing to ensure there are no tidelines or negative interactions with the surface coating. Inpainting media could include watercolors.
 - Each area of loss will require a unique treatment approach.
4. **Address the tarnished appearance of the metal cast elements** (est. 12 hours).
 - This could include exploring tarnish reduction methods that do not negatively disrupt the gilded layer or applying tinted coatings to re-introduce a golden appearance (Rivers and Umney 2003, 694-696; Drayman Weissner 2020).
5. **Stabilize the loose metal ornamentation with adhesive or replacement screws, as needed** (est. 1 hour).
6. **Depending on curatorial goals, reduce the coating on the mother of pearl to minimize yellowing, replace missing inlay, and aesthetically compensate the missing nacreous layers on overcleaned shell** (est. 6 hours).
 - Coating reduction/replacement: test DI water and organic solvents, after testing to confirm surrounding areas are unaffected. Hydrocarbons solvents may also be effective at reducing greasy accretions. Acidic solutions should be avoided due to their susceptibility to inducing Byne's disease (Rivers and Umney 2003, 673). There is one area of coating build-up from a prior finishing campaign residue on the wooden arm which can be reduced, as the current coating is likely not original. This coating does not necessarily need to be removed and replaced and is dependent on curatorial input.
 - Replacement of missing inlay: replacements can be cut and shaped from sourced nacreous shell with diamond-impregnated saw blades or burrs in a flexible shaft Dremel too (Rivers and Umney 2003, 673). The replacement could be coated with a UV-fluorescent material (i.e. coumarin) to indicate it is a replacement. However, there are risks that this would be accidentally cleaned off and this context could become dissociated from the object. Therefore, inpainted cast Paraloid B-72 fills could also be explored.
 - Aesthetically compensating missing nacreous layers on overcleaned areas: this could be completed with inpainting directly on the shell or inserting a painted mylar layer.

¹ While treating components of the bench that do not include the parchment seat, the parchment will be covered with washed Tyvek to protect the surface.

7. Clean the abrasion marks and stains from the seat to the best extent possible with dry cleaning methods and complete a small fill in the abraded mark that exposes the flesh layer (est. 1 hour).

- Potential dry cleaning methods could include a cosmetic sponge or eraser. Potential fills could include toned mulberry fiber paper adhered with methylcellulose.

8. Complete after treatment photodocumentation and report (est. 3 hours).

Estimated treatment time: 31 hours.

Handling/Environment

When handling the table, lift with two people from the center of the legs. Do not lift by the carved latticework, as this is less stable. Handle the artwork with nitrile gloves and store/display in a clean and stable environment of 70°F and 50% relative humidity. Since parchment is extremely hygroscopic and can experience distortion, staining, and microbial attack when wet, it is essential to minimize high values of relative humidity (Kaplan and Pouliot 2025). Maintain the light parameters below 7-10 footcandles (~75-110 lux).

Exhibition/Installation

Exhibit the artwork in a clean environment OR display case made from safe and stable materials that have passed the Oddy test. If exhibited on the deck of display case, no mount is necessary.

Submitted by

Daisy Diamond, Graduate Intern in Objects Conservation

Date

Beth Edelstein, Senior Conservator of Objects and Head of
Objects Conservation

Date**Approved by**

Sarah Scaturro, Eric and Jane Nord Chief Conservator

Date

Ada de Wit, Ellen S. and Bruce V. Mavec Curator of Decorative
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Date

Andria Derstine, Virginia N. and Randall J. Barbato Deputy
Director and Chief Curator

Date

Bibliography

- Drayman Weisser, Terry, and American Institute for Conservation of Historic and Artistic Works. 2000. *Gilded Metals: History, Technology and Conservation*. Archetype Publications in association with the American Institute of Conservation of Historic and Artistic Works.
- Hawley, Henry, Véronique Fromanger des Cordes, and Mickey Mishne. 1999. *Bugatti*. Cleveland, OH: The Cleveland Museum of Art.
- Hoadley, Bruce. 1990. *Identifying Wood: Accurate Results with Simple Tools*. Newtown, CT: The Taunton Press.
- Kaplan, Lara and Bruno Pouliot. 2025 (last updated). "Skin, Hide, and Leather: Animal Species Identification Guide." WUDPAC Seminar for Second Year Students.
- Kaplan, Lara and Bruno Pouliot. 2025 (last updated). "Skin, Hide, and Leather: Process Identification Guide." WUDPAC Seminar for Second Year Students.
- O'Brien-Miller, Laura. 2019. "Species Identification of Animal Skins in Books and Manuscripts." Traveling Scriptorium: A Teaching Kit by the Yale University Library. July 2, 2019. <https://travelingscriptorium.library.yale.edu>
- Rivers, Shayne and Nick Umney. 2003. *Conservation of Furniture*. Rivers, Shayne, and Nick Umney. Oxford, UK: Butterworth-Heinemann Series in Conservation and Museology.

Before Treatment Photodocumentation



Figure 15. Longer side views, BT.



Figure 16. Shorter side views, BT.



Figure 17. Angle view, BT.



Figure 18. Angle view, BT.



Figure 19. Top view, BT.



Figure 20. Underside, BT.