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NEW TECHNOLOGIES APPLIED TO RESTORE A NINETEENTH-CENTURY WAX MEDARDO ROSSO SCULPTURE

LLUÏSA SÀRRIES ZGONC

Using a number of cutting-edge technologies, I restored Bambino ebreo, a damaged 19th century wax sculpture by Italian modernist Medardo Rosso (1858–1928) and structurally reinforced it to prevent future damage. The sculpture was dubbed the “McArthur” cast for this project.

Scientists took detailed three-dimensional scans of ten casts of this same subject from various collections in order to learn more about how each serial sculpture varies from its peers. On my initial consideration of the restoration, I realized we could use these scans to determine the likely original character of the McArthur cast. I considered the question of whether to interfere with the sculpture at all given the fragility of the wax and extent of the loss; it became clear that using this 3D technology was the best way to reconstruct the sculpture’s missing parts as faithfully as possible to the original, with minimal intervention.

KEYWORDS: Wax sculpture, Serial sculpture, Medardo Rosso, 3D scanning, Wax composition testing, Casting, Reintegration, Surface retouching

1. INTRODUCTION

The artist Medardo Rosso gave one of his Bambino ebreo casts to Erna Brünauer (1884–1971) sometime between 1895 and 1905. Mrs. Brünauer had met Rosso while he was travelling in her native city of Vienna. Mrs. Brünauer married the architect Albert Chase McArthur around 1910 and the couple immigrated to the United States, first living in Chicago. This photograph of the Bambino was taken around 1912 in their Chicago home (fig. 1). Between 1924 and 1925, the family moved to Phoenix and later to Hollywood, bringing the Rosso Bambino with them. After his mother’s death, their son Manfred McArthur inherited the work. Therefore, this version of the sculpture is referred to as the “McArthur” cast.

The Rosso sculpture came to my attention in the context of a 2014 New York exhibition, Medardo Rosso: Bambino ebreo at Peter Freeman, Inc. The show included 11 casts all titled Bambino ebreo: one original plaster, two bronzes, and eight wax castings (fig. 2). Prior to the opening of the exhibition, curated by art historian Sharon Hecker, a team of scholars was organized to meet and examine the casts side by side at the gallery. In order to compare and contrast the different characteristics of each sculpture invisible to the naked eye, we worked with Ronald Street, Manager of the 3D Imaging and Modeling Department at The Metropolitan Museum of Art, who scanned each head for us.

2. BACKGROUND

The McArthur Bambino ebreo is a wax cast made from a plaster mold in two pieces with a fused seam. In some areas, portions of the seam are visible to the naked eye. The thickness of the wax is variable across the different parts of the head; for example, in the back there are sections that are less than 1 mm in thickness and others that are almost 1 cm thick. Only a few of the heads have their original wood pedestal—the McArthur Bambino ebreo is one of them. We can also see the same style of pedestal in historical photographs of a different Bambino ebreo formerly owned by Rosso’s friend and supporter, Etha Fles, a Dutch collector.
The McArthur *Bambino ebreo* was in very bad condition when it arrived at the gallery. Nevertheless, it was interesting to have it in the exhibition, because the public was able to see part of the plaster infrastructure of the piece revealed underneath the areas where the wax was damaged (figs. 3, 4).

After studying the work, it was clear that it had suffered under heat. I saw that the contour of the head was not as sharp as in other *Bambino ebreos*, and dirt was embedded in the wax. When I asked where the sculpture had been displayed in the home of Mr. McArthur, I was told that it had been on a shelf behind a sun-exposed window for several years. There was also hair embedded into the surface, probably from the family’s cat, which I chose not to analyze; thus, it was not removed.
Fig. 2. Nine casts of Medardo Rosso’s *Bambino ebreo*, gathered before an exhibition at Peter Freeman, Inc., New York in 2014. The damaged cast is the first one on the right.

Fig. 3. Visible damage to the back
Fig. 4. Front of the McArthur cast (Courtesy of Nick Knight)
The most disturbing damage was an earlier restoration. The wax used to conserve the nose had probably changed color over time, becoming dark and brown so that the face looked like that of a clown (fig. 5).

In addition, the angle of the head was wrong. The metal axis or rod on which the head was mounted was bent forward (figs. 6, 7). The head had most likely fallen at some point, crushing the nose and upper lip.

The back of the head had several missing areas of wax. The bottom front left (as viewed) part of the head had a loss. Several areas were also deformed and detached from the plaster: the left part of the neck and the right edge on the backside of the head. My question was: “How will I approach this restoration?”

3. RESTORATION

The first step was to analyze the wax to gain a better understanding of the material. We learned that it was mostly a mix of beeswax and paraffin. The testing was carried out at the Università Ca’ Foscari Venezia Dipartimento Scienze Ambientali, Informatiche e Statistiche (the Department of Environmental Science, Information Technology and Statistics at the University of Venice).

The damaged parts were so big and important to the interpretation of the work that I decided that the only way to approach this restoration was to make molds of the parts of the head that were damaged, using the undamaged casts of the work.

Part of the aim of organizing the 2014 exhibition was to be able to compare these serial casts, which are, though of the same original subject, each unique due to the artist’s idiosyncratic casting methods and
choice of materials. Three-dimensional scans were done to enable comparisons that are much more precise than those made with the naked eye. Although all of the *Bambino ebreos* are unique, some are more similar than others. Ronald Street, senior manager of The Metropolitan Museum of Art’s 3D Imaging and Modeling Department, and I compared all of the 3D scans to find the one most similar to the damaged McArthur *Bambino ebreo* (figs. 8, 9).

I also compared all the photographs I had of all of the heads exhibited at Peter Freeman, Inc. I understood from observation that Rosso used at least two different molds to make the casts. Occasionally, he used the back of one mold and the front of another in the same cast. After deciding which cast was the most similar, we commissioned a specialist company to make a 3D print of that head in resin (fig. 10).

From this resin print we made a silicone mold; using that mold, we made a plaster cast. From the resultant plaster cast we took molds of the damaged parts: the nose, neck, and back of the head (fig. 11).

The first real work on the sculpture was to consolidate the wax on the back of the head. In some areas, this wax was very thin and flaking. The consolidation was done with a dilute (approximately 5% w/v) solution of Klucel G dissolved in water.
Fig. 8. Ron Street, senior manager of The Metropolitan Museum of Art’s 3D Imaging and Modeling department, at work analyzing scans of multiple casts of *Bambino ebreo*

Fig. 9. Superimposition of slices of scans of two heads
Fig. 10. A 3D print in resin (Courtesy of Nick Knight)

Fig. 11. The three steps to get to the individual molds for each damaged area: (left to right) silicone mold to make plaster cast, plaster cast with areas of damage traced for mold making, final molds to cast wax fills. (Courtesy of Nick Knight)
The next step was to correct the angle of the metal rod or axis (fig. 12). I did this by referencing the ca. 1912 Chicago picture of the damaged head, when it was presumably in its original condition. The metal was very rusted; thus, I also treated it with rust converter (fig. 13). After I repositioned the head on the pedestal, I started to consolidate the plaster and cleaned the inside of the wax.

The cleaning of the plaster was done with a small vacuum cleaner and brushes. The consolidation of the plaster was also done using dilute Klucel G dissolved in water (as described previously), inserted with a syringe. The cleaning of the wax on the interior was done with saliva and cotton swabs.

Different levels of dirt were on the surface of the wax. I was able to remove a thin layer of dirt with a small brush and saliva on cotton swabs. It was impossible to remove or reduce more of the dirt on the dark areas, because the dirt was embedded in the wax. This was due to the sun's heat to which the sculpture had been exposed at the McArthur residence. I removed the wax that had been added to the sculpture in earlier restorations, as identified through examination under UV light. These areas were on the back, a small area on the top of the left (as viewed) ear and the brown nose. In order not to remove any original wax, I observed the areas under longwave UV radiation. The added wax fluoresced differently than the original wax (fig. 14).
Fig. 14. UV examination of the sculpture’s nose area reveals the wax that was applied during an earlier restoration.

Fig. 15. The nose area after the wax of the earlier restoration had been removed.
The next step was to restore the deformed part of the neck to the original position. This was achieved by slightly warming the defined area and pushing it back with the help of the customized mold (fig. 16). By using this neck mold, the detached right edge of the back of the head was also slightly pushed into its original position. The damaged upper lip was also repositioned by using gentle heat and a mold of that area.

It was necessary to fill the gap in the back area where the plaster was lost to avoid future damages. To achieve the needed volume, I filled this area with soft pillows made of Klucel G and Arbocel dissolved in water (fig. 17).

To make the wax for the missing areas I mixed Cosmoloid microcrystalline wax and a caramel-colored sticky wax, typically used in orthodontistry, in a 1:1 ratio. Mixing these two products resulted in wax of a similar color to that of the original. Interestingly, warming the mixture longer resulted in different shades without having to add any pigment to the wax mixture to get the right colors. This mixture was used to reintegrate all of the missing areas. To reintegrate the back, I cast small areas from the silicone molds and then applied them step by step with a hot needle and hot mini-spatula (fig. 18). The decision to close this area in steps rather than using one cast for the whole area had to do with the area’s large size. A large cast would have been more visible and difficult to integrate.

The nose was also reintegrated with small quantities of different shades of this same wax mixture, added little by little with a hot spatula (fig. 19). As I was shaping it, I frequently referenced the original plaster head. In some areas I did not replace missing wax. In the original condition of some sculptures, Rosso intentionally left areas waxless.

The nose did not need any inpainting to visually integrate it to the surrounding area. The back and bottom front was retouched with Gamblin Conservation Colors (fig. 20).
Fig. 17. Applying pillows of Klucel G and Arbocel dissolved in water to fill in the areas of lost plaster

Fig. 18. Wax reintegration, midway through retouching
Fig. 19. Front view of the restored sculpture

Fig. 20. Back view of the restored sculpture
I was hesitant to do this restoration. I consulted several colleagues, who said not to touch it. It was only thanks to the 3D scans that I felt I could approach the McArthur Bambino ebreo conservation. It involved researching methods and materials used by other Medardo Rosso wax conservators (see Further Reading).

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NOTE

1. The scanner used was a Breuckman smartScan. Scans were closed surface mesh, also known as a surface model.

FURTHER READING


SOURCES OF MATERIALS

Cosmoloid H 80 micro-crystalline wax; Klucel G
Kremer Pigmente GmbH & Co. KG
Barerstr. 46
80799 Munich
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www.kremer-pigmente.com

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LLUÏSA SÀRRIES ZGONC was born in Barcelona and earned her BA in Art History at the University of Barcelona, followed by a degree in painting conservation and restoration from the Escola d’Arts i Oficis in Barcelona. From 1986 to 1990, she did several internships in Italy (Opificio delle Pietre Dure), Switzerland (Kunst Museum, Bern), and Spain. She began to work as a conservator in 1990 for the MMK in Frankfurt, and since 1996 has had a private practice in Germany. Moving to the United States in 2012, she now works for Peter Freeman, Inc. in New York and is still the conservator for several important collections in Germany, often acting as their courier for loans, and overseeing installation and deinstallation of public exhibitions in museums both in Europe and the United States. Address: Peter Freeman, Inc., 140 Grand Street, New York, NY 10013. E-mail: lluisa@sarries.de

RON STREET (who passed away in December 2016) was manager of 3D imaging and modeling in the Imaging Department of The Metropolitan Museum of Art. He had an extraordinary career at the museum for over 30 years that also included long-term supervision of the modeling studio, and he was called upon for advice and collaborations by institutions around the world. He was a trained sculptor, studio glass artist, and ceramicist who taught glass-blowing in Australia, Canada, and the United States; studied traditional crafts in Iran; and worked at archaeological sites in Egypt, Tanzania, and Guatemala.