9 | The Bronze Statue of Trebonianus Gallus in the Metropolitan Museum of Art
Restoration, Technique, and Interpretation

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Trebonianus Gallus, a.d. 251–253. Bronze, H. 241.3 cm (95 in.). New York, Metropolitan Museum of Art, Rogers Fund, 1905 (inv. 05.30). Three views of the statue in its present state.
Bronze Statue of Trebonianus Gallus

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Bronze Statue of Trebonianus Gallus

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Figure 9.2. Lieven Cruyf (Flemish, 1634–1720), View of Lateran, Rome, ca. 1672–73. Pen and brush and gray and brown ink, gray and brown washes, some watercolor and white gouache, on vellum, 8.4 × 14.2 cm (3⅜ × 5⅜ in.). New York, Metropolitan Museum of Art, Robert Lehman Collection, 1975 (inv. 1975.1.577)
**Figure 9.3.** Drawings of the Trebonianus Gallus as restored in the nineteenth century, three-quarter view and back view. From Bernhard von Köhne, *Mémoires de la Société impériale d’archéologie*, vol. 6, *Musée de sculpture antique de Mr. de Montferrand* (Saint Petersburg, 1852), pl. 1.
Figure 9.4. Photograph of the Trebonianus Gallus in the courtyard of Auguste de Montferrand’s home in Saint Petersburg, 1853.
FIGURE 9.5. Trebonianus Gallus before treatment in 2002
**FIGURE 9.6.** Lower back, showing the opening after removal of a restored metal panel. Brass straps used in the restoration are visible around the edges of the opening. This image also illustrates the mapping that was done to record areas of restoration, patches, and other points of interest related to manufacture and the restoration.
FIGURE 9.7, Composite radiograph of torso

- Edge of the cast opening in the left shoulder with one of the holes visible below the arrow
- Band of increased density
- Darker gray indicates restoration metal
- Horizontal band of increased density interrupted by the large loss on the right abdomen
- Darker gray indicates restoration metal
- Large area of ancient metal
- Large area of ancient metal
- Areas of extensive restoration where the original joins between the torso and legs were probably located
Figure 9.8. Front and back view of statue showing in red the areas that are restored. These images were taken after the 2002 treatment.
### Table 9.1. Elemental Analysis of the Trebonianus Gallus (weight %)

<table>
<thead>
<tr>
<th>No.</th>
<th>SEM-EDS sample site</th>
<th>Cu</th>
<th>Sn</th>
<th>Pb</th>
<th>Zn</th>
<th>As</th>
<th>Ag</th>
<th>Sb</th>
<th>Fe</th>
<th>Probable date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Left hand</td>
<td>76.5</td>
<td>8.2</td>
<td>15.1</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.1</td>
<td>ancient</td>
</tr>
<tr>
<td>2</td>
<td>Right hand</td>
<td>74.1</td>
<td>11.7</td>
<td>13.8</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.3</td>
<td>ancient</td>
</tr>
<tr>
<td>3</td>
<td>Left ear</td>
<td>69.5</td>
<td>7.3</td>
<td>23.0</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.1</td>
<td>ancient</td>
</tr>
<tr>
<td>4</td>
<td>Left buttock</td>
<td>68.5</td>
<td>6.5</td>
<td>24.8</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.2</td>
<td>ancient</td>
</tr>
<tr>
<td>5</td>
<td>Right calf (2)</td>
<td>80.7</td>
<td>7.6</td>
<td>10.7</td>
<td>0.5</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.6</td>
<td>ancient</td>
</tr>
<tr>
<td>6</td>
<td>Top of neck opening</td>
<td>78.8</td>
<td>2.3</td>
<td>17.0</td>
<td>1.1</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.3</td>
<td>ancient</td>
</tr>
<tr>
<td>7</td>
<td>Front of neck opening</td>
<td>80.0</td>
<td>0.9</td>
<td>18.2</td>
<td>0.4</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.1</td>
<td>ancient</td>
</tr>
<tr>
<td>8</td>
<td>Upper back (1)</td>
<td>85.2</td>
<td>9.5</td>
<td>4.8</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.4</td>
<td>?</td>
</tr>
<tr>
<td>9</td>
<td>Cape</td>
<td>77.3</td>
<td>8.3</td>
<td>14.2</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.1</td>
<td>modern</td>
</tr>
<tr>
<td>10</td>
<td>Left foot</td>
<td>80.2</td>
<td>5.4</td>
<td>12.0</td>
<td>1.2</td>
<td>0.3</td>
<td>bdl</td>
<td>bdl</td>
<td>0.2</td>
<td>ancient</td>
</tr>
<tr>
<td>11</td>
<td>Right foot</td>
<td>90.8</td>
<td>5.3</td>
<td>3.2</td>
<td>0.3</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.3</td>
<td>restored</td>
</tr>
<tr>
<td>12</td>
<td>Right calf (1)</td>
<td>63.7</td>
<td>18.0</td>
<td>17.3</td>
<td>0.4</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.5</td>
<td>w/solder?</td>
</tr>
<tr>
<td>13</td>
<td>Upper back (2)</td>
<td>89.0</td>
<td>7.2</td>
<td>3.1</td>
<td>0.3</td>
<td>bdl</td>
<td>bdl</td>
<td>bdl</td>
<td>0.4</td>
<td>?</td>
</tr>
</tbody>
</table>

**XRF surface site**

| 14  | Restoration plate, back | 94.5| 1.6 | 3.4 | bdl | bdl | bdl | bdl | bdl | restored     |
| 15  | Restoration plate, neck | 95.9| 1.9 | 1.9 | bdl | bdl | bdl | bdl | bdl | restored     |
| 16  | Interior of left arm   | 57.2| 6.2 | 35.7| bdl | bdl | bdl | bdl | bdl | ancient?     |
| 17  | Solder, neck plate     | 3.4 | 22.8| 71.9| 1.7 | bdl | bdl | bdl | bdl | restored     |

**Note:** Elemental analysis was done on seventeen areas on the statue. Thirteen microsamples were analyzed using energy dispersive X-ray spectrometry in the scanning electron microscope (SEM-EDS) to determine alloy composition. Four microsamples were analyzed using X-ray fluorescence spectrometry (XRF). Trace amounts of elements may be present, but at levels below the detection limits for SEM-EDS and XRF under these operating conditions (bdl). The limits are estimated at approximately 0.1 percent for most elements, but slightly higher, approximately 0.3 percent, for silver, tin, antimony, and zinc. Analyses were performed by Mark T. Wypyski, research scientist, Department of Scientific Research, Metropolitan Museum of Art, New York.

The results were not conclusive, but generally split into two groups, high lead and low lead, with the former most likely to be consistent with late Roman alloys. Partial mineralization of the metal from the sample sites may have altered the apparent ratio of the elements detected. Some of the samples were taken near restoration panels, presenting the possibility of contamination from solder and other materials. However, this appears to have occurred only in the sample from the right calf (1), which had a high tin content, probably from tin-lead solder.
**Figure 9.9.** Diagram of armature. The gray lines represent the iron armature and the orange lines represent the brass straps added by Alfred André for reinforcement.
**Figure 9.10.** Interior photograph taken with a hand-held camera showing the iron armature and Alfred André's added brass straps.

- **Iron armature**
- **Brass bars used as reinforcement to the original iron armature**
**FIGURE 9.11.** Interior photograph of torso taken with a hand-held digital camera showing the difference between the ancient metal and the restoration metal.
Figure 9.12. Two photographs of the Antikythera Youth during its first restoration. The image on the left shows the lower half of the statue assembled on the armature using metal straps. The image on the right shows the statue fully assembled. From Edward Vicars, “A Rescued Masterpiece: The Finds at Anticythera,” The Pall Mall Magazine 29 (1903), 558–59.
**Figure 9.13.** Detail of right thigh. The red outline indicates the actual size of a large ancient fragment, and the area between the red and blue lines is where the patina has been removed.
Figure 9.14. Marble statue of Tyche-Fortuna restored with the portrait head of a woman, ca. a.d. 85–90. 190.5 × 66 × 58.4 cm (75 × 26 × 23 in.). New York, Metropolitan Museum of Art, Fletcher Fund, 1961 (inv. 61.82.1, .2)
**Figure 9.15.** Radiograph of back of the neck showing the trimmed break line at the base of the neck with the straps bridging this break. There is another repaired break line at the top of the neck. The red arrow in the lower left-hand corner indicates the straight cast edge of the torso opening on the back.
**Figure 9.16.** Radiograph of head, right profile. The red arrows point to the areas where the metal appears slightly thicker and more irregular, which could be the remains of excess metal from a flow weld at the neck. The blue outline shows where the panel of restoration metal was removed for access into the head with the videoprobe.
Figure 9.17. Composite radiograph of right arm. A red arrow points to the runs of wax seen along the length of the forearm. The second red arrow indicates an area of restored metal on the top of the shoulder. The yellow arrows show the smaller-sized core-pin holes, approximately three millimeters square.
Radiograph of left shoulder and upper arm showing the modern restoration of the upper shoulder and arm indicated in yellow (a). Three videoprobe images show different views of the internal fragment (b–d). Figures 9.18a and 9.18b are marked with the letters x and y to show where the location of the same threaded rod and plate is in each image. Figure 9.18c is an image looking into the core material in the base of the hand and the top of the forearm. The internal metal fragment is marked with arrows. Figure 9.18d is an image showing the edge of the internal fragment.
**Figure 9.19.** Radiographs of right and left hands. The radiographs have been enhanced with Lucis Pro 6.0 software.
**Figure 9.20.** Videoprobe image showing the X, possibly the Greek letter chi, surrounded by four circular depressions. In this view, the armature bends over into the left shoulder.
FIGURES 9.21a–b. (a) Bronze portrait head of a young man, 175–300 A.D., H. 26 cm (10 1/4 in). Los Angeles, J. Paul Getty Museum (inv. 71.AB.458). (b) Detail (interior of neck) showing possible Greek alpha
Figure 9.22. A composite of digital photographs that shows the opening in the left upper torso (outlined in red)
FIGURES 9.23a–b. Detail videoprobe images showing some of the holes found along the opening of the torso wall. Figure 9.23a shows three holes found along the vertical line of the torso opening in the back. The interior wall of the modern cape is visible on the right side of the image. Figure 9.23b shows the curved opening behind the lappet of the cape that drapes over the left pectoral. Two additional holes can be seen in Figure 9.20 to the left of the letter X.
Figure 9.24. Videoprobe image looking into the interior of the left thigh, where brass straps and rods repair a long break down both the inseam and outer seam of the leg.
**Figure 9.25.** Radiographs of left and right knees and calves. The iron armature is visible as a wide white line in the center of each leg. The lighter rectangular shapes visible in both legs are brass straps from André’s restoration.
FIGURE 9.26. Radiograph of the left foot. The iron armature is visible as a wide white line in the center of the foot. The bottom of the calf is inserted into the top of the shoe.
FIGURE 9.27. Radiograph of the right foot. The iron armature is visible as a wide white line in the center of the foot. A metal collar (indicated with an arrow) joins the calf to the shoe.
Figures 9.28a–b. Videoprobe images of the interior of the face showing the areas where extra wax was added behind the eyes (a) and the mouth (b). The finger impression of the craftsman is preserved in the metal where wax was added to the mouth (b).
Figures 9.29a–c. Radiograph of right arm, with videoprobe images of interior of both right and left arms. The long red arrow (a) indicates the same rod and strap seen in the radiograph and the videoprobe of the right forearm (b). The short red arrows in both videoprobe images and the radiograph point to the ridges found in the right (b) and left (c) forearms.
**Figure 9.30.** Radiograph of left thigh showing the larger square opening that may be a result of a trunnion or core extension. The wide white line is the iron armature, and the brass straps can be seen along the sides of the thigh.
Figure 9.31. Photograph of torso showing the numerous patches of different shapes and sizes. The red arrows point to the ancient patches and the blue arrows point to the patches made in the restoration metal.
Figure 9.32. Photographic detail of chin showing a patch that was finely done.
FIGURE 9.33. Photographic detail of raised patch on lower abdomen. In this image one can also see the numerous file marks that were made by the restorers during cleaning on the exterior perimeter of surviving ancient sections like this one.
Figure 9.34. Detail drawing of head as restored in nineteenth century with laurel crown. From Bernhard von Kähne, Mémoires de la Société impériale d’archéologie, vol. 6, Musée de sculpture antique de Mr. de Montferrand (Saint Petersburg, 1852), pl. 2
**Figure 9.35.** Frontal view of head of the Trebonianus Gallus
**Figure 9.38.** Profile view of head of the Trebonianus Gallus
Figure 9.39. Bronze sestertius of Trebonianus Gallus, a.d. 251–253. H. 2.7 cm (1 1/16 in.). New York, Metropolitan Museum of Art, Gift of William M. Laffan, 1905 (inv. 05.47)
FIGURE 9.40. Front detail of left foot of the
Trebonianus Gallus
Figure 9.41. Profile detail of left foot of the Trebonianus Gallus
**Figure 9.42.** Drawings of feet and shoes from the statue. From Bernhard von Köhne, *Mémoires de la Société impériale d’archéologie*, vol. 6, *Musée de sculpture antique de Mr. de Montferrand* (Saint Petersburg, 1852), pl. 2