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Back cover illustration: Julia Margaret Cameron (British [born India], 1815–1879). Detail of *Beatrice*, 1866. See fig. 1, p. 162.

Illustration on p. 2: Ruan Zude (Chinese, 16th or early 17th century), Ming dynasty (1368–1644). Portrait of the Artist's Great-Granduncle Yizhai at the Age of Eighty-Five, 1561 or 1621. See fig. 1, p. 48.

Opposite: Attic red-figure bell-krater attributed to the Persephone Painter. Greek, ca. 440 B.C. Terracotta, H. 16½ in. (41 cm). The Metropolitan Museum of Art, Fletcher Fund, 1928 (28.57.23)

For Joan Mertens

IN HONOR OF HER YEARS OF DEDICATION TO THIS PUBLICATION AND HER EXEMPLARY ERUDITION, GENEROSITY, AND WIT



MANUSCRIPT GUIDELINES FOR THE METROPOLITAN MUSEUM **JOURNAL**

The Metropolitan Museum Journal is issued annually by The Metropolitan Museum of Art. Its purpose is to publish original research on works of art in the Museum's collection. Authors include members of the Museum staff and other art historians, conservators, scientists, and specialists.

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ABBREVIATIONS

MMA The Metropolitan Museum of Art MMAB The Metropolitan Museum of Art Bulletin

MMJ Metropolitan Museum Journal

Height precedes width and then depth in dimensions cited.

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A Hidden Photograph by Julia Margaret Cameron

fig. 1 Julia Margaret Cameron (British [born India], 1815–1879). *Beatrice*, 1866. Albumen silver print from glass negative, 14 ½ × 11 ¼ ni. (36.8 × 29 cm). The Metropolitan Museum of Art, The Elisha Whittelsey Collection, The Elisha Whittelsey Fund, 1969 (69.607.9)

In the mid-nineteenth century, Julia Margaret Cameron used the relatively new medium of photography in technically singular ways. While other practitioners engaged in narrative photography with parallels to painting, she placed her camera close to the subject, thereby filling the frame. And rather than try to obtain a precise focus, Cameron purposely extended exposure times, allowing a softening of image that resulted from slight movements. She fervently campaigned for her work to be accepted as "high art" in an era when photography was viewed as too reliant on mechanical, optical, and chemical phenomena to be considered so. Cameron achieved a certain celebrity during her lifetime, participating from 1864 onward in one to three exhibitions per year, and winning multiple honors.¹ The Metropolitan Museum of Art has appreciated her work since the first acquisition in 1933, but only recently discovered and then sought to

uncover what promised to be a previously unknown Cameron photograph hidden for 151 years underneath *Beatrice*, an albumen silver photograph from 1866.

Photography in the nineteenth century was a timeconsuming, painstaking process undertaken only by dedicated professionals and committed laypersons. Living on the Isle of Wight in England in the 1860s, and along with her husband, Charles, a member of a circle of intellectuals, Cameron was a mother of six and a grandmother. At age forty-eight she received a largeformat camera as a gift from her daughter and son-inlaw, meant as a form of distraction. Instead, the camera became Cameron's central preoccupation for the ensuing eleven years and resulted in an extraordinary body of work. In late 1875 she and her husband moved to Ceylon, where she continued to photograph, but was not nearly as prolific as during the preceding decade. The camera would have been a large and heavy piece of equipment, crafted of wood, leather, metal, and glass. In 1863, control of the camera bellows, the choice of lenses, and focusing on the ground-glass backing prior to inserting the glass plate negative were just a few of the skills required to create an image. Negatives were hand-coated by the photographer onto large glass plates using liquid collodion-a heady mixture of gun cotton (cellulose nitrate) with alcohol and ether. Salt mixed in with the collodion combined with silver from a silver nitrate solution the plates were dipped into, forming the light-sensitive silver salts needed to create the photographic image. While still damp, the "collodion wet-plate" was inserted into a large-format camera and exposed to light. The silver salts could capture an exposure in as little as twenty seconds, but Cameron was known to have her sitters endure long exposures of between three to eight minutes.² She did not use a posing stand to keep the sitter motionless and eschewed the final focus adjustments necessitated by the wet collodion process. Slight movements resulted in a blur that critics disliked, but gave her portraits the breath of life.

By placing the camera close to her subjects so that they filled the frame, Cameron recorded "faithfully the greatness of the inner as well as the features of the outer man."³ After the glass plate negative was removed from the camera, processed, and dried, it would have been printed onto an albumen (egg white)-coated sheet of thin paper that also had been rendered light-sensitive with silver salts. The desired size of the albumen print would have dictated the size of the negative used, as the glass negative would have been placed in direct contact with the light-sensitive paper, and the two laid out in the sun until the image appeared. After full "printing out," the negative was removed, and the albumen print bathed and "fixed" in chemical solutions to remove the unexposed light-sensitive silver salts. The resulting silver image was finely detailed, capable of depicting the lightest to darkest tones and all shades in between. At this time, albumen prints were generally treated with a solution containing gold in a process known as toning, not only to increase their long-term stability but also to adjust the image tonality of a reddish-brown to an aubergine-brown color. Cameron mounted her finished artworks onto thin matboard supports, often adding a decorative gilded rectangle to enclose the image. She generally signed the mounted photographs in iron gall ink, and sometimes added a title or caption, along with the words "From Life not enlarged."4 Cameron was committed to capturing the spirit or soul of her intended subject on the glass plate, but seems to have taken less care in the darkroom, as there can be occasional stains or defects in her albumen prints, some of which doubtless became apparent only over time. The portrait of Beatrice, however, shows no such imperfections and is an example of Cameron's most accomplished work.

The subject of Beatrice (fig. 1) is based on Beatrice Cenci, a sixteenth-century Italian noblewoman who, in partnership with her stepmother and siblings, had her father murdered for his violent nature and incestuous behavior. The crime was discovered, and after a lengthy trial, Beatrice was condemned to death in 1599.5 Though not well known today, this dramatic story of injustice and retribution struck a chord in Victorian England, where death and tragedy were common occurrences at every level of society.6 Cameron may have looked to a painting then attributed to the Italian Baroque artist Guido Reni, Portrait of Beatrice Cenci (1599; Palazzo Barberini, Rome),7 and would have known Percy Bysshe Shelley's play The Cenci from 1819, which was published in numerous editions in the second half of the nineteenth century. Although The Met's portrait is called simply Beatrice, variants from 1870 with the same sitter are titled A Study of the Cenci,8 indicating that Cameron had been continuously engaged with the tragic tale and knew it would resonate with her audience.

The sitter is identified as Mary Emily (May) Prinsep (1853–1931), who was orphaned as a child and adopted by Cameron's sister and her husband, Sarah and Thoby Prinsep, in 1864. Although the family was based in London, May Prinsep spent some holidays with her aunt in Freshwater on the Isle of Wight. In 1866, she posed as Beatrice, as well as for *The Neopolitan*, and the *Head of St. John.*⁹ The Met's *Beatrice* is an albumen print fig. 2 Detail of upper left corner of fig. 1. Note the darker image edge protruding along the left side and the shadow of the photograph underneath the portrait of Beatrice.



mounted overall to a paper mount. Cameron outlined the print with a single gilded line, and inscribed below it "From Life not enlarged Julia Margaret Cameron / Beatrice." In 2013 while preparing a group of masterpieces for the Cameron exhibition at the Museum, photograph conservator Nora Kennedy noted, along the upper left of the portrait, a tiny protruding edge of what appeared to be another photograph underneath *Beatrice* (fig. 2). Next to the powerful image of Beatrice, this sliver is barely visible and had not been remarked upon in the decades since the photograph was acquired. Although curious about what image Cameron may have concealed, removing the upper portrait through an unmounting treatment would likely have involved full immersion of the mounted photographs in a water bath, an invasive procedure to be avoided in part because of the potential risks involved. In addition, the artist's intent should be respected, and it seems clear that Cameron chose to cover over the underlying photograph, though her reasons for doing so may never be known. Noninvasive techniques are always desirable where possible.

TECHNICAL EXAMINATION

X-ray Fluorescence Mapping

X-ray fluorescence (XRF) is a noninvasive technique that allows the user to identify which chemical elements are present at one spot in an object.¹⁰ The tool is particularly useful in the study of photographs as it can identify the presence of silver, gold, platinum, and other elements that may compose the images, allowing for a differentiation between a silver print and a platinum print, for example. In XRF mapping or macro-X-ray-fluorescence (MA-XRF), an array of measurements is made in a grid across an object, yielding images that illustrate the distribution of each element.¹¹ The acquisition of MA-XRF equipment by the Museum in recent years triggered the

Shadow	Midtone	Highligh
>		•
😳 Silver image partic	image particles	
Binder layer		

fig. 3 Schematic diagram showing the layers of an albumen silver photograph

decision to reopen the investigation of the hidden Cameron portrait. MA-XRF confirmed that *Beatrice* is a silver-based image, consistent with photographs by Cameron, while visual examination strongly indicated that this finely divided silver image is suspended within a thin albumen binder layer coating the paper substrate. As illustrated in the schematic in figure 3, the darker the image feature, the more silver is present. Similarly, the lighter the feature, the less silver is present and the more the underlying paper shows through.¹²

MA-XRF showed that the buried image is also silver-based and provided information on the distribution of the silver image particles. Since X-rays can penetrate through low-density materials like paper and thin image layers in photographs, the measurements simultaneously recorded signals from both the upper and lower photographs at once.13 When mapping measurements were performed across the front of the image, the XRF signals from the upper, visible photograph were stronger than those from the buried photograph since it was closer to the detector on the scanning head. In the silver L-line map made from the front of the image, only the signal from the visible photograph was detected (fig. 4, left).¹⁴ However, the silver distribution mapped using the K-line shows some highlight features (lack of silver) that do not match the Beatrice portrait (fig. 4, center).

To improve the detection of the buried photograph versus the *Beatrice* portrait, we performed an XRF mapping measurement from the back of the object.¹⁵ The scan picked up a silver K-line signal that gave a distribution of the element that is different from the visible image. When looking at the silver K-line distribution measured from the back of the object, it became clear that the highlights (defined by a lack of silver) did not match the highlights in the Beatrice image. This is illustrated here flipped left-to-right to match the orientation of the object when viewed from the front. These measurements appear to have clarified the highlights that were weakly detected in the silver K-line map from the front (fig. 4, right).

The detection of highlight regions with distinctly different shapes from the visible image suggested that the underlying photograph was a different print from the *Beatrice* portrait. The overall shape of the buried highlights are consistent with a portrait where the head is tilted to the opposite side, with the lower half more brightly lit.

Infrared Reflectography and Transmitted Infrared Photography

Seeking more details to confidently identify the buried photograph from among the many known Cameron portraits, infrared reflectograms and infrared photographs were taken. In silver-based photographs, infrared light is absorbed by the silver image particles but does not strongly interact with the paper support covered by few or no image particles. This phenomenon provides infrared images of relatively good contrast.¹⁶ Viewing Beatrice with infrared reflectography (IRR) revealed dark, silver-rich features in the underlying photograph (fig. 5). Details from the hidden image were primarily visible in regions where the upper print does not contain much silver, particularly in Beatrice's face. The IRR examination confirmed that the second photograph is indeed another portrait, with the head tilted to the opposite side, as the MA-XRF maps suggested. Although IRR did not reveal the full silhouette of the sitter in the underlying portrait, the high level of detail visible in the second face was extremely valuable for comparison with Cameron's other known works.

Given the translucent nature of the paper support, transmitted infrared photography (IRT) was subsequently used to examine *Beatrice*.¹⁷ By varying the camera aperture and exposure time, it was possible to obtain images that more clearly displayed the concealed



tion map acquired using the L-line emission, measured from the front of the photograph. The silver distribution and highlights (lack of silver) match the visible Beatrice photograph. Center: Silver distribution acquired using the K-line emission, measured from the front of the photograph. The highlights (lack of silver, see arrow) do not exactly match the Beatrice image. Right: Silver distribution, K-line emission, measured from the back of the photograph and flipped left-to-right to match the orientation of the visible photograph. The highlights (lack of silver) do not match the highlights of the Beatrice photograph.

fig. 4 Left: Silver distribu-

fig. 5 Infrared reflectogram (IRR) of *Beatrice*, detail, showing that another face is present in the buried photograph.



fig. 6 Detail of transmitted infrared photograph of *Beatrice*, inverted left to right. The buried portrait is much more clear here than in the image obtained by IRR, although traces of the headdress in the top photograph are visible in the sitter's forehead.



fig. 7 Julia Margaret Cameron. *Head of St. John,* March 1866. Albumen silver print from wet collodion glass negative, 14 × 113/₁₆ in. (35.5 × 28.5 cm). Victoria and Albert Museum, London (938-1913)



image (fig. 6). An improved differentiation between the two portraits was obtained by placing the mounted photographs face-down and using transmitted infrared-rich illumination. Traces of Beatrice's headdress are still visible in these images, but the second face is much more prominent.

Identification of the Buried Photograph

Technical examination of Beatrice by MA-XRF showed that the buried photograph is silver-based and suggested a portrait where the head is tilted to the opposite side of the top photograph, while IRR and IRT provided details of this hidden portrait. When viewing Beatrice alongside the buried portrait, similarities between their features may be observed, particularly in the sitter's mouth and chin. Prinsep sat frequently for Cameron, sometimes in historical or allegorical costume. A photograph with Prinsep, described by the Victoria and Albert Museum as showing the head of Saint John (fig. 7), bears a striking resemblance to both the silhouette and features of the buried portrait, as revealed by MA-XRF and infrared photography. Cameron sometimes disregarded gender in her model selections, later employing Florence Fisher as a young girl for her Study of St. John the Baptist (1872; J. Paul Getty Museum, Los Angeles).18

The technical examination has not only confirmed that a full silver-based photograph lies beneath *Beatrice* but also has brought this image to light without disturbing the integrity of the work of art. Cameron's single inscription on the mount identifying the subject as Beatrice shows no signs of alteration. So although the original photograph must have been considered finished and worthy of being mounted to a card, for an unknown reason, the artist mounted the *Beatrice* portrait over it and then added or completed the inscription. The findings raise questions about why and how often the artist reused mounting cards and the criteria that figured into Cameron's image-selection process, as it is not known why she preferred *Beatrice* in this case, or how many other Cameron photographs may hide other images beneath.

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NOTES

- 1 Cameron (1874) 1984, p. 155; Cox and Ford 2003, pp. 538-39.
- 2 Wolf 1998, p. 215. See Scully & Osterman Studio, "What Is Collodion," accessed December 23, 2017, http://www.collodion .org/q&a.html.
- 3 Cameron (1874) 1984, p. 157.
- 4 Cox and Ford 2003, p. 245.
- 5 Wolf 1998, p. 229.
- 6 Ibid., p. 18.
- 7 Weaver 1984, p. 59.
- 8 Cox and Ford 2003, pp. 246-47.
- 9 Wolf 1998, p. 225.

- 10 XRF works by illuminating a spot with X-rays, which prompts the materials in the object to emit secondary X-rays that have specific energies corresponding directly to the elements from which they came.
- 11 Alfeld et al. 2013. XRF mapping is rapidly being adopted in the study of paintings (Noble et al. 2012; Centeno et al. 2017; Hale and Centeno 2017; Mahon and Centeno 2017), but it has been used to study photographs only in a few cases (Čechák et al. 2015; Davis and Vicenzi 2016; Kozachuk et al. 2018).
- 12 Lavédrine 2009.

- 13 There are several challenges in studying silver-based photographs by MA-XRF. First, photographic image layers contain very little material, so the XRF signals are weak to begin with. Secondly, silver is particularly challenging to detect with the XRF mapping system because its signals are close in energy to strong background signals. Silver has two characteristic X-ray emissions, one at low energy and one at a higher energy. The low-energy silver signal, called the L-line emission, overlaps with a background signal from argon in the air; the higher-energy signal, called the K-line emission, is very close to the signal for rhodium, which is detected in every spectrum because rhodium is present in the X-ray source.
- 14 The higher the energy of an X-ray, the more layers it can pass through. This means we expect the low-energy L-line emission to be more surface-sensitive, and the higher-energy K-line emission to be more sensitive to buried material.
- 15 In this case, the buried photograph was closer to the scanning head than the visible photograph, but the thicker mounting matboard was between the photographs and the detector. We made longer measurements at each point in the scan to make up for the decrease in signal through the mount. The longer measurement time also meant we had to break up the scan into three parts that have been stitched together in the final image. The XRF mapping measurement in this configuration did not detect a strong silver L-line signal, presumably due to attenuation by the mounting board. However, this scan did pick up a silver K-line signal, the distribution of which is different from the visible image.
- 16 The recent use of infrared reflectography (IRR) to visualize silver-based photographs concealed beneath layers of paint and transparent paper in a design drawing by the Tiffany Studios pointed toward its potential utility in this case. See Ruiz Molina, Jampolsky, and Smieska 2017.
- 17 In transmitted infrared photography (IRT), the setup is identical to that used for infrared photography with a modified DSLR camera, bandpass filters, and infrared radiation-emitting light source, except that the light source faces one side of the object while the camera focuses on the other.
- 18 Cox and Ford 2003, p. 77.

REFERENCES

AIC Guide

2017 The AIC Guide to Digital Photography and Conservation Documentation. Edited by Jeffrey Warda; contributions by Franziska Frey, Dawn Heller, Dan Kushel, Timothy Vitale, and Gawain Weaver. 3rd ed. Washington, D.C.: American Institute for Conservation of Historic and Artistic Works. Published only in PDF format.

Alfeld, Matthias, Joana Vas Pedroso, Margriet van Eikema Hommes, Geert Van der Snickt, Gwen Tauber, Jorik Blaas, Michael Haschke, Klaus Erler, Joris Dik, and Koen Janssens

2013 "A Mobile Instrument for *In Situ* Scanning Macro-XRF Investigation of Historical Paintings." *Journal of Analytical Atomic Spectrometry* 28, pp. 760–67.

Cameron, Julia Margaret

1984 "Annals of My Glass House" (1874). In Weaver 1984, pp. 154-57.

Čechák, T., I. Kopecká, T. Trojek, T. Štanzel, and H. Bártová 2015 "Application of X-ray Fluorescence in an Investigation of Photographic Heritage." *Radiation Physics and Chemistry* 116, pp. 8–13.

Centeno, Silvia A., Charlotte Hale, Federico Carò, Anna Cesaratto, Nobuko Shibayama, John Delaney, Kathryn Dooley, Geert van der Snickt, Koen Janssens, and Susan Alyson Stein

2017 "Van Gogh's *Irises and Roses*: The Contribution of Chemical Analyses and Imaging to the Assessment of Color Changes in the Red Lake Pigments." *Heritage Science* 5:18 (May 10). https://heritagesciencejournal.springeropen.com /articles/10.1186/s40494-017-0131-8.

Cox, Julian, and Colin Ford

2003 Julia Margaret Cameron: The Complete Photographs. Los Angeles: J. Paul Getty Museum.

Davis, Jeffrey M., and Edward P. Vicenzi

2016 "Optimizing Compositional Images of Daguerreotype Photographs Using Post Processing Methods." *Heritage Science* 4:14 (May 27). https://heritagesciencejournal.springeropen.com /articles/10.1186/s40494-016-0080-7.

Hale, Charlotte, and Silvia A. Centeno

2017 "Seurat's Circus Sideshow: Materials, Technique and Evolution." In *Seurat's Circus Sideshow*, by Richard Thomson, with contributions by Susan Alyson Stein et al., pp. 112–16. Exh. cat. New York: MMA.

Kozachuk, M. S., T. K. Sham, R. R. Martin, A. J. Nelson, and I. Coulthard

2018 "Exploring Tarnished Daguerreotypes with Synchrotron Light: XRF and μ-XANES Analysis." *Heritage Science* 6:12 (March 6). https://heritagesciencejournal.springeropen.com /articles/10.1186/s40494-018-0171-8.

Lavédrine, Bertrand

2009 *Photographs of the Past: Process and Preservation.* Contributions by Jean-Paul Gandolfo, John McElhone, and Sibylle Monod; translated by John McElhone. Los Angeles: Getty Conservation Institute.

Mahon, Dorothy, and Silvia A. Centeno

2017 "Murillo's 'Self Portrait' of ca. 1650–55." In *Murillo: The Self-Portraits*, by Xavier F. Salomon and Letizia Treves, pp. 116–20. Exh. cat., Frick Collection, New York; National Gallery, London. New York: Frick Collection.

Noble, Petria, Annelies van Loon, Matthias Alfeld, Koen Janssens, and Joris Dik

2012 "Rembrandt and/or Studio, Saul and David, c. 1655: Visualising the Curtain Using Cross-Section Analyses and X-ray Fluorescence Imaging." *Techn*è 35, pp. 36–45.

Ruiz Molina, Marina, Jalena Louise Jampolsky, and Louisa Smieska 2017 "What Lies Beneath a Tiffany Drawing?" In *Now at The Met* (blog), August 14, 2017. https://www.metmuseum.org /blogs/now-at-the-met/2017/secrets-of-louis-comfort-tiffany -process?utm_source=homepage&utm_medium=banner.

Weaver, Mike

1984 Julia Margaret Cameron, 1815–1879. London: Herbert Press.

Wolf, Silvia

1998 Julia Margaret Cameron's Women. Exh. cat., Art Institute of Chicago; Museum of Modern Art, New York; San Francisco Museum of Modern Art. Chicago: Art Institute of Chicago.

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