Edward Steichen (American, born Luxembourg, 1879–1973)

Portrait of Clarence White

1908
Gum bichromate over platinum print
Alfred Stieglitz Collection

AIC accession number: 1949.828

Stieglitz Estate number:

Inscriptions: Inscribed recto, lower right, below image, in graphite: "STEICHEN/ MIXVIII"; verso, lower center, angled left, in black charcoal[?]; "#15"; verso, lower right, in graphite: "31/[not legible, covered by tape]"; verso, upper right, in graphite: [not legible, covered by tape]."

Dimensions: 39.4 x 28.9 cm (image); 40.2 x 29.5 cm (mount)

Print thickness: N/A

Surface sheen: High gloss (11.17 GU @ 60°)

Paper tone: N/A

Mount: Original

Mount tone: N/A

Ultraviolet-induced (UV) visible fluorescence (recto): None

X-ray fluorescence (XRF) spectrometry:
See below

Fourier transform infrared (FTIR) spectrometry:
See below

TECHNICAL SUMMARY

This photograph is a gum bichromate over platinum print on a thin cream paper. It is mounted overall to a thick board faced with dark gray paper. Gum-platinum printing, a unique technique that involves printing a gum bichromate print over an already developed platinum print, was frequently used by Steichen. At the right corner of the print, Steichen signed his name in block letters and dated the work in roman numerals. Steichen typically dated his prints according to the year they were printed, rather than the negative date. It is therefore not unusual to have the date on the print conflict with other dated prints from the same negative. On the verso of the mount, there is an inscription"#15," in black pencil. When the surface of the print is viewed under high magnification, the fibers from the paper are visible and the image sits directly on the fibers, with no intermediary binder. The print does not fluoresce when exposed to long-wave UV radiation. Platinum, iron, lead, chromium, and trace amounts of mercury were detected using XRF spectrometry. Common to platinotypes, the residual presence of light-sensitive iron ions could be due to improper washing of the print after processing, but it was also likely used in the fabrication of the mount. The presence of lead could have two sources: while lead could have also been used during fabrication of the photographic paper itself, it was also often used during the processing of platinum prints, to promote uniform development. The presence of mercury could be the result of the artist's use of mercuric chloride during processing, to create the print's warm tones. FTIR-ATR analysis was able to confirm the presence of gum arabic over the surface of the print. This analysis, added to the fact that chromium is present over the entire print and not just in the high-density areas, confirms that gum bichromate was printed over the platinum image, to increase contrast.

X-RAY FLUORESCENCE (XRF) SPECTROMETRY

XRF spectral readings were taken from the recto of the work and from the mount when available. The elements listed below have been positively identified in the work; elements in bold have been attributed to the processing of the print.

Print: **Cr**, **Fe**, **Pt**, Hg, Pb

Mount: Ca, Ti, Mn, Fe, Cu, Zn, Sr

The graph below shows XRF spectra for three distinct measurement areas on the print: the darkest, maximum-density image area (Dmax, purple); the lightest, minimum-density image area (Dmin, green); and the mount, when available (orange). The background spectrum (gray) represents the characteristic contribution of the instrument itself as measured on a Teflon reference and is included in order to discount irrelevant elements from the print's signature. Elements were identified based on the presence of their characteristic peaks. Analysis was performed with a Bruker/Keymaster Tracer III-V+ energy-dispersive handheld XRF analyzer, equipped with changeable Ti and Al filters and a Rh transmission target. Measurements were taken for 120 or 180 LT at 40 kV and 10 µA. The spectrum below illustrates the significant peaks for this print in the energy range from 3 to 15 keV.

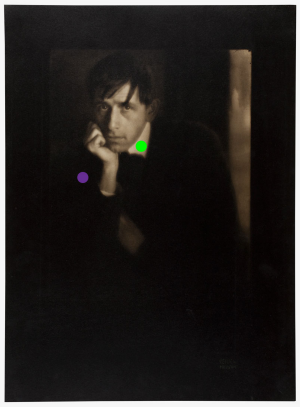
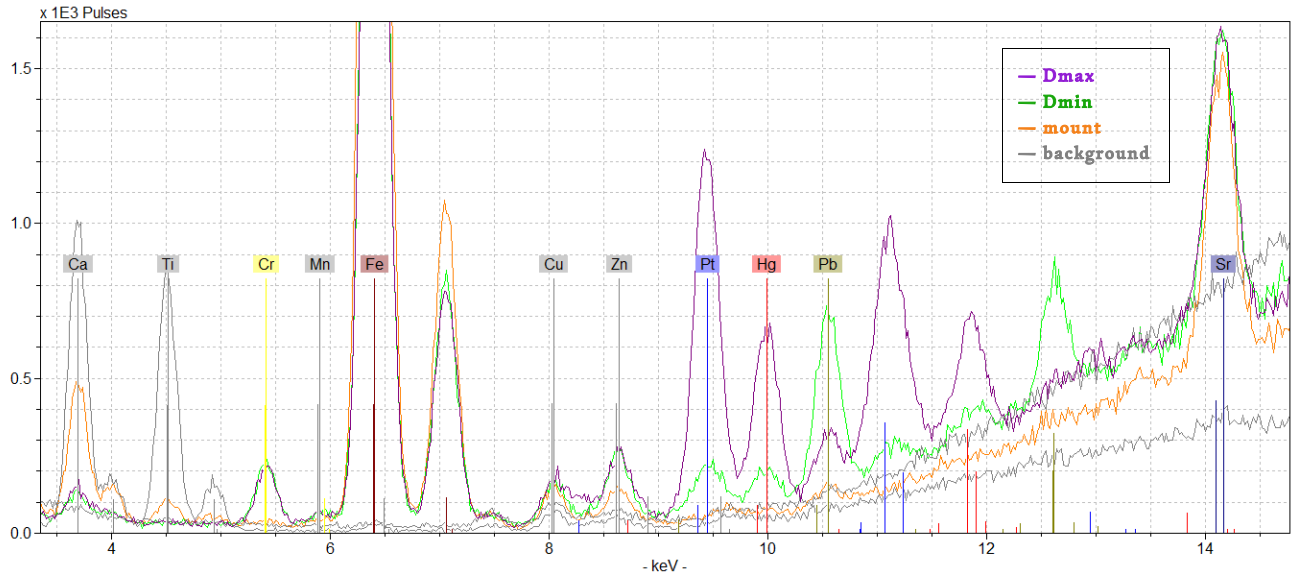


Figure 1. (right)
Locations of XRF measurements

Figure 2. (below)
XRF spectra from the Dmax, Dmin, mount, and background signal produced by the analyzer.



FOURIER TRANSFORM INFRARED (FTIR) SPECTROSCOPY

Analysis was conducted using Attenuated Total Reflectance spectroscopy (FTIR-ATR). Gum arabic was identified.

Analysis was performed using a Bruker tensor 27 FTIR spectrophotometer with mid-IR glowbar source coupled to Hyperion 2000 Automated FTIR microscope with nitrogen cooled MCT detector (covering the range 4,000- 450 cm^{-1}). Samples were analyzed using a germanium ATR attachment for the microscope, collecting 512 scans at a resolution of 4 cm^{-1}.

Figure 1. (right)
Location of the spot analyzed with FTIR-ATR

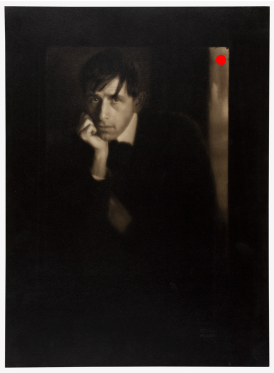


Figure 2. (below)
FTIR-ATR spectra showing the presence of gum arabic. The coating must be relatively thick as the contribution of the bands of the cellulose substrate are not well visible.