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Plasmonic Color Printing in the Nineteenth-Century PAUL GIERI, Department of Physics and Astronomy, University of New Mexico, Albuquerque, NM 87131, ANDREA SCHLATHER, Department of Scientific Research, The Metropolitan Museum of Art, New York, NY 10028, MIKE ROBINSON, Century Darkroom, Toronto, ON M4M 2S1, Canada, SILVIA CENTENO, Department of Scientific Research, The Metropolitan Museum of Art, New York, NY 10028, ALEJANDRO MANJAVACAS, Department of Physics and Astronomy, University of New Mexico, Albuquerque, NM 87131 — Due to their ability to support plasmonic resonances, metallic nanoparticles are being exploited to develop novel color printing approaches. However, plasmonic color printing is not so "new." Indeed, daguerreotypes, which are recognized as the first technology capable of capturing an image from a camera, are an example of plasmonic color printing. Daguerreotypes were first proposed in 1839 and saw widespread use for the next several decades. Although unknown at the time, the image on a daguerreotype is a result of plasmonic light scattering from a multitude of metallic nanoparticles on its surface. In this work we combine scientific expertise and daguerreotype artistry to unravel the plasmonic properties of these early photographs, providing important insight needed to develop preservation protocols for these priceless works, as well as to inform the development of future color printing technologies.

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