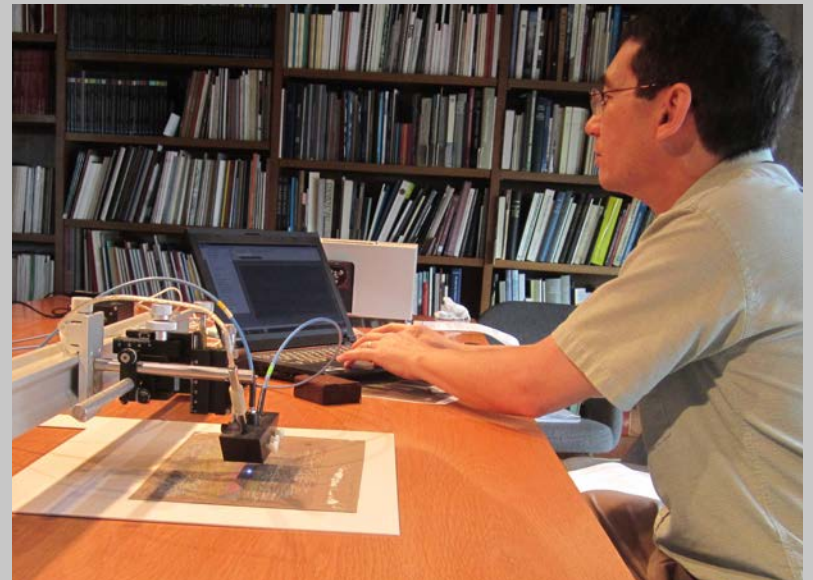
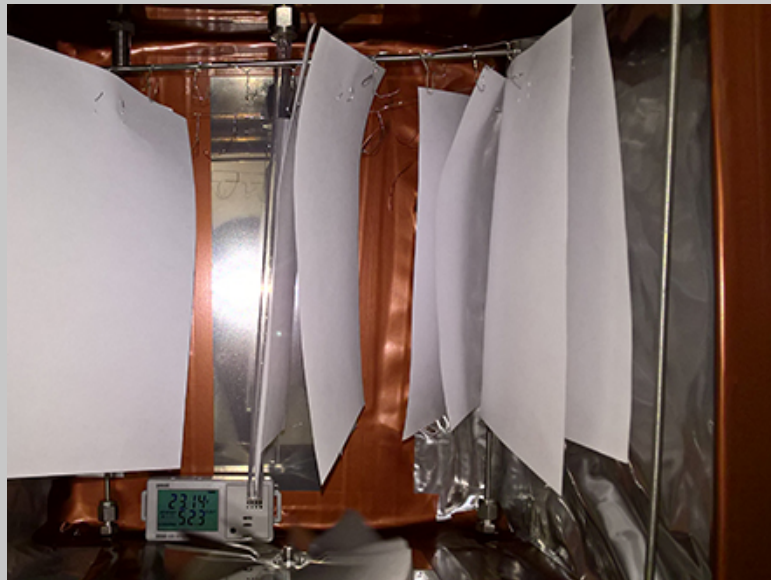
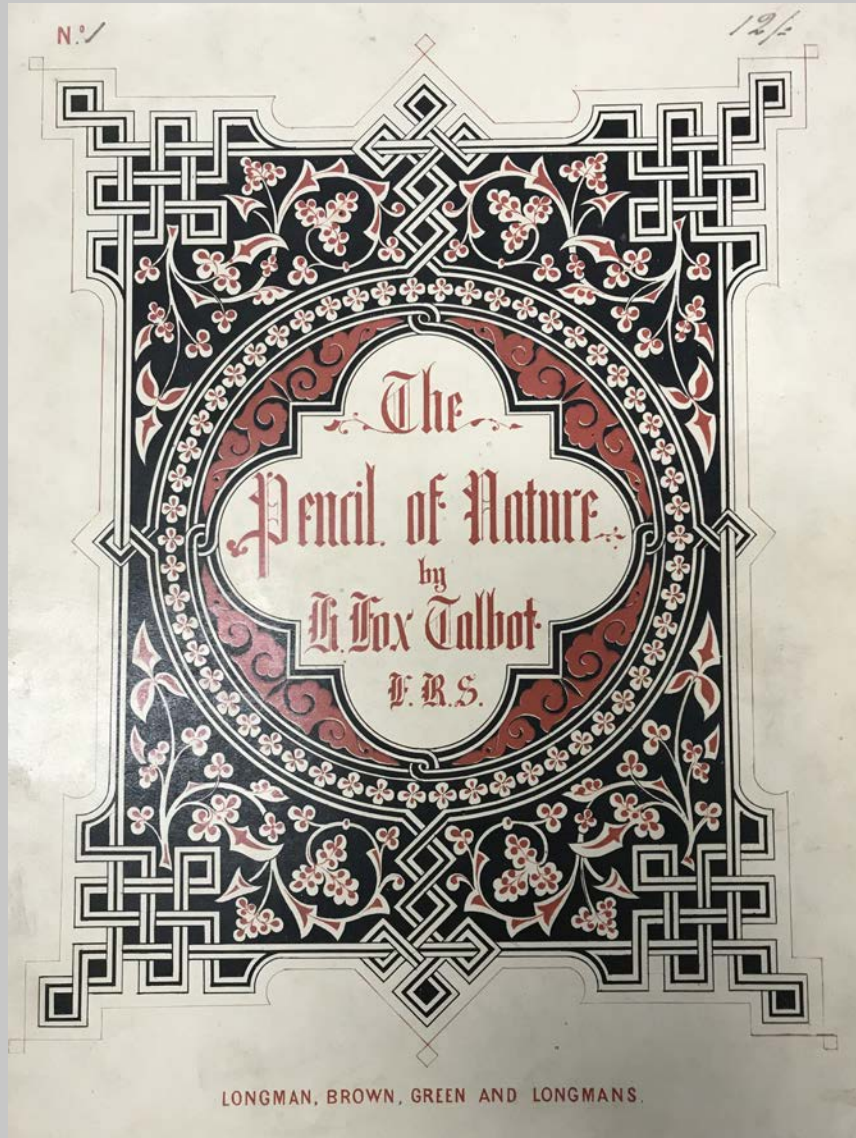


[illegible]

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Yale Center for British Art

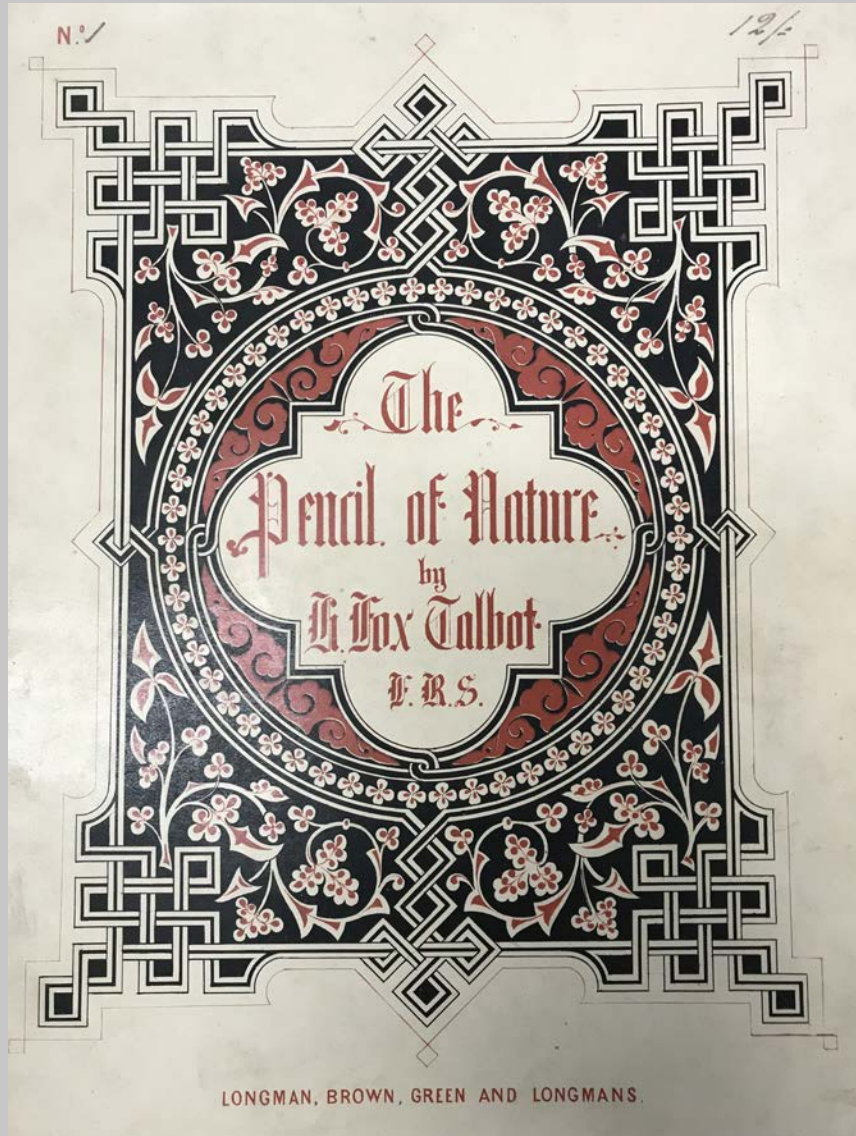
The Pencil of Nature (Cover of first fascicle)

**William Henry Fox Talbot, Nicolaas Henneman, Benjamin Cowderoy,
and Brown Longman**

London: Longman, Brown, Green, & Longmans, 1844, 1844, 1846



Metropolitan Museum of Art

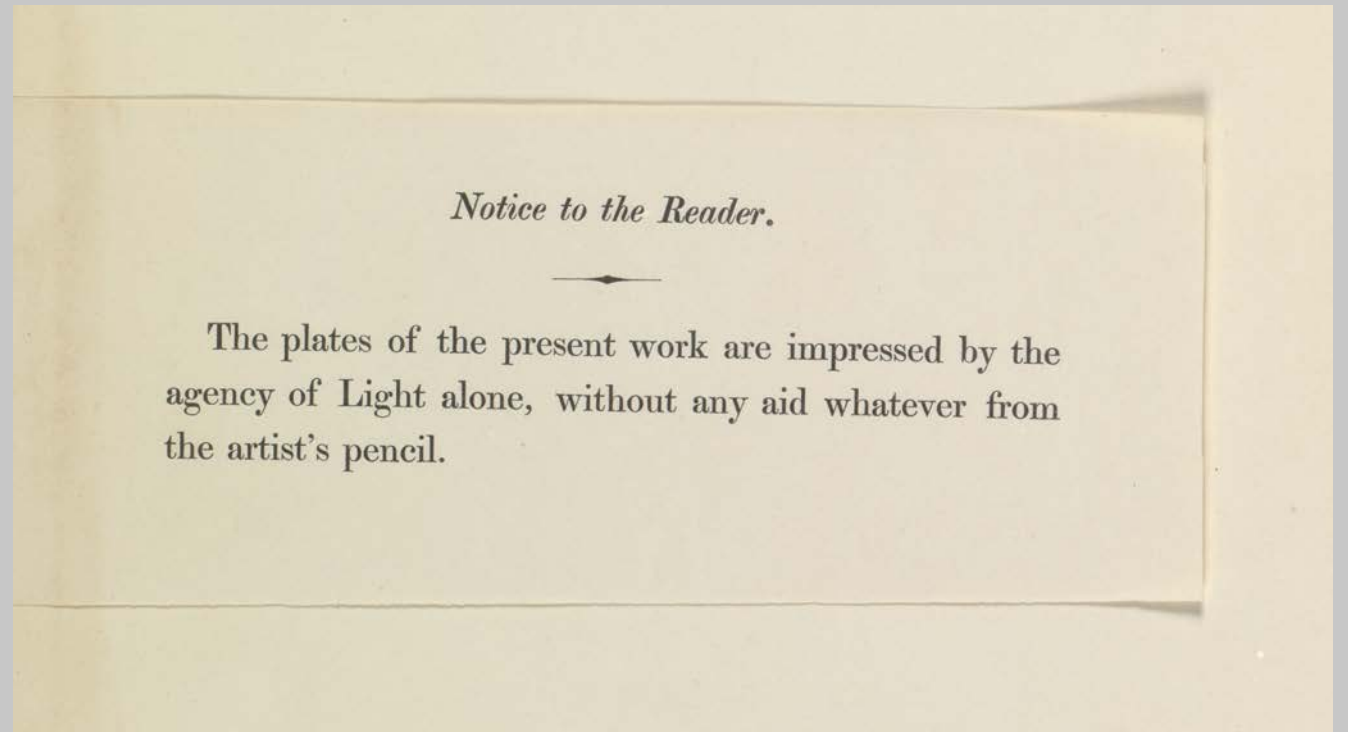


Yale Center for British Art

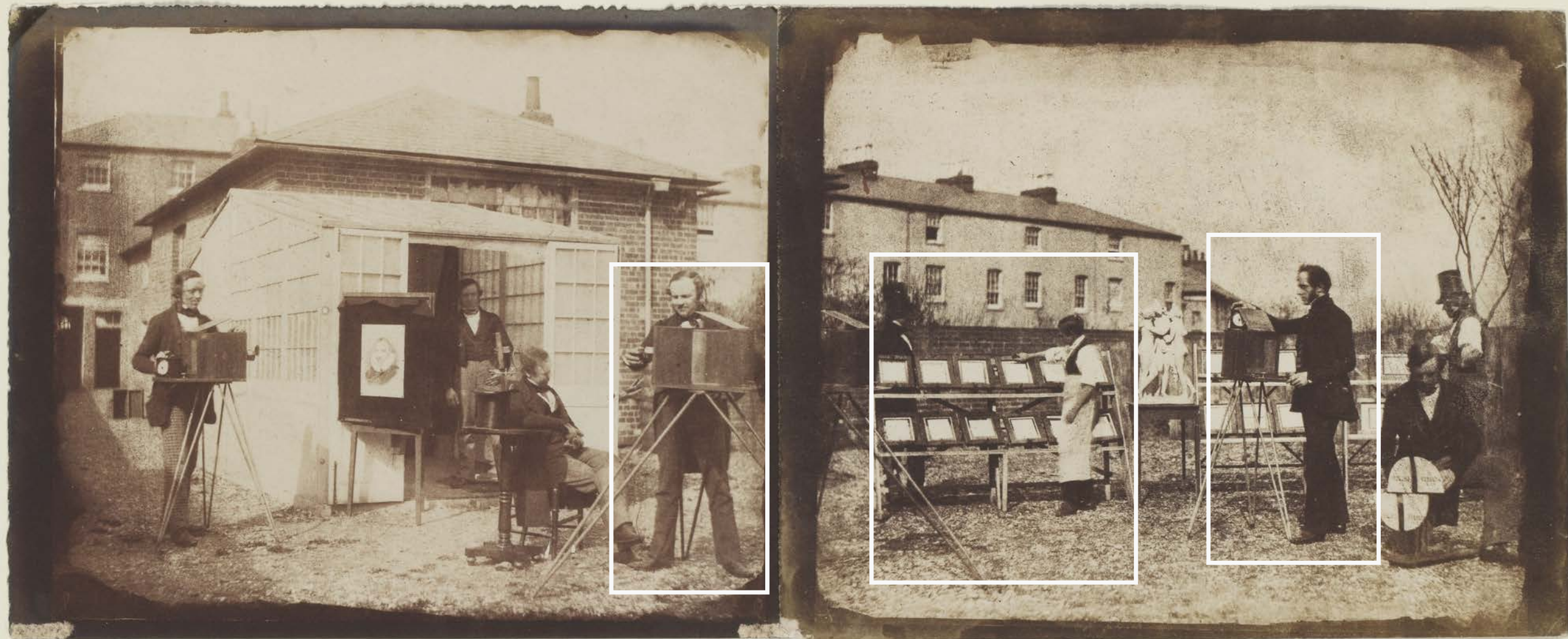
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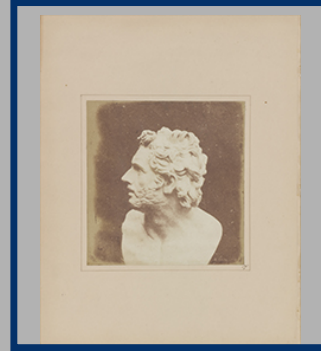
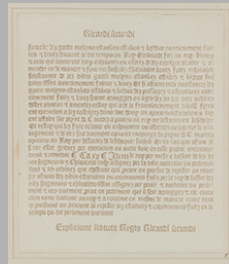
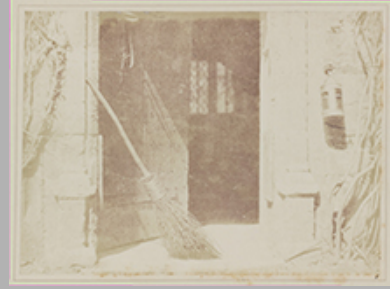
Metropolitan Museum of Art



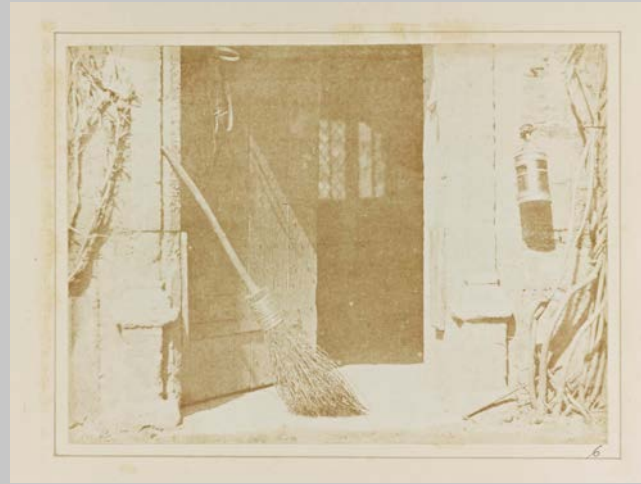
The Reading Establishment, William Henry Fox Talbot & Nicolaas Henneman, 1846

Salted paper prints from paper negatives, overall 19.9 × 49.1 cm

Plates from *The Pencil of Nature*, Metropolitan Museum of Art



Mounted prints, History of Science Collection, National Museum of Scotland



Unmounted prints, History of Science Collection, National Museum of Scotland



Prints from *The Pencil of Nature*, Yale Center for British Art



The Object



Challenges:

- Object heterogeneity
- Rates of changes
- Study scaling & tool deployment
- Data analysis & sharing

Decoding

Technique limitations:

- *In-situ* measurements
- Non-destructive or micro-destructive

What was it?

What is it?
What is it
becoming?

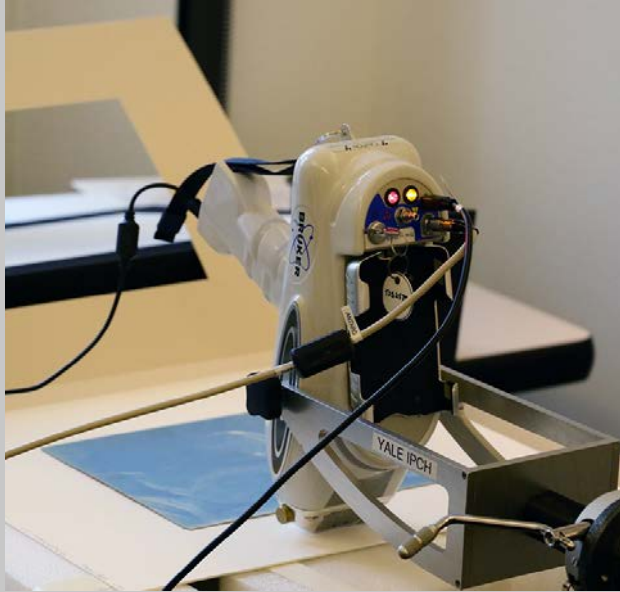
Monitoring &
Risk management

Posters

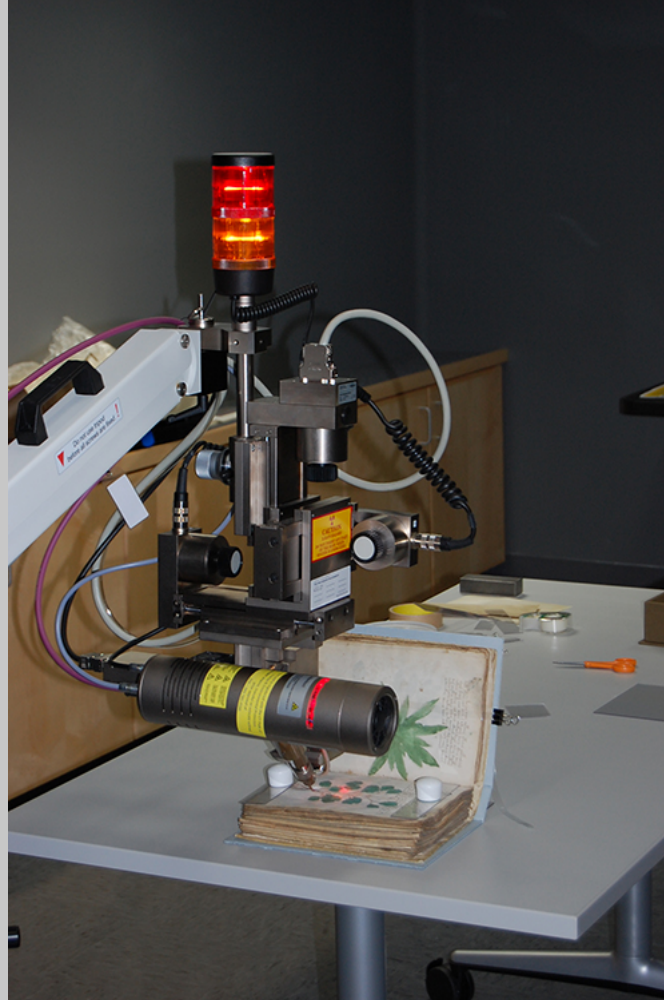
- Elizabeth Coquillette
 - Application of handheld Laser-Induced Breakdown Spectroscopy (LIBS) to develop quantitative calibration curves for the analysis of heritage copper alloys
- Pablo Londero
 - Portable laser ablation sampling for elemental and isotopic ICP-MS analyses
- Kate Schilling
 - Mahogany Species Identification by Thermal Desorption GC/MS
- Kate Schilling, Paul Whitmore, Rui Chen
 - Noninvasive techniques for detecting chemical changes in cultural heritage objects

What is it? *In-situ* & non-destructive spectroscopies

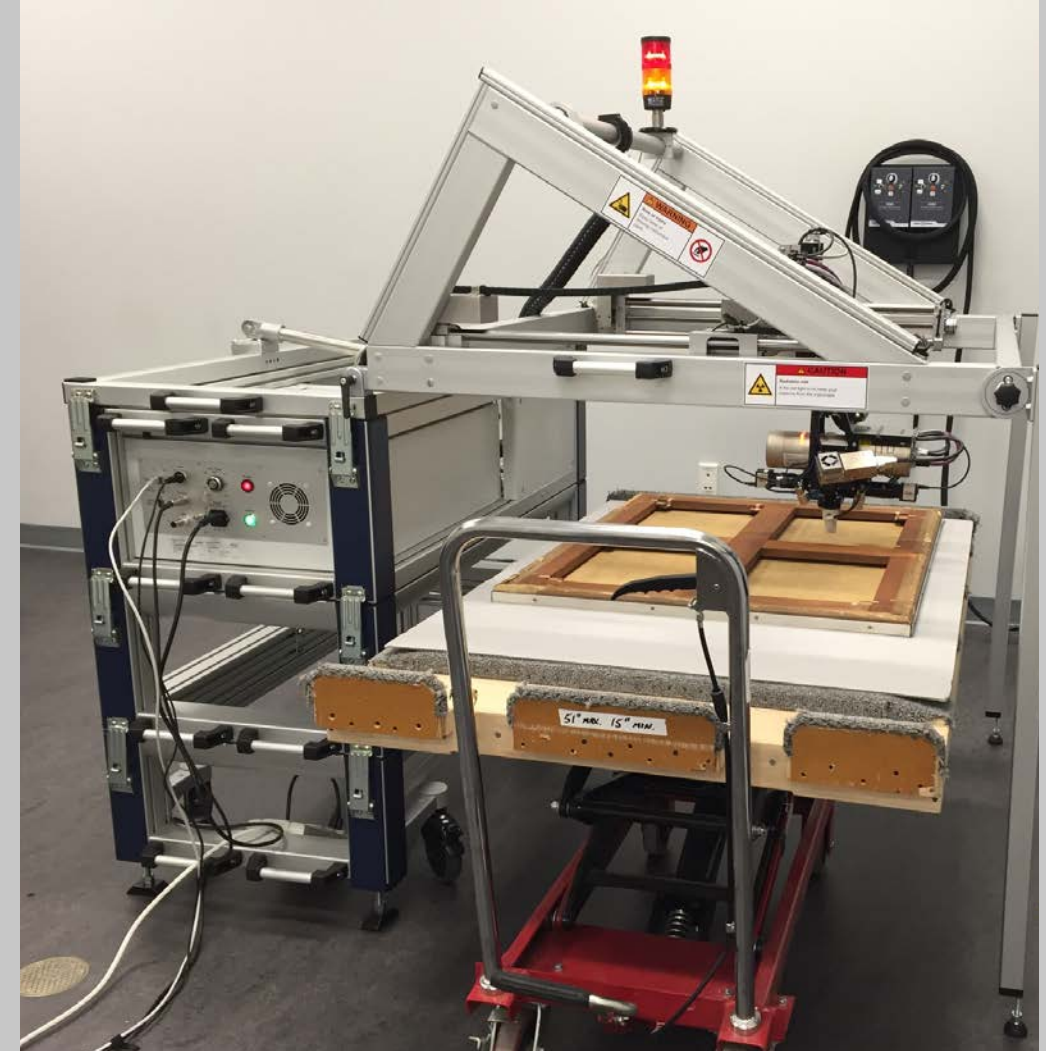
X-ray fluorescence spectrometers



Bruker Tracer III-SD
Handheld, large spot size



Bruker Artax micro-focus, small
area mapping



Bruker M6 Jetstream: micro-focus, large area mapping



**XRF BOOT
CAMP**



The Getty Conservation Institute

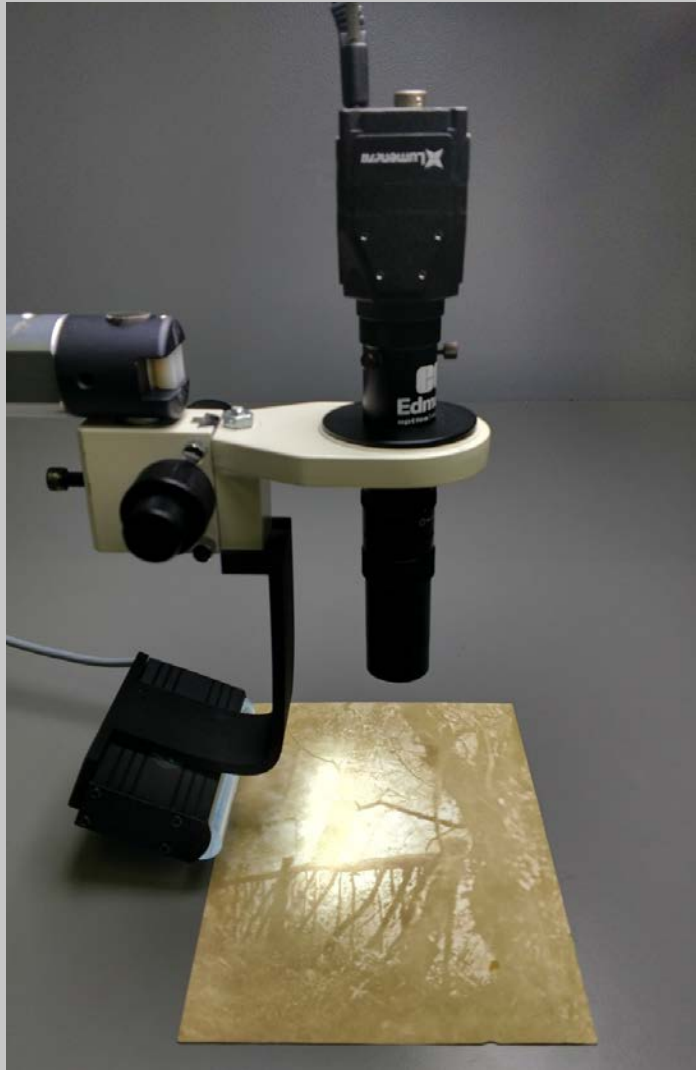
Yale Institute for the Preservation
of Cultural Heritage

What is it? Portable non-contact imaging of surface topography

Micro-RTI (Reflectance Transformation Imaging)



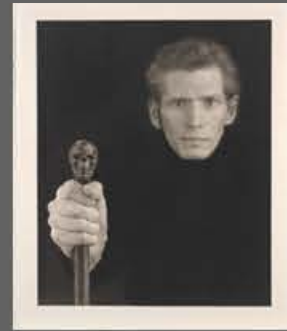
What is it? Portable non-contact imaging of texture: Texturescope

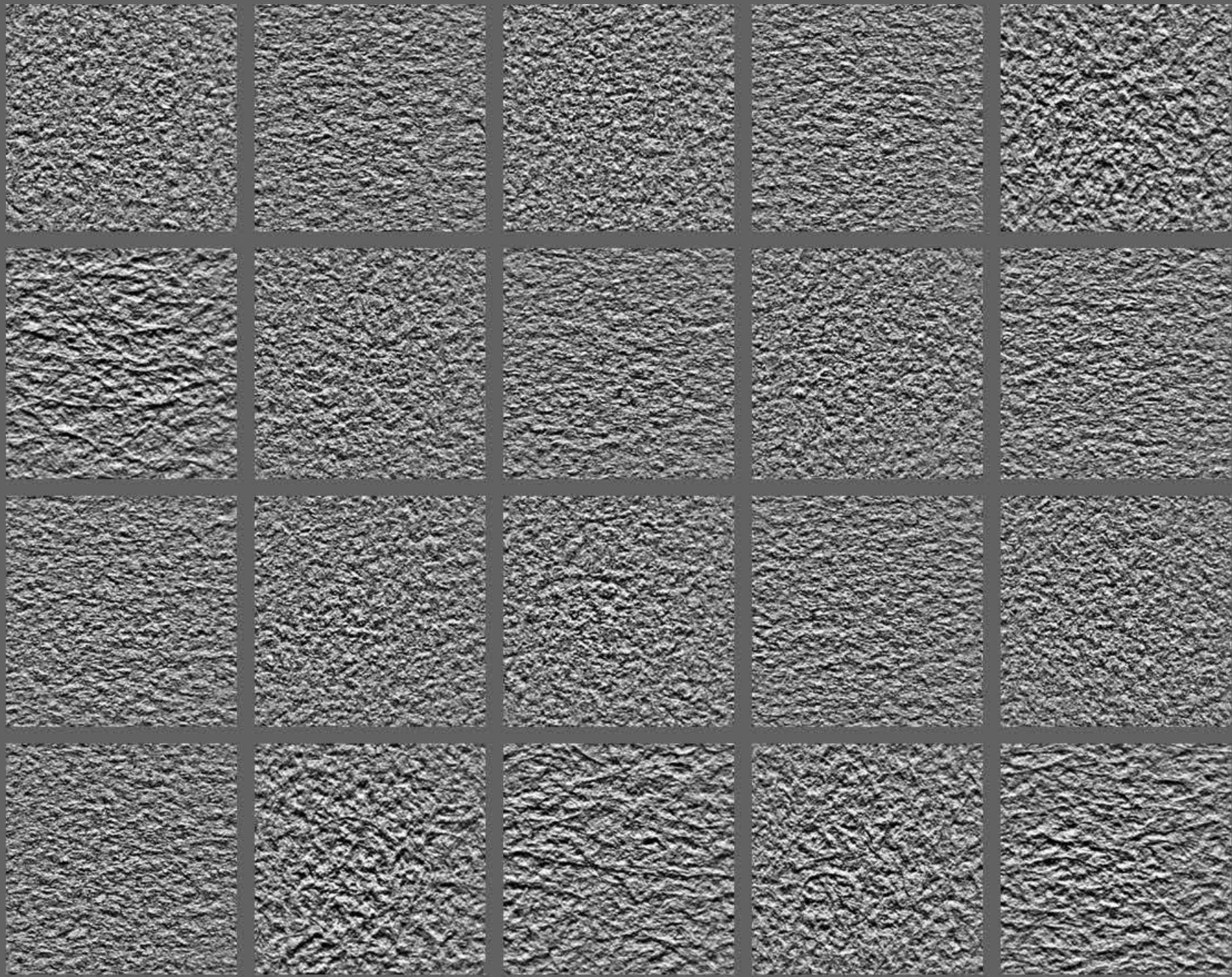


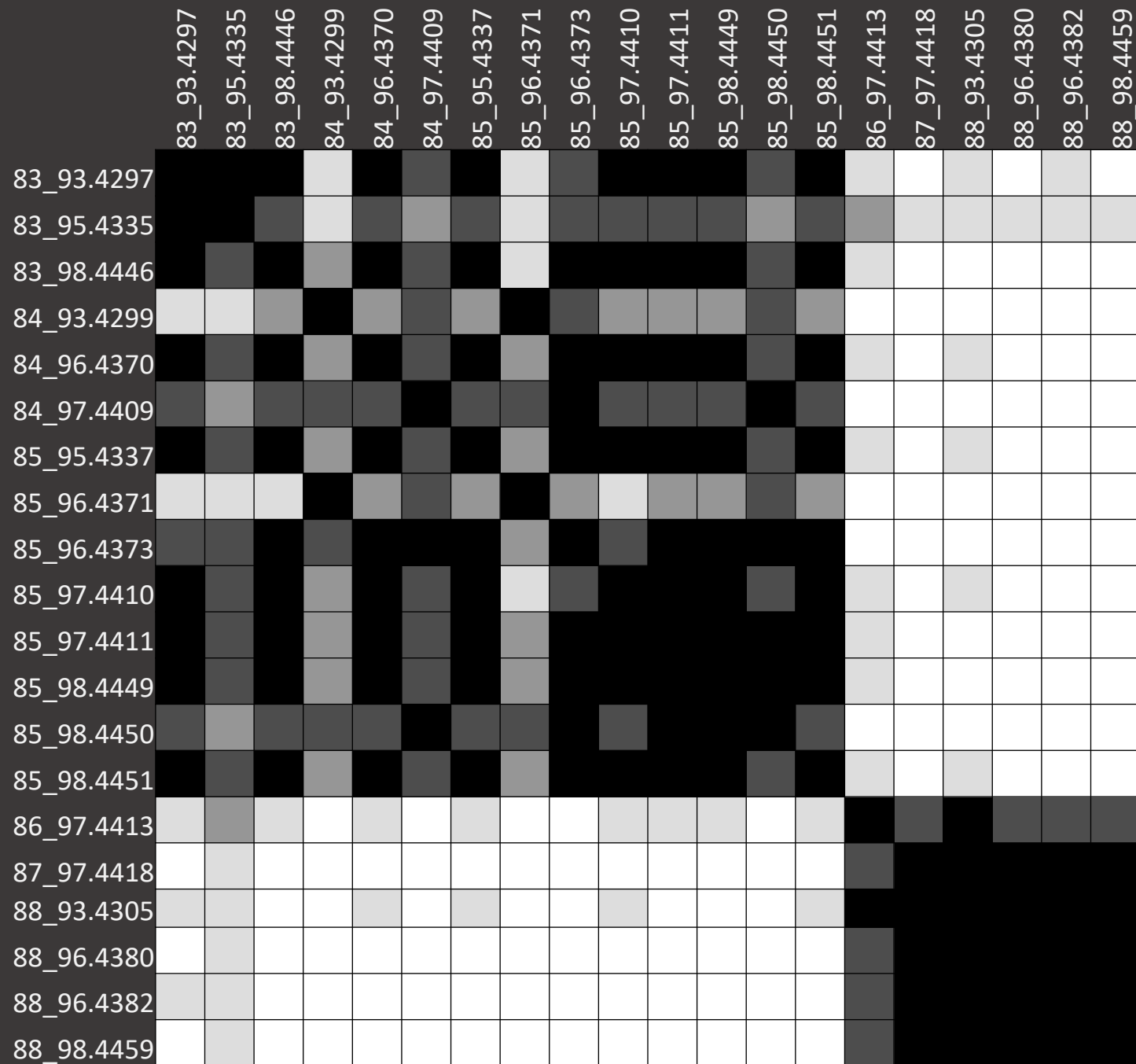
Easy to replicate & deploy: Museum of Fine Arts, Houston

High-throughput, inexpensive, repeatable, easy-to-use

Robert
Mapplethorpe
platinum and
palladium
prints 1983-
1989



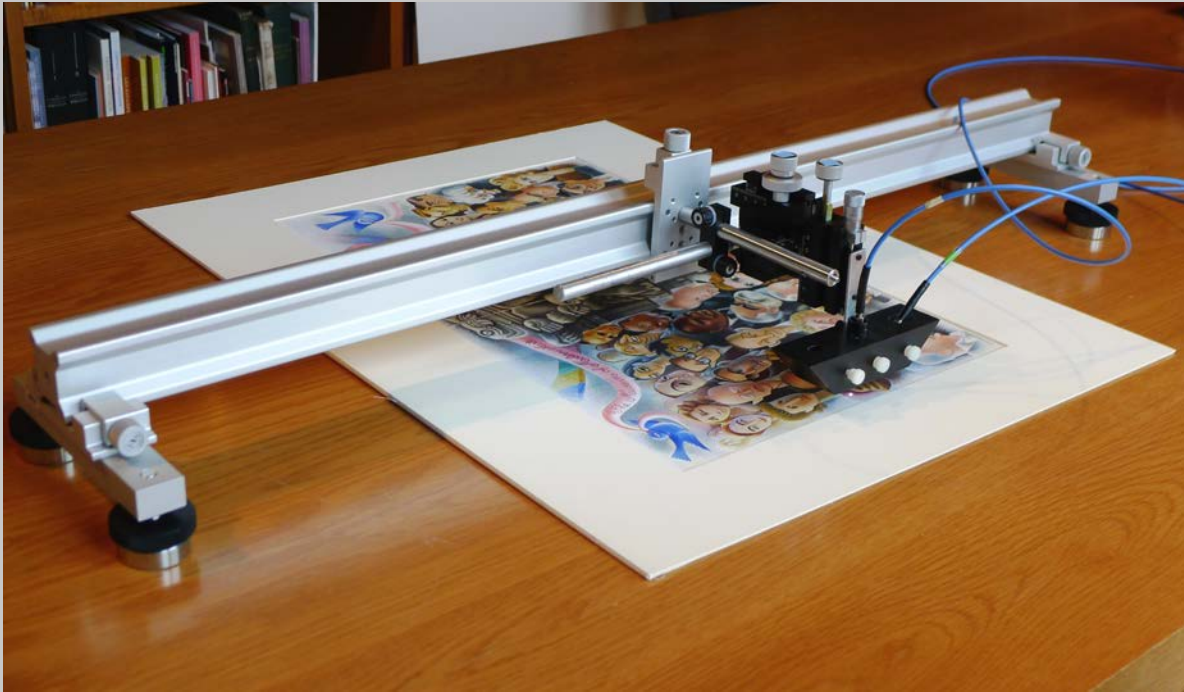




Texture affinity
Robert Mapplethorpe
platinum and palladium prints
1983-1989

What is it becoming? *In-situ* & non-destructive tracking of color change

Microfading tester

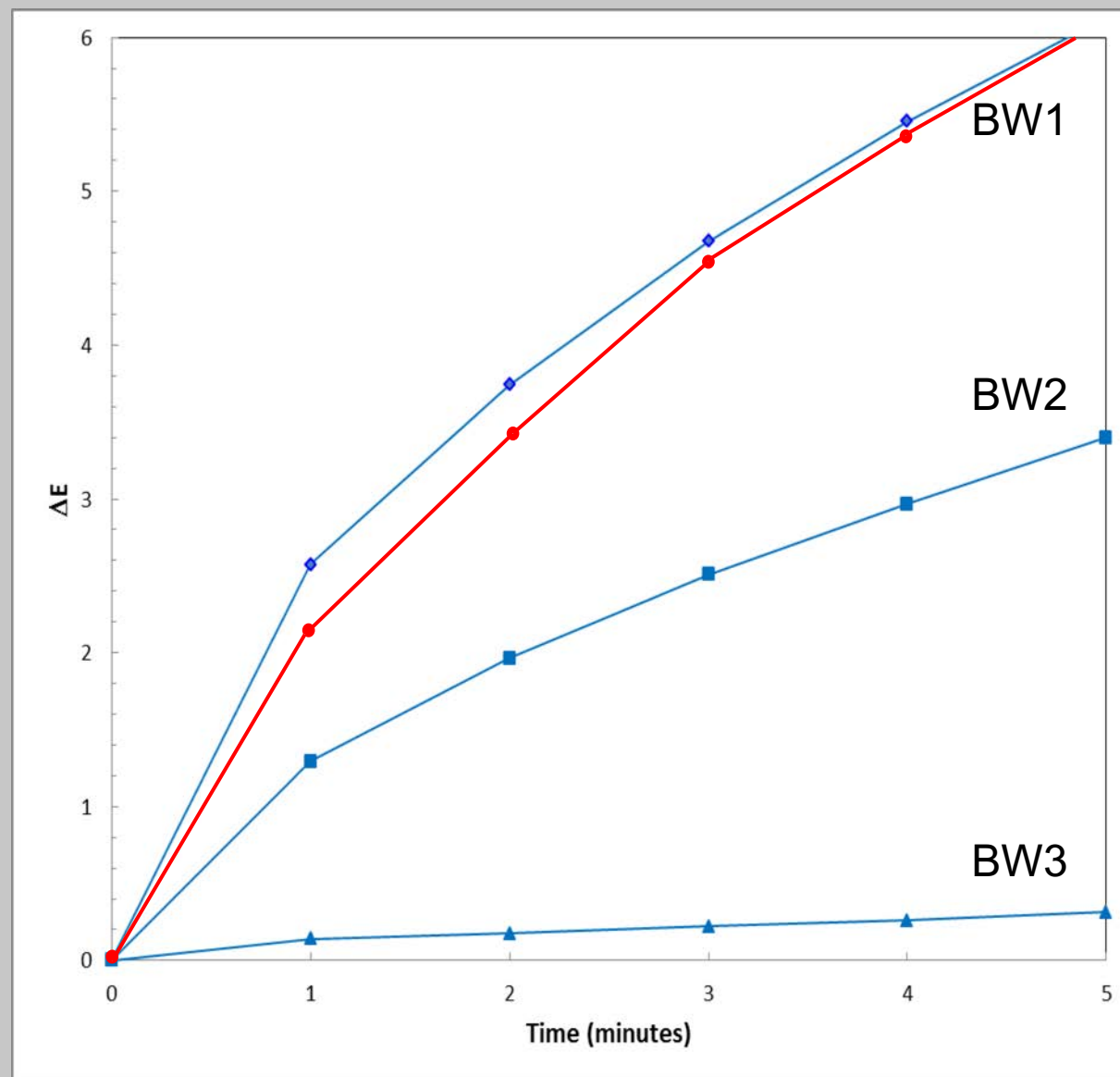


Stable and sensitive color measurement
Filtered visible SPD (near-UV optional)
Very high intensity focused spot (50 Suns)
Equivalent light dose ca. 1 year per minute

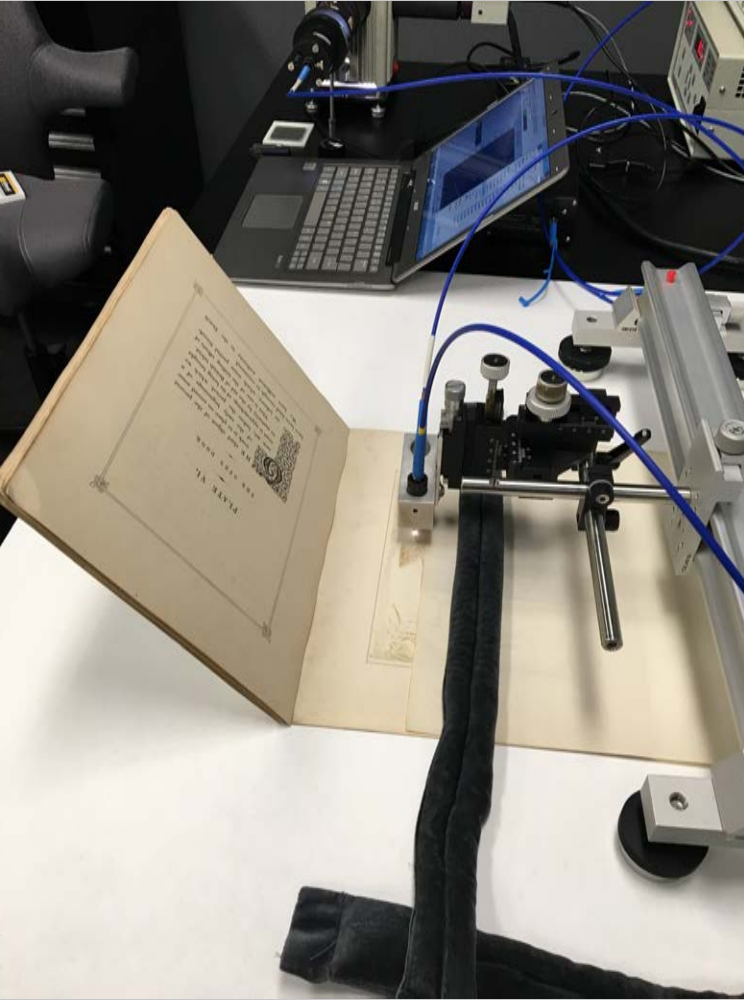
BW1

BW2

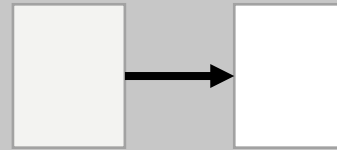
BW3



What is it becoming? *In-situ* & non-destructive tracking of color change



Microfading tests of *Pencil of Nature* images



Areas of highlight: bleach (paper bleaching)

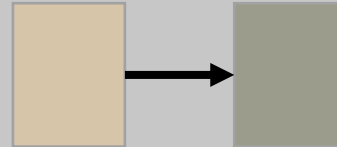



Image density intensifies (darkens and becomes more neutral) - to a greater degree for darker areas



Red: Complete or significantly complete copies in six fascicles
Yellow: Significantly complete copies bound as one volume or disbound
Gray: Multiple part holdings
Light Blue: Single parts
Purple: Significant miscellaneous collections

Countries/cities with multiple holdings (total):
England:28
Scotland: 6
NYC: 7
California: 6
Germany: 2

Contributors

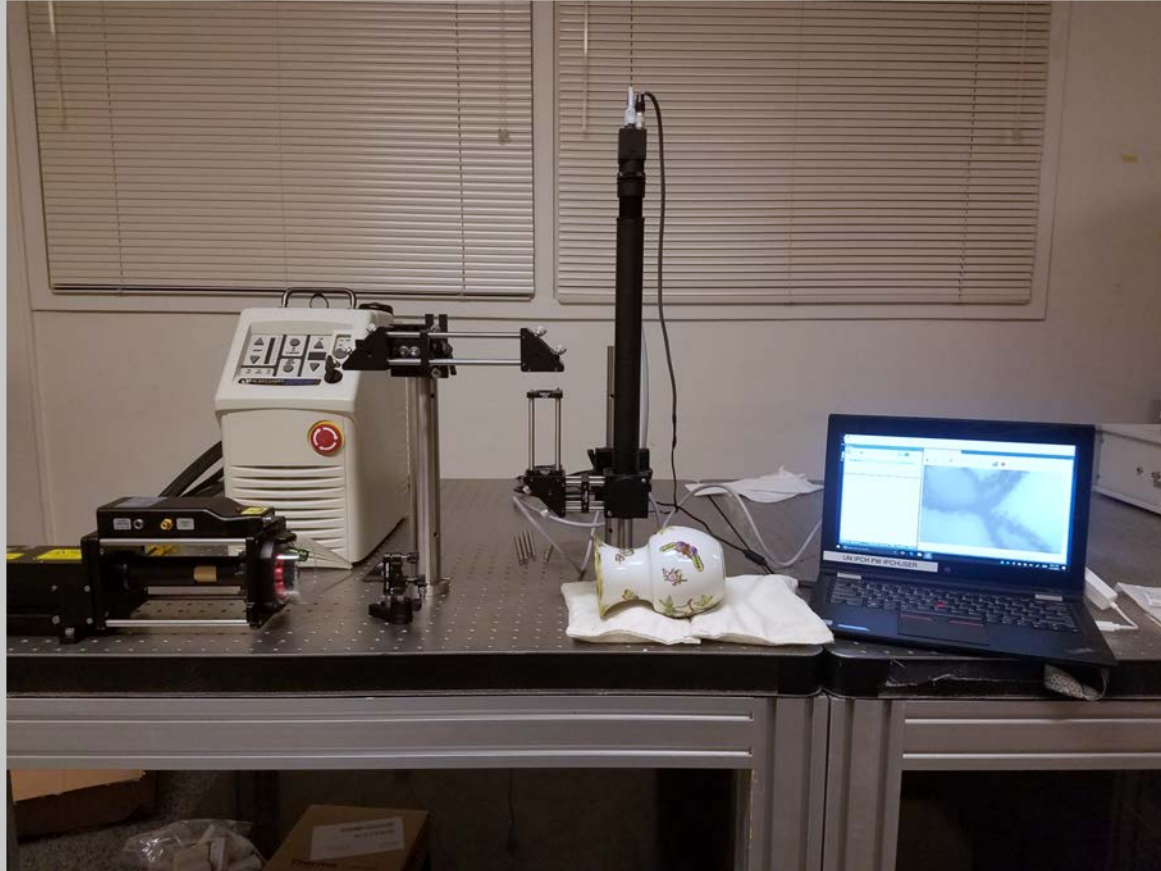
- Paul Messier
- Paul Whitmore, Rui Chen
- Pablo Londero, Colette Hardman-Peavy
- Chitra Ramalingam, Yale Center for British Art

Posters

- Elizabeth Coquillette
 - Application of handheld Laser-Induced Breakdown Spectroscopy (LIBS) to develop quantitative calibration curves for the analysis of heritage copper alloys
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 - Noninvasive techniques for detecting chemical changes in cultural heritage objects

What is it? *In-situ* & micro-destructive sampling and analyses

Portable UV laser ablation sampling module



Prototype setup with IR laser

Yale IPCH

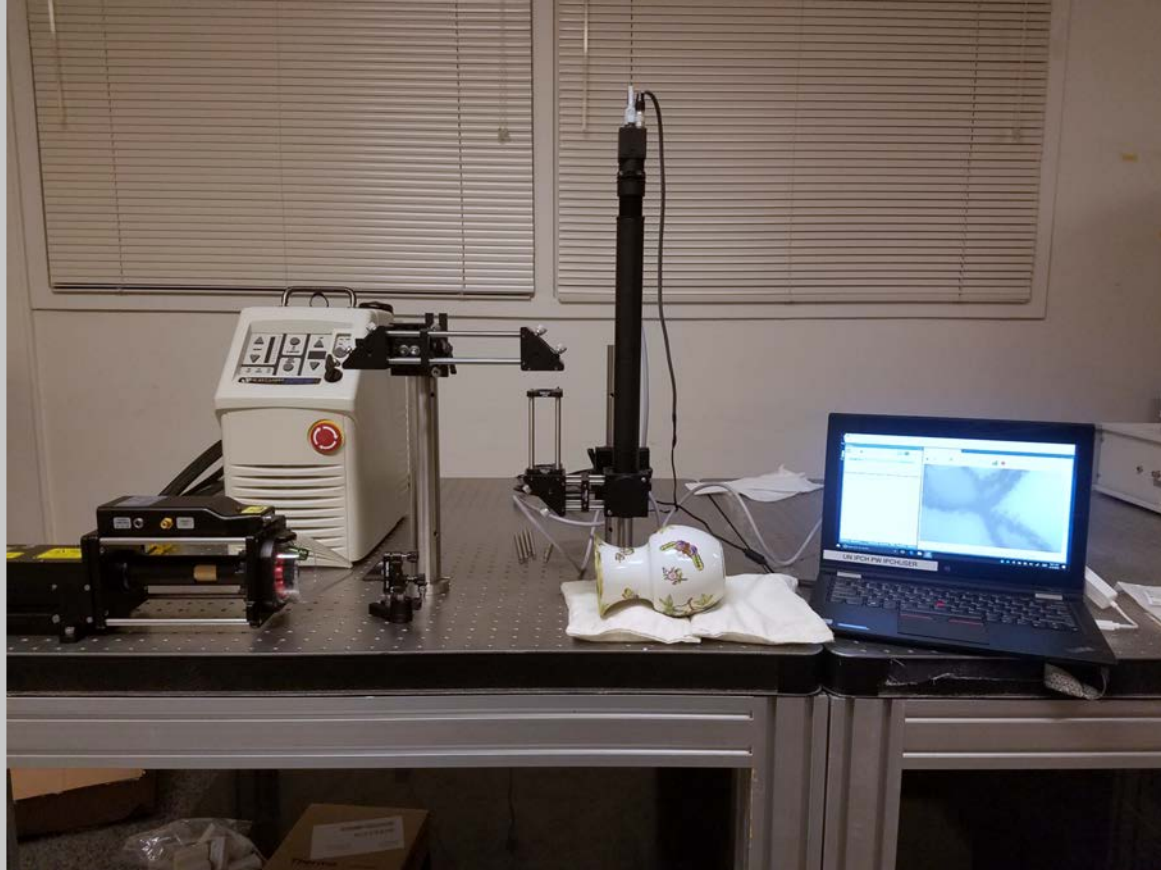


Laser ablation ICP-MS instrumentation

Institute for Geosciences, Johannes Gutenberg-Universität Mainz

What is it? *In-situ* & micro-destructive sampling and analyses

Portable UV laser ablation sampling module



Prototype setup with IR laser

Yale IPCH



Photo credit: Yale University Art Gallery

Rummer, dated 1770

Clear flint glass (leaded) with enamel

Probably made in Bohemia; formerly said to have been made in Manheim, Pennsylvania

What is it? Method and data analysis development



Photo: Metropolitan Museum of Art

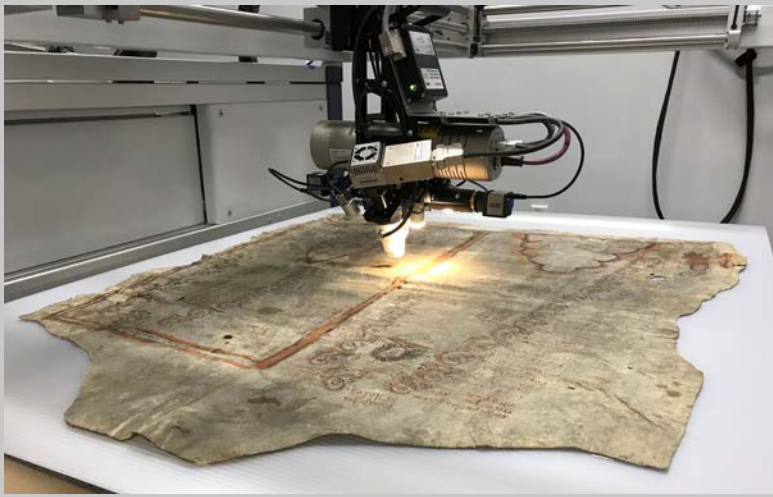


Mahogany Species
Identification by
Thermal Desorption
GC/MS

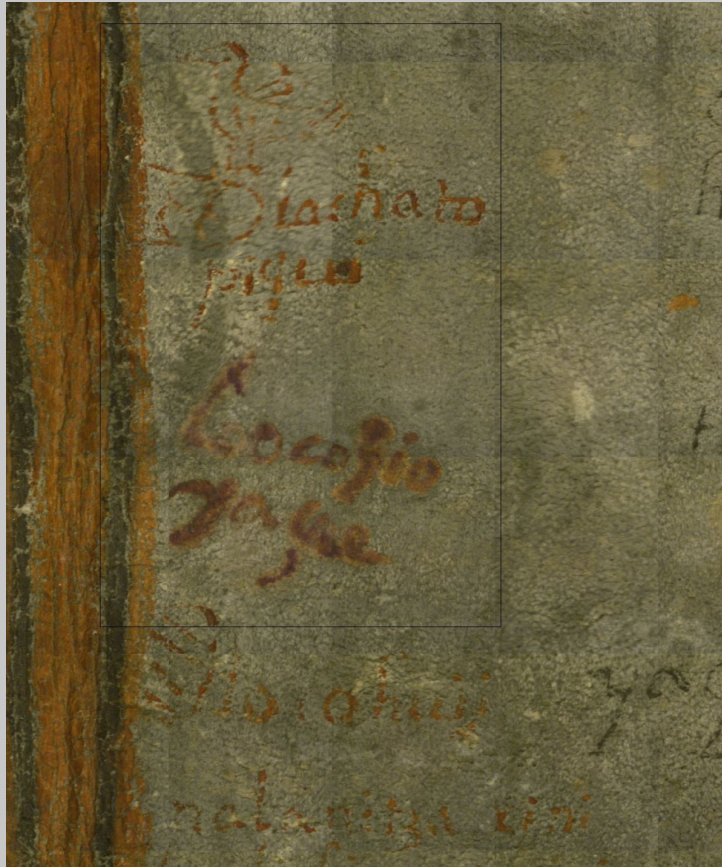
Application of
handheld Laser-
Induced Breakdown
Spectroscopy (LIBS)
to develop quantitative
calibration curves for
the analysis of
heritage copper alloys



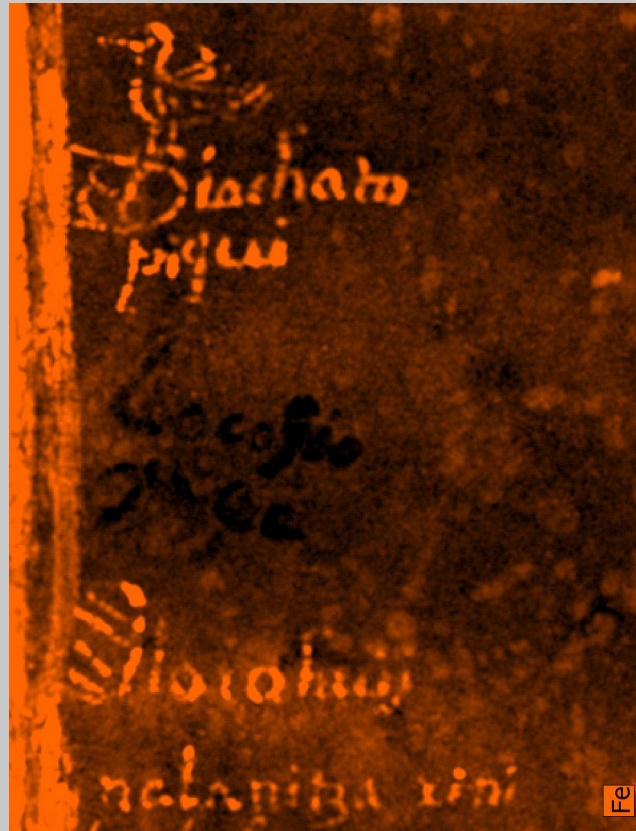
Photo: Yale University Art Gallery



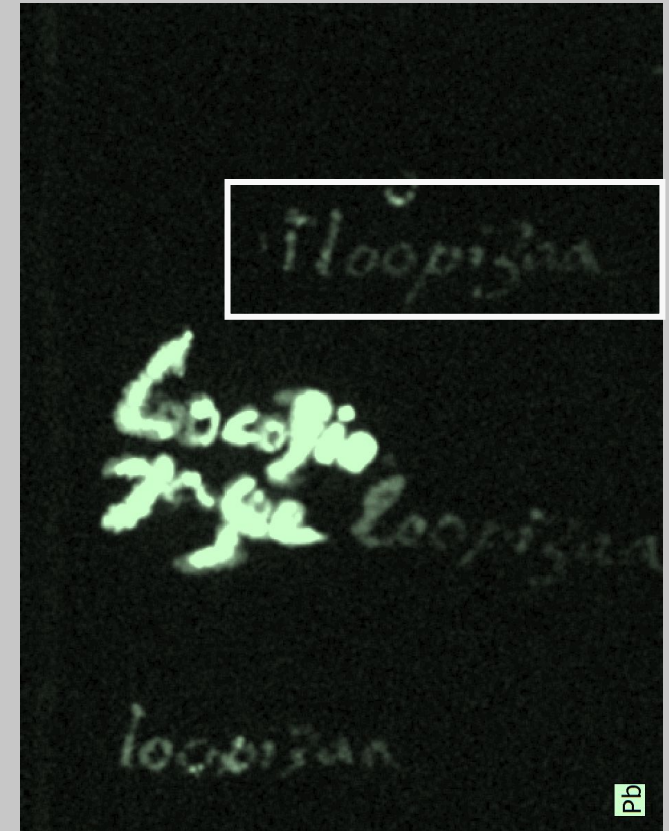
Bruker M6 Jetstream XRF: micro-focus, large area mapping



Fe K α map



Pb L α map





*Somerset House.
Meeting of the Royal Society.*

Welcome Collection

***A meeting of the Royal Society at Somerset House in the Strand. Engraving by
H. S. Melville, 1844, after F. W. Fairholt, 1843***



© Victoria and Albert Museum, London.

Portrait miniature of Sir Peter Hesketh-Fleetwood, Bt., Sir William Charles Ross, 1826

Watercolor on ivory, 11.1 x 8.3 cm



© Victoria and Albert Museum, London.

Anonymous portrait miniature of John Laing. ca. 1830.

Painting on ivory, 8.8 x 6.7 cm

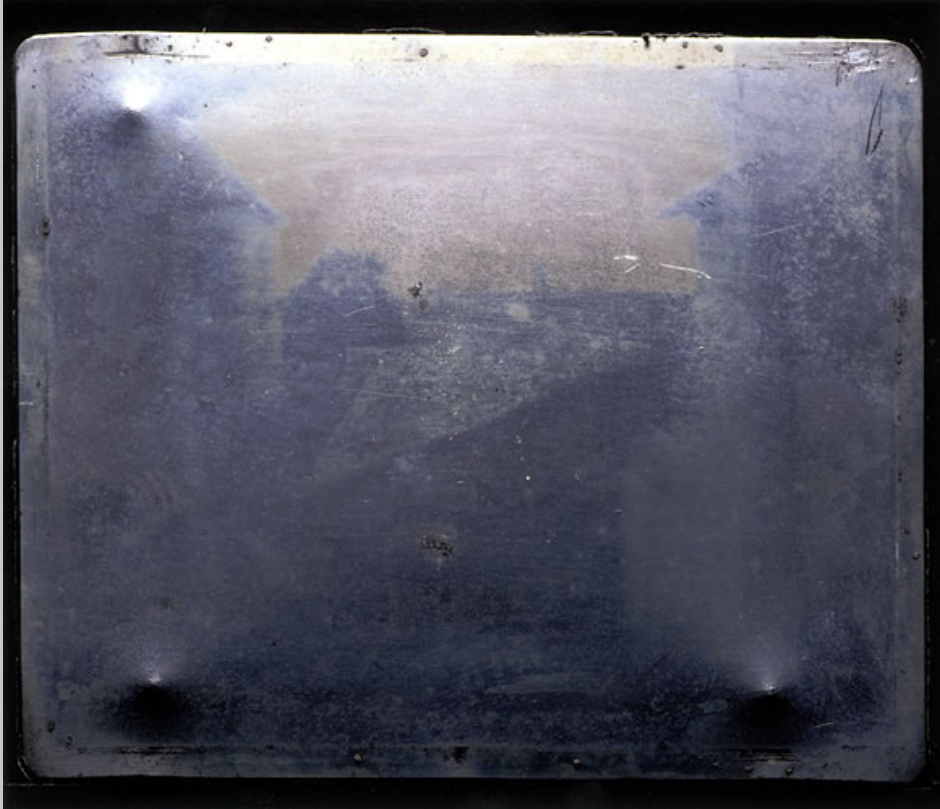


Photo by J. Paul Getty Museum.

***View from the Window at Le Gras*, Joseph
Nicéphore Niépce, ca. 1826**

Gernsheim Collection, Harry Ransom Center.
Bitumen on pewter, Image 11.9 x 17.8 cm



Photo by J. Paul Getty Museum.

**Reproduction of Joseph Nicéphore Niépce's
View from the Window at Le Gras, Helmut
Gernsheim & Kodak Research Laboratory,
Harrow, England, 1952**

Gernsheim Collection, Harry Ransom Center.
Gelatin silver print with applied watercolor



***Still Life with Casts*, Louis Jacques Mandé Daguerre, 1837**

Whole plate daguerreotype, approx. 16.5 x 21.5 cm
Collection of the Société Française de Photographie



***Boulevard du Temple, Paris*, Louis Jacques Mandé Daguerre, 1838**

Daguerreotype



The Roofline of Lacock Abbey, William Henry Fox Talbot, probably 1835-1839

Salt-fixed photogenic drawing negative, 11.1 x 11.7 cm
The J. Paul Getty Museum, Los Angeles (84.XM.478.9)



Boulevard du Temple, Paris, Louis Jacques Mandé Daguerre, 1838

Daguerreotype