

MATERIAL IMMATERIAL:
PHOTOGRAPHS IN THE 21ST CENTURY

An FAIC Collaborative Workshop in
Photograph Conservation

organized by
Monica Bravo and Paul Messier

Yale University
September 23–25, 2019



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MATERIAL IMMATERIAL:
PHOTOGRAPHS IN THE 21ST CENTURY

Why print a photograph in 2019?

We are witnessing the historic transformation of photography from tangible objects—prints, plates, and negatives—to code: intangible bits, bytes, and pixels. As the tether between visual culture and the material world recalibrates, a new form of literacy is required to draw meaning from physical media and its obsolescence. At the very moment when characterization and interpretation of the printed photograph is rapidly gaining ground, the momentum toward dematerialization raises the issue of the long-term relevance and sustainability of photography as a material fact. Does the physical photograph still matter today—as a source for teaching, learning, and scholarship—and will it matter into the future?

This three-day program is organized by Monica Bravo, Assistant Professor of History and Theory of Photographic Media at California College of the Arts and Paul Messier, Director of the Lens Media Lab at Yale's Institute for the Preservation of Cultural Heritage; with the support and guidance of the FAIC Collaborative Workshops in Photograph Conservation committee. The symposium and elective seminars are geared for educators, students, curators, photographers and, particularly, for conservators whose core value proposition is most directly tied to the physical photograph. The program is structured to provide insight into new tools for researching photographs with an emphasis on both the material and immaterial aspects of the medium. Conservators will gain practical knowledge on new and existing techniques for characterizing prints and collections and how this information can be structured and visualized. Curators and art historians will benefit from exposure to the methods and techniques that underlie the contemporary approaches to material history. Together, the presentations and discussions are meant to demystify techniques adapted from seemingly exotic fields of artificial intelligence and data science and to cover some basic techniques for understanding and interpreting the physical and chemical makeup of a photographic print.

SYMPOSIUM

MONDAY, SEPTEMBER 23 – YALE CENTER FOR BRITISH ART
LECTURE HALL, 1080 CHAPEL STREET

- 9:00 – 9:10am INTRODUCTION, Paul Messier
- 9:10 – 10:45am MATERIAL
Moderated by Paul Messier
Monica Bravo, *Divorced from Matter?*
Haidy Geismar, *Materials and Materiality*
Kate Palmer Albers, *The Inner Lives of Photographs*
- 10:45 – 11:05 am BREAK
- 11:05 am – 12:40 pm PROCESS
Moderated by Lisa Kereszi
Alison Rossiter, *Expired Paper*
Abelardo Morell, *From Light to Paper to Light*
Charles Richardson, *Silver Gelatin Mural Printing*
- 12:40 – 1:40 pm LUNCH (on your own)
- 1:40 – 3:15 pm LOOKING
Moderated by George Miles
Kristina Engels, *A Material Turn for August Sander Research*
Adrienne Lundgren, *Systematic and Informed Looking*
Mitra Abbaspour, *Haptic Vision*
- 3:15 – 3:35 pm BREAK
- 3:35 – 5:10 pm IMAGE
Moderated by Paul Messier
Holly Rushmeier, *Computer Graphics*
Peter Leonard, *Machine Gaze*
Leon Gurevitch, *Astrophotography*
- 5:10 – 7:00 pm RECEPTION
Yale Center for British Art
Library Court

TUESDAY, SEPTEMBER 24 – YALE CENTER FOR BRITISH ART
LECTURE HALL, 1080 CHAPEL STREET

- 9:00 – 9:45 am COLLECTING THE IMMATERIAL
Moderated by Chitra Ramalingam
Deena Engel
Judy Ditner
Erin O'Toole
- 9:45 – 10:30 am MARKET EFFECTS
Moderated by Monica Bravo
Denise Bethel
Daniel Wolf
Jeff Rosenheimt
- 10:30 – 11:00 am BREAK
- 11:00 – 11:45 am COLLECTIONS AS DATASETS
Moderated by Laura Wexler
Nadya Bair
Damon Crockett
Kelly Cannon
- 11:45am – 12:30 pm MATERIALS AND MEANING
Moderated by Carol Armstrong
Haidy Geismar
Chitra Ramalingam
Leslie Wilson

CONCURRENT SEMINARS

TUESDAY, SEPTEMBER 24 – VARIOUS LOCATIONS AT YALE UNIVERSITY

1:30 – 4:30 pm

THE LIVES OF COLOR: ISSUES IN REPRINTING
COLOR PHOTOGRAPHS

Led by Makeda Best and Judy Ditner

Yale University Art Gallery

Duffy Print Study Room, 4th Floor

1111 Chapel St, New Haven, CT

NEURAL NETS FOR IMAGE ANALYSIS

Led by Damon Crockett and Peter Leonard

Yale Center for British Art

2nd Floor Classroom

1080 Chapel St, New Haven, CT

THE PROMISES AND LIMITS OF DIGITIZATION IN
THE STUDY OF HISTORIC PHOTOGRAPHIC
PROCESSES

*Led by Adrienne Lundgren, George Miles, and
Katherine Mintie*

Beinecke Rare Book & Manuscript Library

Rooms 38 and 39, Lower Level

121 Wall St, New Haven, CT

TALBOT'S *PENCIL OF NATURE*, INVENTION AND RUIN

*Led by Colette Hardman-Peavy, Richard Hark, and
Chitra Ramalingam*

Yale Center for British Art

Docent Room and 2nd Floor Study Room

1080 Chapel St, New Haven, CT

WEDNESDAY, SEPTEMBER 25 – YALE WEST CAMPUS

9:00 am – 12:00 pm

APPLYING X-RAY FLUORESCENCE SPECTROSCOPY (XRF) TO THE STUDY OF PHOTOGRAPHS

Led by Anikó Bezur

Collection Study Center Bldg. 900,
Institute for the Preservation of Cultural Heritage
Conservation Lab
900 West Campus Drive, Orange, CT

CAMERALESS PHOTOGRAPHS

Led by Alison Rossiter

Collection Study Center, Bldg. 900, Institute for the
Preservation of Cultural Heritage Conference Room,
RM O362 and IPCH Lens Media Lab darkroom
900 West Campus Drive, Orange, CT

DATA VISUALIZATION / EXPRESSIVE DIMENSIONS

Led by Damon Crockett and Paul Messier

West Campus Conference Center, Bldg. 800, RM 214
800 West Campus Drive, Orange, CT

LIGHTFASTNESS AND MICROFADE TESTING

Led by Katherine Schilling

Collection Study Center, Bldg. 900, Institute for the
Preservation of Cultural Heritage Digitization Lab
900 West Campus Drive, Orange, CT

10:30 am – 12:00 pm

THE PRINTED PHOTOGRAPH: RICHARD BENSON'S
PROCESS WORK

Led by Judy Ditner and Carl Fuldner

Collection Study Center, Bldg. 900, Benson Classroom
Yale University Art Gallery Wurtele Study Center
900 West Campus Drive, Orange, CT

12:00 – 1:00 pm

LUNCH (provided)

Sandwiches, salad, chips

Yale West Campus Conference Center, Bldg 800
Event Room B
800 West Campus Drive, Orange, CT

INCUBATOR

WEDNESDAY, SEPTEMBER 25 – YALE WEST CAMPUS CONFERENCE CENTER
BLDG. 800, EVENT ROOM B
800 WEST CAMPUS DRIVE, ORANGE, CT

1:00 – 2:00 pm	MATERIAL OBJECTIVES <i>Led by Martina Droth and Paul Messier</i>
2:00 – 3:00 pm	ANIMATING ARCHIVES
3:00 – 3:30 pm	BREAK
3:30 – 4:30 pm	FUTURES



MATERIAL

Moderated by Paul Messier, Head, Lens Media Lab, Yale Institute for the Preservation of Cultural Heritage

DIVORCED FROM MATTER? *IRVING PENN'S NUDE, NO. 67* (1949–PRESENT)

*Moderated by Monica Bravo, Assistant Professor, Visual Studies,
California College of the Arts*

“Form is henceforth divorced from matter,” Oliver Wendell Holmes declared in 1859. In his article on the stereograph, he compared printed photographs to the skins of exotic animals. Both were trophies, more valuable even than the travels or activities from which they were derived. Holmes surmised that “matter as a visible object is of no great use any longer, except as the mould on which form is shaped.” His words still resonate today. In the contemporary social media landscape, the shareable digital photograph has become the very goal of experience. Yet the belief in photographic indexicality still tethers the image to its subject. A photograph like *Nude, No. 67* connects the present-day viewer to the little studio where Irving Penn worked intimately with his fleshy model in 1949, as well as to the moments in the darkroom when he subjected the exquisite gelatin silver print to bleaching and redevelopment. *Nude, No. 67*'s life dates thus extend beyond our present. Despite the myth of twenty-first century photographic dematerialization, there is still matter here: in the individuals involved, the photographic print, and the digital image mediated by screens and devices. This case study illustrates the potential for technical art history to derive new meaning from photographic objects, through collaboration between art history and conservation to investigate the techniques, tools, and materials Penn used to produce this singular print in the Yale University Art Gallery collection.

MATERIALS AND MATERIALITY: USING PHOTOGRAPHY TO THINK ABOUT MATERIAL CULTURE AND VICE VERSA

*Haidy Geismar, Professor, Department of Anthropology, University
College London*

In this presentation, Geismar draws on a partnership with Professor Pip Laurenson, Head of Collections Care at the Tate Gallery. *Finding Photography* explores some of the material and social entanglements that comprise contemporary art photography. The project brings together approaches to materiality that are currently being developed within anthropology and collections care and explores the ways in which they can help us to unpack the black boxing of commercial and industrial photographic processes. The presentation gives an overview of some of the key methodologies and theoretical perspectives that are being worked with, focusing on a collaboration with the artist Catherine Yass to unpack one of her artworks, “Corridors: a colour display transparency light box from 1994.” By working to link the material practices and social worlds that support the making of *Corridors* we are trying to answer questions about the nature of photographic materiality, the social foundations of material practices, and to challenge key assumptions about the perception of immateriality within digital photography.

THE INNER LIVES OF PHOTOGRAPHS: EXPERIENTIAL VALUE AND
“IMMATERIALITY” TODAY

*Kate Palmer Albers, Associate Professor, Art History, Whittier
College*

Art historians and museum professionals excel at object connoisseurship: a highly practiced skill developed through career-long attentiveness to what might otherwise be easily overlooked facets of the material production and lives of photographic objects. This attentiveness to the medium's ever-shifting material forms is central to understanding function and context—whether we think of the intimacy of a hand-held and mirrored daguerreotype, kept inside a velvet-lined case and revealed for each viewing, or the emergence of mass media press images, viewed by millions, nearly simultaneously, on fragile newsprint; or the specificity of the living-room vacation slide show. These are objects in the flux of human experience, and we treasure their material nuances.

Immaterial objects — the photographic images of today — are not that different. Beyond their rapidly shifting contexts, they degrade and age, and though they may be multiplied, they are also at risk for loss. As with the hidden backsides of prints or paintings, or the care with which an expert can assess the age of paper, or a particular studio stamp or date of a signature, immaterial images contain information that is elusive, unseen, or fleeting. But we need to learn to see these kinds of material nuances. This talk will focus on the work of contemporary artists and visual technologies that direct attention to a more capacious and nuanced sense of the production and lives of immaterial images as objects themselves: a new iteration of photography's long, varied, and expansive material and experiential history.

PROCESS

Moderated by Lisa Kereszi, Senior Critic, School of Art, Yale University

EXPIRED PAPER

Alison Rossiter, Photographer

Alison Rossiter is a leading contemporary artist with prints held by many permanent collections including the Art Institute of Chicago, J. Paul Getty Museum, the Museum of Modern Art, the National Gallery of Art, the New York Public Library and the San Francisco Museum of Modern Art. Her most recent work is a dialog with the medium's material history, through camera-less prints made on decades-old papers. Rossiter will show examples of this work, describe her production, and invite discussion on how the work continues to find resonance with critics, collectors, and curators.

FROM LIGHT TO PAPER TO LIGHT

Abelardo Morell, Photographer

The photographic print is the conclusion of the photographic process.

SILVER GELATIN MURAL PRINTING IN THE FIRST TWENTY YEARS OF THE NEW CENTURY

Charles Richardson, Photographer

Sweat, stained clothing, and clogs...Having spent the last 20 years creating mural-sized silver gelatin prints, Charles Richardson is very aware of the physical and emotional stress required in the making of an optically-enlarged photograph, particularly one that reflects precisely what the photographer expects and envisioned. In this presentation — via real-world examples, short videos and photographs — Richardson plans to shed a bit of light on how the nuances of printing by hand, including the physicality of the work, the rigorous trial and error process in the darkroom, and the tremendous amount of time spent at the viewing wall can produce a wide range of variances, including one that is even more true to the artist's original vision. Richardson's years of collaboration with renowned photographer and architect Hiroshi Sugimoto have given him a unique perspective: how the tactile minutiae surrounding each print determines what museum-goers see on expansive walls, and how patience, communication and history all come together in black and white.

LOOKING

Moderated by Paul Messier, Head, Lens Media Lab, Yale Institute for the Preservation of Cultural Heritage

A MATERIAL TURN FOR AUGUST SANDER RESEARCH: FROM AN OBJECT-BASED MATERIAL ANALYSIS TO AN EXTENDED UNDERSTANDING OF SANDERS PHOTOGRAPHIC OEUVRE

Kristina Engels, Head of Research, August Sander Stiftung

The photographic work of August Sander (1876-1964) is shaped by a vast material and technical diversity. At times, this was due to material scarcity, while for the major part of his career this diversity stemmed from a genuine impulse to experiment and explore material qualities and practices. This broad spectrum, manifested in Sanders prints, is waiting to be deciphered. While previous art historical research on August Sander's work considered characteristics of different photographic processes, handling and marking strategies only as secondary and largely descriptive criteria they now move into focus. The recent object-based material study of August Sander's photographs presents a comprehensive toolbox that provides a conservatorial and procedural analysis of the photographic materials, processes, marking and identification strategies used by Sander. It also strives to contextualize the findings in the photo-historical work on August Sander's life and studio practice. As practical knowledge, this information can serve both the art market and the scientific community to identify, classify, date and value Sanders' photographs. The study provides an insight into the research project of the August Sander Stiftung in Cologne and a new, object-based understanding of August Sander's work by decoding the objects within the August Sander Family Collection - the photographic print between chemical-technical parameters and artistic authorship.

SYSTEMATIC AND INFORMED LOOKING: THE ROLE OF DATA IN UNDERSTANDING THE PHOTOGRAPHS OF F. HOLLAND DAY

Adrienne Lundgren, Senior Photograph Conservator, Library of Congress

A project to document the working methods of Pictorialist photographer F. Holland Day was begun in 2012. This project is focused on the Library of Congress holdings of seven hundred and thirty-five prints donated by his estate in 1933. The magnitude of this donation of excellent provenance, provided an opportunity to explore a more data centered approach to understanding a photographic artist's work. Defining the matrices that were both measurable and would yield revealing data in the end was a key challenge and could not occur without a thorough understanding of the artist upfront as well as collaborative work of both a curator and conservator. The core of the project involved critical sustained looking, repeated measurements, and recording data points, even when the outcome of what they might reveal was unclear. This paper will discuss the process undertaken, what data proved to be most valuable, what we learned about Day and his methods, and how collaboration with allied professionals is key in examining more complex data sets such as color and texture.

HAPTIC VISION: EXPERIENCING PHOTOGRAPHS

Mitra Abbaspour, Haskell Curator of Modern and Contemporary Art, Princeton University Art Museum

Implicit in photography's technical evolution and artistic deployment is its capacity to shape vision. Studies of photographs have thus privileged images, the reproducible pictures that we see with our eyes. Vision, however, like any of the senses, is not experienced in isolation, but rather relies on the development of multisensory perception which suggests that studies of photographs likewise would benefit from an insistence upon considering their material and experiential effects as well as their images. Through a series of case studies — in the context of collections, exhibitions, publications, research labs and classrooms — this presentation considers the implications and opportunities of treating the physical properties of photographs as instrumental to our understanding of them as pictures.

IMAGE

Moderator: Paul Messier, Institute for the Preservation of Cultural Heritage, Yale University

COMPUTER GRAPHICS: PHOTOGRAPHS AS INPUT AND OUTPUT

Holly Rushmeier, John C. Malone Professor of Computer Science, Yale University

Computer graphics has a close relationship with photography. The goal of photorealistic computer graphics is to simulate the light scattering in a numerically-defined environment to form synthetic photographs of non-existent scenes. In some cases, the numerically defined environment may be created entirely in the computer. In other cases, the environment definition may be computed from geometric and material models derived from photographs. Increasingly computer graphics has been concerned with bypassing explicit modeling of the environment and using machine learning techniques to create synthetic images from sets of photographs. In this talk I will review these three modes of image production.

MACHINE GAZE: DEEP LEARNING AND PHOTOGRAPHY

Peter Leonard, Director, Yale Digital Humanities Lab

Revolutionary advancements in machine learning have opened up new ways of experiencing and understanding digitized photography collection. What can artificial intelligence offer museum professionals to enhance access and research? And what new questions must librarians and curators confront when their photographic archives becomes a dataset?

ASTROPHOTOGRAPHY: THE LONG CROSSROADS OF THE IMMATERIAL AND MATERIAL

Leon Gurevitch, Associate Professor, Victoria University of Wellington

In the last fifteen years astrophotography has risen rapidly as a popular amateur genre of both production and consumption. The narrative that often accompanies this rise is that Moore's law applied to photo technology has facilitated a new genre previously out of bounds to all but professional astronomers. However, the history of early astrophotography reveals a telling alternative narrative. From the earliest, often failed, attempts to capture the moon with wet plate technology to mid-century amateur astronomer/photographers, astrophotography has been characterised by a seemingly endless dance between the materiality and immateriality of light captured after millions of years of travel. This paper will consider what the history of astrophotography reveals for understandings of contemporary practices of astral image capture and, importantly, vice versa.

THE LIVES OF COLOR: ISSUES IN REPRINTING COLOR PHOTOGRAPHS

Led by Makeda Best and Judy Ditner

What happens to a color photograph when it fades away? Is the museum's responsibility to the maker's original intention, their present vision, and/or to the object itself? If a photographic print encodes meaning beyond presenting an image, what of this meaning is gained and lost when deteriorated works are substituted for fully reconceived contemporary prints? The seminar will address these and other ethical and philosophical issues as well as offer current thinking on how materials old and new should be labelled, catalogued, and accessed. Case studies will be presented to provoke discussion of the conservator's role in understanding, developing collection policies for acquisition of re-prints, and managing the preservation imperatives of deteriorated originals.

NEURAL NETS FOR IMAGE ANALYSIS

Led by Damon Crockett and Peter Leonard

Pre-trained neural nets are widely available and offer new opportunities for cultural heritage image classification. Libraries and archives, often in the context of digital humanities, are making use of existing data sets of digitized images to propose new modes of accessing and understanding large photograph collections. This seminar will cover the basics of neural nets as well as offering a case study for neural net classification from the Meserve-Kunhardt Collection of Civil War era photographs jointly held by Yale's Beinecke Rare Book & Manuscript Library and the Yale University Art Gallery. The seminar will provoke discussion on how these emerging techniques can be made accessible and refined to address research questions for curators, art historians, and conservators.

THE PROMISES AND LIMITS OF DIGITIZATION IN THE STUDY OF HISTORIC PHOTOGRAPHIC PROCESSES

Led by Adrienne Lundgren, George Miles, and Katherine Mintie

Libraries and archives contain untapped riches of specimen prints bound into 19th and early 20th Century photographic manuals. These prints show the full diversity of a medium in constant development but are rarely catalogued and thus inaccessible to historians and researchers. New work on these hidden collections show how these materials can be quickly and concisely catalogued and how this work generates new insights into photography as both an industrial and creative platform. Additional discussion will focus on the aims of ongoing digitization practices in libraries and archives — questioning how this work serves to both promote and impede research using photographs in bound volumes. The seminar will demonstrate that digitization and structured data are no substitute for the physical samples. This conversation opens onto questions of redundancy, digitization, and levels of scholarly access with regard to photographic materials within libraries and archives.

TALBOT'S *PENCIL OF NATURE*, INVENTION AND RUIN

Led by Colette Hardman-Peavy, Richard Hark, and Chitra Ramalingam

William Henry Fox Talbot (British, 1800 – 1877) announced his invention of paper-based photography in January 1839. His vision for the expressive

and utilitarian capabilities of the new medium were recorded in the *Pencil of Nature*, the first photo-illustrated publication produced between 1844 and 1846. Talbot's expansive ambition for this work dimmed as the prints faded soon after publication. This profound transformation, which catalyzed generations of image stability research, has never been fully explained. Starting in the fall of 2018, Yale's Center for British Art and Institution for the Preservation of Cultural Heritage have embarked on an initiative to understand the chemical and physical properties of the *Pencil of Nature*. This work seeks both an explanation for the sudden fading of the prints but, more importantly, to understand what the prints have become and what they are turning into. The seminar will provide a review of work to date, including discoveries regarding the sensitivity to light and ultraviolet radiation. Further, the seminar also will provide a forum for a broader discussion of the understanding and interpretation of deterioration that confront existing norms of "acceptable" condition.

APPLYING X-RAY FLUORESCENCE SPECTROSCOPY (XRF) TO THE STUDY OF PHOTOGRAPHS

Led by Anikó Bezur

X-ray fluorescence spectroscopy (XRF) is a non-destructive elemental analysis technique that is commonly employed to determine the inorganic components of photographs. New instrumentation and analytical approaches are helping leverage the technique to gain new insight into the chemical makeup and stability of photographs. This seminar is designed to help build a shared knowledge base for participants of the symposium and is thus suitable for those with little or no exposure to XRF as well as persons who use the technique routinely. The session will combine presentations, live demonstrations, and hands-on activities (with study collection prints) to familiarize participants with XRF fundamentals, including safety for objects and operators, instrumental pros and cons, logistics of XRF analysis campaigns, and data interpretation. Practical discussions of the strengths and limitations of existing techniques and the need for using complimentary analytical approaches will draw on case studies at Yale and beyond with an eye toward addressing questions that emerge in connection with the study, presentation and preservation of photographs.

CAMERALESS PHOTOGRAPHS

Led by Alison Rossiter

Alison Rossiter is a leading contemporary artist with prints held by dozens of permanent collections including the Art Institute of Chicago, J. Paul Getty Museum, the Museum of Fine Arts, Museum of Fine Arts, the Museum of Modern Art, the National Gallery of Art, and the San Francisco Museum of Modern Art. Her most recent work is a dialog with the medium's material history, through cameraless prints made on decades-old papers. Rossiter will show examples of this work, describing her process and inviting discussion on how the work continues to develop and find resonance with critics, collectors, and curators. Following the discussion, seminar participants will join her in the darkroom for a demonstration of cameraless photography and to compose and process their own prints — an ever more scarce opportunity to get into the darkroom, be it after a long absence or for the first time.

DATA VISUALIZATION / EXPRESSIVE DIMENSIONS

Led by Damon Crockett and Paul Messier

Data visualization of key material and visual properties of photographs open the door to the discovery of affinities and outlier prints within and across collections. Work in Yale's Lens Media Lab to characterize prints in artist archives, such as F. Holland Day, Harry Callahan, and August Sander, opens new doors for more nuanced and incisive understanding of printing techniques. Standardized methods of characterizing chemical and visual attributes develop greater scholarly discernment and acuity through graphical and statistical renderings of a photographer's approach to materials over time. Next steps include the development of these tools for conservators and, more broadly, for researchers in the humanities. Discussion will include how such methods can be adapted for existing research and what new questions can now be considered.

LIGHTFASTNESS AND MICROFADE TESTING

Led by Katherine Schilling

Created from light, photographs have a wide ranging response to subsequent exposure with the risks that include both organic and inorganic deterioration. Understanding this risk is an essential first step when it comes to the responsible display of photographs. In this context, microfade testing (MFT) is a powerful tool to interrogate the lightfastness of individual photographs with the potential of developing data-driven exhibition policies. This seminar will cover the basics of the technique, including equipment costs and instrument assembly. Case studies, from a wide range of photographs studied at Yale, will be presented in order to examine data outputs and to provide a practical guide for accurate interpretation. New variants of the technique, such as adaptation for UV stability, will be presented. Discussion will focus on practical applications of the technique, including best practices for analysis, record-keeping, and complementary techniques such as spectrophotometry, as well as an examination of the impact of greater deployment of MFT vis-à-vis existing "rule of thumb" recommendations for the display of photographs.

THE PRINTED PHOTOGRAPH: RICHARD BENSON'S PROCESS WORK

Led by Judy Ditner and Carl Fuldner

Starting in the 1970s, Richard Benson (1943–2017) set a new standard as printer for reproducing photographs in books and exhibition catalogues. Benson's work as a process printer appears in many landmark photobooks and exhibition catalogues, which shaped how an entire generation encountered photography and its history. Benson was also an inventive photographer in his own right. His knowledge of historical printing processes (set down in his 2008 book *The Printed Picture*) was encyclopedic, and yet he was forever seeking out and adapting the newest, cutting-edge technologies to perfect the presentation of his work. What lessons do Benson's innovations, especially the more recent ones, offer to our digital present?



This portion of the program will model interdisciplinary inquiry and seek to incubate collaborations focused on photography as a medium both material and immaterial. New tools will be discussed for characterizing and contextualizing the photograph both as object and disembodied image.

MATERIAL OBJECTIVES

Led by Martina Droth and Paul Messier

What to measure and how on photographs when you have the opportunity to do so? How might photographic books inherit some of the material 'aura' of the print?

ANIMATING ARCHIVES

What is the status of the photographic archive both material and immaterial in the 21st century?

FUTURES

Are we plunging into an irreversible digital future? If so, what do we need to do to prepare for 10 years from now?

SPEAKER BIOGRAPHIES

MITRA ABBASPOUR, Haskell Curator of Modern and Contemporary Art, Princeton University Art Museum

Mitra Abbaspour is the Haskell Curator of Modern and Contemporary Art at the Princeton University Art Museum. She previously served as an Associate Curator in the Department of Photography at The Museum of Modern Art and an Assistant Curator at the California Museum of Photography. Her research and practice focus on modern and contemporary art in the Middle East and the history of photography. While at MoMA, Abbaspour led the curatorial branch of an interdisciplinary research initiative that resulted in the print and digital publications *Object : Photo: Modern Photographs 1909–1945*.

KATE PALMER ALBERS, Associate Professor, Art History, Whittier College

Kate Palmer Albers is associate professor of art history at Whittier College in Los Angeles, where she teaches history and theory of photography, visual culture, new media, and contemporary art. She is the author of *Uncertain Histories: Accumulation, Inaccessibility, and Doubt in Contemporary Photography* (UC Press, 2015) and co-editor of *Before-and-After Photography: Histories and Contexts* (Bloomsbury, 2017). Her ongoing writing project, *Circulation/Exchange: Moving Images in Contemporary Art*, was supported by a 2015 Creative Capital/Warhol Foundation Arts Writers Grant. She is currently working on a book on photographic ephemerality, unseen images, “live” photography, and new forms of latent image.

CAROL ARMSTRONG, Professor of History of Art, Yale University
Carol Armstrong teaches and writes about 19th-century French painting, the history of photography, the history and practice of art criticism, feminist theory and the representation of women and gender in art and visual culture. Most recently, she published a book on Cézanne and his afterlives, *Cézanne’s Gravity*, with Yale University Press, which won the 2019 Robert Motherwell Prize Book Award for an Outstanding Book on Modernism in the Arts. She is currently working on a new project on modern medium-specificities in the visual arts, music, dance, theater and literature, considered from a feminist point of view.

NADYA BAIR, Photo Historian, Miami, FL

Nadya Bair (PhD, University of Southern California, 2016) is a historian of photography and the press. Her book, *The Decisive Network: Magnum Photos and the Postwar Image Market*, is forthcoming with University of California Press (May 2020). She was an inaugural Getty/ACLS Postdoctoral Fellow in the History of Art from 2018–2019, and a postdoctoral associate in the Digital Humanities Lab at Yale the year prior. Bair has published articles on photography and the press in the journals *American Art* and *History of Photography*, and in the edited volumes *Getting the Picture: The Visual Culture of the News* and *Visualizing Fascism*.

MAKEDA BEST, Richard L. Menschel Curator of Photography, Harvard Art Museums

Makeda Best’s forthcoming book is titled *Elevate the Masses: Alexander Gardner, Photography and Democracy in Nineteenth Century America* (Penn State Press, 2020). Other recent scholarship has appeared in *The*

Archives of American Art Journal and *The James Baldwin Review*. She is co-curator of two exhibitions this fall: *Winslow Homer: Eyewitness* and *Crossing Lines, Constructing Home: Displacement and Belonging in Contemporary Art*. She holds an MFA in studio photography from CalArts and a PhD from Harvard University.

DENISE BETHEL, formerly Chairman, Photographs Americas, Sotheby's New York

Denise Bethel spent 35 years in the photographs auction business in New York. After a decade at Swann Galleries, she joined Sotheby's in 1990, where she set world records for photographers ranging from Southworth & Hawes and Carleton Watkins to Alfred Stieglitz and Edward Weston. At Sotheby's, she orchestrated sales of work from The Metropolitan Museum of Art, The Museum of Modern Art, 7-Eleven, the Polaroid Collection, and numerous private collections. In 2014, Sotheby's sale of works from Joy of Giving Something Foundation achieved \$21.3 million, a record for any photographs auction worldwide. She now works as a consultant, writer, and lecturer.

ANIKÓ BEZUR, Wallace S. Wilson Director of Scientific Research, Technical Studies Lab, Yale Institute for the Preservation of Cultural Heritage

Anikó Bezur earned a PhD in materials science and engineering from the University of Arizona and completed graduate internships at the Getty Conservation Institute and the Smithsonian's Museum Conservation Institute. She joined Yale in 2012 to develop a research group dedicated to the study and conservation of Yale's collections through materials characterization. Prior to that, Bezur was Andrew W. Mellon research scientist for the Museum of Fine Arts, Houston, and the Menil Collection, and held positions as associate conservation scientist at the Art Institute of Chicago and as assistant professor of conservation science in the Art Conservation Department at Buffalo State College.

MONICA BRAVO, Assistant Professor, Visual Studies, California College of the Arts

Monica Bravo specializes in the history of photography and the modern art of the Americas. Her current book project examines exchanges between U.S. modernist photographers and modern Mexican artists working in painting, poetry, music, and photography, resulting in the development of a Greater American Modernism in the interwar period. Her writing has appeared in *History of Photography*, *The History of Illustration*, *caa.reviews*, *Art Criticism*, and is forthcoming in *American Art*. After earning her PhD from Brown University in 2016, she was a lecturer at Yale University in the History of Art Department and Program in Ethnicity, Race, and Migration.

KELLY CANNON, Associate Educator, Interpretation, Research, and Digital Learning, The Museum of Modern Art

Kelly Cannon is associate educator for interpretation, research and digital learning at The Museum of Modern Art, where she produces and maintains online courses, and develops multimedia content related to the collection and exhibitions. She was previously Cataloguer and Assistant Digital Content Strategist in MoMA's Department of

Photography for *Object:Photo*, a digital research platform about interwar photography. As a Fulbright Fellow in Budapest, Hungary from 2014-15, she researched modern and contemporary photography and digital humanities approaches for the arts. She earned an MA from the Courtauld Institute of Art, London, and a BA from Yale University.

DAMON CROCKETT, Data Scientist, Lens Media Lab, Yale Institute for the Preservation of Cultural Heritage

Damon Crockett is a data scientist at Yale's Institute for the Preservation of Cultural Heritage. Previously, he was a postdoctoral associate in Yale's Digital Humanities Lab and a member of UC San Diego's Cultural Analytics Lab. He has a PhD in philosophy and cognitive science from UC San Diego.

JUDY DITNER, The Richard Benson Associate Curator of Photography and Digital Media, and Head of the Department of Photography, Yale University Art Gallery

Judy Ditner is associate curator and head of the department of photography at the Yale University Art Gallery. As the first curator to lead the new department, she is responsible for stewarding the Gallery's collection of photographs of more than 17,000 works. Ditner's research interests in photography span the history of the medium, with emphases on documentary and conceptual practices. She previously worked at the International Center of Photography, the New Museum, the Gwangju Biennale Foundation, and the Ryerson Image Center. Ditner holds a PhD from Boston University, an MA from Bard College, and a BFA from Ryerson University.

MARTINA DROTH, Deputy Director of Research, Exhibitions and Publications, and curator of Sculpture Yale Center for British Art

Martina Droth is Deputy Director of Research, Exhibitions and Publications, and Curator of Sculpture, at the Yale Center for British Art. She is chair of the Association of Research Institutes in Art History, and co-editor of the born-digital journal *British Art Studies*. Her research focuses on sculpture and her recent exhibitions include *Things of Beauty Growing: British Studio Pottery* (YCBA and Fitzwilliam Museum, 2017); *Sculpture Victorious: Art in an Age of Invention, 1837-1901* (YCBA and Tate Britain, 2014-2015); and *Caro: Close Up* (YCBA, 2012). She is currently working on an exhibition and book titled *Bill Brandt | Henry Moore*, which will be presented at Yale, the Hepworth Wakefield, and the Sainsbury Centre for Visual Arts, in 2020.

DEENA ENGEL, Clinical Professor, Department of Computer Science, Courant Institute of Mathematical Sciences, New York University

Deena Engel is a clinical professor in the Department of Computer Science at the Courant Institute of Mathematical Sciences of New York University. She teaches undergraduate computer science courses and courses for graduate students in digital humanities; and she supervises undergraduate and graduate student research projects in digital humanities. Engel is co-director of the Artist Archives Initiative with Glenn Wharton and she continues her collaboration with several museums on the conservation of time-based media art. She holds an MA in Comparative Literature from SUNY-Binghamton and an

MS in Computer Science from the Courant Institute of Mathematical Sciences at NYU.

KRISTINA ENGELS, Head of Research, August Sander Stiftung
Dr. Kristina Engels is head of research at the August Sander Stiftung in Cologne, Germany. Engels studied art history, cultural anthropology, and history with a focus on culture of the Weimar Republic, museology, and transatlantic museum and exhibition history at the University of Bonn where she earned her doctorate in art history in 2018. In her current position, Engels coordinates exhibition and research projects such as *August Sander. Persecuted/Persecutors, the People of the 20th Century* at the Mémorial de la Shoah in Paris in 2018 and a material-based object study of the August Sander Family Collection.

CARL FULDNER, Daniel F. and Ada L. Rice Postdoctoral Curatorial Fellow, Art Institute of Chicago

Carl Fuldner is an art historian and photographer whose work examines photography's role in mediating humans' relationship with the natural world. His current projects include a cultural history of nature photography set in the mid-1890s and a critical account of photography's role in formation of the modern environmental movement from 1955 – 1962. Since 2013, he has also been involved in a collaborative research project, which uses photographic analysis of bird specimens drawn from collections across the U.S. and British Isles to map atmospheric black carbon emissions from the 1830s through the present.

HAILY GEISMAR, Professor, Department of Anthropology, University College London

Haily Geismar has written on a wide range of topics including the art market, postcolonial museologies, the production of indigenous intellectual and cultural property, the history of ethnographic collections, the epistemology of digital collections in diverse cultural contexts, and the social resonance of historical photographic collections in present day communities. Her most recent books is *Museum Object Lessons for the Digital Age* (2018, University College London Press). She is also curator of the UCL Ethnography Collections, Chair of the Royal Anthropological Institute Photography Committee and is one of the founding editors of a new open access series, *Anthropology and Photography*.

LEON GUREVITCH, Associate Professor, Victoria University of Wellington

Dr. Leon Gurevitch is associate professor at Victoria University of Wellington's School of Design where he researches and teaches in the areas of photography, the visual effects industry, data design and computational culture. Gurevitch is a member of the UCLA Cultural Analytics Group and has published academic work, photography, software and design outputs across a wide range of forums.

RICHARD HARK, Conservation Scientist, Yale Institute for the Preservation of Cultural Heritage

Dr. Hark is a subject matter expert in organic chemistry and chemical analysis, particularly Raman spectroscopy, X-ray fluorescence spectroscopy and laser-induced breakdown spectroscopy, having

authored/co-authored more than 30 peer reviewed publications in these areas. He is an emeritus professor at Juniata College, where he held the H. George Foster Endowed Chair in Chemistry. During his 26-year professional career, Dr. Hark also taught at Marietta College and was a Visiting Researcher at the Victoria & Albert Museum and University College London. He holds a BS from the University of Rochester and PhD from the University of Pennsylvania.

COLETTE HARDMAN-PEAVY, Postgraduate Associate, Yale Institute for the Preservation of Cultural Heritage

Colette Hardman-Peavy is a Postgraduate Associate in Photographic Research at the Yale Institute for the Preservation of Cultural Heritage. Colette studied at Queen's University, where she earned her MA in Art Conservation, specializing in Paper and Photograph Conservation. She earned her Bachelor's in Studio Art with a focus in photography, at The University of New Mexico. Her research at IPCH focuses on a full technical examination of Henry Fox Talbot's *The Pencil of Nature*.

LISA KERESZI, Senior Critic, School of Art, Yale University
Lisa Kereszi is a photographer and educator, a senior critic at Yale, and the director of Undergraduate Studies in Art. Her work is in the collections of the Met, the Whitney, the New Museum, the Brooklyn Museum and others. She is represented by Yancey Richardson in New York, where she most recently had a 2019 solo show of photographs depicting illusionistic surfaces and signage. Her books include: *Governors Island* (2004), *Fantasies* (2008), *Joe's Junk Yard* (2012) and a 2014 artist's book using appropriated images of women taken by her father in the 1970s and '80s, *The More I Learn About Women*.

PETER LEONARD, Director, Yale Digital Humanities Lab

Peter Leonard received his BA in art history from the University of Chicago and his PhD in Scandinavian literature from the University of Washington. He came to Yale in 2013 as the first librarian for digital humanities research. Prior to coming to Yale, Leonard was responsible for humanities research computing at the University of Chicago and served as a postdoctoral researcher in text-mining at UCLA, supported by a Google Digital Humanities Research Award. During 2007 – 2008, he served as a Fulbright Scholar at Uppsala University in Sweden.

ADRIENNE LUNDGREN, Senior Photograph Conservator, Library of Congress

Adrienne Lundgren has been a senior photograph conservator at the Library of Congress for 17 years. She graduated from the Winterthur/University of Delaware Program in Art Conservation with a focus on photographic materials in 2001. In 2012, she received a John W. Kluge Fellowship to create a materials-based catalogue raisonné on the photographer F. Holland Day. She has published on the use of glycerine in platinum printing, the printing techniques of Clarence H. White, and coatings applied to daguerreotypes. Her current work is focused on 19th-century photographic technical manuals and Civil War photographer John Wood.

PAUL MESSIER, Head, Lens Media Lab, Yale Institute for the Preservation of Cultural Heritage

Paul Messier joined the IPCH in 2015 as the inaugural head of the Lens Media Lab, which conducts research into the material history of photography by developing methodologies that both advance preservation and enhance the interpretation of expressive intent. As part of this study agenda, Messier created a reference collection of photographic papers, now considered to be the largest of its kind in the world. Prior to coming to Yale, Messier worked for over 20 years to establish and develop one of the world's leading private conservation practices in photograph conservation.

GEORGE MILES, Curator, Beinecke Rare Book & Manuscript Library, Yale University

George Miles has been curator of the Yale Collection of Western Americana at Beinecke Library since 1981. He is co-author of *Eye on the West* (2018), *Under an Open Sky: Rethinking America's Western Past* (1992), *Creating America* (1992), *The Power of Pictures* (2013) and author of *James Swan: Cha-tic of the Northwest Coast* (2003).

KATHERINE MINTIE, John R. and Barbara Robinson Family Research Fellow in Photography, Harvard Art Museums

Katherine Mintie is the John R. and Barbara Robinson Family Research Fellow in Photography at the Harvard Art Museums. She received her PhD from the University of California, Berkeley in 2017. Her research focuses on the history of photography in the United States, particularly during the nineteenth century. Currently she is working on projects related to early photographic copyright law in the US and the transnational circulation of nineteenth-century photography periodicals.

ABELARDO MORELL, Photographer

Abelardo Morell was born in Cuba in 1948 and immigrated to the United States in 1962. Morell received his undergraduate degree from Bowdoin College, MFA from Yale University, and honorary degrees from Bowdoin College and Lesley University. His publications include a photographic illustration of *Alice's Adventures in Wonderland* (1998), *A Camera in a Room* (1995), *A Book of Books* (2002), *Camera Obscura* (2004), *Abelardo Morell* (2005), *The Universe Next Door* (2013), *Tent-Camera* (2018), and *Flowers for Lisa* (2018). Morell has received several awards including a Guggenheim fellowship, Infinity Award in Art, and Lucie Award for achievement in fine art.

ERIN O'TOOLE, Associate Curator of Photography, San Francisco Museum of Modern Art

Erin O'Toole is an associate curator of photography at SFMOMA, where she has worked since 2007. Recent exhibitions she has organized include a retrospective of the work of Anthony Hernandez (2016) and Garry Winogrand (2013), on which she collaborated with Leo Rubinfien and Sarah Greenough. She is editor of *April Dawn Alison* (2019, MACK Books), and *Anthony Hernandez* (2016, SFMOMA), as well as a contributing author of *The Photographic Object, 1970* (2016, UC Press), *Janet Delaney: South of Market* (2013, MACK Books), and *Garry Winogrand* (2013, SFMOMA), among other titles.

CHITRA RAMALINGAM, Associate Curator of Photography, Yale Center for British Art, and Lecturer, History of Science and Medicine Program

After a PhD in History of Science from Harvard, Chitra Ramalingam held research fellowships at the Science Museum (London) and the University of Cambridge before arriving at Yale. Her research, teaching, and curatorial projects focus on British photography and on the visual and material culture of Victorian science. She is author of *To See a Spark: Experiment and Visual Experience in Victorian Science* (under contract, Yale University Press), and co-editor of *William Henry Fox Talbot: Beyond Photography* (Yale University Press, 2013).

CHARLES RICHARDSON, Photographer

Charles Richardson is a photographer and printer. Born in Berkeley, California in 1955, he was gifted a camera at the age of 17, and opted out of college, spending a decade as a professional ski patrolman and another 11 years at the famed restaurant Chez Panisse. Charles ultimately moved to New York City and began working at Griffin Editions making black and white silver gelatin prints. As the designated primary printer for Hiroshi Sugimoto's murals, Charles has also done large-scale printing for dozens of artists, including Vik Muniz, Joachim Koester, Sam Samore, Lorna Simpson, Cindy Sherman, Seydou Keita, and Chien-Chi Chang.

JEFF ROSENHEIM, Curator in Charge of the Department of Photographs, The Metropolitan Museum of Art

Jeff Rosenheim joined the Metropolitan Museum in 1988. His most recent international traveling exhibitions are *diane arbus: in the beginning*, and, with Maria Morris Hambourg, the 2017–18 retrospective *Irving Penn: Centennial*. A leading authority on Walker Evans, he has organized six exhibitions of the artist's work, including the Met retrospective *Walker Evans* in 2000 and *Walker Evans and the Picture Postcard* in 2009, and has authored eight books on Evans' oeuvre. In 1994, Rosenheim shepherded the Met's acquisition of the artist's vast archive of negatives, papers, and personal collections. In 2007, Rosenheim brought to the Met another major artist's archive, that of Diane Arbus.

ALISON ROSSITER, Photographer

Alison Rossiter has worked with the materials and processes of light sensitive, gelatin silver-based photography since 1970. The darkroom is essential to her work, whether it involves the traditional printing of negatives, making photograms, or processing expired photographic papers. In 2003 an immersion into the field of photograph conservation as a volunteer at Metropolitan Museum of Art in New York led to a profound appreciation of the history of photographic materials. She resides in New Jersey and maintains a studio in New York.

HOLLY RUSHMEIER, John C. Malone Professor of Computer Science, Yale University

Prof. Holly Rushmeier's research interests include shape and appearance capture, applications of perception in computer graphics, modeling material appearance and developing computational tools for cultural heritage. She received the BS, MS and PhD degrees in Mechanical Engineering from Cornell University in 1977, 1986 and 1988 respectively. After receiving her PhD, she was at Georgia Tech, NIST, and

IBM TJ Watson Research before joining Yale in 2004. She received the ACM SIGGRAPH Computer Graphics Achievement Award in 2013 and is a fellow of the ACM and of the Eurographics Association.

KATHERINE SCHILLING, Associate Conservation Research Scientist, Yale Institute for the Preservation of Cultural Heritage

Dr. Katherine Schilling is an associate research scientist based out of the department of Chemical & Environmental Engineering at Yale and works within the Institute for the Preservation of Cultural Heritage as a conservation scientist to investigate deterioration mechanisms and develop monitoring strategies for the preventative conservation of material culture. Her current research focuses on natural materials in cultural heritage objects. She also teaches courses and develops educational programming drawing from conservation science for undergraduates. She earned her doctorate in 2015 from the California Institute of Technology in chemical physics.

LAURA WEXLER, Professor of American Studies, Film & Media Studies, and Women's, Gender & Sexuality Studies, Yale University

Laura Wexler co-chairs the Public Humanities Program and directs the Photographic Memory Workshop at Yale. Her scholarship centers on how photography helps construct intersections of race, gender, class, sexuality, nation and temporality. Among her books, articles and edited volumes are *Tender Violence; Domestic Visions in an Age of U.S. Imperialism, Pregnant Pictures, Interpretation and the Holocaust, Photogrammar*, and essays on the work of Roland Barthes, Pablo Delano, Frederick Douglass, LaToya Ruby Frazier, Jim Goldberg, Keiji Nakazawa, Lorie Novak, Roman Vishniac, Jo Ann Walters, and Donovan Wylie. The National Endowment for the Humanities, The American Council of Learned Societies, and the Henry Luce Foundation have supported her work.

LESLIE WILSON, Curatorial Fellow for Diversity, The Smart Museum of Art, University of Chicago

Leslie Wilson is Curatorial Fellow for Diversity in the Arts at the University of Chicago's Smart Museum of Art. Her research and curatorial endeavors focus on the history of photography, modern and contemporary arts of Africa and the African diaspora, and modern and contemporary American art. Her current book project charts the development and popularization of color photography in South Africa. She received a PhD in Art History from the University of Chicago and holds a BA in International Relations from Wellesley College. Through December 2020, she is on leave from her position as Assistant Professor of Art History at Purchase College, SUNY.

DANIEL WOLF, Photography Dealer and Collector

Daniel Wolf re-shaped the landscape of fine-art photography in the 1970s and 1980s as a collector and dealer. He originated the Getty Museum's acquisition of some of the most important photographic collections in the world, including that of Sam Wagstaff. Today, he works as a private dealer specializing in photography, Ancient art, and 20th-century art and design.

The Foundation for Advancement in Conservation (FAIC) advances conservation research and education, leads treatment and collection care initiatives, and deploys conservation expertise to where it is most urgently needed. FAIC promotes the advancement of expert knowledge and skills centered on the examination, documentation, analysis, treatment, and preventive care of cultural heritage. The organization's work empowers conservation professionals, strengthens cultural institutions, and engages stakeholders, including public audiences, as we work together to protect cultural heritage for humanity.

The Collaborative Workshops in Photograph Conservation series was initiated by Debra Hess Norris and Nora Kennedy in 1997 and became part of the FAIC professional development program in 2009 with support from The Andrew W. Mellon Foundation. The primary goal of the series is to address emerging needs in the field of photograph conservation, such as the characterization and study of traditional photographic processes and the preservation and identification of digital prints and other new media. Over the last decade, the series has included smaller, hands-on workshops on nineteenth century negatives, scientific analysis, and inpainting, as well as larger programs on characterization of silver gelatin photographs, platinum and palladium, plastics associated with photographic materials, and salted paper prints.

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FAIC thanks Monica Bravo and Paul Messier for developing the program as well as the many members of Yale's faculty and staff that supported this event. Special thanks go to the Yale Center for British Art for hosting the symposium and reception; to YCBA, the Yale University Art Gallery, the Beinecke Rare Book & Manuscript Library, and Yale West Campus for hosting the seminars; and to the Lens Media Lab, Yale Institute for the Preservation of Cultural Heritage, for providing logistical support, refreshments, and New Haven transportation. FAIC is grateful for the sponsorship of The Better Image, Charles Isaacs Photographs, Inc., and Hans P. Kraus Jr., Inc. Graphic design of the program was donated by Micah Barrett.

Image variations of Lewis Hine, *Power House Mechanic Working on Steam Pump*, 1920, dimensions variable. Public domain.



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