

Topics in Preservation Series (TOPS)

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Contemporary Analog and Digital Color Photographic Prints: Processes, Practice, and Accelerated Test Methods for Evaluating Print Permanence

Date and Time

Friday November 20, 2015
1:30 - 3:00 pm

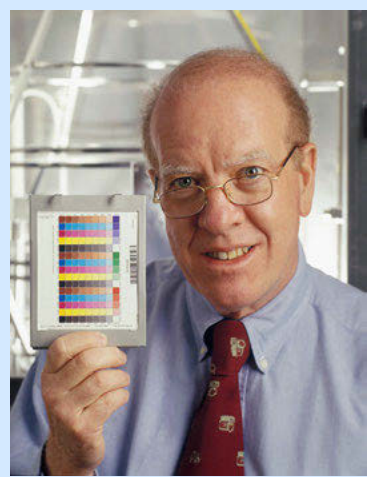
Location

Library of Congress
West Dining Room
James Madison Memorial Building, [Sixth Floor](#)
Washington, DC

Webcast

[Register](#) for the live webcast by November 18. On November 19, you will receive an email with instructions to test your system in advance (recommended) and how to access the webcast.

About the Lecture:



Henry Wilhelm holding a test target

The first high-quality digital photographic printing processes entered the market in the late 1980s, and today it is believed that more than 99% of the world's photographic prints are being produced with digital color and monochrome processes. Included are modern digital prints made from scans or digital camera captures of original color and black-and-white negatives and transparencies, from glass plate negatives, and scans made from historical and other previously made prints.

The twelve major current digital photographic print processes will be discussed, including UV-curable printing and a new inkjet sublimation thermal dye transfer process for printing on large, specially coated aluminum panels. Recent developments in aqueous pigment inkjet printers using newly developed inks with enhanced permanence will be described, including the important continuing role of silver-halide-dye (chromogenic) color prints and their gradual replacement with pigment inkjet, electrophotographic, and dye inkjet systems.

Exhibitions by fine art photographers Andreas Gursky, Cindy Sherman, Jeff Wall, Joel Meyerowitz, Stephen Shore, William Eggleston, Elger Esser, and others will be used to illustrate various printing processes. Accelerated test methods for evaluating the permanence of photographic prints, and the role of ISO and industry-developed test methods in the marketplace will

be discussed in relation to the development of improved permanence test methods.

Speaker: Henry Wilhelm

Henry Wilhelm is president and director of research at Wilhelm Imaging Research, Inc. Wilhelm has authored or co-authored more than 25 technical papers that focus on permanence testing, the stability of traditional and digital color photographs, and the long-term preservation of photographic collections and holds two U.S. Patents for the design of archival washers for black-and-white fiber base prints. He was one of the founding members of American National Standards Institute (ANSI) Committee IT-3 and developed the ANSI IT9.9-1990 image stability test methods standard. For the past 25 years he has served as Secretary of the group and co-project leader of the Indoor Light Stability Test Methods Technical Subcommittee of ISO WG-5/TG-3.

In 1966, Wilhelm served as an assistant to Ansel Adams, which further increased his interest in the long-term preservation of photographs. In the early 1980s, he served as volunteer technical advisor to film director Martin Scorsese in his successful efforts to persuade motion picture film manufacturers to improve the dark storage permanence of their products and to promote cold-storage technology for the preservation of color and black-and-white motion picture films. Wilhelm received a one-year Guggenheim Fellowship in 1981 for what became a ten-year study of color print fading and staining under low-level tungsten illumination that simulates museum display conditions. With contributing author Carol Brower Wilhelm, he wrote *The Permanence and Care of Color Photographs: Traditional and Digital Color Prints, Color Negatives, Slides, and Motion Pictures*, published in 1993.

Wilhelm is the recipient of the Photoimaging Manufacturers and Distributors Association (PMDA) "2007 Lifetime Achievement Award" for his work on the evaluation of the permanence of traditional and digital color prints. In May 2011, Wilhelm received an honorary Doctor of Sciences Degree from Grinnell College in Grinnell, Iowa.

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Topics in Preservation Series (TOPS)

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This ongoing lecture series brings speakers to the Library to discuss their experience and current research. The lectures occur during business hours, are open to the public, and most are available as webcasts.

Upcoming Programs

We hope to offer our next TOPS lecture in early 2016. Please check back or click on the orange "Subscribe" button towards the top of this page to sign up for email alerts.

Past Programs

Year 2015

[Contemporary Analog and Digital Color Photographic Prints: Processes, Practice, and Accelerated Test Methods for Evaluating Print Permanence](#)

November 20, 2015. Speaker: Henry Wilhelm (President and Director of Research, Wilhelm Imaging Research, Inc.)

[Removing Residual Iron from Platinum and Palladium Prints](#)

October 28, 2015. Speakers: Matthew Clarke (Photographic Materials Scientist, National Gallery of Art) and Dana Hemmenway (Photograph Conservator, Conservation Division, Library of Congress).

[Treatment Considerations for a Newly-Discovered Drawing by Martín Ramírez](#)

July 14, 2015. Speaker: Susan M. Peckham (Paper Conservator, Conservation Division, Library of Congress).

Year 2014

[Fostering the Transatlantic Dialogue on Digital Heritage and EU Research Infrastructures: Initiatives and Solutions in the USA and in Italy](#)

December 1, 2014. Speakers: Ana Arana Antelo, Head of Unit B4 - Research Infrastructures (European Commission Directorate-General for Research and Innovation); Costis Dallas, Co-Chair, Understanding Scholarly Practices Working Group (Digital Research Infrastructure for the Arts and Humanities-European Research Infrastructure Consortium (DARIAH-ERIC)); Luca Pezzati, National Coordinator for Italy (Integrated Project for the European Research Infrastructure ON Cultural Heritage (IperiON CH)); Franco Niccolucci, Project Coordinator (The ARIADNE

(Art for intercultural adaptation in new environment) Project).
Video available!

[Conservation Education: Celebrating the 40th Anniversary of the Winterthur-University of Delaware Program in Art Conservation \(WUDPAC\)](#)

December 1, 2014. Speakers: Debra Hess Norris, Henry Francis DuPont Chair of Fine Arts and Professor of Photograph Conservation (Art Conservation Department, University of Delaware); Lois Olcott Price, Director of Conservation and Affiliated Assistant Professor (WUDPAC); Doris Hamburg, Director, Preservation Programs (National Archives and Records Administration); Alisha Chipman, Photograph Conservator (National Gallery of Art).
Video available!

[Evaluating Storage Materials: Alternatives to the Oddy Test](#)

September 4, 2014. Dr. Eric Breitung, Research Chemist (Preservation Research and Testing Division, Library of Congress).
Video available!

[Chemometrics and Multivariate Analysis of Heritage Data: Databases and Data Mining](#)

April 28 and 29, 2014 (Presentation and Workshop). Dr. Matija Strlic (University College London) and Dr. Donald Dahlberg (Lebanon Valley College PA).

[Hermitage Photograph Conservation Initiative: A Model for Cross-Institutional Collaboration](#)

April 11, 2014. Paul Messier (Paul Messier, LLC), Eric Pourchot (American Institute for Conservation), Brenda Bernier (Harvard Library), Andrew Robb (Library of Congress), and Tatiana Sayatina (State Hermitage Museum) on a professional development initiative of the Foundation of the American Institute for Conservation of Historic and Artistic Works, funded by The Andrew W. Mellon Foundation.
Webcast Available!

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Year 2013

[Geography and Domestic Recreation in Early Modern Europe](#)

October 28, 2013. Stephanie Stillo (2013 Council on Library and Information Resources (CLIR)/Andrew W. Mellon Foundation Fellow, Library of Congress, Preservation Research and Testing Division).
Webcast Available!

[The Photographs of F. Holland Day: Developing a Materials-Based Catalogue Raisonné](#)

September 19, 2013. Adrienne Lundgren (Preservation Specialist, Library of Congress Conservation Division and 2013 Kluge Staff Fellow at The John W. Kluge Center).
Webcast Available!

[NIST National Software Reference Laboratory \(NSRL\) Efforts in Preserving Software in the Stanford University Libraries \(SUL\) Cabrinety Collection](#)

September 11, 2013. Douglas White, Project leader, National Institute of Standards & Technology (NIST) National Software Reference Library.
Webcast Available!

[Integrating analytical tools in treatment decision-making for a 1513 hand-colored Ptolemy Geographia Atlas](#)

July 10, 2013. Lynn Brostoff, Research Scientist (Preservation Research and Testing Division, Library of Congress); Sylvia Albro, Senior Paper Conservator (Conservation Division, Library of Congress); John Bertolaschi, Senior Rare Book Conservator (Conservation Division, Library of Congress).
Webcast Available!

[Advances in Raman Spectroscopy for Analysis of Cultural Heritage Materials](#)

May 1, 2013. Lynn Brostoff, Research Scientist (Preservation Research and Testing Division, Library of Congress); Richard Bormett, Renishaw Business Manager for Raman Products (Renishaw Inc.); Silvia Centeno, Research Scientist (Department of Scientific Research, Metropolitan Museum of Art); Marco Leona, Scientist in Charge (Department of Scientific Research, Metropolitan Museum of Art).
Webcast Available!

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Year 2012[Spectral Imaging at the Library of St. Catherine's Monastery Reveals Ancient Texts](#)

November 19, 2012. Father Justin Sinaites, St. Catherine's Monastery; Michael B. Toth, R. B. Toth Associates.
Webcast Available!

[The Federal Theatre Project: Uncovering Changes in Playscripts of Popular Performances](#)

October 24, 2012. Amy Brady, Instructor at Kean University and a doctoral student at the University of Massachusetts, Amherst.
Webcast Available!

[Collections Demography: Modelling of Collections for Improved Management](#)

April 27, 2012. Matija Strlic, Senior Lecturer in Sustainable Heritage and Course Director of the MRes Heritage Science (University College of London Centre for Sustainable Heritage, UK); William Lindsay, Postdoctoral Research Associate (National Archives, UK); Catherine Dillon, Post-Doctoral Research Associate, Collections Demography project (University College of London Centre for Sustainable Heritage, UK); and Nancy Bell, Head of Collection Care (National Archives, UK).

[Conservation Education: Celebrating the 25th anniversary of the Art Conservation Department at Buffalo State College \(formerly the Cooperstown Graduate Program in the Conservation of Historic and Artistic Works\)](#)

February 29, 2012. Alumni at the Library from the Buffalo and Cooperstown art conservation programs celebrate 25 years of the program's residence at Buffalo State College, joined by the current director of the Art Conservation Department at Buffalo State College.
Webcast Available!

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Year 2011[Conservation Education: Commemorating the Library Conservation Education Programs at Columbia University \(1981-1992\) and the University of Texas at Austin \(1992-2009\)](#)

November 15, 2011. Former directors and graduates celebrate the history and contributions of the two programs to the field of library conservation.
Webcast Available!

[Help! Preservation Training Needs Here, There, and Everywhere](#)

May 26, 2011. Debra Hess Norris, Chair, Art Conservation Department and Professor of Photograph Conservation, University of Delaware.
Webcast Available!

[The Marriage of Preservation and Access](#)

April 14, 2011. Nadina Gardner, Director of the Division of Preservation and Access. National Endowment for the Humanities.
Webcast Available!

[Library Conservation and Scholarly Communication](#)

February 10, 2011. Donald J. Waters, Program Officer for Scholarly Communications and Information Technology, Andrew W. Mellon Foundation.
Webcast Available!

[Foundation of the American Institute for Conservation of Historic and Artistic Works \(FAIC\): Strategic Planning for the Future](#)

January 13, 2011. Eryl P. Wentworth, Executive Director of the American Institute for Conservation of Historic and Artistic Works.
Webcast Available!

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Year 2010[Conservation Education: Celebrating 50 Years of Cultural Heritage Conservation Training at New York University](#)

November 17, 2010. The Conservation Center of the Institute of Fine Arts is dedicated to the study of the technology and conservation of works of art and historic artifacts. This special TOPS event showcased how the Center prepares graduates who contribute to the work of the Preservation Directorate at the Library of Congress. Webcast Available!

[Optical Scanning Applied to Recorded Sound Preservation and Access: Status and Prospects](#)

October 4, 2010. Carl Haber, Lawrence Berkeley National Laboratory Senior Scientist, described the present status of this research, with a particular emphasis on three dimensional (3D) surface profiling. Webcast Available!

[Current Preventive Conservation Approach: The UNESCO Chair's Perspective](#)

September 20, 2010. Prof. Koenraad Van Balen, Katholieke Universiteit Leuven, R. Lemaire Int'l Center for Conservation Leuven, Belgium and Ms. Anouk Stulens, Monumentenwacht Flanders Antwerp, Belgium. Webcast Available!

[The Mechanical Properties of Cultural Materials](#)

July 15, 2010. Dr. Marion Mecklenburg, Senior Research Scientist, Museum Conservation Institute, Smithsonian Institution, discussed the role that mechanics has in helping to determine the effects of temperature, relative humidity, conservation treatments and chemical degradation on the long term stability of cultural collections.

[Introduction to Non-Contact Method of Recovering Data from Obsolete Formats](#)

June 7, 2010. Brian Walker, Applied Pictures

[Special TOPS 50th Event: Introduction to the Work of the New Preservation Science Laboratories of the Library of Congress](#)

April 16, 2010. To commemorate the 50th TOPS program, the staff of the Preservation Research and Testing Division presented a series of lectures on a wide range of collaborative science projects addressing needs of traditional, audiovisual and digital collections. Webcast Available!

[Development and Research Applications for a Reference Collection of 20th Century Photographic Paper](#)

March 19, 2010. Paul Messier, an independent conservator of photographs discussed his ongoing, decade-long project, the assembly of the world's largest reference collection of photographic paper, and presented opportunities for multiple collaborative research initiatives. Webcast Available!

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Year 2009

[Terahertz Spectroscopy and Imaging Techniques for Conservation Science: Innovative non-invasive observation methods](#)

November 18, 2009. Dr. Kaori Fukunaga, Research Manager in the Applied Electromagnetic Research Center of the National Institute of Information and Communications Technology, Tokyo, Japan, discussed the use of terahertz (THz) spectroscopy and imaging as emerging techniques in the field of optics research and the transfer of these techniques to the preservation of cultural heritage.

[To Touch or Not To Touch? State-of-the-art Challenges of Heritage Diagnostics](#)

November 12, 2009. Dr. Matija Strlic, Senior Lecturer in Sustainable Heritage at the Centre for Sustainable Heritage, University College London, discussed current multi-disciplinary research initiatives on environmental interactions with cultural heritage collections.

[Treating the Second Anglo-Afghan War Album: Negotiations Between Book and Photograph Conservation](#)

June 18, 2009. Library of Congress Conservation Division senior conservators Dana Hemmenway and Yasmeen Khan discussed the treatment strategies involved in the conservation of both the binding and the photographic images, the role of digital facsimiles, the context in which the images were produced, details of the album's assembly and the relationship of the album to other albums that document the same events. Webcast Available!

[Collection Environments: What Should we Know and How Can We Know It? IPI's 15 years of Research on Environmental Assessment and Management](#)

May 28, 2009. James Reilly, Director of the Image Permanence Institute in Rochester, NY, shared approaches and tools for environmental assessment in cultural heritage institutions. IPI's approach is an inherently sustainable one that makes use of quantitative metrics of the 'preservation quality' of storage and display environments.
Webcast Available!

[Towards a Multi-Functional Mass Deacidification Process Using Aminoalkylalkoxysilanes](#)

May 8, 2009. Professor Hervé Cheradame, Emeritus Professor of the University of Evry and Vice-President of the Centre de Conservation du Livre in Arles, France, discussed recent research toward the development of a treatment that both effectively deacidifies paper, and enhances physical strength and resistance to biological degradation.
Webcast Available!

[Printed on Fabriano Paper: History and Use of Fabriano Handmade Paper by Printers, Artists and Mapmakers in Renaissance Italy](#)

April 28, 2009. Library of Congress Senior Paper Conservator Sylvia Rodgers Albro discussed examples of 15th and 16th century printing on Fabriano paper from Venice, Rome, Florence and Naples from the collections of the Library of Congress.

[Iron-Gall Ink Treatments at the Library of Congress: Old Manuscripts - New Tools](#)

April 28, 2009. Claire Dekle, Library of Congress Senior Book Conservator, and Mary Elizabeth Haude, Library of Congress Senior Paper Conservator, discussed the use of the unified protocols recently developed by the Library of Congress Conservation Division's 'Protocols for Iron-Gall Ink Treatment Group' in recent conservation treatments of 18th-century American manuscripts.

When Stones and Souls Meet in Acre – conservation of historic buildings, restoration of archaeological sites and safeguarding the intangible heritage as a means of community and touristic development

April 20, 2009. Ms. Shelley-Anne Peleg, Director, International Conservation Center of the Israel Antiquities Authority, discussed the Center's ongoing archaeological exploration of the Crusader-era city of Acre. Acre remains a thriving community with extensive Ottoman-era buildings, which are now historic structures in their own right. This lecture was jointly presented by the Preservation Directorate and the African and Middle Eastern Division of the Library of Congress.

[The Art of the Steal \(Recognizing Forgeries\)](#)

March 19, 2009. Mr. Frank W. Abagnale, one of the world's most recognized authorities on forgery, embezzlement, and secure documents, who has been associated with the FBI for more than 30 years, and who was the subject of the Steven Spielberg movie Catch Me If You Can, described how to recognize documents that have been altered and forged using simple techniques.
Webcast Available!

[Technology Transfer: Conservation Training using Haptic Virtual Reality Simulation](#)

February 20, 2009. Dr. Angela Geary spoke about her experiences developing and adapting a haptic system, modeled after virtual reality systems used in the medical profession, for teaching basic conservation skills. Dr. Geary was project manager for this technology transfer project at Camberwell College in London. Dr. Geary is currently a Program Leader, in Fine Art Conservation at Northumbria University in the UK.
Webcast Available!

[Conservation of the Gandhara Scroll: A Successful Collaboration](#)

February 11, 2009. Holly Krueger, Library of Congress senior paper conservator.

[An Investigation and Treatment of an Uncommon Ethiopic Binding Structure, and Consideration of its Historical Context and Lithography in the Age of Silent Cinema](#)

January 29, 2009. Library of Congress (LC) staff presented two lectures on notable recent conservation projects: Dan Paterson, LC Senior Book Conservator, discussed an unusual book structure. Senior Paper Conservator LC Cynthia Karnes discussed the treatment of large six-sheet movie posters from the golden age of lithography.

[From Decayed Parchment to 'Bit Rot' -- Challenges in Digitizing Archimedes Archimedes Palimpsest](#)

January 22, 2009. Program Manager Michael Toth and Data Manager Doug Emery discussed the use of digital multi- and hyperspectral imaging, metadata, and data encoding and access to provide standardized data as effective tools for scientists, researchers, preservation experts and information managers.
Webcast Available!

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Year 2008

[When the Whole is Greater than the Parts: A Holistic Approach to Preservation Exhibition](#)

December 4, 2008. Mr. Steven Weintraub, founder and principal of Art Preservation Services, Inc. in New York City, discussed new approaches to exhibitions that successfully meet the goals of artifact preservation and enhance the visitors' experience of the collection.

[Recent Research on Daguerreotypes at George Eastman House](#)

October 23, 2008. Mr. Ralph Wiegandt, Assistant Director of Conservation, and Mr. Patrick Ravines, Senior Research Fellow, George Eastman House discussed their research collaborative initiative that was established between Eastman House conservators, the Metropolitan Museum of Art and the Boston Museum of Fine Arts. This collaboration focused on the condition of fragile early photographs while preparing them for the exhibition entitled "Young America, the Daguerreotypes of Southworth and Hawes".
Webcast Available!

[The Real Thing: Using Collections for Collaborative Conservation](#)

October 2, 2008. Mr. Velson Horie, Research Project Manager, Collection Care, British Library, United Kingdom, discussed a 2½ year research project into the state of preservation of identical books deposited in six United Kingdom (UK) legal deposit libraries and two major UK archives.
Webcast Available!

[CAMEO: A Free Internet Reference on Materials Used in the Production and Conservation of Historic and Artistic Works](#)

September 19, 2008. Michele Derrick, Conservation Scientist, Scientific Research Division, Conservation and Collections Management, Museum of Fine Arts, Boston, discussed CAMEO (Conservation and Art Materials Encyclopedia Online), an electronic database of terms, materials and techniques used in all aspects of conservation and production of artistic, architectural, archaeological, and anthropological materials.
Webcast Available!

[Recent Trends in Preservation of Intangible Cultural Heritage](#)

May 20, 2008. Chandra Reedy, Professor, University of Delaware Center for Historic Architecture and Design; Director, Laboratory for Analysis of Cultural Materials discussed UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage and its context within overall preservation efforts of UNESCO.
Webcast Available!

[Preservation Tools and Training in the Digital Age: NEDCC in the 21st Century](#)

May 8, 2008. Ann Russell, Director, Northeast Document Conservation Center, Andover, MA, discussed new training and tools to address current challenges in the preservation field.

[Hyperspectral Imaging of the Waldseemuller 1507 World Map: The development of hyperspectral imaging and its application to preservation issues](#)

March 14, 2008. Dr. Roger Easton and Library of Congress Scientist Dr. Fenella France discussed established and innovative conservation-safe hyperspectral imaging techniques used on the Waldseemuller 1507 World Map.

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Year 2007

[AMS Radiocarbon Dating of Museum Objects](#)

December 12, 2007. Dr. Greg Hodgins discussed how accelerator mass spectrometry (AMS) is used at the National Science Foundation-University of Arizona (NSF-Arizona) AMS Laboratory to perform radiocarbon (¹⁴C) dating of museum objects, including the detection of 20th Century forgeries purportedly created before 1955.

[A Public Trust at Risk: Findings of the Heritage Health Index](#) July 16, 2007. Kristen Overbeck Laise, Vice President, Collections Care Programs, Heritage Preservation, Washington, D.C., discussed the Heritage Health Index, published in 2005. This was the first survey to assess the condition of U.S. collections held by institutions, large and small, from internationally renowned art museums, research libraries to local historical societies and archives.

[Capturing Recorded Sound through Imaging: The I.R.E.N.E. Project and Future Prospects](#) June 18, 2007. Carl Haber,

Senior Scientist, Physics Division, Lawrence Berkeley National Laboratory, discussed two-dimensional imaging and three-dimensional surface profiling for the purpose of capturing sound recordings from phonographic records.

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Year 2006

[Peter Waters: His Work as a Designer-Binder Before the 1966 Florence Flood](#) May 9, 2006. Sheila Waters, professional calligrapher and wife of the late Peter Waters, former Chief of Conservation at the Library of Congress, described the early book binding and restoration work of Peter Waters.

[Conservation Applications of Solid-Phase Microextraction](#)

April 18, 2006. Mark Ormsby, Conservation Scientist at the National Archives and Records Administration, described a versatile analytical technique that is used to study trace concentrations of organic compounds associated with a variety of objects and environments.

[The Lost 18 1/2 Minutes of the Nixon Presidency](#)

April 11, 2006. Dr. David P. Pappas, Project Leader, Magnetic Sensors Quantum Devices Group, National Institute of Standards & Technology, Boulder, CO, described the use of magneto-resistive sensors for recovering data from damaged magnetic media.

[Innovations at the British Library: A High Density, Fully Automated, Low Oxygen Environment Storage Facility](#)

March 17, 2006. Dawn Olney, Head of Collection Storage at the British Library, described the key issues, management objectives, and key decisions that are leading to the construction of a new state-of-the-art library collection storage facility.

[The Conservation Scientist Meets Hurricane Katrina](#)

March 2, 2006. Dr. Mary F. Striegel, Chief of Materials Research at the National Center for Preservation Technology and Training (NCPTT), described work being done to save Louisiana collections damaged by Hurricane Katrina.

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Year 2005

[Predicting Life Expectancies of Modern Magnetic and Optical Media](#)

December 21, 2005. Vivek Navale, Technical Chief for the Electronic Records and Special Media program at the U.S. National Archives and Records Administration (NARA), described findings of recent studies conducted by NARA, the Library of Congress, and the National Institute of Standards and Technology (NIST) to address media stability and life expectancies of higher density magnetic tapes and optical discs.

[Scientific Analysis and Materials Research in the Conservation of Photographs](#)

November 30, 2005. Dr. Christopher Maines, Conservation Scientist in the Scientific Research Department of the National Gallery of Art in Washington, D.C. and scientific editor of the forthcoming book *Coatings on Photographs: Materials, Techniques, and Conservation*, described how scientific analysis of photographs yields information about the processes used to produce them and gives insight into the mechanisms of degradation that can endanger their survivability.

[VisualAudio: A Preservation Strategy for Fragile Disk Recordings by Means of Photography](#)

October 17, 2005. Ottar Johnsen, Professor of Signal Processing and Telecommunications at the University of Applied Sciences of Western Switzerland (Fribourg), described a project entitled VisualAudio, which is a technique to extract sound from old phonograph records.

[Summary of Research on Magnetic Media Deterioration Since 1995](#)

August 23, 2005. Sarah Stauderman is the Preservation Manager of the Smithsonian Institution Archives, where she oversees the care of paper, book, photographic, moving image and recorded sound materials. Her major research interest is in the deterioration of magnetic media.
Webcast Available!

[An Iron Gall Ink Database: Its Potential Usefulness](#)

July 12, 2005. Jacque Olin, former head of Research at the Smithsonian's Conservation Analytical Laboratory, talked about her work with the "Vinland Map" as a case study for analysis of inks of medieval origin.

[Using Images to Reconstruct Sound Recordings: Progress and Prospects](#)

May 16, 2005. Carl Haber, Senior Scientist, Physics Division, Lawrence Berkeley National Laboratory, provided an update on his project to digitally image sound recordings.

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Year 2004

Optimization of Archiving Optical Storage Media

April 6, 2004. William P. Murray, Principal Reliability Engineer for implanted medical devices, Medtronic Corporation, presented a brief overview of the development of CD's and the growth rate of CD's, the construction differences, the optical read mechanism and the principal failure mechanism.

Where Science and Conservation Meet: a Challenging Field

March 31st - April 2nd Lecture/ Workshop 2004. Dr. Jan Wouters, Section Head of the Laboratory for Materials and Techniques at the Royal Institute for the Study and Conservation of Belgium's Artistic Heritage, talked about leather and parchment, and the chemistry of preparation, degradation, and analysis, putting emphasis on micro-methods and results obtained from several European research projects.

Organizational Response to Digital Preservation

January 22, 2004. Anne R. Kenney, Associate University Librarian, and Nancy Y. McGovern, Assistant Director of Research and Digital Preservation Officer, Instruction, Research, and Information Services (IRIS) at Cornell University, NY.

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Year 2003

Stabilization of Iron Gall Ink Corrosion

November 21, 2003. Dr. Jana Kolar, Head, National Centre for Preservation of Library Materials, National and University Library, Slovenia.

Laser Cleaning of Paper

November 21, 2003. Dr. Matija Strlic, Faculty of Chemistry and Chemical Technology, University of Ljubljana, Slovenia.

[Adhesives and Leather Symposium](#)

Sept. 29 - Oct. 1, 2003. Robert Barlee, J.Hewit & Sons Ltd.; Jane Down, Canadian Conservation Institute Toby Raphael, National Park Service; Roy Thomson, Leather Conservation Center

Reconstruction of Mechanically Recorded Sound by Image Processing

July 18, 2003. Carl Haber, Senior Scientist, Physics Division, Lawrence Berkeley National Laboratory, described how the effects of damage on medium such as phonograph records can be compensated through image processing and analysis methods.

Light-induced Appearance Change

June 3, 2003. Terry Schaeffer, Special Research Scientist, Los Angeles County Museum of Art, presented background information and research on effects of light on supports and media.

Understanding How Paper Ages and How We Can Save It

May 22, 2003. Chandru Shahani, Chief, Research and Testing Division, Preservation Directorate, Library of Congress, provided an update on groundbreaking research on the aging of paper.

Fading of Colorants and Micro-Testing

March 24, 2003. Paul Whitmore and Sandra Connors, Carnegie Mellon Institute, focused on surveying and testing selected collections.

Lectures on pigments and inks

February 18-21, 2003. Cheryl Porter, Chemist, Director of the Montefiascone Library Conservation Project, Italy,

gave public lectures in association with a course.

Two Lectures: (1) Lighting Initiative and (2) Microenvironments

January 15 and 16, 2003. Jim Druzik, Conservation Scientist, Getty Conservation Institute, discussed developments in lighting, absorbents and molecular sieves used to protect treasures from the environment.

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Year 2002**Diagnostic Techniques: Selection and Interpretation**

December 13, 2002. James Martin, Director, Orion Analytical, presented techniques used in his investigations which span four millennia of material (from ancient Egyptian tombs to modern compact discs).

Science in the Service of Treatments

November 25, 2002. T.K. McClintock, Director, TK McClintock Ltd., who has researched and treated objects ranging from Mercator globes at Harvard to Chinese wallpapers in the Netherlands, lectured on treatment topics compelling research today.

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