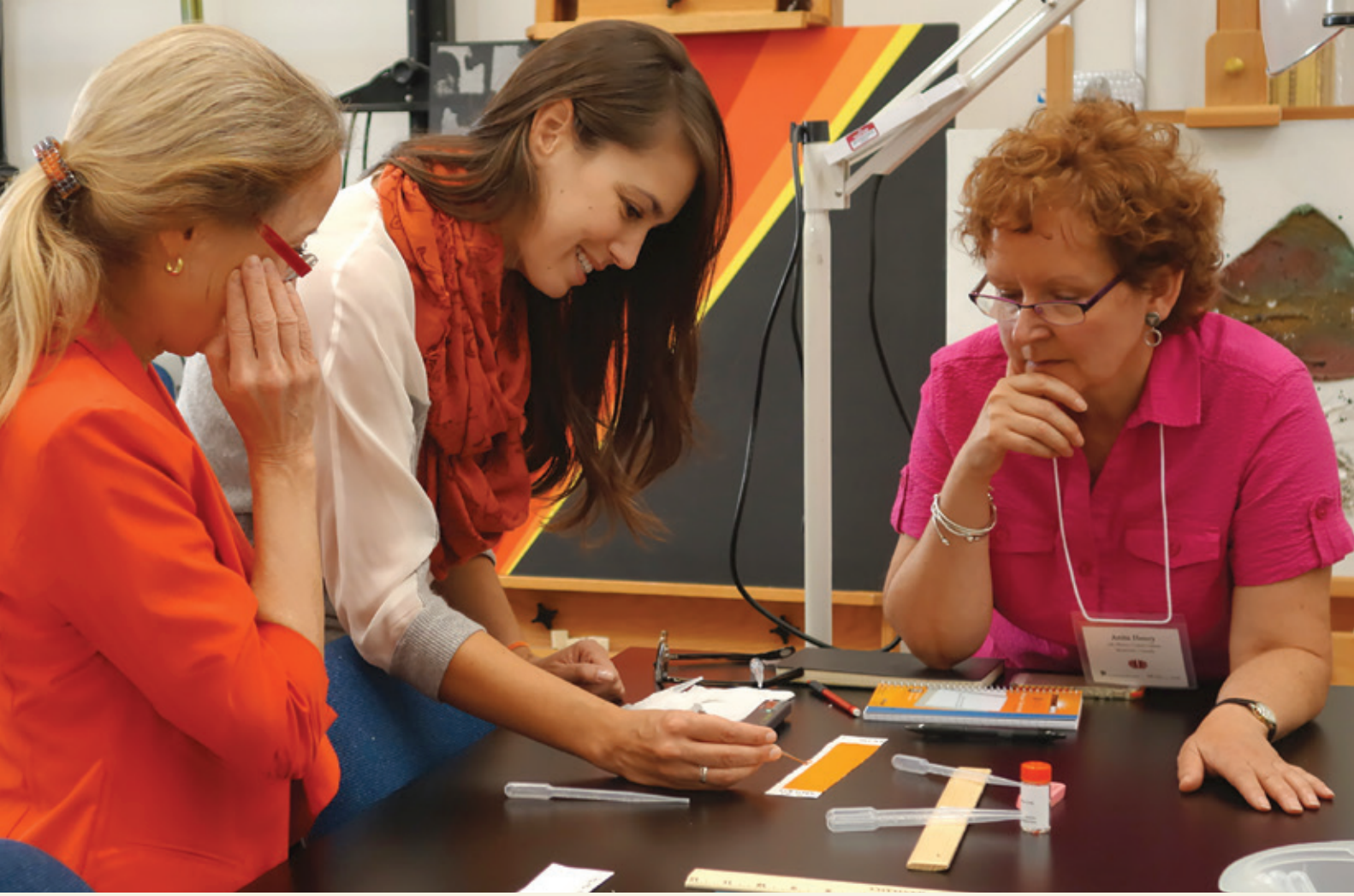


RESEARCH *INTO* PRACTICE

In the mid-1850s, the British House of Commons appointed a committee to examine the effects that London's heavy pollution had on the National Gallery's collection. A chemist named Michael Faraday was consulted, and so began the modern profession of conservation, uniting the fields of art and science. In 1888 another milestone was reached in the appointment of Friedrich Rathgen at the Royal Museums of Berlin as the first chemist employed by a museum for the purpose of caring for its collection, focusing particularly on archaeological stone and bronze antiquities and chemical reactions in the environment causing their decay. And in the early twentieth century, chemists Harold Pleinderleith of the British Museum, Paul Coremans of the Institut royal du Patrimoine artistique (Belgium), and Rutherford John Gettens and George Stout at the Fogg Museum (Harvard University) were pioneers in the development of the modern profession of conservation, employing technical investigation and X-radiography.

Above: Participants in the sixth Cleaning of Acrylic Painted Surfaces (CAPS) workshop—held at the Canadian Conservation Institute—test a new cleaning system on the surface of a specially prepared acrylic paint sample.

With them began the symbiotic relationship that exists today between the scientific researcher and the practicing conservator. Today more than ever, the conservation field looks to the sciences to provide understanding of materials, their deterioration, and their longer-term preservation. In addition to preserving the materials of the more distant past, conservators now are increasingly encountering new materials and media used in the products of modern culture which often pose unprecedented conservation challenges. Continued collaboration and dialogue between scientists and conservators are essential to the investigation and development of appropriate conservation solutions to meet these new challenges.

As a private research institute dedicated to advancing conservation practice, the Getty Conservation Institute (GCI) focuses its work on professionals and organizations responsible for the conservation of the world's cultural heritage. An important aspect of the Institute's mission is the creation and dissemination of knowledge that will benefit these professionals.

With its large staff of scientists with expertise in cultural heritage, the GCI is uniquely positioned to conduct long-term and in-depth research on materials composition, deterioration mechanisms, and effective conservation approaches as related to art objects, architecture, archaeological sites, and monuments. The dissemination of the results of this research is among the GCI's highest priorities. While contributions to publications and professional meetings facilitate distribution of information to the field, the GCI recognizes that education and training often provide a better way to integrate emerging scientific knowledge into professional practice.

For this reason, the GCI's Education department created the Research Into Practice Initiative—ongoing training workshops, colloquia, and similar events—to communicate important scientific advances resulting from research undertaken by the GCI and its partners. Activities that are part of the Research Into Practice Initiative draw upon the perspectives of both scientists and conservators and emphasize adapting research results to address practical conservation problems through improved materials and practice.

Cleaning Acrylic Painted Surfaces

The inaugural event of this initiative was the Cleaning of Acrylic Painted Surfaces (CAPS) colloquium, held at the Getty Center in 2009. During the colloquium, participants tested newly developed materials for cleaning acrylic paint surfaces, and reflected upon the specific learning needs of paintings conservators dealing with contemporary acrylic painted surfaces.

For both conservators and scientists, there are a number of areas of uncertainty related to the efficacy and appropriateness of cleaning treatments for acrylic paints and, until recently, there have been few well defined treatment options. The GCI through the Modern Paints project—together with other research leaders in this field such as Tate, the Dow Chemical Company, and the University of Delaware—has harnessed extensive scientific expertise and equipment to address issues of materials characterization and cleaning of acrylic paints.

As a result, the GCI developed a series of CAPS workshops that integrate this emerging scientific research with the latest perspectives on cleaning technology within art conservation. CAPS workshops also provide opportunities to test and evaluate new treatments, as well as guide the direction of future research. The most recent workshop, the sixth in this series, took place at the Canadian Conservation Institute in Ottawa, Canada.

One participant in the Ottawa workshop expressed their appreciation for the new information and skills they were able to practice. "Just a superb workshop and one of the best I have attended," said the workshop attendee. "This will impact the work in our conservation lab and we now feel much more comfortable with approaching the cleaning of acrylic paintings."

Additional CAPS workshops are planned to meet the growing demand of the field.

Characterizing Asian Lacquer

Another workshop series, launched in 2012, focuses on analytical procedures that have the potential to uncover new and more detailed information about lacquers. These procedures were developed in collaboration with conservators at the J. Paul Getty Museum as part of the GCI's Characterization of Asian and European Lacquers project, which aims to develop a comprehensive analytical method to identify organic materials present in Asian and European lacquers.

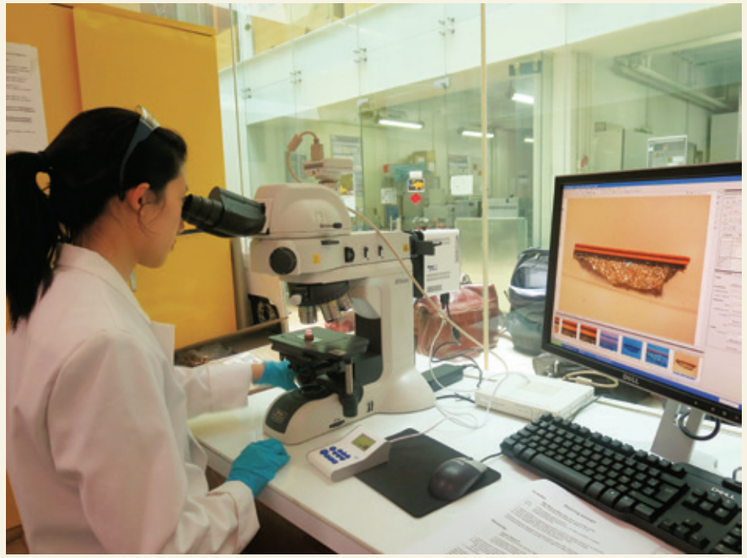
Lacquer has a history of production that stretches back as far as 5000 B.C. in Asia, and a more recent history of trade, collection, and imitation in Europe, where lacquer arrived in the sixteenth century. While the traditions surrounding the production of lacquer are generally well appreciated, it is now understood that constituent materials and particular techniques of lacquer production in Asia vary enormously depending on geography, available raw materials, and historical context. European lacquered objects and imitations introduce yet another layer of complexity, as do issues related to the use and aging of lacquer objects. Without thorough characterization, it can be difficult to identify different types of lacquers and to understand the implications for preservation.

Recent Advances in the Characterization of Lacquers workshops provide instruction in new sophisticated analytical and sampling procedures. They also present a unique opportunity for scientists and conservators to work together in close collaboration on lacquer objects from their own collections and to facilitate dialogue on important topics such as compositional variation in lacquered objects, implications of analytical research to the conservation of lacquered objects, and research priorities and opportunities for future collaboration. The most recent workshop was hosted by the Centre de Recherche et de Restauration des Musées de France in Paris in July 2014. "It's brilliant to be able to be trained in groundbreaking sampling and analytical techniques and be able to contribute to a lacquer-world-view changing database," stated one of the participants in the Paris workshop.

Future workshops are planned for venues in Asia.

XRF Boot Camp

Most recently, the GCI in partnership with the Institute for the Preservation of Cultural Heritage at Yale University has introduced the XRF Boot Camp for Conservators. This new workshop series offers training on the fundamentals of X-ray fluorescence spectroscopy (XRF), a portable, noninvasive, and nondestructive analytical tool that can yield a better understanding of the materials that comprise cultural objects. The ability to employ analytical methods that can be used in situ without physical sampling is essential in the study of works of art and other cultural heritage materials, as the removal of samples for analysis is generally severely limited—or, in many cases, forbidden.



Instructor Julie Chang at the 2014 Recent Advances in Characterizing Asian Lacquers workshop in Paris examines a lacquer cross section sample that has been treated with diagnostic chemicals in order to identify key components of the lacquer.

XRF has become the most widely employed analytical technique in the scientific examination of works of art. The recent proliferation of relatively inexpensive and easy-to-use handheld spectrometers has resulted in this technique being adopted by an increasingly large number of institutions. However, in many cases the responsibility for operating the instrument—and interpreting the data—falls to conservation professionals, who often do not have sufficient scientific background or access to training to enable them to correctly apply the technique or accurately interpret the results.

XRF Boot Camp is designed to provide the training and resources that will improve the collection and interpretation of data acquired with this analytical tool. Each of these four-day workshops is dedicated to the analysis of specific types of materials; during the first workshop, which took place at Yale in 2013, the focus was on the analysis of painted surfaces. The second workshop, recently held at the Getty Villa, was dedicated to the challenges commonly encountered in the study of archaeological and ethnographic objects—such as analysis of corrosion products on metal alloys, heavy metal elements, and glass.

Through these workshops and others still in development, the GCI seeks to reinforce and strengthen the connection between scientific research and its application in the field, and has reached over one hundred fifty conservation professionals in the short history of the initiative. By extensively sharing research results from the laboratory with practicing professionals, and by translating those results into practical conservation approaches, the GCI serves the conservation field, whose mission is to preserve our cultural heritage—a heritage that enriches us all.