

Ancient faces in a new light

Susan Walker

Ashmolean Museum and Wolfson College, University of Oxford

Twenty-one years have passed since the exhibition *Ancient Faces: Mummy Portraits from Roman Egypt* opened at the British Museum. The 1990s also saw the publication of a cluster of significant research projects on the mummy portraits of Roman Egypt, with lively debate on the chronological development of this regional genre of ancient painting, and on how the paintings were commissioned and used. How do we see the painted faces of Roman Egypt now?

Major advances in imaging and the scientific analysis of portraits, especially those painted on wooden panels, have allowed significant progress in our understanding of how mummy portraits were made. Inevitably this has led to a more complex view of the range of choices open to the painters of Roman Egypt. Moreover, some long-established scholarly “certainties” are now dissolving. For example, an apparently clear and widely accepted division between artists painting in encaustic and those working in tempera is now questioned. Instead, painters seem to have used a variety of media for specific purposes within a single portrait, and the visibly differing results more likely reflect the choice of tool kit used to work the painted surface rather than the selection of a particular medium.

Some of the advances made in the 1990s still hold true: the painters’ workshops were geographically organised by settlement and associated cemetery, and perceived differences in the quality of work reflect local usage rather than a chronologically sensitive decline. The subjects of mummy portraits were in the 1990s identified as the elite populations of the small towns of Egypt, who negotiated an improvement in their status with the ruling Roman authorities by claiming a Greek historic identity; recent epigraphic research confirms that this group also enjoyed exceptional legal privileges, and field survey has thrown remarkable light on some of the settlements they lived in.

The development of the APPEAR database and website will give scholars across the world a hitherto unavailable, evidence-based view of the making of mummy portraits. The anonymous painters of these rare coloured images of the people of Roman Egypt are themselves now beginning to emerge into a focus unreachable 21 years ago.

Presenter Bio:

Susan Walker spent her working life as a museum curator, in the British Museum from 1977 to 2004 and as Sackler Keeper of Antiquities in the Ashmolean Museum, Oxford from 2004 until her retirement in 2014. In 1997 she co-curated with Morris Bierbrier *Ancient Faces: Mummy Portraits from Roman Egypt*, a British Museum exhibition that enjoyed success in London, Rome and New York, where she was sole guest curator for the Metropolitan Museum of Art’s presentation and associated publication. The exhibition also inspired displays in Greece, Vienna, Paris and Frankfurt. Susan Walker is now an Emerita Fellow of Wolfson College, University of Oxford and an honorary curator at the Ashmolean, where she is now working on mummy portraits with Jevon Thistlewood of the Department of Conservation. She recently published *Saints and Salvation: the Wilshire Collection of late Roman gold-glass, sarcophagi and inscriptions from Rome and Southern Italy* (Ashmolean Museum, 2017).

From all sides: the APPEAR project and mummy portrait provenance

Judith Barr

Curatorial Assistant, J. Paul Getty Museum (Getty Villa)

This paper will provide a brief overview of the history of mummy portrait collecting, with a focus on the art market during the 20th century. This period of collecting is rarely discussed after the first dispersals of excavated portraits, like those from Flinders Petrie's sites, and of documented collections, such as Theodor Graf's. However, while only a small percentage of mummy portraits have documented findspots, many more have shared histories. Once on the market, this history is often obscured and even lost. Using case studies from the APPEAR database and the Getty's own collection, the value of documenting the provenance of these objects will be explored, as well as how conservation analyses can help inform provenance research, and vice versa. Through interrogating both provenance and conservation data, commonalities in treatment, materials, and composition can be revealed—or old assumptions about a portrait's history disproven. Provenance information will be considered from across the APPEAR project to better contextualize the portraits in the database through findspot and provenance analyses.

The ways in which these portraits were and are described and categorized within a market setting reflect changes in contemporary scholastic debates as well as consumer preferences in selecting and ultimately purchasing these objects. This paper will further seek to illustrate some ways of researching mummy portrait sales, through digital archives, common descriptions, and through documenting some of the stamps, stickers, and markings on portraits from the APPEAR project. These physical indicators of ownership and display are rarely discussed or illustrated in the academic literature of mummy portraits, but they offer a unique way of understanding the collecting histories of these objects. The APPEAR project makes the opportunity to explore the multiple, complicated, histories of these portraits in collections around the world possible.

Presenter Bio:

Judith Barr is a curatorial assistant in the Antiquities department of the J. Paul Getty Museum in Los Angeles, where she has been a part of the Antiquities Provenance Project since 2015. She holds an MSt. in Classical Archaeology from the University of Oxford. Her research focuses on the history of the Getty's collection and documenting the 20th century art market for antiquities. Her latest publication is "The Pitfalls and Possibilities of Provenance Research: Historic Collections and the Art Market in the 20th Century" (*Collecting and Collectors from Antiquity to Modernity*, SPAAA vol. #4, forthcoming) and she is the co-author of "'A Man in His Duty': An Ushabti of Neferibresaneith and a Case Study in the Dispersal of Egyptian Antiquities" (Getty Research Journal, February 2018).

Mummy Portraits in the Museum of Fine Arts, Budapest

Kata Endreffy, Curator, Collection of Classical Antiquities, Museum of Fine Arts, Budapest;

Árpád M. Nagy, Keeper, Collection of Classical Antiquities, Museum of Fine Arts, Budapest

The Collection of Classical Antiquities in the Museum of Fine Arts, Budapest preserves five mummy portraits from Roman Egypt. Three of the portraits have appeared at international exhibitions before, but two are still relatively little known to the scholarly public. In the framework of the APPEAR project, all five portraits have recently undergone restoration and examination by the Kunsthistorisches Museum, Vienna and the wood analyzed by the British Museum.

The goal of the present paper is twofold. First, it aims to re-examine the group and focus on new results in light of the analyses carried out so far. In the case of one portrait, an observation about the wooden panel will be addressed concerning the use of the piece as a flat portrait exhibited in the house of the represented person, instead of being placed in the wrappings of the mummy as a curved portrait. Another portrait had previously been regarded as a modern forgery, but archaeometrical examinations carried out have shown it to be a heavily retouched original. Further previous attempts at dating the MFA portraits by Klaus Parlasca, Barbara Borg, and Euphrosyne Doxiadis will also be revisited.

This paper will additionally address the provenience and history of the five portraits, and on further mummy portraits that are known to have appeared in Hungary around the end of the 19th century. The five portraits now in the Museum of Fine Arts were acquired in two batches in the late 1940s and early 1950s, and had arrived in Hungary through two different channels. Three pieces were bought in Egypt by the Cistercian monk and scholar Bonifác Platz (1848–1919), and two other portraits were sold to the Museum by the merchant and art collector Bernát Bak (1871–1953). There is a chance that recently recovered archival sources will yield new information on the acquisition of the portraits in the case of both groups. The pieces from Vienna's collection may once have formed part of the collection of Theodore Graf. Interestingly, recently found museum archives document that Theodore Graf offered part of his collection of mummy portraits for sale to the Museum of Fine Arts in 1891. To conclude, attempts will be made to track the fate and whereabouts of a portrait once in a Hungarian private collection (Oszkár Hillinger, 1887–?), which is at present unknown.

Presenter Bio:

Kata Endreffy is a curator at the Collection of Classical Antiquities at the Museum of Fine Arts, Budapest, where she has worked since 2006. She has received a PhD in Egyptology from Eötvös Loránd University, Budapest in 2017. Her research focuses on Egypt in the Graeco-Roman period, Demotic language, and magical gems. She has been an editor of the Campbell Bonner Magical Gems Database since 2011.

A Study of the Relative Locations of Facial Features within Mummy Portraits

Jevon Thistlewood, Conservator of Paintings, Ashmolean Museum, University of Oxford;

Olivia Dill, PhD Student, Northwestern University Art History Department, NU-ACCESS;

Andrew Shortland, Professor of Archaeological Science, Cranfield Forensic Institute, Cranfield University;

Marc Walton, Co-Director of the Northwestern University / Art Institute of Chicago Center for Scientific Studies in the Arts (NU-ACCESS) and Research Professor of Materials Science and (by courtesy) of Art History, Northwestern University

Abstract

Mummy Portraits, also referred to as Fayum Portraits and often described as Greco-Roman or Romano-Egyptian, date from the 1st to the 3rd Century BCE Egypt. They are painted faces which were inserted or incorporated into the wrappings of embalmed human remains. They reflect a fusion of influences with Greek ancestry and expertise, Roman identity, and Egyptian mummification and burial custom. The faces of Mummy Portraits are a mixture of the familiar and the unknown. They are near life-sized and can provide a recognisable and scrutable representation of a person's face. It does indeed appear that the artists of mummy portraits (of whom we know nothing) recorded the personal features of their subject. Hairstyles, hair colour, facial hair, scars, jewellery and clothing are changeable indications of individuality. At their most realistic they are convincing as the faces of real people who once lived, and yet they still have group identity which connects them to even the most stylised examples. They can divide opinions on whether they are generic images or not. This paper aims to discuss the idea of group identity by exploring the similarities in the location and size of facial features in a range of Mummy Portraits.

The most obvious similarity is the general presentation of the face. They generally adopt a similar pose and calm reserve which suggests an almost clinical process in parts. As the late John Berger wrote, this format varies very little and all of them are as frontal as pictures from a photomat ... The Fayum painter was summoned not to make a portrait, as we have come to understand the term, but to register his client, a man or woman, looking at him. Like a modern day passport photograph, strict rules of presentation and processing allow individual facial differences to be scrutinised.

There is also an apparent use of foreshortening and an appreciation of three-dimensional curved surfaces in Mummy Portraits. This generally appears unsuccessful or confusing, and easy to dismiss as naïve attempts. However the level of expertise and understanding in other technical aspects of the portraits suggests this is perhaps unfair. Do the Mummy Portraits contain an optical illusion which has been lost to modern eyes?

Presenter's Bio:

Jevon Thistlewood is the Conservator of Paintings at the Ashmolean Museum of Art and Archaeology, University of Oxford and an accredited member of the Institute of Conservation (ICON). He graduated from the University of Leeds with a degree in Chemistry and a master's degree in Sculpture Studies. He has a master's degree in the Conservation of Fine Art from the University of Northumbria. Research projects are commonly concerned with painted surfaces from Antiquity to the present day.

Framing the Heron Panel: Technical and Iconographical Comparanda

Georgina E. Borromeo, Curator of Ancient Art:

Ingrid A. Neuman, Conservator Rhode Island School of Design Museum;

Scott Collins, RT (R)(CT), Rhode Island Hospital;

Catherine Cooper, PhD; Derek Merck, PhD, Rhode Island Hospital;

David Murray, PhD, Environmental Chemistry Department, Brown University

Participation in the APPEAR Project presented the RISD Museum with an invaluable opportunity to study its rare framed Egyptian painted panel of the god Heron in light of new scholarship on Roman-Egyptian painting and delve deeper into its technical aspects. Our project created new, and reinforced established pathways, for collaboration with scientists from academic institutions in New England and beyond.

This portrait is said to have come from the Fayum and was in a private collection in Cairo in 1939. Sold at the Hotel Drouot in Paris in June 1953, it was acquired in 1959 from Mathias Komor Fine Arts in New York. The panel received conservation in 1971 and 2000.

The Heron panel is one of only three surviving framed works from Greco-Roman Egypt: a portrait of a woman in the British Museum (1889.10-18.1), and two panels representing gods, one in the Greco-Roman Museum, Alexandria (22978) depicting Soknebtynis and Min, and the other in the Cinquantenaire Museum in Brussels (E7409) representing Heron and Lycurgus. The construction, composition, and iconographic details of the latter two panels prefigure Christian icons. The RISD panel will be compared to these, and other, panels that were also likely framed.

The five individual panels which compose the RISD panel painting and the attached frame are both composed of sidr (*Ziziphus spina-christi*) wood, a tree native to Egypt and other areas of Africa. The frame is made by four overlapping individual members that are joined by mortise and tenon with square shoulders, reinforced by wooden pegs at each corner. The panel is not perfectly square and an additional peg, located in the upper right corner, may be the result of a readjustment to the frame by its original maker. Microscopic examination was conducted to study the painted surface and the frame construction. Visible Induced Luminescence was used to detect the presence of Egyptian blue and X-Ray Fluorescence for elemental pigment analysis. Infrared micro-spectroscopy and chromatography were used to analyze the composition of the medium.

Three-dimensional scanning and volume rendering is ongoing to reveal more about the missing areas. 3-D volume rendering will reveal more detail about the surface topography for further study at Brown University's Center for Computation and Visualization, ultimately utilizing it as a teaching tool for the RISD Museum.

Presenter's Bio:

As curator of ancient art, **Gina Borromeo** oversees the Egyptian, Greek, Etruscan, and Roman collections at the RISD Museum. While her work has focused primarily on the ancient contexts of Roman sculpture, she has been studying the materials and techniques employed by artists in antiquity. She enjoys teaching from the Museum's collection of ancient art. Gina earned her MA and PhD degrees in history of art and architecture from Brown University. She has had significant archaeological experience, having excavated in various sites in Greece, Israel, Italy, and Turkey. Before coming to the RISD Museum, she worked at the Art Institute of Chicago. She currently serves on the Museums and Exhibitions Committee of the Archaeological Institute of America, as well as the Boards of the Haffenreffer Museum of Anthropology and the Joukowsky Institute for Archaeology and the Ancient World, both at Brown University.

Ingrid Neuman, earned her Masters of Arts, with a Certificate in Advanced Studies, in Art Conservation from SUNY at Buffalo in 1987. In 2007, Ingrid became the first full-time Museum Conservator of Sculpture at the Museum of Art Rhode Island School of Design.

Scrutinizing “Sarapon”: Investigating a Mummy Portrait of a Young Man in the Michael C. Carlos Museum, Emory University (Inv. 2004. 048. 001)

Renée Stein, Chief Conservator, Michael C. Carlos Museum and Lecturer, Department of Art History, Emory University; Lorelei H. Corcoran, Professor and Director, Institute of Egyptian Art & Archaeology, University of Memphis.

A mummy portrait of a young man now in the collection of the Michael C. Carlos Museum, Emory University, Atlanta, GA, was characterized by Egyptologist and papyrologist Dominic Montserrat while it was yet in a private collection as being “of dubious authenticity.” In the fourth volume of the Parlasca and Frenz catalogue raisonné of mummy portraits worldwide, the portrait is more specifically described as a heavily restored pastiche (“un pasticcio molto ritoccato”) that is, on the whole, modern (“nell’insieme è moderno”). Although this latest addition to the *Repertorio* series devotes a special section to forgeries, Parlasca and Frenz did not list the portrait among the “fakes” based on their assessment that it incorporates original fragments (“furono utilizzati frammenti originali”). The presence of an inscription on this portrait to the proper right of the man’s head is also noteworthy, given that fewer than 2% of the approximately 1,000 known portraits include names. The Greek text on this portrait, placed within an unusual tabula-ansata-shaped label provides the name of the deceased, his patronymic, and his age at death. Questions concerning this portrait, therefore, made it an intriguing subject for this multidisciplinary study.

The present study critically assesses previous evaluations of the Carlos portrait in light of evidence obtained through complementary approaches to object-centered research. This paper provides the results of a collaborative investigation involving iconographic and paleographic analyses as well as technical imaging and materials identification to map the many fragments of the portrait and to clarify their associations. This study reappraises the Carlos portrait to consider both its place in the repertoire of 2nd century CE mummy portraits and also its contribution to the APPEAR database, which includes authentic paintings as well as those categorized as forgeries. Recognizing the subtle distinctions that affect the assignment of authenticity, this study underscores the importance of unbiased and complementary analyses. The impact of this study is specific and multifold ----- on the valuation of this single painting, on the corpus of portraits, on the assessment of so-called pastiches, on the value of fakes to the study of portraits, and on the comparison with other so-called forgeries.

Presenter’s Bio:

Renée Stein is Chief Conservator at the Michael C. Carlos Museum at Emory University, where she oversees the treatment, preventive care, and technical analysis of the Museum’s diverse collections. Stein is also a Lecturer in the Art History Department and teaches courses on conservation and technical study. Stein received a Master of Science specializing in objects conservation from the Winterthur - University of Delaware Program in Art Conservation.

Lorelei H. Corcoran is Professor of art history and Director of the Institute of Egyptian Art & Archaeology at the University of Memphis. Corcoran received her BA in Classical Studies from Tufts University and her PhD in Near Eastern Languages and Civilizations (Egyptology) from the University of Chicago. Her publications include *Portrait Mummies from Roman Egypt (I-IVth Centuries AD) with a Catalogue of Portrait Mummies in Egyptian Collections* (Chicago, 1995) and, with co-author Marie Svoboda, *Herakleides, A Portrait Mummy from Roman Egypt* (Getty, 2011).

Three Painted Wood Shields from Dura-Europos

Anne Gunnison, Associate Conservator of Objects, Yale University Art Gallery; Irma Passeri, Senior Conservator of Paintings, Yale University Art Gallery; Erin Mysak, Conservation Scientist, Institute for the Preservation of Cultural Heritage; Lisa Brody, Associate Curator of Ancient Art, Yale University Art Gallery

One Friday in January 1935, Clark Hopkins, then field director at the excavation of Dura-Europos in Syria, wrote in his notes: “Just after breakfast, three painted shields were found one right a top of the other... Herb and I spent all morning removing them. Most of the wood was strong enough to move easily and much of the painting is visible.”

These three shields, dated to A.D. 256 and now in the collection of the Yale University Art Gallery, were quickly identified as rare examples of painting on wood from antiquity. The fragile shields, depicting scenes from the Trojan War, the battle between the Greeks and Amazons, and a warrior god were cleaned in the field and consolidated with polyvinyl acetate. The expedition artist Herbert (Herb) Gute painted faithful watercolor reproductions. When the shields were brought to Yale University later in 1935, they were analyzed by conservator George Stout and scientist Rutherford Gettens from the Harvard University Fogg Art Museum. Initial enthusiasm for the discovery prompted an official press release from Yale University and publications of Gute’s watercolors in the *Illustrated London News* and *Fortune*. There was, however, little further study of the shields until 2011, when the war god shield was conserved for display at the Gallery.

The condition of the shields has deteriorated in the 80 years since excavation. The scenes are obscured by dirt and shiny, discolored polyvinyl acetate. The paint is lifting and tenting and the wood substrate buckled and warped. These shields are the subject of an ongoing collaborative research project among conservators, conservation scientists, and curators at Yale. Materials and techniques have been investigated and identified. Of particular interest is the characterization of the binding media, which has been explored with several types of analysis.

Though outliers in the APPEAR project, both in place of origin and type of object, the shields serve as opportunities to examine similarities and differences in techniques and materials across regions. Using information compiled by other institutions participating in the APPEAR project, some observations can be made about the continuity of practice throughout the area and time period.

Presenter’s Bio:

Anne Turner Gunnison, Associate Conservator of Objects, graduated with a B.A. in art history from Stanford University and received a M.A. in Principles of Conservation and a M.S. in Conservation for Archaeology and Museums from the Institute of Archaeology, University College, London. She worked as a postgraduate fellow at the Smithsonian’s National Museum of the American Indian before joining the staff at the Yale University Art Gallery in 2010.

An Analytical Protocol for the Identification of Encaustic and Tempera Binding Media Found in Egyptian Funerary Portraits.

Joy Mazurek, Assistant Scientist, the Getty Conservation Institute

A long-term collaboration between APPEAR project participants and the science department at the Getty Conservation Institute provided the unique opportunity to survey the binding media used for painted funerary portraits from numerous museum collections. The technique of these ancient panel paintings have been visually classified by their binding media as either encaustic (beeswax and pigments) or tempera (water based binder and pigments). However their precise identification is often complicated by various factors such as restoration materials, deterioration of the original support, microbial by-products, degradation of wax esters, lead soap formation, and the environment. Preliminary results of more than 40 Romano Egyptian painted portraits highlights the benefits of partnership and of analytical consistency within the project. It has also begun to shed light on the ancient artist's working methods. The application of routine analytical methodologies to paint samples utilizing the Gas Chromatograph/Mass Spectrometer (GC/MS) resulted in the discovery of more complex binding media choices such as beeswax mixed with oil, as well as animal glue and plant gum. The inherent complexities encountered while characterizing ancient organic media in funerary portraits are reviewed.

Presenter's Bio:

Joy Mazurek is an Assistant Scientist at the Getty Conservation Institute. She specializes in the identification of organic materials by gas chromatography/mass spectrometry. She obtained her MS in biology, with emphasis in microbiology from California State University Northridge, and a BS degree in biology from University of California, Davis.

Observations on Mummy Portraits Painting Techniques: Materials and Techniques, Composition of the Paint Layers and Deterioration Factors

Lin Rosa Spaabæk, Paintings Conservator, Copenhagen; Joy Mazurek, Assistant Scientist, the Getty Conservation Institute

A collaboration between the National Museum, Ny Carlsberg Glyptotek and the Getty Conservation Institute on the chemical and technical examination of 11 portraits and two Roman panel paintings will be presented. The identification of painting materials and how they have been used and applied will be discussed.

Thirteen Egyptian panel paintings were analyzed for binding media by Gas Chromatography/Mass Spectrometry (GC/MS) and Fourier-Transform Infrared Spectroscopy (FTIR) at the Getty Conservation Institute. So far the results show that the encaustic paintings are composed of beeswax, however, in a few instances the possible addition of either animal glue or oil were found. Two of the portraits showed evidence of being varnished, one portrait AEIN 684 appeared to be original and was identified as egg.

Analysis of the paint was carried out to determine if the encaustic had been intentionally modified. A sample of black paint, which typically contains low levels of lead, and one of white, with higher levels of lead were taken from several portraits for comparison. The goal was to determine if the beeswax medium had been deliberately saponified or if the identification of soaps were caused by the interaction with lead pigments over time. To date there is no concrete data to support deliberate saponification. The soaps found in samples from the panel paintings were compared to 30 year old naturally and artificially aged mock up samples composed of beeswax pigmented with lead white and carbon black.

The examination has also shown various interesting differences in the composition of the binding media. In a yellow paint from a pendant on portrait AEIN 683, a significant difference in the beeswax profile compared to other parts of the portrait was observed, presumably due to lack of metal soaps. Also paint from AEIN 680 showed a highly unusual wax ester profile, when compared to all the other portraits analyzed for the APPEAR project by the Getty Conservation Institute. The reason for these observations are still being investigated, and will be the subject of future research.

Presenter's Bio:

Lin Rosa Spaabæk obtained her bachelor's degree in paintings conservation from the Royal Academy of Fine Arts, School of Conservation, Copenhagen in 1998, and her master's thesis on the study of mummy portraits in 2006. Working as a private conservator in Denmark, Lin has restored and studied the collection of mummy portraits at the Ny Carlsberg Glyptotek and has been a consultant on the funerary portraits at the Egyptian Museum in Cairo.

The APPEAR Project - Collaboration and Benefits: Nondestructive Studies of Ancient Pigments on Graeco-Roman Funerary Portraits of the Kunsthistorisches Museum Vienna

Bettina Vak, Associate Conservator, Kunsthistorisches Museum Vienna

In 2014 the Department of Antiquities Conservation of the Kunsthistorisches Museum Vienna (KHM) joined the database of APPEAR with including information on ten mummy portraits. Being a member of this database opened new horizons for the study of the portraits, allowing access to scientific work of other institutions. Initially two portraits, one of them never displayed, underwent a complete conservation and restoration treatment.

The close relationship and communication between the KHM and the Collection of Antiques of the Fine Art Museum in Budapest (Hungary) concerning the reinstallation of their gallery, led to a Memorandum of Understanding (MoU) between the two museums. The KHM will carry out the conservation of Budapest's five mummy portraits (the Hungarian museum does not have specialists in this field) and will include them into further studies. At the same time, the collection in Budapest will use this opportunity to find out more about the circumstances of their acquisition. In Vienna, the pigment identification and material research already started using portable X-ray fluorescence analysis (XRF) at the Conservation Science Department of the KHM in 2010. After joining the APPEAR project, the studies were widened and were approached systematically including all the fifteen objects. Additionally, a specialist from Italy was selected to cover the non-invasive scientific field of multispectral imaging for pigment identification and a wood specialist from London was invited to identify the species of all the wooden panels.

This collaboration made a series of new in-depth studies of the mummy portraits possible, including the examination of inorganic and organic pigments, inpainting and further material research. In the future, we hope to find out more about the materials and techniques of each of the single portraits by using the unique opportunity of being part of APPEAR and further intensifying our international collaborations.

Presenter's Bio:

Bettina Vak received her Master's Degree in 1986 from the University of Applied Arts Vienna, in Objects Conservation. She worked as a Freelancer for extended periods of time in New York (private Antique Restorer), Istanbul (cooperation on the Conservation of the Great Palace Mosaic, UNESCO), St. Petersburg, Hermitage. She has been involved in the conservation of roman mosaics, wall paintings, ceramic and Egyptian material, including three mummy coffins, cartonnage, gold masks in addition to the conservation of the ceramic collection at the Museum Carnuntinum, for restructuring their new gallery.

Bettina has been the associate conservator at the Kunsthistorisches Museum Wien, Collection of Antiquities since 1994. In 1996 she participated in the ICCROM course in Rome: Scientific principles of conservation Collaborator and was the lead conservator of the research project CVA (Corpus Vasorum Antiquorum), Wien 5, 6. She is currently conducting the technical study and conservation of fifteen Romano-Egyptian mummy portraits in collaboration with the Museum of Fine Art, Budapest.

Analytical Evidence of the Tebtunis Workshop from Material Usage

Jane Williams, Head of Objects Conservation, Fine Arts Museums of San Francisco;

Caroline Cartwright, Senior Scientist and Wood Anatomist, Department of Scientific Research

The British Museum; Marc Walton, Co-Director of the Northwestern University / Art Institute of Chicago

Center for Scientific Studies in the Arts (NU-ACCESS) and Research Professor of Materials Science and

(by courtesy) of Art History, Northwestern University

The collections of the Phoebe Hearst Museum of Anthropology, University of California, Berkeley, include a group of eleven Roman-Egyptian mummy portraits excavated in the winter months of 1899-1900 from the site of Tebtunis. This group constitutes one of the largest assemblages of Roman period mummy portraits to remain intact since their excavation. As such, they present a rare opportunity for comparative study with the goal of better understanding local practices in an ancient painting workshop. Evidence for a portrait workshop based at Tebtunis is found on the back of an effaced portrait, which has a preparatory sketch for a female portrait with written annotations relating to how it should be completed.

The APPEAR project inspired the collaborative technical study of all of the portraits found at Tebtunis. The corpus of the study was further expanded to include a single portrait purchased for the Phoebe Hearst Museum's collections from the Theodor Graf collection, and alleged to have come from the site of Kerke. This portrait provides an important comparative example of a stylistically different portrait from another site. Multiple non-invasive and non-destructive analytical techniques, including hyperspectral and x-ray fluorescence imaging, as well as portable in-situ FTIR, were used to explore the materials and techniques used to make the portraits. Scanning electron microscopy was used in the wood identifications. The Tebtunis portraits all have a beeswax-based binder and were applied with the same combination of tool and brush work. The painters based their colors on lead white and iron-based pigments, with the addition of Egyptian blue, minium, indigo and madder lake to create subtle variations and tones.

Exploring how these paintings were made helps to understand the extent to which the materials and the ways they were used reflect the complex cultural identities of the subjects of the portraits and the painters who portrayed them. The painters made use of materials both from Egypt and those imported from across the ancient Mediterranean and European worlds. The painting techniques represent a strong shift from Pharaonic practices to Greco-Roman traditions. This is perhaps most strongly reflected in the palette of pigments employed and their use in subtle color modulation.

Presenter's Bio:

Jane Williams is currently Head of Objects Conservation at the Fine Arts Museums of San Francisco. Prior to that she was a conservator at the Phoebe Hearst Museum of Anthropology, UC Berkeley, for 12 years. She has also held positions and fellowships at the Asian Art Museum of San Francisco, the Brooklyn Museum, the Virginia Museum of Fine Arts and the Walters Art Museum. She received an MA in Art History and Diploma in Conservation from New York University, and a BA in Art History from Yale University.

Multispectral Imaging Techniques Applied to the Study of Graeco-Roman Funerary Portraits from Egypt at The British Museum

Joanne Dyer, Department of Scientific Research;

Nicola Newman Department of Conservation, the British Museum

Multispectral imaging (MSI) techniques are increasingly being viewed as a powerful method with which to survey collections, as they allow the visualization and spatial localization of materials under different wavelengths of illumination, using readily accessible, inexpensive technology. The resultant multispectral image sets often act as ‘maps’ which highlight particular physical properties, allowing the objects to be viewed in a completely novel manner and emphasizing relationships between materials within the object, and often, between similar materials within a collection of related objects.

The British Museum (BM) holds a collection of around 30 Graeco-Roman funerary portraits from Egypt dating from first century AD, representing the fusion of two traditions; the embalming rituals of pharaonic Egypt and the portraiture practices of the Graeco-Roman world. As part of the APPEAR project, multispectral imaging techniques, some of which were pioneered at the BM, were applied to 27 of these pieces using the CHARISMA multispectral imaging protocols. These protocols are the result of recent advances in the standardized acquisition and post-processing of multispectral images that ensure that the images produced are not only consistent but adhere to a series of internationally established standards. This greatly facilitates reproducibility of the methodology by the user, but more importantly, enables these images to be compared with each other and exchanged by other conservation professionals adopting this systematic approach. This is of crucial importance since collaborative scholarship via comparison of images and data is a key element of the aims of the APPEAR project and central to the creation of a useful, sustainable database.

In this work a survey of current MSI methods in use at the BM (and others) as part of the APPEAR project is presented and the CHARISMA multispectral imaging protocols, that have been so useful for the comparison of the BM portraits, are described. In addition, the development of workflows that aid in the more standardized interpretation of these images as data and that enable new ways to display and interrogate the results are outlined. Finally a summary of the results obtained from this approach and, in selected cases, the visual correspondence between standardized images and analytical data will be discussed. The informed and impartial interpretation of the physical properties observed in such images across different objects and collections, supported by analytical data, is a particularly powerful contribution to the visual vocabulary of these pieces, enabling these to be read and understood in new ways.

Presenter’s Bio:

Dr Joanne Dyer is a scientist in the Department of Scientific Research at the British Museum and specialises in the study of ancient polychromy - the materials encountered on ancient painted objects. Her research uses a variety of analytical techniques and adapts and develops new imaging methods for the study of ancient painted surfaces, enabling them to be read and understood in new ways. As part of her research interests, she investigates Graeco-Roman funerary portraits from Egypt, helping to increase the understanding of their materials and manufacture.

Invisible Brushstrokes Revealed: Technical Imaging and Research of Roman Egyptian Mummy Portraits

Evelyn (Eve) Mayberger, Andrew W. Mellon Fellow for Advanced Training:

Jessica Arista, Assistant Conservator, Museum of Fine Arts, Boston;

Marie Svoboda, Associate Conservator, J. Paul Getty Museum;

Molly Gleeson Schwartz, Project Conservator, University of Pennsylvania Museum of Archaeology and Anthropology

The Ancient Panel Painting: Examination, Analysis, and Research (APPEAR) project is a uniquely collaborative initiative that provides a framework for partnered institutions to collect and share analytical data in the study of Roman Egyptian mummy portraits. The resulting database and long-term nature of the project has nurtured collective initiatives, allowing newly-collected technical information to be accessed and assessed within the APPEAR network. Unusual observations that would have previously been ascribed to individual portraits can now be easily compared against the extant oeuvre. The APPEAR project has been established at a time when the conservation field is increasingly moving towards non-destructive analysis and employing new scientific imaging techniques to answer research questions. It is within this framework that three museums (J. Paul Getty Museum (Getty), Museum of Fine Arts Boston (MFA), and University of Pennsylvania Museum of Archaeology and Anthropology (Penn)) independently discovered a previously unobserved fluorescence or “invisible brushstrokes” using visible-induced visible luminescence (VIVL) imaging on individual mummy portraits in their collections.

The aim of this paper is to raise awareness of this previously-unidentified phenomenon, better understand artists’ materials and techniques, suggest detection strategies on other portraits, and to stimulate a discussion about the importance of standardizing imaging protocols and terminologies. The Getty-MFA-Penn partnership highlights the benefits of collaboration and effective communication to contribute new technical data using new technologies within the conservation field. The APPEAR project has provided the framework for new scholarship as experts collaborate broadly and across disciplines, working together to understand these arresting and enigmatic objects.

Presenter’s Bio:

Eve Mayberger has M.A. and M.S. degrees in art history and conservation from the Institute of Fine Arts, New York University where she specialized in objects conservation. She has worked in the conservation departments of Olin Library at Wesleyan University, Smithsonian American Art Museum, Historic Odessa Foundation, Small Collections Library at the University of Virginia, National Museum of the American Indian, Worcester Art Museum, and the University of Pennsylvania Museum of Archaeology and Anthropology (fourth-year internship). In addition to museum work, Eve has participated in excavations at Sardis (Turkey), Selinunte (Sicily), Abydos (Egypt), and el Kurru (Sudan). Currently, Eve is the Andrew W. Mellon for Advance Training at the Museum of Fine Arts in Boston.

Evaluating multiband reflectance image subtraction for the characterization of indigo in Romano-Egyptian funerary portraits

Lauren Bradley, Associate Paintings Conservator, Brooklyn Museum,
Jessica Ford, Assistant Paintings Conservator, Brooklyn Museum Dawn Kriss,
Objects Conservator
Victoria Schussler, Project Conservator, Brooklyn Museum
Federica Pozzi, Associate Research Scientist, Metropolitan Museum of Art
Elena Basso, Research Associate, Metropolitan Museum of Art
Lisa Bruno, Carol Lee Shen Chief Conservator, Brooklyn Museum

The Brooklyn Museum has six Romano-Egyptian funerary portraits in the collection: four encaustic on panel and two tempera on panel. Analysis performed on several of the portraits in the mid-20th century characterized selected pigments and identified the genus of the panels' wood substrates; however, opportunities for in-depth study have been limited by the popularity of this important group of objects for display. The Brooklyn Museum's participation in the APPEAR Project, a Getty supported initiative, has provided an impetus for the thorough documentation and analysis of all six portraits, with the goal of developing a clear understanding of the original painting materials and techniques, as well as distinguishing areas of restoration.

The use of multiband reflectance image subtraction for the characterization and localization of the pigment indigo is a significant component of these portraits' study and is the focus of this paper. Pioneered by Keats Webb and the Imaging Studio at the Smithsonian Museum Conservation Institute, this imaging technique involves capturing two infrared images, using 660nm and 735nm bandpass filters, and combining them by taking the difference of the captures in digital post-processing. As few references to this technique exist in the literature, Brooklyn Museum conservators investigated what information can be gained from its application to the study of Egyptian-Romano funerary portraits, and refined variables in image capture and processing to optimize results.

We expect that this project will help establish multiband reflectance image subtraction as a useful tool to further the understanding of the painting materials used to create Romano-Egyptian funerary portraits. We hope that sharing our results and recommendations for the imaging protocol will encourage similar endeavors at other institutions, contributing to the standardization of protocols and helping to build a more robust database of reference material.

Presenter's Bio:

Lauren Bradley is an Associate Conservator of Paintings at the Brooklyn Museum where she oversees the care and preservation of a diverse range of paintings dating from ancient Egypt through to the present day. Before coming to Brooklyn in 2015, Lauren worked as an Assistant Conservator at the Kimbell Art Museum and at the J. Paul Getty Museum. Lauren graduated with an MS from the Winterthur/University of Delaware Program in Art Conservation and has completed training internships at the Barnes Foundation, the Walters Art Museum, and the Mauritshuis Royal Picture Gallery.

Jessica Ford is Assistant Paintings Conservator at the Brooklyn Museum. Since joining the Museum in 2014, Jessica has treated artworks that span the Museum's encyclopedic collection and active exhibition schedule: from European Old Masterworks, to Qajar-era paintings and architectural surfaces, to modern and contemporary works. Jessica holds an MS from the Winterthur/University of Delaware Program in Art Conservation. Prior to the Brooklyn Museum, she was a conservation intern at the Smithsonian American Art Museum, the Dallas Museum of Art, and the Doris Duke Foundation for Islamic Art, Honolulu.

Understanding Wood Choices for Ancient Panel Painting and Mummy Portraits in the APPEAR Project through Scanning Electron Microscopy

Caroline R. Cartwright, Senior Scientist and Wood Anatomist, the British Museum

In 2011 Cartwright, Spaabæk and Svoboda published the combined results of wood identifications carried out at the British Museum on 118 mummy portraits from 15 collections (including the British Museum). By far the most predominant timber selected for portrait panels was *Tilia europaea* (lime/linden), imported from Europe. Other imported wood (either from Europe or the Middle East) comprised *Quercus* sp. (oak), *Cedrus libani* (cedar of Lebanon), *Taxus baccata* (yew) and *Abies* sp. (fir). Only one species indigenous to Egypt had been used – *Ficus sycomorus* (sycomore fig).

Subsequently, during the APPEAR Project, 11 additional institutions (with more in the pipeline) have requested wood identifications of their ancient panel paintings and mummy portraits. This paper reports on the exciting new results of these APPEAR Project identifications carried out using scanning electron microscopy. The current combined total of wood identifications carried out on mummy portraits is 160, with more expected within the ongoing APPEAR Project collaboration. In addition, the woods used for 15 Roman period Egyptian (non-portrait) panels have also been identified – thus providing a valuable point of comparison for mummy portrait wood choices. Whilst this new study confirms the predominance of the imported European timber *Tilia europaea* (lime/linden) at 69.4%, three more local timbers have been identified in this ever-changing dynamic of imported woods versus local; portrait panel versus non-portrait panel. The three newly-identified woods are: *Ziziphus spina-christi* (sidr) *Tamarix* sp. (tamarisk) and *Acacia* sp. (acacia), and there may be more species to come when further specimens are identified. This paper provides striking visual evidence in the form of scanning electron microscope images of the various anatomical properties of the different woods selected. From this evidence it can be seen how these properties relate to wood choice, how the anatomical properties help or hinder the preparation and execution of the painted surfaces, and how the condition of the different species of wood has varied over time. Collaboration amongst the different institutions within the APPEAR Project has not only permitted an enhanced spectrum of vital wood identifications, it has enabled a detailed examination of the reasons for choosing which wood to use for mummy portraits, compared with the selection of wood for non-portrait panel paintings from the same period in Egypt.

In 2011 we noted that further consideration should be given to the likelihood of discrete centres of production of mummy portraits within which the craftsmen preferred specific woods, and employed very different methods for the painted surfaces, including encaustic, tempera, and the application of gold leaf for decorative emphasis. There is still much scope within the collaborative APPEAR Project for assessing whether some families were able to afford more expensive mummy portraits than others, and whether certain workshops had their own distinctive preferences for wood type, method of painting, style and execution, from which their clients might choose (Cartwright, Spaabæk and Svoboda 2011), both for portrait and non- portrait panels.

Presenter's Bio:

Dr Caroline Cartwright is the Wood Anatomist (Senior Scientist) in the Department of Scientific Research at the British Museum. Her primary areas of scientific expertise cover the identification and interpretation of organics including wood, charcoal, fibres, and macro plant remains from all areas and time periods. She has led many teams of environmental scientists on archaeological projects in various parts of the world including the Middle East, Africa, the Caribbean and Europe. Reconstructing past environments, charting vegetation and climate changes, and investigating bioarchaeological evidence from sites and data, also form important aspects of her scientific research. Before joining the British Museum, Caroline was a lecturer in archaeological sciences at the Institute of Archaeology, University College London. Currently she has authored or co-authored over 260 publications.

Egyptian Blue in Context

Gabrielle Thiboutot, PhD candidate in Classical Archaeology, Cantor Art Center, Stanford University

Many APPEAR Project partners have successfully used visible induced luminescence (VIL) on the mummy portraits in their collection to identify the use of Egyptian blue (EB). According to the online APPEAR Project database, EB was found on at least 25 portraits kept in 10 different institutions, including one of our portraits at the Cantor Art Center (JLS 22225). The data currently available have revealed unexpected patterns in the way this pigment was used, both in encaustic and tempera painting. However, there has not yet been a full attempt to contextualize the collective results obtained by other APPEAR Project collaborators.

The present paper compares, analyzes, and contextualizes the VIL results obtained by APPEAR Project collaborators so far. The goal of the paper is threefold: first, it compares how EB was used on the portraits in the APPEAR database. This comparison of VIL results suggests that EB was used to (1) model the face and the clothing of the portraits; (2) change the shade of certain colours by mixing; (3) provide a bright or dark blue colour when desired.

Second, this paper maps the geographical and temporal distribution of the portraits on which EB was found. Looking at the results in the aggregate determines whether it is possible to identify different usage patterns in different sites and periods, which could reflect economic change, workshop traditions, or individual painters' hands.

Finally, this paper contextualizes the use of EB in the wider frame of Egyptian, Greek, and Roman painting in order to better situate mummy portraits in the larger narrative of the evolution of ancient art. This paper hopes to generate a productive conversation between the APPEAR Project collaborators on the various uses of the world's first manufactured pigment. It also seeks to highlight the value of collaboration between APPEAR Project collaborators by analyzing their results in the aggregate and by demonstrating that these results have cultural and art historical significance that goes beyond the phenomenon of Egyptian panel painting.

Presenter's Bio:

Gabrielle completed in B.A. in Honours Classics at McGill University in 2012 and a M.St. in Classical Archaeology at the University of Oxford in 2013. Her Master's dissertation focused on the reconstruction of the primary contexts of use and display of painted mummy portraits in Roman Egypt. Her current academic interests include the archaeology of Roman provinces, ancient visual culture, and Egyptomania from Antiquity to modern times. She is especially interested in art production processes and inter-cultural exchanges of commodities, techniques, and ideas that have visual culture as a central channel of communication.

The Matter of Madder in the Ancient World

Richard Newman, Senior Scientist, Museum of Fine Arts, Boston; Glenn Gates, Conservation Scientist, Walters Art Museum, Baltimore

Numerous plants found in many parts of the world have roots which are pink in color. The color is due to a class of chemical compounds called hydroxyanthraquinones. These plants are all usually known as "madder." Most madder plant roots contain several different compounds; some of the same hydroxyanthraquinones occur in many different plants, some are unique to one type of madder. Heated water extracts of roots from most types of madder plants are usually yellow or orange in color, but adding an alkaline salt to the solution often changes the color to red. Madder extracts can be used as mordant textile dyes, and can be prepared as lake pigments for use on painted artifacts. In the ancient Mediterranean world, madder roots have been identified as a dye on a leather quiver from Middle Kingdom Egypt (2124 BC-1981 BC), and their use as a textile dye could well date back to this time or earlier. The earliest confirmed examples of madder in lake pigments on painted artifacts date from much later, but there is no reason to think that such pigments could easily have been made much earlier.

Madder lake pigments are very common on Roman-period mummy portraits, where their most characteristic use is in clavi, a type of bright pink or purple woven decorative strip running over the shoulders of a tunic. Actual Roman clavi could well have been dyed with madder plants, possibly extracts from the same type of plant from which the lake pigment was made. It is not possible to be certain about the plant from which the lake was made. The likely sources of madders from earliest times in the Mediterranean region are *Rubia tinctorum* (the major European source in medieval and later times) and *Rubia peregrina*. Although roots of the two types of plants contain very different mixtures of hydroxyanthraquinones, methods by which roots are processed and textile dyes or lake pigments prepared can substantially change these compositions, and analysis of samples of ancient lakes or textiles cannot definitively point to the species from which the material was derived. Research results will be presented that focus on madder identification by fluorescence, and liquid chromatography applied to the identification of specific compounds in madder colorants.

Presenter's Bio:

Richard Newman is Head of Scientific Research at the Museum of Fine Arts, Boston, where he has worked as a research scientist since 1986. He has a BA in Art History (Western Washington University), MA in Geology (Boston University) and completed a 3-year apprenticeship in conservation and conservation science at the Center for Conservation and Technical Studies, Fogg Art Museum, Harvard University. He has carried out research on a wide range of cultural artifacts, from stone sculpture of the Indian subcontinent to the paintings of Diego Velázquez. Richard is co-author of the chapter on *adhesives and binders* in *Ancient Egyptian Materials and Technology* (2000). He has collaborated with conservators and curators on numerous projects involving ancient Egyptian and Nubian art in the MFA collections, including a group of about a dozen mummy portraits.

Green Pigments: Exploring Changes in the Egyptian Color Palette through the Technical Study of Roman Period Mummy Shrouds

Caroline Roberts, Conservator. Kelsey Museum of Archaeology, University of Michigan

This paper presents the results of a multiyear research project to document and analyze green pigments on Graeco-Roman Egyptian artifacts. A major objective of this research has been to closely examine the green color palette in Egypt, which underwent significant changes during the Hellenistic and Roman periods. Among the artifacts studied are two groups of painted mummy shrouds, one at the J. Paul Getty Museum, the other at the Metropolitan Museum of Art.

Greens, with their variety and nuance of color, have at times proven challenging to chemically characterize. A range of analytical techniques was used in the course of this study, including multispectral imaging, polarized light microscopy, X-ray fluorescence spectroscopy, X-ray diffraction and SEM-EDS analysis, Fourier transform infrared spectroscopy and Raman spectroscopy, all with the help of conservators and scientists at the Getty and the Met. Multispectral imaging, along with reference standards and paint mockups, provided perhaps the most accessible path to the preliminary characterization of green pigments. A protocol was developed in order to guide subsequent analysis and minimize sampling of the fragile paint surfaces.

An important product of this research has been a survey of previously analyzed Graeco-Roman Egyptian funerary artifacts, including shrouds and portrait panels documented on the APPEAR database. Although copper-based greens continued to be used into the Roman period, it is interesting to note that their occurrence is small compared to that of green earths and various mixtures of blue, yellow, and green pigments, at least within the scope of this project. The survey, and the analytical results of this research, have helped create an expanded knowledge base of a particular group of pigments, and contribute to a greater understanding of the materials and technology of a transformative period in Egypt's history.

Presenter's Bio:

Caroline (Carrie) Roberts is a Conservator at the Kelsey Museum of Archaeology. She earned her MS in Art Conservation from the University of Delaware in 2011, and completed post-graduate work at the Kelsey Museum, the J. Paul Getty Museum, and Metropolitan Museum of Art before returning to the Kelsey in 2014. Carrie specializes in the conservation of archaeological materials, and takes special interest in the conservation of stone objects and architecture as well as the technical study of ancient paint surfaces. She has worked as a conservator at a number of archaeological excavations, including Kaman-Kalehöyük in Turkey, Selinunte in Sicily, El-Kurru in Sudan and Abydos in Egypt. She is a Professional Associate of the American Institute for Conservation (AIC) and has served on committees for the Emerging Conservation Professionals Network, the Education and Training Committee and the Objects Specialty Group of AIC.

Towards a New Nomenclature: Challenges in the Characterization and Categorization of Binding Media in Mummy Portraits

Rachel C. Sabino, Associate Conservator of Objects; Ken Sutherland, Conservation Scientist, Art Institute of Chicago; Federica Pozzi, Associate Research Scientist, Department of Scientific Research, The Metropolitan Museum of Art

Mummy portraits have traditionally been divided into two groups according to binding media, described as tempera (indicating an aqueous medium such as glue or egg) or wax (specifically beeswax). Prior to the development of analytical capabilities allowing for precise characterization, these classifications were assigned largely on the basis of a portrait's surface appearance and paint handling. The Art Institute of Chicago houses two second-century Roman-era mummy portraits in its collection. One of the portraits bears the hallmark robust impasto of wax applied using the encaustic technique, and the other displays the flatter, matte appearance accompanied by the striking *tratteggio* and crosshatching that is often associated with tempera painting. Indeed, prior to technical examination carried out in advance of their inclusion in a recent online catalogue, the two paintings were perceived as such. The binding medium of the first portrait proved, unsurprisingly, to be composed of wax, supporting a description of the technique as encaustic. However, analysis of the second portrait also revealed the presence of wax. A number of published studies of media analyses of other portraits which yielded similar results—lacking the visual characteristics of encaustic but found to be wax upon technical investigation—has confirmed the existence of analogous objects in other collections. The Chicago painting is, consequently, one of a growing corpus of portraits that thrusts a tint of grey into an art historical construct that has been presented as quite black and white.

These insights raise a number of interesting questions, the ramifications of which are numerous. Most significantly, there is clearly a gap in technical knowledge as pertains to the manner in which the artists made and applied their paint media, to say nothing of the reasons that might have governed their decision to use an alternative wax-based technique rather than the more typical, robust style employed when painting in encaustic. Aside from the technical challenges of materials characterization and limitations of the current methods of analysis, an understanding of the techniques is hindered by the use of ambiguous terms that have become embedded in the literature, and changes over time in scholarly opinions and theories about the artists' methods. Further, complementary analyses of the Chicago portrait, alongside other portraits with visual characteristics of "tempera", but whose analyses have detected the presence of wax, are necessary to shed light on the precise composition, working methodology and handling properties of the binder. A related issue is that of a suitable nomenclature. Although the medium of these portraits is wax-based, their distinctive appearance clearly places them in a category of their own. While a description of the binding media as 'wax' undercuts some of the nuance that marks them as a wholly different typology, to describe their technique as 'encaustic' implies knowledge of the method of application that is unsubstantiated. The terms 'wax tempera' and 'cold wax' have been suggested as possible descriptors for the media in these portraits. But such terminology requires careful qualification, and a consensus forged by a wider group of constituents, composed of scholars, art historians, curators, conservators, scientists and archeologists, would most certainly be desirable.

Presenter's Bio:

Rachel C. Sabino has been Associate Conservator of Objects at the Art Institute of Chicago since 2011. Rachel held previous positions at the National Gallery, London; Museum of Fine Arts, Houston; and the Chicago Conservation Center. She also directed private practices in Zürich and London. She undertook internships at the Metropolitan Museum of Art and the J. Paul Getty Museum and a sabbatical at the Corning Museum of Glass. She holds a Postgraduate Diploma in Conservation and Restoration from West Dean College and a certificate in conservation of marine archaeology from the Institute of Nautical Archaeology.