APPEAR Conference – Allard Pierson, Amsterdam, October 19-20, 2022

Keynote Speaker:
Giovanni Verri, Research Scientist, Art Institute, Chicago
Ancient relationships: bridging mummy portraiture to its past and future

Presentations:

Seeing the Wood for the Trees; Mummy Portraits and Painted Panels from Roman Period Egypt
Dr. Caroline R. Cartwright, Senior Scientist and Wood Anatomist, The British Museum

Interdisciplinary examinations of three Roman panel paintings in the Ny Carlsberg Glyptotek
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Application of Spectroscopic Techniques in the Investigation of History and Technology of the Mummy Portrait of a Boy from the National Museum in Warsaw

Agnieszka Kijowska, Conservator at Department of Ancient Art[1]; **Aleksandra Sulikowska-Bełczowska**, Professor at Institute of Art History[2]; Curator of Eastern Christian Art[1]; **Barbara Wagner**, Professor at Faculty of Chemistry[2]; **Magdalena Wróbel-Szypula**, PhD, researcher, Laboratory at Department of Conservation[1]; **Justyna Kwiatkowska**, researcher, Laboratory at Department of Conservation[1]
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Fayum Mummy Portraits and Painted Panels of Gods from the Louvre: Renewed Historical and Material Knowledge

Lucile Brunel-Duverger, Postdoctoral researcher, Centre de Recherche et de Restauration des Musées de France; **Christine Andraud,** Professor, Centre de Recherche sur la Conservation; **Thomas Calligaro**, Research engineer, Centre de Recherche et de Restauration des Musées de France; **Anne-Solenn Le Hô,** Research engineer, Centre de Recherche et de Restauration des Musées de France; **Anne Michelin,** Associate Professor, Centre de Recherche sur la Conservation; **Raphaël Moreau,** PhD Student / Graduate Research Assistant, The Cyprus Institute; **Laurent Pichon**, Engineer, Centre de Recherche et de Restauration des Musées de France; **Caroline Thomas** Curator, Egyptian Antiquities department, Musée du Louvre; **Aurélie Tournié,** Research engineer, Centre de Recherche sur la Conservation.

Calculated Viewing Angles in the Presentation of Mummy Portraits

Jevon Thistlewood, Conservator of Paintings, Ashmolean Museum of Art and Archaeology

Learning from Lemons: Mummy Portrait Forgeries in the Menil Collection

Corina E. Rogge, Andrew W. Mellon Research Scientist at the Museum of Fine Arts, Houston and the Menil Collection; **Dr. Caroline R. Cartwright**, Senior Scientist, Department of Scientific Research, The British Museum

Between the Linen and the Overpaint: Understanding the Materials and Techniques used on Two Romano-Egyptian Funerary Portrait Shrouds

William J. Mastandrea, Gale R. Guild and Henry R. Guild Fellow for Advanced Training in Objects Conservation; **Kate Clive-Powell**, Sherman Fairchild Fellow in Textile Conservation; **Evelyn (Eve) Mayberger**, Assistant Conservator; **Richard Newman**, Head of Scientific Research; **Lawrence Berman**, Norma Jean Calderwood Senior Curator of Ancient Egyptian, Nubian, and Near Eastern Art. Museum of Fine Arts, Boston; **Dan Kirby**, Analytical Services, Conservation Scientist, Boston

The Histories They Hold: On Making Mummy Portraits Matter

Jan M. van Daal, PhD-Candidate, ERC DURARE Project, Utrecht University, Department of History and Art History

Non-invasive Investigations on Three Ancient Mummy Portraits at the National Archaeological Museum in Athens. Challenges and Benefits

Peppy Tsakri, Conservator of Antiquities and Works of Art; **Ioannis Panagakos**, Conservator of Antiquities and Works of Art, Department of Conservation, Physical-Chemical Research & Archaeometry. National Archaeological Museum, Athens

The Artistic Circle of the St. Louis Painter

Branko F. van Oppen de Ruiter, Richard E. Perry Curator of Greek & Roman Art. Tampa Museum of Art

Funerary Portraits from Roman Egypt: Facing Forward

Kate Smith, Conservator of Paintings[1]; **Susanne Ebbinghaus**, George M.A. Hanfmann Curator of Ancient Art, Head, Division of Asian and Mediterranean Art[1]; **Kathy Eremin**, Patricia Cornwell Senior Conservation Scientist[1]; **Georgina Rayner**, Associate Conservation Scientist[1]; **Jen Thum**, Assistant Director of Academic Engagement and Assistant Research Curator[1]; **Courtney Books**, Assistant Paintings Conservator[2]; **Aniko Bezur**, Wallace S. Wilson Director of Scientific Research[3]; **Marcie Wiggins**, Assistant Conservation Scientist[3]; **Richard Hark**, Conservation Scientist[3]; **Susan Matheson**, Molly and Walter Bareiss Curator of Ancient Art[4]; **Irma Passeri**, Conservator of Paintings[4]

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Insights to the Materials and Technique of a Roman Egyptian Funerary Portrait Obtained from Elemental Mapping and Luminescence Imaging

Stephanie Spence, Assistant Objects Conservator; **John Twilley**, Mellon Science Advisor. The Nelson-Atkins Museum of Art

Deconstructing an Ancient Egyptian Mummy Portrait at the Detroit Institute of Arts

Ellen Hanspach-Bernal, Conservator of Paintings; **Christina Bisulca**, Ph.D., Andrew W. Mellon Conservation Scientist; **Aaron Steele**, Imaging Specialist, Conservation Department. Detroit Institute of Arts.

Exploring Artistic Practice in Roman Egypt: a Study of Nine Portraits at the Metropolitan Museum of Art

Dorothy Mahon, Conservator, Department of Paintings Conservation[1]; **Silvia A. Centeno**, Research Scientist, Department of Scientific Research[1]; **Marsha Hill**, Curator, Department of Egyptian Art[1]; **Charlotte Hale**, Conservator, Department of Paintings Conservation[1]; **Anna Serotta**, Associate Objects Conservator, Department of Objects Conservation[1]; **Julie Arslanoglu**, Research Scientist, Department of Scientific Research[1]; **Louisa Smieska**, Research Associate[2]; **Clara Granzotto**, Assistant Conservation Scientist[3]

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Deconstructing an Ancient Egyptian Mummy Portrait at the Detroit Institute of Arts

Ellen Hanspach-Bernal, Conservator of Paintings; **Christina Bisulca**, Ph.D., Andrew W. Mellon Conservation Scientist; **Aaron Steele**, Imaging Specialist, Conservation Department. Detroit Institute of Arts.

The Detroit Institute of Arts (DIA) holds in its collection a Roman Egyptian mummy portrait (Acc. # 25.2), dated to the late second or early third century CE. Little is known about this object's history: it was given to the museum in 1925 and was acquired by the previous collector from the art dealer Dikran Kelekian. Based on its style it is believed that this portrait was removed from a mummy in Antinoöpolis. Like many Egyptian artifacts at the turn of the last century, after its (undocumented) excavation it was likely sold to an antiquities dealer for resale in the private market. This portrait has thus become disconnected from its original context.

Activated by the Getty's APPEAR initiative the DIA's conservation department embarked on researching the portrait more closely to contribute technical information to the project's database. In clarifying the techniques and materials used to produce the mummy portrait a special focus was given to the unusual high-relief, coin necklace made of gilded stucco. The necklace resembles closely one found on a mummy portrait at The Walters Art Museum, Baltimore (Acc. # 32.4), which likely originated from Antinoöpolis as well and was also sold to an American collector through the Kelekian gallery. Aside from gathering technical information on the artifact the extensive post ancient restorations, many executed in the style of European easel painting, were examined as well.

This paper will review the contexts in which this portrait –and the mummy to which it once belonged– was created, and then, centuries later, excavated, transformed, and collected.

Ellen Hanspach-Bernal is a 2006 graduate of the art conservation program at the Hochschule für Bildende Künste, Dresden. From 2006 to 2009 she was the Andrew W. Mellon Fellow in painting conservation at the Menil Collection in Houston, Texas. She has worked for Klassik Stiftung Weimar and for the Conservation Centre for the Museums of the City of Erfurt, Thüringen, in Germany. In 2015 she returned to the United States to work as Conservator of Paintings at the Detroit Institute of Arts.

Interdisciplinary examinations of three Roman panel paintings in the Ny Carlsberg Glyptotek

Cecilie Brøns, Ny Carlsberg Glyptotek; **Jens Stenger**, Ny Carlsberg Glyptotek; **Richard Newman**, Boston Museum Fine Arts; **Caroline Cartwright**, British Museum; **Laura Hendriks**, Haute école d'ingénierie et d'architecture Fribourg; **Fabiana Di Gianvincenzo**, Globe Institute (Copenhagen); **Luise Ørsted Brandt**, Globe Institute (Copenhagen).

This paper presents an interdisciplinary study of three panel paintings from Roman Egypt in the collections of the Ny Carlsberg Glyptotek (NCG), Copenhagen. All three paintings were bought in Egypt in 1892, but their exact provenance and original archeological context are unknown.

Only about 60 such ancient Roman panel paintings are known in museum collections worldwide. They form a rare, but intriguing corpus, and thus provide unique insights into painting materials and techniques during the Roman Imperial period in Egypt. Gods and goddesses form the primary subjects of this corpus of panel paintings from Roman Egypt and the sites where they were found indicate that they had cultic significance both in temples and domestic situations. They depict entirely different subjects and served completely different purposes from the mummy portraits which covered the faces of the mummified bodies of the deceased. They can therefore contribute important knowledge about other aspects of ancient painting which the mummy portraits alone cannot. Moreover, they provide an excellent opportunity to compare similarities and differences in materials and techniques between the two artefact groups. However, with the notable exception of the publications by Rondot and Mathews, this group of artefacts has not received much attention from scholars. The present study aims to rectify this situation by providing new information about these extraordinary artefacts.

The three panel paintings were examined with various methods of analyses in order to obtain information on their production, material composition, and painting techniques. Multispectral imaging was complemented by chemical analysis of pigments and paint binders using handheld X-ray fluorescence (hXRF), Fourier-transform infrared spectroscopy (FTIR), Raman spectroscopy, scanning electron microscopy coupled to energy dispersive X-ray spectroscopy (SEM-EDS), and liquid chromatography–mass spectrometry (LC-MS). Cross sectional analysis gave insight into the stratification of the multiple paint layers. Proteomic analysis (LC-MS/MS) was performed to further characterize the media by obtaining amino acid sequence information of the proteins present. This was followed by analysis of the painting supports to identify the type of wood used for each panel. Finally, samples from the wood and the paint were radiocarbon-dated in order to place these artefacts more precisely in the history of ancient panel paintings.

Cecilie Brøns is a Senior Researcher and Curator at the Ny Carlsberg Glyptotek in Copenhagen, where she is the director of an interdisciplinary research project on the polychromy of ancient art, 'Sensing the ancient world: The invisible dimensions of ancient art', financed by the Carlsberg Foundation. She received her PhD in Classical Archaeology in 2015 from The National Museum of Denmark and The Danish National Research Foundation's Centre for Textile research (CTR) at the University of Copenhagen. Her research concentrates on the polychromy of ancient art and architecture and ancient textiles, particularly in relation to ancient sculpture, as well as on the importance and effect of the senses for our perception and understanding of ancient art.

Fayum mummy portraits and painted panels of gods from the Louvre: renewed historical and material knowledge

Lucile Brunel-Duverger, Postdoctoral researcher, Centre de Recherche et de Restauration des Musées de France; **Christine Andraud,** Professor, Centre de Recherche sur la Conservation; **Thomas Calligaro**, Research engineer, Centre de Recherche et de Restauration des Musées de France; **Anne-Solenn Le Hô,** Research engineer, Centre de Recherche et de Restauration des Musées de France; **Anne Michelin,** Associate Professor, Centre de Recherche sur la Conservation; **Raphaël Moreau,** PhD Student / Graduate Research Assistant, The Cyprus Institute; **Laurent Pichon**, Engineer, Centre de Recherche et de Restauration des Musées de France; **Caroline Thomas** Curator, Egyptian Antiquities department, Musée du Louvre; **Aurélie Tournié,** Research engineer, Centre de Recherche sur la Conservation.

The *Centre de Recherche et de Restauration des Musées de France* (C2RMF) and the Louvre Museum, in collaboration with the *Centre de Recherche sur la Conservation* (CRC), have conducted a large study on 30 panel paintings from the Louvre. This collection gathers 28 Fayum mummy portraits and 2 painted panels of gods. Part of the collection had been studied in the late 1990's in order to better historical and material knowledge to publish the catalogue raisonné, which was released in 2008. The aim of our project FAYOUM, carried out between 2020 and 2022, was to propose a renewed and comprehensive study of the collection, thanks to the latest development of non-invasive and non-destructive techniques. Beside the identification of the painters' palette, we focused on characterizing the techniques and manufacturing process, and we investigated how these results informed the historical data to better our knowledge of this production.

To characterize binders, pigments and dyes in a non-invasive and non-destructive way, we selected scientific imaging methods able to collect chemical and optical information on the UV-SWIR range. Multi-spectral imaging (MSI: UV, IR, VIL, VIVL), hyperspectral imaging (HSI) in the Vis-NIR (400-1000 nm) and SWIR (1000-2500 nm) have been coupled to XRF mapping, which is combined with photoluminescence (PL) induced in the UV (250 nm, 365 nm) and the visible (655 nm). These results enhance previous data and give new insights in material and technical processes that we propose to relate to specific craft practises. Indeed, mapping techniques revealed preliminary sketches previously unseen, made with different materials depending on the colour of the preparation layers, and changes in composition. Backgrounds surrounding the faces, appearing grey or light beige, can be made in very different ways, for example, the grey ones can be a mix of ochres and carbon black, sometimes with Egyptian blue or simply light indigo. Regarding the representation of the deceased, the attention was focused on the choice of materials to render the flesh and the clothes: we found the same materials than those employed for makeup (lead white, madder lake) and textile dyeing (indigo, madder lake), and we also highlighted the use of Egyptian blue for flesh undertones and reddish and purple clothes. These data will be discussed in relation to iconography and style, provenance and dating, types of representation and pictorial techniques (encaustic, tempera). The renewed knowledge gained on the Louvre collection can now be compared to studies carried out on other collections and help shed light on the creation process of Fayum mummy portraits and painted panels of gods.

Curator for Egyptian art in the Louvre Museum in Paris, **Caroline Thomas** is in charge of the Roman Egyptian and Sudanese collections. Besides her work on the Fayum portraits, her research focuses on First Millenium Egyptian cartonnages and coffins. Before joining the Louvre in 2018, she worked for the C2RMF (Centre de Recherche et de Restauration des Musées de France) where she developed an expertise on Conservation sciences. She has a training in Art history, Egyptology and Museology.

With a background in chemistry and archaeometry **Lucile Brunel-Duverger** is a post doctorate candidate specialized in the study of painting materials and craftsmen practices. She developed her expertise through several experiences in French laboratories and Museums, and in particular with her PhD thesis which was conducted at the C2RMF on the polychromy of the so called "yellow coffins" from the 21st dynasty kept at the Louvre. With the Fayoum Project (Louvre, C2RMF, FSP), she acquired new skills in non-invasive techniques, such has Hyperspectral Imaging, the research topic of her current post doctorate position at the LAMS (CNRS, UPMC, Paris).

Seeing the wood for the trees; mummy portraits and painted panels from Roman period Egypt

Caroline R. Cartwright, Senior Research Scientist, Department of Scientific Research, British Museum, London WC1B 3DG

It is clear that the remarkably good preservation of the cellular wood structure of mummy portraits and painted panels is due to the particular conditions that existed within ancient Egyptian tombs. Such preservation has enabled the diverse scientific research summarised in this presentation, other presentations and publications. Although, unfortunately, there is no comparable corpus of wooden painted panels and portraits preserved in Europe from the same time period, we can say with confidence that a broader spectrum of information about wood selection for mummy portraits and painted panels has increased considerably since the APPEAR Project started. Scanning electron microscope identifications of the chosen woods have further expanded our knowledge of wood use in Roman period Egypt, and additional species have emerged, not previously published (Cartwright 2020). The focus of this presentation is to examine, compare and visualise trends of wood use in mummy portraits and painted panels in association with other data such as pigments, panel shapes, and – where the information exists – findspots and chronology. By updating and synthesizing such data, and by assimilating new findings revealed in other presentations at this conference, it is hoped that ultimately, we may also formulate a better understanding of how to recognise workshops, specialist artisans, carpenters, and schools of artists.

Key questions will be raised regarding the relationship between the properties of wood of different species in determining the choice of portrait and panel shape, as well as preparing the wood panel surfaces for application of binding media and pigments. As part of the 'object biographies' approach, it is relevant to examine the reasons for the reuse or repurposing of both imported and local woods for portraits and panels, and to explore under what circumstances and on what basis such choices may have been made. Any reuse of timbers will obviously have significant impact for the interpretation of radiocarbon dates received for mummy portrait or painted panel woods.

Given that we know already (Cartwright 2020) that the preference was for the selection of imported woods, principally lime wood (*Tilia europaea*), we need to unpick the reasons why and when local Egyptian timbers were used instead. By looking back at wood use in Pharaonic Egypt, some of these elusive aspects of wood choices can be re-evaluated in terms of religious, funerary and cultural significance. At this stage of the APPEAR Project, it is important to examine whether we are any closer to being able to find out whether the mummy portraits on lime wood were imported into Egypt as raw timber or as prepared panels for the individual's image to be applied locally; alternatively, whether some of the lime wood mummy portraits could have been entirely manufactured 'to order' in Europe.

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, textile fibres, and macro plant remains from all areas and time periods. She has pioneered the application of high-resolution scanning electron microscopy on microsamples from organic objects and materials. 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 294 publications.

The Histories They Hold: On Making Mummy Portraits Matter

Jan M. van Daal, PhD-Candidate, ERC DURARE Project, Utrecht University

Who do mummy portraits portray? How were they made? Which meanings could they convey? For well over a century, mummy portraits from Roman Egypt have inspired scholars who engage with such questions. Nonetheless, significant unknowns continue to surround these objects. This complicates the effort of these enquiries. Demarcations to an exhaustive understanding of mummy portraits principally come down to the lack of ancient written sources on these objects, the all too frequent separation from their mummies in the past and the paucity of data on their archaeological context.

The ever-developing field of heritage science offers mummy portrait scholarship handgrips to utilise the physical objects themselves as sources. This idea undergirded the examination of four mummy portraits from the Allard Pierson collection in Amsterdam in 2018—19. The motivation behind this examination was to explore the possibilities and limits of analytical techniques employed within heritage science to augment the current body of knowledge on mummy portraits. This paper aims to show how the Allard Pierson mummy portraits can be understood better by framing them within a 'technical' art history.

The paper first discusses the technical examination of the Allard Pierson portraits. They were examined with a broad range of analytical techniques, from photographic imaging in different light conditions to elemental distribution mapping through macroscale X-ray fluorescence spectroscopy (MA-XRF). The palette of the Allard Pierson portraits mainly consists of iron and lead based pigments and organic reds. The examination also revealed the presence of arsenic sulphate and Egyptian blue in specific locations. The choice for and distribution of those materials points towards a sophisticated *chaîne opératoire* underlying the production processes of these portraits. It warrants mention that valuable material-technical insights do not necessarily require the most advanced techniques; photographic and low-magnification microscopic imaging generated new insights about (compositional) planning. This particular area still holds significant potential for mummy portrait studies.

The second part of the paper presents these results within the framework of technical art history. In doing so, this paper adapts the ideas of Giovanni Morelli (1816—91). He advocated the study of technical details to understand how artists of the past worked. The Morellian method can aid in developing a vocabulary of artistic idiosyncrasies and commonplaces in the mummy portrait corpus. This paper further underlines the importance of embedding analytical results within enquiries about the artisanship and cultural contexts that underlie mummy portraits. After all, the materials and techniques of the Allard Pierson portraits reflect both conscious and unconscious choices by those involved in their making. The Allard Pierson portraits account for a fraction of the worldwide corpus, but the process and findings of this examination hopefully foster inspiration to continue studying these captivating objects in innovative ways.

Jan M. van Daal is a technical art historian with a background in classical archaeology and Latin. He engages with textual sources, object analyses and historical reconstructions to understand the meanings of materials and production processes that underlie cultural heritage objects. Jan currently works as a PhD candidate at Utrecht University. He is part of the ERC-funded project *Dynamics of the Durable: A History of Making Things Last in the Visual and Decorative Arts* (DURARE). Within DURARE Jan investigates the meaning of durability in the development of medieval splendour.

Calculated Viewing Angles in the Presentation of Mummy Portraits

Jevon Thistlewood, Conservator of Paintings, Ashmolean Museum of Art and Archaeology.

In a paper delivered and published in conjunction with the 2018 APPEAR Conference, the relative positions of mummy portraits' facial features were located and demonstrated to be out-of-position, when compared to images of human faces. Furthermore, the size of the displacement increased, and was directly proportional to, the distance of the facial feature from the lower edge of the portrait. Forward and/or backward tilting of the panel with respect to the viewing position was discussed as a possible means of understanding this disparity.

Using images and dimensions of over two hundred mummy portraits from the APPEAR database, this paper aims to revisit the position of facial features in mummy portraits. The general layout of mummy portraits will be considered alongside what can be gleaned from other sources of guidance regarding the maker's original intention and presentation. The calculation of both a general and individual angle of presentation for mummy portraits will be demonstrated and the results discussed.

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 (Easel Paintings) from the University of Northumbria. Research interests are wide and varied, and often relate to paintings from Antiquity to the Present.

Application of spectroscopic techniques in the investigation of history and technology of the mummy portrait of a boy from the National Museum in Warsaw

Agnieszka Kijowska, Conservator at Department of Ancient Art, National Museum in Warsaw; **Aleksandra Sulikowska-Bełczowska**, Professor at Institute of Art History, University of Warsaw, Curator of Ancient and Eastern Christian Art, National Museum in Warsaw; **Barbara Wagner**, Professor at Faculty of Chemistry, University of Warsaw; **Magdalena Wróbel-Szypula**, PhD, researcher, Laboratory at Department of Conservation, National Museum in Warsaw; **Justyna Kwiatkowska**, researcher, Laboratory at Department of Conservation, National Museum in Warsaw.

Portrait of a boy from the National Museum in Warsaw, painted in encaustic on linden wood is distinguished by high artistic quality. Portrait was purchased at the end of the 19th century in Egypt and at the beginning of the 20th century was included to Polish collections. Only a few documents from this period, including photographs, have survived. The aim of our research was to confirm the technique with analytical methods, never used before as well as to examine the questionable authenticity of all fragments. The portrait was examined in natural, ultraviolet and infrared light, X-ray and CT-imaging. Observations under the optical microscope were also performed. This complex analysis gave a lot of data which allowed us to draw new conclusions about the technology and history of the portrait. One of the main points of the research was the proof of the differences of the manner of painting between inserted piece of wood with painted right eye and the rest of the portrait. The non-invasive analysis of pigments performed by portable X-Ray Fluorescence Spectrometer (XRF) exhibited the presence of two main elements, namely lead and iron. What indicates the presence of white lead and iron oxides such as ochre or umber The organic compounds were analyzed by FTIR spectroscopy. Non-invasive measurements showed the presence of wax with addition of oil and proteins, which proved that the portrait was painted in encaustic technique.

Supplemental analysis was done on several samples by FTIR-ATR spectrometer. This resulted in obtaining the information about the presence of madder in the pink part, bitumen in black part and shellac probably used as a varnish. Additional signals coming from unknown organic substance were noticed, which is connected to the fact that the samples were taken from parts where specific ageing processes were observed. Our results were compared to the other analysed portraits from the APPEAR database. The collected physic-chemical information allows for a hypothesis that it is one of the portraits excavated in Egypt, which due to damage, was prepared for further sale by a combination of parts from different but similar portraits. It gives an interesting contribution to the history of mummy portraits from Egypt, but also to collecting practices at the turn of the 19th and 20th centuries. It shows the dilemmas that have arisen during current conservation works, in particular the possible approach of contemporaries to historical additions in this type of objects.

Agnieszka Kijowska graduated from the Art Conservation Department of the Academy of Fine Arts in Warsaw. She is employed at the Conservation Workshop of Ancient Art and Stone Architecture of the National Museum in Warsaw, where she works on ancient artefacts of polychromed wood, ancient ceramics and wall painting, especially from the Faras Gallery. She has participated in archaeology-conservation missions in Egypt (in Sakkara and Wadi Natrun).

Magdalena Wróbel-Szypula works in Laboratory in the Department of Conservation of the National Museum in Warsaw. She specializes in analysis of organic compounds present in historical artefacts using FTIR spectroscopy. She obtained PhD in physical chemistry from University of Leeds and MSc in chemistry with specialization in analytical chemistry from University of Silesia in Katowice.

Egg on their Face: Identification of an Unusual Surface Coating Observed on Egyptian Mummy Portraits

Daniel Kirby, Private Practice and Museum of Fine Arts, Boston, MA; **Marie Svoboda**, Antiquities Conservator, J. Paul Getty Museum; **Joy Mazurek**, Assistant Scientist, Getty Conservation Institute; **John Southon**, Researcher, W.M. Keck Carbon Cycle Accelerator Mass Spectrometry Facility, UC Irvine; **Lin Rosa Spaabæk**, Independent researcher, Spaabæk Konservering, Copenhagen, DK.

Through the collaborative model of the J. Paul Getty's APPEAR (Ancient Panel Painting: Examination, Analysis and Research) project, recent studies and interdisciplinary scholarship have brought to light the presence of a distinct surface coating observed on seven Romano-Egyptian mummy portraits belonging to different museum collections. This coating was initially reported on two portraits in the Ny Carlsberg Glyptotek, Copenhagen. That scientific study was expanded to include five more portraits identified within the APPEAR project, all of which exhibited similar characteristics when they were initially examined with magnification and ultraviolet radiation.

Distinct from the media commonly used to paint mummy portraits--beeswax, oil, pine resin and water-based mediums such as animal glue and gum acacia--this specific coating produces an uneven fluorescence on top of the painted surfaces and extends only as far as where the wrappings would have secured the portrait to its mummy. With magnification, this material is observed as yellowed islands of a brittle surface encrustation.

Amino acid analysis using gas chromatography/mass spectrometry (GC/MS) and/or enzyme-linked immunosorbent assay (ELISA) of five mummy portraits from this group confirmed that this coating is composed of egg protein. Further, samples from all seven portraits were more precisely identified as deamidated *whole hen egg* through peptide mass fingerprint (PMF) and liquid chromatography with tandem mass spectroscopy (LCMSMS) analysis. The initial hypothesis was that this coating was applied in the late 19th century after discovery of the mummy portraits to protect or saturate the 2,000-year-old painted surfaces. Subsequently, radiocarbon dating (^{14}C) of samples from two portraits confirmed that the whole hen egg coating was applied *circa* first century CE.

Although the ^{14}C date was confirmed on only two portraits, we can extrapolate that, based on the identification of the same material on all seven mummy portraits, as well as its visual appearance and the highly degraded nature of the coating, there is enough evidence to warrant further investigation into the application and function of coatings in antiquity. To explore the possible purpose of this coating, a brief review of the chicken's arrival and the use of eggs in ancient Egypt is presented. Whereas its use as a protective coating, an aesthetic layer or a funerary libation may explain the application of whole hen egg, its role in the production and/or symbolism of Romano-Egyptian mummy portraits will remain a mystery until more ancient panel paintings are studied.

Daniel Kirby

After careers as an analytical chemist in semiconductor electronics, pharmaceuticals and academic research, Dan turned his interests to conservation. He currently works both in private practice and as a volunteer in the Scientific Research Lab at the MFA, Boston specializing in applications of mass spectrometry in art and cultural heritage, with a particular interest in protein identification.

Exploring Artistic Practice in Roman Egypt: a Study of Nine Portraits at the Metropolitan Museum of Art

Dorothy Mahon, Conservator, Department of Paintings Conservation[1]; **Silvia A. Centeno**, Research Scientist, Department of Scientific Research[1]; **Marsha Hill**, Curator, Department of Egyptian Art[1]; **Charlotte Hale**, Conservator, Department of Paintings Conservation[1]; **Anna Serotta**, Associate Objects Conservator, Department of Objects Conservation[1]; **Julie Arslanoglu**, Research Scientist, Department of Scientific Research[1]; **Louisa Smieska**, Research Associate[2]; **Clara Granzotto**, Assistant Conservation Scientist[3]
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Only a few decades after the founding of The Metropolitan Museum of Art in 1871, the Department of Egyptian Art began acquiring Roman Egyptian panel portraits. The talk will focus on the technical investigation of these portraits, which are in remarkably good condition. Previous studies have dated the portraits ranging from the 1st to 2nd century AD based solely on details of costume, hairstyle, and jewelry [1]. The primary approach of the current study was to consider the portraits as the production of uniquely individual artists who exploited sophisticated techniques developed in the ancient world during that period. While there is still much to discover about the wood supports, pigments, binding media, and other materials used, it is the highly skillful way in which these artists manipulated some of these materials that will be the focus of this talk.

Portraits were examined and analyzed in normal and raking, visible and UV lights, under magnification, by reflectance transformation imaging (RTI), X-radiography, infrared photography, infrared reflectography (IRR), visible-induced luminescence (VIL), macro X-ray fluorescence (MA-XRF) mapping, and Raman spectroscopy. The nine portraits under consideration are painted in an encaustic technique on wooden supports, identified as a species of *Tilia*. Fibers colored with a red lake and black fibers were observed to be pervasive in the paints, the origin of which will be discussed. While other common traits were discovered for the nine portraits, the characteristics of the ground preparations, underdrawing, and handling of pigments identified during this study revealed that these artists used the materials in very different ways.

Five of the panels are prepared with a black ground, three have no apparent ground preparation and one has a grey ground preparation. In three portraits, the imaging of the extensive underdrawing showed that the artists used a carbonaceous pigment in a fluid medium, using both a reed pen and a brush, directly on the wooden panel beneath the paint layers. Beginning a portrait with a drawing directly from life is a tradition of longstanding that continues to be practiced today. The artists who painted these portraits used pigments in distinctive ways to model the flesh tones, hair, garments and jewelry. For example, differences were observed in the use of ochres and umber and, in some cases, Egyptian blue was detected in the modelling of the flesh tones.

MA-XRF mapping revealed hidden features that contribute to the understanding of the portraits, such as a crescent moon hair ornament covered by gold leaf in one case, and clarified the details of an amulet in another one, allowing it to be firmly identified.

Perhaps most intriguing was the discovery, on the wood supports of three portraits, of a material that appears to have been deposited in a fluid state when the panels were in the upright position. The composition of this material as determined by MA-XRF, Raman spectroscopy and XRD will be discussed and suggestions as to its origin will be put forward.

1. Walker, S., ed. *Mummy Portraits from Roman Egypt*. Second ed. 2000, The Metropolitan Museum of Art and Routledge: New York.

Dorothy Mahon is Conservator in the Department of Paintings Conservation in The Metropolitan Museum of Art, who has examined and conserved paintings spanning the collection since joining the staff in 1981. She received her master's degree in the History of Art and a Certificate of Advanced Study in Conservation from The Institute of Fine Arts, New York University.

Between the Linen and the Overpaint: Understanding the Materials and Techniques Used on Two Romano-Egyptian Funerary Portrait Shrouds

William J. Mastandrea, Gale R. Guild and Henry R. Guild Fellow for Advanced Training in Objects Conservation; **Kate Clive-Powell**, Sherman Fairchild Fellow in Textile Conservation; **Evelyn (Eve) Mayberger**, Assistant Conservator; Richard Newman, Head of Scientific Research; **Lawrence Berman**, Norma Jean Calderwood Senior Curator of Ancient Egyptian, Nubian, and Near Eastern Art. Museum of Fine Arts, Boston; **Dan Kirby**, Analytical Services, Conservation Scientist, Boston

The Ancient Panel Painting: Examination, Analysis, and Research (APPEAR) project provides a framework for institutions to investigate Romano-Egyptian funerary portraits and portrait shrouds in their own collection, contextualizing their findings against the extant *oeuvre* included in this database. All formsof these funerary portraits (i.e. encaustic on wood panels, stucco cartonnages, and portrait shrouds) represent different ways - though equal in functional importance - for the inhabitants of Roman Egypt to achieve a proper burial. However, the majority of Romano-Egyptian funerary portraits in the APPEAR Project are of the encaustic painting on wooden panel type. Therefore, subsequent studies and publicationshave skewed toward these portrait types, leaving technical investigations specific to portrait shrouds as largely under-researched. To improve this gap in the literature, this paper will present the results of a comparative technical investigation of two atypical funerary portrait shrouds held at the Museum of Fine Arts (MFA), Boston. The MFA is uniquely situated to examine these shrouds, as neither have been previously subjected to systematic study.

The two funerary shrouds are dated stylistically to the early- to mid-2nd century CE and bear strong resemblance to the largest group of funerary art from Roman Thebes, the 'Soter group'. This assemblage, dating to the same period, derives from several tomb contexts in the Western region of Roman Thebes. Firstdiscovered in 1820, the Soter group objects were some of the first to reach European collectors. Specific tothis regional sub-group of funerary portraiture is the formulaic depiction of 'the deceased-as-a-transfigured-likeness' of the Egyptian deities: Hathor (for females) and Osiris (for males). This unique, regional form sets them apart from the abundant depictions of 'the deceased-in-life' which were famously compared to "Western-style" portraiture - a feature which fueled the initial intrigue of Western collectors of the 19th century. These shrouds have records detailing their initial acquisition in 1836 by Scottish collector, RobertHay, and subsequently entered the MFA collection in 1872, representing two of the earliest acquisitions inthe museum's history.

These shrouds provided a catalyst for inter-departmental collaboration at the MFA, bringing together members of Objects and Textiles Conservation, Scientific Research, and Egyptian Curatorial divisions. Toinvestigate the shrouds, both non-destructive and destructive means of analyses were utilized. Techniques employed for material identification include: microscopic examination, multispectral imaging (MSI), x-rayfluorescence (XRF), Fourier-transform infrared spectroscopy (FT-IR), scanning electron microscopy (SEM), gas chromatography-mass spectrometry (GC/MS), and matrix-assisted laser desorption/ionization (MALDI). The aims of this paper are to 1) investigate the artists' materials and techniques, 2) interpret historic and later accretions, and 3) better understand the materials and methods of subsequent restorations. In doing so, it is hoped that information about the objects' manufacture, use, and museum life can be understood and untangled. Further, this comparative study may lay the groundwork for future investigationof other 'Soter-type' portrait shrouds. This research highlights the benefit and necessity of interdisciplinarycollaboration to produce reliable technical data for use in archaeological, art historical, and conservation fields.

William J. Mastandrea is the current and inaugural Gale R. Guild and Henry R. Guild Fellow for Advanced Training in Objects Conservation at the Museum of Fine Arts, Boston. William received his MSc in Conservation for Archaeology and Museums from University College London. His dissertation centered on the effects of metal soaps formation on ethnographic materials with wooden substrates, using Himalayan food containers as case examples. His research interests center on the analytical investigation and treatment of archaeological material from around the world including the Andes, the Mediterranean, and Asia.

Kate Clive-Powell is currently a Sherman Fairchild Fellow in the Textile and Costume Conservation lab at The Museum of Fine Arts, Boston. She trained at The University of Glasgow where she achieved an MPhil in Textile Conservation. Her research interests include historic quilts and collaborations with contemporary fiber artists to educate them on their materials and the future preservation of their work. She is co-editor of The American Institute for Conservation – Textile Specialty Group Wiki page.

Insights from a Collaborative Study of Beeswax Paint from Romano-Egyptian Mummy Portraits

Joy Mazurek, Associate Scientist, Getty Conservation Institute, Los Angeles, USA; **Lin Rosa Spaabæk**, Independent researcher, Spaabæk Konservering, Copenhagen, DK.

This presentation focuses on results from a technical study of eight Romano-Egyptian mummy portraits from the NY Carlsberg Glyptotek and the National Museum of Denmark. The collaborative endeavor was made possible by the APPEAR project (Ancient Panel Painting: Examination, Analysis and Research) which fostered interdisciplinary research between scientist and conservator. Dialogue and information exchange resulted in the development of a new research project to better understand beeswax paint media. Experiments were conducted to study the so called "punic wax" or cold wax technique in order to differentiate between hot wax or "encaustic" and visually unusual portraits in which wax appeared to be painted on cold with a paintbrush.

Free fatty acids, such as stearic and palmitic acids, are naturally present in beeswax and will readily interact with metal pigments, especially lead, to form fatty acid metal soaps. The presence of metal soaps in beeswax paint samples from mummy portraits has been used as proof of cold paintable wax, the so-called "Punic wax". However, it is well documented that there is a ubiquitous presence of lead pigments in the mummy portraits. Gas chromatography-mass spectrometry (GC-MS) was utilized to quantify fatty acid soaps and results showed that the content of soaps varied from portrait to portrait, but also within samples from the same portrait.

To gain a deeper insight into lead pigment and soap formation we investigated the amount of palmitic acid soap in paint samples with variable amounts of lead. We tested the samples with the assumption that higher amounts of lead would be present in white colored pigments compared to darker pigments. The aim was to establish if there was a relationship between the actual content of lead pigment compared to a development of metal soaps.

Eight portraits were selected, and cross sections were produced from the exact same paint sample that was previously tested by GC-MS. The cross sections were photographed in normal and UV light and provided information on the composition and stratigraphy of the paint layers. The cross sections were subsequently examined by scanning electron microscopy-energy dispersive x-ray spectroscopy (SEM-EDS). Results showed that the amount of lead positively correlated to the amount of fatty acid soaps and provided evidence that the soaps present in beeswax paint can be attributed to lead metal complexes.

Chemical evidence for a cold wax paint is not easily obtained with current analytical methodologies. However, one portrait from the Ny Carlsberg Glyptotek (AEIN 680) contained evidence of a water sensitive beeswax paint. GC-MS analysis results showed that the beeswax itself was unique when compared to other portraits and conversely, the fatty acid soap content was consistent with other portraits tested. Through a fortuitous collaboration, evidence was collected that allowed for a better understanding of how soaps form in ancient beeswax, and its presence should not be used as an indication of "Punic wax". It is hoped that lead content and free fatty acid analysis will inspire debate and offer a clearer understanding of the beeswax painting technique.

Joy Mazurek is an Associate Scientist at the Getty Conservation Institute. She specializes in the identification of binding media in paint using Gas Chromatography Mass Spectrometry, the characterization and degradation of plastics, and the application of biological methods to study artwork. She obtained her MS in microbiology from California State University, Northridge and her BS degree in biology from the University of California, Davis.

Learning from lemons: mummy portrait forgeries in the Menil Collection

Corina E. Rogge, Andrew W. Mellon Research Scientist at the Museum of Fine Arts, Houston and the Menil Collection; **Caroline R. Cartwright**, Senior Scientist, Department of Scientific Research, The British Museum.

Romano-Egyptian mummy portraits dating from 1st-3rd century CE, when Egypt was a province of Imperial Rome, are amongst the most engaging artworks of the ancient world. The naturalism and conveyed sense of personality of the individuals depicted evokes a sense of communication across time, and it is no wonder that they are sought after items for museum collections. As with any valued antiquity, demand outpaces supply and so these items are prime candidates for forgers. Technical analysis of mummy portraits held by the Menil Collection unambiguously identified two as modern forgeries with a 19th century terminus post quem manufacture date; the detection of anachronistic woods, pigments and binding media clearly show that these were not heavily restored objects or pastiches, but de novo modern creations. Although not authentic these objects still have pedagogical value. A recent trend in the teaching of art historyis object-based learning, in which students closely examine artifacts, specimens or other material culture items and interpret and contextualize their findings in an attempt to understand the means of manufacture, use, meaning and/or history of objects through active engagement. Forgeries can be an educational and engaging entry into object-based learning, as John de Menil said "So there are the fakes and the lemons and the total involvement and the engulfing passion. There is all of that but it's worth it… You learn a lot in the process of researching and cataloguing. A lot about civilizations about men- and their yearnings and their fears." These portraits, although not the authentic products of ancient craftsmen, can still be used to facilitate a deeper, more meaningful understanding of histories of antiquity, collecting, and the pursuit of knowledge. Forgeries inform us about supply and demand, about appeal and desire, and often the style of a forgery reflects the popular fashions of the times. These portraits tell a story of the de Menils, their philosophies, collecting habits, and favored gallerists, The forgeries are also excellent pedagogical materials and can be used with almost any audience level to initiate discussions on a variety of topics including the interplay of connoisseurship and technical investigations, the ethics of destructive sampling, and low-tech versus high-tech analytical approaches. We hope that by illustrating how we utilize these forgeries we will encourage other institutions to reevaluate the roles for such objects in their collections.

Corina (Cory) Rogge is the Andrew W. Mellon Research Scientist at the Museum of Fine Arts, Houston and the Menil Collection. She earned a B.A. in chemistry from Bryn Mawr College, a Ph.D. in Chemistry from Yale University and held postdoctoral positions at the University of Wisconsin–Madison and the University of Texas Health Sciences Center (Houston). Before joining the Museum of Fine Arts, Houston, she held positions as the Wiess Instructor of Chemistry at Rice, and the Andrew W. Mellon Assistant Professor in Conservation Science in the Department of Art Conservation at State University of New York Buffalo State College. While much of her research focusses on 20th century artists, paints and pigments, she works on materials across all cultures, media, and ages. She is the Vice President and Fellow of the American Institute for Conservation and an Associate Editor for the Journal of the American Institute for Conservation.

Funerary Portraits from Roman Egypt: Facing Forward

Kate Smith, Conservator of Paintings[1]; **Susanne Ebbinghaus**, George M.A. Hanfmann Curator of Ancient Art, Head, Division of Asian and Mediterranean Art[1]; **Kathy Eremin**, Patricia Cornwell Senior Conservation Scientist[1]; **Georgina Rayner**, Associate Conservation Scientist[1]; **Jen Thum**, Assistant Director of Academic Engagement and Assistant Research Curator[1]; **Courtney Books**, Assistant Paintings Conservator[2]; **Aniko Bezur**, Wallace S. Wilson Director of Scientific Research[3]; **Marcie Wiggins**, Assistant Conservation Scientist[3]; **Richard Hark**, Conservation Scientist[3]; **Susan Matheson**, Molly and Walter Bareiss Curator of Ancient Art[4]; **Irma Passeri**, Conservator of Paintings[4]
[1]Harvard Art Museum; [2]Saint Louis Art Museum; [3]Institute for the Preservation of Cultural Heritage, Technical Studies Lab, Yale University; [4]Yale University Art Gallery

In Fall 2022, the Harvard Art Museums will present an exhibition, *Funerary Portraits from Roman Egypt: Facing Forward*, spurred by the museums' involvement in the APPEAR Project. The exhibition is centered on the discoveries made through technical investigations of panel and mask portraits held in the museums' collection and how a material understanding of the portraits can shed light on these fragmentary funerary artifacts.

The exhibition also brings together three of the portraits linked to the so-called St. Louis Painter's hand to present the role of technical studies in attributing objects to a common workshop. The St. Louis Museum of Art and the Yale University Art Gallery lent the examples in their collections for a rare chance to see and study them in person alongside the example at the Harvard Art Museums. What emerged was a collaboration that involved sharing not only our findings, but also expertise and analytical resources to allow the systematic comparison of materials and techniques. Our joint study found evidence that links the three portraits to varying degrees. This leads to questions concerning the validity of designating or denying singular authorship based on similar or divergent material use and application choices. These questions and more were raised as technical study was brought to bear on visual connoisseurship.

Team-curated by curators, museum educators, conservators, and conservation scientists, the exhibition is an opportunity to share diverse perspectives on funerary portraits. This collaborative process allowed for a balance between exhibition practices and scientific inquiry framed with respect for the ancient, often unnamed, deceased individuals depicted in the portraits.

Kate Smith is Conservator of Paintings and Head of the paintings lab at the Straus Center for Conservation and Technical Studies at the Harvard Art Museums. She studies and preserves the Harvard Art Museums' paintings collection from ancient Roman through to modern and contemporary works. Kate specializes in technical examination using radiography, infrared reflectography, and fluorescence imaging to investigate artists' materials and techniques. With her Straus Center colleagues, she lectures for two Harvard University History of Art and Architecture courses: *The Making of Art and Artifacts: History, Material and Technique* and *Science and the Practice of Art*, as well as for the Mellon-funded Summer Institute for the Technical Study of Art.

Insights to the Materials and Technique of a Roman Egyptian Funerary Portrait Obtained from Elemental Mapping and Luminescence Imaging

Stephanie Spence, Assistant Objects Conservator; **John Twilley**, Mellon Science Advisor, The Nelson-Atkins Museum of Art.

A Roman Egyptian funerary portrait from Antinoöpolis in the collection at The Nelson Atkins Museum of Art, stylistically dated to the 2nd century AD, has been examined to clarify working techniques and material roles in this encaustic painting on panel. The structure, condition, and extent of restoration of the female portrait, which incorporates three dimensional details of jewelry with conventional painting techniques, were investigated without sampling by X-radiography, reflectance transformation imaging (RTI), and surface microscopy. Material characterizations were carried out with elemental mapping by X-ray fluorescence (XRF) spectroscopy and technical imaging methods utilizing ultraviolet through near infrared behaviors that are often revelatory for this class of painting. The results of these complementary techniques disclose the selective application of lead white to the upper portion of the panel, an important role for Egyptian blue as a sketch material, and the simultaneous use of carbon black and umber in shading. The interaction of environmental chloride with lead pigment explains areas of blanching visible on dark passages. Unanticipated correlations among the element distributions offer the potential for future investigation of material sources and comparison with other portraits.

Stephanie Spence is the Assistant Objects Conservator at The Nelson-Atkins Museum of Art in Kansas City, Missouri. Stephanie completed her 3rd-year graduate internship at The Nelson-Atkins in 2016-17, and later returned for a fellowship focusing on the treatment of portrait miniatures and outdoor sculpture. Stephanie is currently embarking on a 3-year IMLS grant to analyze and conserve six historically significant pieces from the museum's renowned Chinese lacquer furniture collection.

Stephanie earned her M.A., C.A.S. in Art Conservation from SUNY Buffalo State College in 2017, specializing in objects conservation with a focus on Asian lacquers. She completed graduate internships at the Okinawa Institute of Science and Technology, and the Utah Museum of Fine Arts. Following graduation, she was the Conservation Fellow at the Toledo Museum of Art where she planned and implemented a large-scale conservation treatment to blast freeze tens of thousands of dried flowers for special exhibition.

Non-invasive investigations on three ancient mummy portraits at the National Archaeological Museum in Athens. Challenges and benefits

Peppy Tsakri, Physical-Chemical Research & Archaeometry, National Archaeological Museum, Athens, Greece; **Ioannis Panagakos,** Conservator of Antiquities and Works of Art, Department of Conservation, National Archaeological Museum, Athens.

Among the exhibited artefacts of the Egyptian Collection at the National Archaeological Museum (NAM), there exist three mummy portraits that appear very similar in regard to manufacture and style. They had been previously studied in relevance to their archaeological context, but their scientific analysis had been limited in the framework of university studies. No further science related documentation of their state of preservation, of previous interventions and of the manufacturing methods and materials had previously been carried out. The need for a more in depth investigation of the portraits had become imperative and along the motivation that emerged through the NAM's participation in the APPEAR project raised the opportunity for their further study.

The time at which the project was decided to commence was during the very challenging 2020 COVID-19 pandemic lockdown period. Beforehand, there was a very careful consideration of the advantages and drawbacks of carrying out such a task in such difficult times. However, since the gains of conducting the study appeared to hold more significance than any hardships that one might had to encounter, it was decided that proceeding with the plan was the most favourable course of action.

Undertaking the particular task involved multiple approaches at consecutive steps with the use of instrumentation already available at the NAM. Foremost, there was the need for a detailed documentation of the surface employing multispectral imaging with the use of technical photography as well as computational photography such as Reflectance Transformation Imaging (RTI). X-ray radiography was employed in the next step in an attempt to investigate both surface characteristics and items of initial manufacture or of later interventions. Portable x-ray fluorescence (XRF) followed for the elemental analysis of the painted surface. It was decided on examining a large number of XRF targets in order to acquire information of a larger surface area in an attempt to produce results similarly to the ones obtained by the XRF mapping approach. Finally, a digital microscope, used in a handheld "scanning mode" aided in the interpretation of the results obtained by some of the other methods. In overall, the study of the portraits produced a large number of results that lead to some definite findings and conclusions, but at the same time arose the need for further work, specifically in regard to the study of the organic substances.

The much-improved position we, at the NAM are now at, concerning our knowledge and understanding of the portraits' creation as well as their state of preservation is merely one of the many facts demonstrating the multifaceted positive effect this study had on the museum. As members of staff, it has given us the opportunity to challenge ourselves into tackling such an endeavor through unprecedented circumstances and as cultural heritage conservation professionals to become inventive in the manner of applying analytical techniques.

Peppy Tsakri is a Conservator of Antiquities and Works of Art in the Department of Conservation and Physical-Chemical Research & Archaeometry at the National Archaeological Museum, Athens, Greece. She received an MSc in Conservation Science from De Montfort University in the United Kingdom.

The Artistic Circle of the St. Louis Painter

Branko F. van Oppen de Ruiter, Richard E. Perry Curator of Greek & Roman Art, Tampa Museum of Art

In his publications *Mummy Portraits in the J. Paul Getty Museum* (1982), David L. Thompson attributed three Roman Egyptian funerary portraits to the same artist, who he named the St. Louis Painter on the basis of a portrait of an elderly woman in the St. Louis Art Museum (SLAM inv. no. 128:1951; Thompson 1982, pp. 20–22, *figs.* 35–37). Without further information, Thompson acknowledged that "a number of other portraits are related to those by the St. Louis Painter and some to each other by these differences," and dated the activity of the artist's workshop to around 300 CE. Before and since, several other scholars have recognized the stylistic similarities between about a dozen funerary portraits from ancient Philadelphia (confusingly still called "Rubayat") with estimated dates ranging between 165-350 CE.

This paper will re-examine the attribution of the portrait panels to the St. Louis Painter (also known as the Würzburg Painter), and suggest that some two dozen examples can be assigned to this anonymous painter, workshop or circle. Stylistic elements by which these paintings can be grouped together include a distinctively graphic hatching style. The portraits generally lack a sense of depth and perspective, though some foreshortening is often indicated on the left side of the face. The basic outline is usually drawn with a broader brush, while the individual details are applied with a thinner brush. The outline tends to follow basic physiognomic proportions that are not only common with other Roman Egyptian portraits, but with Roman portraits from contexts such as the wall paintings of Pompeii and Herculaneum.

Nine panels among the group portray women, of which six seem to depict elderly women, one a middle-aged woman, and two mature women; none show young women or girls. In light of the low life expectancy in Roman Egypt, especially for women (*ca.* 20 years of age), this age-distribution is significant. Moreover, among the male portraits the age distribution seems to display a wider range, where eight may represent young men. These observations – admittedly relatively subjective – call into question the oft-repeated notion that Roman Egyptian funerary portraits are youthfully idealized representations of the deceased.

The covid pandemic has prevented many colleagues from performing intended scientific examinations at their various institutions. Preliminary analyses on an example in the Pushkin Museum, Moscow, (PMFA inv. no. I 1a 5783) indicate that it was painted on a fig wood panel with a simple palette of black, white and ochre. The proposed paper will consider aspects of artistic characteristics and techniques, portrait features and positioning, physiognomic proportions, hair styles, jewelry and clothes, as well as basic materials, to draw some preliminary conclusions about the artistic circle of the St. Louis Painter. The results of the research will hopefully encourage renewed interest in this group of paintings.

Branko F. van Oppen de Ruiter
Branko van Oppen is the Richard E. Perry Curator of Greek & Roman Art at the Tampa Museum of Art, Florida. He received his PhD in ancient history from The City University of New York ('07), where he specialized in queenship during the period from Alexander the Great to Cleopatra. Before coming to Tampa, van Oppen worked for five years at the Allard Pierson Museum, Amsterdam. His academic interests further include clay seal impressions, animals in ancient material culture, Romano-Egyptian funerary portraits, as well as ancient religion and art history in general.

More than the Sum of its Parts: Investigating Pigments, their Mixtures and Distribution on Mummy Portraits

Giovanni Verri, Conservation Scientist[1]; **Marc Vermeulen**, Senior Conservation Scientist[2,3]; **Alicia McGeachy**, Postdoctoral Fellow[2,4], **Ken Sutherland**, ConservationScientist[1]; **Federica Pozzi**, Associate Research Scientist[1,5]; **Rachel Sabino**, Director, Objects & Textile Conservation[1]; **Laura D'Alessandro**, Head of Conservation[6]; **Alison Whyte**, Conservator[6]; **Katherine Beavis**, Graduate Student[7], **Marc Walton**, Head of Conservation and Research[2,8]

[1]Art Institute of Chicago, USA; [2]Center for Scientific Studies in the Arts, Northwestern University, USA; [3]The National Archives, UK; [4]The Metropolitan Museum of Art, USA; [5]Center for Conservation and Restoration of Cultural Heritage "La Venaria Reale", Italy; [6]The Oriental Institute of the University of Chicago, USA; [7] Department of Classics of the University of Chicago; [8]M+ Museum of Visual Culture, Hong Kong

A group of seven mummy portraits in the collections of the Art Institute of Chicago, the Oriental Institute of the University of Chicago, the Field Museum and a private collector were investigated using non-invasive imaging techniques in combination with analysis of samples and cross sections from a subset of the portraits. The majority of the portraits in this group have not previously undergone systematic scientific examination. The techniques employed included macro-, hyperspectral and ultraviolet/visible-induced luminescence imaging and macro X-ray fluorescence scanning. The interpretation of the results informed the selection of areas for non-invasive point analysis, using reflectance Fourier transform infrared (FTIR) spectroscopy, and for the collection of microscopic samples analyzed with transmittance FTIR, Raman spectroscopy and gas chromatography mass spectrometry. In addition, analysis of cross sections was performed to investigate features such as paint layering, opacity, translucency, pigment concentration and particle size. The results from the various analytical techniques were correlated to better understand the identity and distribution of painting materials within their stratigraphy. The assessment of these correlations also provided insights into the benefits of the use of multi-analytical approaches to material characterization.

Key results of these investigations will be presented to highlight similarities and differences in paint composition and application among this group of portraits, and in comparison with other portraits studied in the context of the APPEAR project. In particular and building on the existing scholarship that has identified iron-based pigments and Egyptian blue as crucial components of skin tones in mummy portraits, the results of this combined analytical approach highlight aspects of pigment mixtures and their stratigraphy, alongside their role in creating the variety of skin tones in this group. Drawing broader comparisons within the same artistic and cultural *milieu*, this paper will also address some of the benefits and the complexities related to the use of scientific analysis for the characterization and interpretation of painting materials and application techniques. As the results of imaging techniques can show dependency on experimental conditions, as well as on the methodologies used for analysis, aspects of the interpretation of the scientific imaging used in this study will also be addressed.

Since 2019, **Giovanni Verri** has been a conservation scientist in the Department of Conservation and Science. He holds a PhD in physics from the University of Ferrara, Italy, and MA in conservation of wall paintings from the Courtauld Institute of Art in London, UK. Prior to joining the Art Institute of Chicago, he was a reader at the Courtauld Institute of Art and Mellon Fellow at the British Museum. His research interests include the development and application of investigative techniques for the analysis of color. In 2007, he developed an imaging technique called visible-induced luminescence imaging, through which it is possible to map the presence of Egyptian blue, a very commonly used blue pigment in antiquity, sometimes even when otherwise invisible to the naked eye. This technique is now commonly employed by institutions around the world and has improved out understanding of ancient polychromy in many media.