

L'IPOGEO DEI CRISTALLINI A NAPOLI: IL MULTIFORME POTERE DEL COLORE

THE HYPOGAEUM OF THE CRISTALLINI IN NAPLES. THE MULTIFORM POWER OF COLOUR

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Il complesso di tombe a camera impiantate in età ellenistica a Neapolis, noto come "ipogeo dei Cristallini", è stato al centro, nel corso del 2021, di una vasta campagna di indagini, all'interno del programma di restauro e valorizzazione del sito voluto dalla proprietà e coordinato dalla Soprintendenza Archeologia Belle Arti e Paesaggio del Comune di Napoli e dall'Istituto Centrale per il Restauro. Le attività diagnostiche e gli interventi effettuati fino ad ora nel sito hanno offerto l'occasione per un nuovo studio sistematico del complesso sepolcrale, portato avanti dalla Soprintendenza in collaborazione con l'Università "Luigi Vanvitelli": i nuovi dati emersi in questa fase costituiscono i primi tasselli utili a una ricostruzione diacronica della decorazione policroma delle tombe e delle modalità di svolgimento dei rituali funerari. L'ICR, oltre a indagare i processi di degrado in atto, prospettando possibili soluzioni per il restauro e l'apertura al pubblico del sito, ha indagato modalità e materiali con cui sono stati realizzati gli elementi salienti di questo complesso. Nella tomba C, in particolare, alla pittura è affidato il compito di realizzare una fusione completa tra architettura, scultura e decorazione parietale, esaltando la fisicità tridimensionale degli elementi scolpiti, quali la Gorgone, gli elementi architettonici, le klinai o letti funebri. Proprio questi ultimi saranno l'oggetto del contributo presentato a questa tavola rotonda.

The complex of chamber tombs created in Neapolis in the Hellenistic age, known as Ipogeo dei Cristallini, was the object of a thorough study campaign in 2021, within a project of conservation and enhancement promoted by the owners and managed by the Soprintendenza Archeologia Belle Arti e Paesaggio del Comune di Napoli and by the Istituto Centrale per il Restauro (Ministry of Culture). The activities achieved so far offered the opportunity for a new systematic study of the burial complex, carried out by the Soprintendenza together with the Università Luigi Vanvitelli. Some new data that were collected turned out to be useful elements for a preliminary diachronic reconstruction of the polychrome decoration of the tombs and of the way the funerary rituals were performed. The ICR, besides investigating the deterioration processes and possible solutions for conserving and opening the site to the public, studied the methods and materials used to produce the key elements of this monument. In tomb C a complete unification of architecture, sculpture and wall decoration is pursued thanks to the unifying power of colour. Painting also emphasizes the physical 3-dimensionality of the carved elements, such as the Gorgon head, the architecture and the klinai or burial beds; the latter, in particular, will be the object of the current presentation.

PRECIOUS COLORS

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Investigations into the polychromy of ancient sculpture and architecture have traditionally focused on the coloration of statues through the application of various pigments and of architecture through the use of differently hued “marbles”. This presentation explores how the ancients employed brightly-colored hard- or gemstones for the elaboration of both statues and buildings, adducing the evidence of physical remains, Greek and Latin texts, and ancient representations and imitations in other materials. From the inlaid eyes and added jewelry of statues depicting divinities and elite humans to appliques that embellished the walls of sumptuous interiors, hardstones—often imported over great distances and at enormous expense—not only adorned diverse locales in ancient cities, but also signaled the wealth, power, and status of ancient patrons. Physical survivals, though often fragmentary, attest to the use of hardstones such as agate, amethyst, beryl, chalcedony, cornelian, rock crystal, garnet, obsidian, peridot, and even sapphire to enhance sculptural and architectural ensembles, as well as their imitation in glass and paint. Greek and Latin literary sources amplify this picture and further attest to the distant sources and multiple social and ideological implications of the use of these precious materials—opaque, translucent, and transparent—not only as independent works of art fashioned by skilled artisans and traded by sundry merchants, but also as significant components of larger ensembles.

THE FUNERARY STELE OF THEODOROS. THE USE OF COLOUR ON A PAINTED PORTRAIT ON MARBLE FROM LATE HELLENISTIC/ROMAN THEBES

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The funerary stele of Theodoros was discovered in 2008 during a rescue excavation of a villa in the outskirts of Thebes (Boeotia), in the area Northeast of the hill of Cadmeia. The villa was in use in the Late Hellenistic period and was repaired later in Roman times. The stele, reused as building material probably in the last phase of the architectural complex, likely comes from the necropoleis situated in the areas to the Northeast of the Cadmeia. The stele, now exhibited in the Archaeological Museum of Thebes, is made of white marble and is exceptionally well preserved. It depicts on one side the half-length portrait of a young man, clad in a himation falling over

his left shoulder. Because of this rare painted representation, the funerary stele of Theodoros is particularly significant for our knowledge of monumental painting in Greece during the Late Hellenistic and Roman period. This paper presents the results of the scientific investigations of the painted portrait by means of technical imaging, non-invasive analytical techniques (XRF and RAMAN spectroscopy) and destructive analysis of micro-samples to detect organic binders. The main aim of this study is to understand the original materials and painting technique used to create this rare portrait.

I COLORI DI MORGANTINA

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“Morgantina a colori” è un progetto di ricerca multidisciplinare in corso, dedicato allo studio della policromia dei reperti di età greca provenienti da Morgantina, insediamento greco di origini sicule nella Sicilia centrale. Più di un sessantennio di ricerche nel sito hanno permesso di portare alla luce numerosi manufatti con tracce di colore in buono stato di conservazione. Il rimpatrio della testa di Ade, scultura in terracotta policroma già nella collezione del Getty Museum di Los Angeles, ha stimolato l’attenzione su questo argomento e così nel 2014 il progetto “Morgantina a colori” è stato avviato con l’obiettivo di investigare i pigmenti e le tecniche pittoriche e di ricostruire l’aspetto originario dei reperti. Il progetto è andato avanti nel 2018 grazie al valido supporto di E-RIHS (European Research Infrastructure for Heritage Science): una selezione di reperti policromi di età greca nella collezione del Museo Archeologico Regionale di Aidone, inclusa la statua della Dea di Morgantina, è stata sottoposta ad analisi non invasive (tra cui XRF, XRD e spettroscopia Raman) per la caratterizzazione dei pigmenti. Il paper intende presentare il progetto, i risultati finora raggiunti e i possibili sviluppi futuri.

“Morgantina a colori” is an ongoing multidisciplinary research project focusing on the study of polychromy in ancient Greek finds from Morgantina, the Greek settlement of Sikel origins in inland Sicily. During more than sixty years of excavations many findings with very well preserved original colours have been brought to light at the site. The repatriation of Hades’ head, the Greek polychrome terracotta sculpture once in the Getty Museum collection, stimulated the attention on this topic and so in 2014 the research project “Morgantina a colori” started with the aim to investigate pigments and painting techniques and to reconstruct the original appearance of objects. The project proceeded in 2018 thanks to the valuable help of the European Research Infrastructure for Heritage Science (E-RIHS): carrying out non-invasive analyses (XRF, XRD, Raman spectroscopy), a selection of

coloured Greek artefacts in the collection of the archaeological museum of Aidone, including the Morgantina Goddess, was analysed in order to study the composition of the original dyes. The paper aims to present the project, the current results and the possible future development.

THE USE OF PRECIOUS METALS IN ANCIENT GREEK AND ROMAN POLYCHROMY - A PHD PROJECT

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Gold was the most precious material for humans already in antiquity. When gold is written about in the ancient texts, it is described there as the most beautiful material or used as a synonym of beauty and magnificence. It is also referred to as the material of the goddesses and gods and highlighted as the best material of all. Based on my master-thesis „The Role and the Use of Gold in Ancient Polychromy“. I am continuing my study and widening my research also on the role of silver as well as the use of precious metals not just on marble and bronze statues but on more materials such as limestone and terracotta. My paper will present an overview of the use of precious metals and deal with further questions. Also I hope to present some new investigations of gilded statues. To date the research on gilded ancient sculptures revealed an impressive amount of examples and provides a broad basis for the present investigations. We have at least 125 sculptures on which a gilding can still be found or was observed and noted in earlier publications. The frequency with which gold must have been used on statues is shown by the finds from Delos, Athens, Pompeii and Aphrodisias. Numerous other objects with remnants of gilding from other places also prove this. The statuary decoration of sanctuaries, public places and private houses always included statues covered or decorated with gold. From the sixth century BC onwards, the use of gold on marble statues can be attested in Greece and since then it can be considered as a component of polychrome design. The main part of my paper deals with the applying of precious metals. The use of gold on statues was very extensive, especially on marble statues. The preserved bronze statues were usually completely covered with gold, the partial gilding of bronze can be documented only very rarely. For example, on the lips of a youth from the Glyptothek in Munich. For the gilding of bronze, different techniques were used, such as painting with gold amalgam, diffusion gilding, as well as gilding with leaf or thick foil. Particularly interesting is the technique of foil gilding which is a bit overlooked until today and why it seems to be still in use in the time of the emperor Nero when a statue was covered with gold foil - according to Plinius. While we have a lot of completely gilded Roman bronze statues, it seems to be different on Greek bronze statues. The little evidence from the archaic and classical periods shows that precious metals were used very deliberately only on some parts of the statue. 2 The marble statues offered numerous possibilities for the use of gold and it was used in

different ways. But the result was closely related to the materials available as well as the craftsmanship of the gilder. Technical aspects such as the thickness of the gold leaf overlay, the use of different materials as a primer, and the variable treatment of the gold overlay influenced the appearance of the gilded surface. It means we have to categorize different variations of gilding to predict the appearance which is closely related to different substances. In most cases, red and yellow traces are found under a gilding or close to it, often originating from red or yellow ochre. It can be assumed that the gilded surface was polished and shiny. On sarcophagi, however, the use of a matte gilding is also attested. How far the workmanship of gold can be observed only on a few examples. Thickness as well as the purity of the gold can be determined so far only on a few objects. However, both aspects play a significant role in the process of application and for the result of the gilding. This little evidence needs to be expanded through new investigations. The materiality of gold is a problem. Overall it is rapidly gone because it is washed away and just traces of the ground layer remain. Often we have a problem with the presumption of red or yellow traces which are easily interpreted by early authors as a ground layer for gilding. The ground layer and the preparation of a later gilded surface is a very interesting point. We have partially answered some questions mostly for the hellenistic time because the marble statues from Delos are in such good condition and perfectly analyzed. There we see a ground layer of lead white but somehow we don't find it outside this region. For the rest of the ancient world we can not make any statements in this regard. Beside the materiality of gold and silver there is plenty of room for interpreting the meaning of a statue covered fully or partially with precious metals. Often a symbolic meaning goes along with the gilding of a statue. The gold should contribute to an easier comprehensibility and better readability of the statue. The gilding ensured that the sitter was highlighted. One reason for this exposure was the divinity of the sitter. This could be observed in numerous examples from both the Greek and Roman periods. Especially the flat gilding of the hair seems to have been an indication of divinity and was also adopted in the imagery of deified mortals. Statues of Dionysus, Aphrodite and Athena show statistically more frequent remnants of gilding. Also hellenistic kings and queens often show traces of gilding which reflects the deification. This is also proved by ancient sources. The use of precious metals is a topic that has not yet been dealt with in detail and represents a new aspect of polychromy research. For this reason, it is important to bring this topic more to the forefront and to open up a discussion.

IL POTERE DEL COLORE NELLO SPAZIO ANTICO, IERI ED OGGI: IL FORO DI TRAIANO

THE POWER OF COLOR IN ANCIENT SPACE, YESTERDAY AND TODAY: THE FORUM OF TRAJAN

Lucrezia Ungaro, già Sovrintendenza Capitolina BB.CC - Direzione Musei - Museo dei Fori Imperiali

Nel Foro viene raggiunta la maturità nella scelta programmatica dei colori materici, per il loro significato culturale e l'effetto emozionale, e nella più stringente rispondenza tra architettura e scultura. L'evoluzione anche istituzionale nell'approvvigionamento dei marmi permette di attingere ad una gamma di coloriture ed effetti cromatici eccezionale, non solo per le superfici orizzontali e verticali coordinate tra loro, ma soprattutto per le sculture colossali in marmi colorati che materializzano la globalizzazione del sistema politico romano negli spazi di massima rilevanza e rappresentatività (la Basilica Ulpia e l'Aula meridionale). Le sculture in bronzo soprattutto all'esterno, devono aver interagito con i fattori climatici e l'illuminazione naturale. La restituzione anche del solo "ricordo" di tale splendore è sempre più assegnato alla riproduzione 3d, dove va ricercato l'equilibrio tra matericità e resa della policromia antica: in questo ambito il Foro è stato ed è oggetto di varie forme di comunicazione.

In the Forum maturity is reached in the programmatic choice of material colors, for their cultural significance and emotional effect, and in the closest correspondence between architecture and sculpture. Also the institutional evolution in the supply of marbles allows the use of an exceptional range of colors and chromatic effects, not only in the horizontal and vertical surfaces linked together, but mostly in the colossal sculptures in colored marble that materialize the globalization of Roman political system in the most important and representative spaces (the Basilica Ulpia and the southern Hall). The bronze sculptures, especially on the outside, must have interacted with climatic factors and natural lighting. The restitution of the "memory" of this splendor is increasingly assigned to 3D reproduction, where the balance between materiality and rendering of ancient polychromy must be sought: in this context the Forum has been and is the subject of different forms of communication.

GLORIA EXERCITUS: A STUDY OF A MUMMY PORTRAIT OF A SOLDIER AT THE ORIENTAL INSTITUTE

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Among the collections of the Oriental Institute at the University of Chicago, is a panel painting of a man originally framed into the wrappings of a mummy (OI 2053). Likely discovered at Fag-el-Gamous by Grenfel and Hunt during the 1901-1902 season, the portrait represents a young individual with curly hair and a distinctive, but uncommon dress; he wears a purple/pink garment with voluminous folds above both shoulders, a knotted scarf and decorative patterns over his chest. In order to better understand the making of the portrait, as well as the unusual dress of the man in the portrait, the painting was investigated scientifically. 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 (r-FTIR) spectroscopy, and for the collection of microscopic samples analyzed with transmittance FTIR, Raman spectroscopy and gas chromatography-mass spectrometry. The analysis revealed a wealth of information about the painting, allowing for a more reliable interpretation of the painting process, which made use of complex mixtures of pigments, and, in particular, of the dress of the figure. Information on the painting materials and their distribution was used to inform an experimental reconstruction of this rather unusual military dress, shedding light on what the man from Fag-el-Gamous might be wearing.

THE COLOURFUL HEAD OF APOLLO: BIOGRAPHY THROUGH POLYCHROMY A CASE-STUDY FROM VILLA CORSINI IN CASTELLO (MAF)

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This paper focuses on a still overlooked marble statue representing the god Apollo as an archer, from the collections of the MAF, now exhibited at Villa Corsini in Castello (inv. n. 13719). The larger-than-life-size statue is currently considered a Roman pastiche: a head derived from a 4th century B.C. prototype was joined to a body inspired by models from the beginning of the 5th century B.C. In this perspective, it would be important to define whether this pastiche is a Roman or a modern work. Interestingly, the head has traces of polychromy, while no traces of colour are visible on the body. Having no information about the provenance of this unique sculpture, this research sheds new light on its biography through the investigation of its materiality, giving special attention to the polychromy of the head. 3D Ultrasonic Tomography is thus employed in order to examine marbles characteristics while FTIR and Raman Spectroscopy are used in analysing the nature of pigments.

THE COLOURANT MAPPING PROJECT. PROSPECTS, CHALLENGES, AND CHOICES IN THE DEVELOPMENT OF AN OPEN ACCESS COLOURANT DATABASE

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Growing material evidence, supported by archaeometric analysis, documents the plethora of colourants used throughout Mediterranean antiquity. At the same time, the renewed interest in the materiality of ancient colourants brings forward questions regarding the provenance, production technology, and value of pigments and dyes. In this context, navigating through the various research outputs, including research articles, reports, and databases, is becoming increasingly challenging. The 'Colourant Mapping Project' (CMP) is an interactive web application that aims to systematically record ancient colourants and to create an Open Access Database for the polychromy research community. This paper presents the challenges and decisions made during the ongoing development of the CPM and invites discussion of data curation and use, learning from and building upon established colourant databases. Finally, taking the multicrafting workshop of Kos as a focal point, we explore how the CMP can illustrate colourful networks of material/cultural exchange and patterns of continuity and change.

MAKING AND WORKING EGYPTIAN BLUE - A REVIEW OF THE EVIDENCE

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As the earliest artificial pigment, Egyptian blue has a long record of research. The primary focus in scholarship tends to be on the properties and identification of the pigment as well as its links to glass- and metal working. Still, there are unknown variables regarding the chaîne opératoire of Egyptian blue production, trade, processing, and use. This contribution offers a review of published archaeological evidence for Egyptian blue workshops, aiming to develop common and potentially diagnostic criteria for their future characterization and interpretation. In doing so, we identify systematic differences in the production evidence between Late Bronze Age,

Iron Age, and Hellenistic to Late Roman sites, and propose a model to distinguish between primary production and secondary/artistic processing of Egyptian blue.

CENSIRE LA POLICROMIA. LE LASTRE CAMPANA DEL MUSEO NAZIONALE ROMANO

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Il Museo Nazionale Romano conserva centinaia di lastre Campana, sia provenienti da collezioni storiche che da importanti contesti archeologici, che solo in minima parte sono state studiate e pubblicate. Molte di queste conservano tracce di colore, spesso non considerate o messe in ombra dalla preminenza dell'aspetto iconografico. Un tale approccio metodologico si trova alla base della maggior parte delle pubblicazioni sulle Lastre Campana, se si eccettuano alcuni recenti lavori specificamente dedicati alle indagini archeometriche. Pertanto, attraverso un primo parziale censimento degli esemplari del Museo Nazionale Romano attestanti policromia, il presente contributo intende tentare di colmare l'evidente lacuna che emerge dallo spoglio delle trattazioni sull'argomento, mettendo in luce possibili aspetti comuni relativi al cromatismo dei materiali fittili come il ricorso a determinati schemi coloristici secondo temi e motivi decorativi specifici.

The National Roman Museum (Museo Nazionale Romano) holds hundreds of Campana reliefs, both from historical collections and from important archaeological contexts, only a small number of which have been studied and published. Many of these preserve traces of colour, often overlooked or overshadowed by the predominance of the iconographic aspect. Such a methodological approach is at the basis of most of the publications on the Campana reliefs, except for a few recent works specifically dedicated to archaeometric investigations. Therefore, through a first partial census of the examples in the Museo Nazionale Romano with evidence of polychromy, the present contribution intends to attempt to fill the evident gap that emerges from the study of the subject, highlighting possible common aspects relating to the chromatism of the terracotta reliefs, such as the use of certain colour schemes according to specific themes and decorative motifs.

COLOURS FOR ETERNITY? A COMPARATIVE STUDY OF THREE POLYCHROME ETRUSCAN TERRACOTTA URNS FROM CHIUSI

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This study presents the research carried out into three Etruscan cinerary urns, acquired for the Ny Carlsberg Glyptotek in the 19th century. The urns have been dated to the mid-2nd–1st century BCE and depict the same motif of the fight between Eteokles and Polyneikes, possibly made from the same mould, while the lids portray different deceased individuals. One of the urns has very well-preserved polychromy, while the two others underwent heavy-handed washing in the 1960s due to the ungrounded suspicion of them being forgeries. The three objects are studied using MSI, XRF, FTIR, and LC-MS/MS. Also, the burnt bones preserved in one of the urns are analysed and ^{14}C -dated. The study shows animal glue as a binder and the use of a varied palette applied differently onto the same motif. The variations in the applied polychromy, its state of preservation, and the profiles of the mould-made reliefs give insights into ancient workshop practices and historic museological approaches to polychromy.

SEARCHING FOR THE MEANINGS OF THE LOST COLOURS IN ROMAN STATUES THROUGH MATERIALITY: SOME EXAMPLES

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The analysis of about 50 sculptures from the Roman Imperial period (1st–4th centuries), without macroscopic traces of colouring, from different collections (Musée du Bardo de Tunis, Musée de l'Arles antique, Musée Saint Raymond de Toulouse, Musée d'art et d'histoire de Bruxelles, Musée Royal de Mariemont, Museo archeologico di Milano) allows us to make some considerations on the meanings that colours may have had on the analysed sculptures. This is possible thanks to the dialogue between the physico-chemical results, obtained according to a unitary analytical protocol (visual observation VIS and UVL, video-microscopy, MA-XRF, Raman, Hyperspectral imaging), and the comparison with the written sources and the representations in other media (painting, mosaics) of the same subjects depicted in the sculptures. An attempt will therefore be made to propose interpretation hypotheses on the different types of polychromy identified by the analyses (imitation of materials, monochromy, polychromy of semantic attributes, integration of the sculptural program...) in order to question the different meanings that the colours can add to a sculpture.

Team of the project and institution associated:

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YELLOW IN GREEK PAINTING: IDENTIFYING UNUSUAL PIGMENTS IN LATE CLASSICAL AND HELLENISTIC COROPLASTIC POLYCHROMY

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Since early archaeometric work in the 19th century, progress has been made in identifying color materials used by ancient Greek painters on various supports. Our contribution brings forth new evidence on how some sophisticated yellow hues were achieved on terracotta statuettes, based on the results of the Pilina project (Louvre museum – C2RMF – French School in Athens). The research combined archaeological and art historical data with an in-depth scientific investigation of a large corpus of objects kept in the Louvre collection. Results were obtained through a multi-technique analytical protocol (multispectral and digital microscopy imaging, non-invasive XRF, XRD, FORS and Raman analysis, SEM–EDS on cross-sections). In the ancient Greek palette, iron-based pigments such as goethite and ochres were most often used for producing yellow color. When confronted to this long-term tradition, the inventiveness of Athenian workshops of the Late Classical period stands out even more: the discovery of the use of cassedanneite, a hitherto unknown lead chromo-vanadate pigment, on a white-ground lekythos of the Late 5th C. BCE will be presented, as well as the use of mimetite (a lead chloro-arsenate pigment) on Tanagra-style statuettes, produced in Attic and Tanagra workshops during the years 350–300. Most unusual is also the choice of a yellow form of conichalcite (copper calcium arsenate) for painting in a subtle pale yellow hue the mantle of an Old Pedagogue, an exceptional statuette produced most likely in Athens by the same period. Finally, the use of mimetite and vanadinite (lead vanadate) in the Myrina

workshops of the Hellenistic period will be documented, with a special focus on the way flesh tones were painted with a mixture of mimetite and phosphohedyphane, a lead white pigment hitherto unknown. Therefore the study highlights once again the technical refinement of the polychrome ornamentation on these supposedly “humble” objects and the great care taken by painters in selecting their pigments to achieve the proper coloring. It also provides some new clues for a better characterization of regional workshop practices based on technical “signatures”.

EGYPTIAN BLUE PELLETS IN NORICUM: AN EVALUATION OF PIGMENT PRODUCTION AND TRADE

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Egyptian blue is a complex multi-component material and a good indicator of both cross-craft interaction with glass- and metal working and of trade. This material was widely used as pigment throughout the Roman Empire – yet we know little about its production- and trade networks. In a combination of mineralogical-petrographic, micro-tomographic imaging and geochemical analyses, we evaluate production process and raw material provenance of Egyptian blue from Aguntum, where app. 800 pellets were recently excavated, and compare them to samples from Flavia Solva – these cities were established in areas rich in natural resources and shortly after Noricum became part of the Roman Empire in the 1st c. CE. Geochemical analyses indicate the use of copper from the Southern Alps, Tuscany, Switzerland and/or Slovakia, while mineralogical-petrographic analyses indicate the use of beach sand. The large Egyptian blue find at the important trading center at Aguntum, the wide use of Egyptian blue for wall paintings across Noricum, together with no clear indications of local production underline the significance of trade in this pigment.

THE COLORS OF THE MUSE: AN EDUCATIONAL RECONSTRUCTION PROJECT (HELLENISTIC MARBLE STATUE OF A STANDING MUSE FROM THE SO-CALLED AGNANO GROUP, LIEBIGHAUS SKULPTURENSAMMLUNG, FRANKFURT AM MAIN, INV. 160).

Vinzenz Brinkmann, Ulrike Koch-Brinkmann, B.L. Kress, H. Piening, H. Theiss, Liebieghaus Skulpturensammlung

The marble sculpture of a standing muse, presumably from the island of Delos, now in the Liebieghaus collection in Frankfurt, shows various remnants of its original polychromy, which have been repeatedly examined in detail scientifically and archaeologically since 2007. The long-term reconstruction process of this particular statue was finally part of a three-year research project dealing with new media in academic teaching collections. It was developed in collaboration with the Wolfgang von Goethe University in Frankfurt, funded by the German Federal Ministry of Education and Research, and ultimately implemented as part of the Liebieghaus Polychromy Research Project. Not only a series of physical reconstructions, but also an interactive online publication were created in this context. This didactic apparatus was developed to communicate the process of researching, documenting, and reconstructing polychrome sculptures to professionals, students, and even a wider audience. As mentioned above, the general idea was to involve laymen and professionals in the observation and evaluation of existing traces of color. To achieve this goal, six different physical models were produced to represent different steps and variations of the reconstruction. An endeavor that was finally complemented by a projection onto the original object, allowing the viewer to participate in the scientific and archaeological discourse.

INVESTIGATIONS ON THE POLYCHROMY OF AN ARCHAIC-PERIOD HEAD OF A HORSE IN THE METROPOLITAN MUSEUM OF ART

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In preparation for the exhibition, *Chroma: Ancient Sculpture in Color* (July 5, 2022- March 26, 2023), The Metropolitan Museum of Art has conducted extensive investigations of ancient polychromy in the collection of Greek and Roman Art that have advanced our understanding of the complex and sophisticated nature of painting practices in Archaic Greece. Our work builds on the museum's collaboration with Vinzenz Brinkmann and Ulrike Koch-Brinkmann for the exhibition and on The Met's long history of studying ancient polychromy. This paper presents results of recent analyses of preserved color on a sixth century B.C. marble head of a horse (1972.118.106) and contextualizes these new studies within the framework of the museum's ongoing research. Multiband imaging, microscopic examination, SEM-EDS, and Raman spectroscopy have identified both Egyptian Blue in the mane and a complex mixture of lapis lazuli, hematite, and calcite in the eyes of the horse. The use of multiple blue pigments, in complex mixtures, contribute to our understanding of pigment production in this period and of the specific visual effects artists sought to achieve in Archaic Greek sculpture.

USING DIGITAL TECHNOLOGY TO ENLIVEN THE ATHENA PARTHENOS AT THE MFA, BOSTON

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C. Mei-An Tsu, Objects Conservator, Museum of Fine Arts, Boston

The MFA's Greek and Roman galleries recently underwent an extensive renovation with 5 new galleries. Among those is a galleries dedicated to the theme of "Gods and Goddesses" in which the topic of ancient polychromy is addressed both through text and digital technology by focusing on a single work, a Roman copy of the Athena Parthenos. MFA curators, conservators, and information technology staff worked for months with a team of digital artists from Black Math, Cambridge, to present a 3D model of the sculpture including missing parts and original polychromy along with a video explaining the process to gallery visitors and online viewers. This paper reviews the process from gathering scientific data to producing the 3D model and related video.

A COLORI: RISCOPRIRE LA POLICROMIA AL MUSEO NAZIONALE ROMANO **IN COLOURS: REDISCOVERING POLYCHROMY AT THE MUSEO NAZIONALE ROMANO**

Eliana Siotto, National Research Council - ISTI VCLab, Pisa

Sara Colantonio, Museo Nazionale Romano - Representative of Terme di Diocleziano

Carlotta Caruso, Museo Nazionale Romano - Terme di Diocleziano

Il progetto “A Colori: Riscoprire la Policromia al Museo Nazionale Romano” nasce dalla collaborazione scientifica del Museo Nazionale Romano e il Consiglio Nazionale delle Ricerche – Istituto di Scienza e Tecnologie dell’Informazione “A. Faedo” in Pisa. Il progetto si propone di elaborare un piano strategico di comunicazione e di divulgazione dell’aspetto policromo originario di capolavori scelti della produzione artistica romana preservati nelle prestigiose collezioni del Museo rivolto alle diverse fasce di pubblico. Come è noto, il Museo Nazionale Romano accoglie una delle più significative raccolte di sarcofagi romani al mondo. Nell’ultimo decennio questi sarcofagi sono stati oggetto di uno studio sistematico volto all’identificazione della policromia antica, che ha coinvolto anche i sarcofagi esposti nelle collezioni dei Musei Vaticani e dei Musei Capitolini arrivando ad una catalogazione dettagliata e standardizzata di un cospicuo gruppo (circa ottanta) di sarcofagi in marmo policromo. La ricerca ha affrontato in modo sistematico le problematiche del colore e della doratura giungendo a risultati e dati derivati dall’osservazione sul campo, da analisi scientifiche unite a ricerche di archivio-bibliografiche, mediante l’uso di tecnologie emergenti in supporto all’iter di ricerca tradizionale. Un nuovo modo di rapportarsi allo studio della policromia, incentrato su una classe specifica di manufatti archeologici: i sarcofagi romani prodotti a Roma fra l’inizio del II e la fine del IV secolo d.C. Tra gli ottanta sarcofagi analizzati, molti dei sarcofagi del Museo Nazionale Romano hanno mostrato, e mostrano tuttora, delle evidenze policrome peculiari che hanno permesso di definire nuove metodologie di computer grafica 3D per approfondire le conoscenze sulla policromia antica e la sua visualizzazione digitale, arrivando a dati di estremo interesse. Partendo da questi risultati, il progetto “A Colori: Riscoprire la Policromia al Museo Nazionale Romano” si propone di approfondire lo studio e di realizzare un percorso volto alla riscoperta del colore sui sarcofagi esposti nel Chiostro di Michelangelo, nelle aule delle Terme di Diocleziano e nelle sale di Palazzo Massimo con strumenti che possano supportare la fruizione dell’opera, ma a basso costo manutentivo, e che consentano nello stesso tempo un facile accesso da parte del pubblico attraverso dispositivi personali. Particolarmente sentita è la necessità di elaborare e realizzare un piano di attività ludico-didattiche per il pubblico degli studenti, dalle scuole primarie a quelle secondarie superiori, nonché un piano di comunicazione digitale con proposte di visite e attività in presenza che permettano al grande pubblico di conoscere l’aspetto originario di questi sarcofagi e le metodologie impiegate per ricostruirlo.

The “In Colours: Rediscovering Polychromy at the Museo Nazionale Romano” project starts from the scientific collaboration of the Museo Nazionale Romano and the National Research Council – Institute of Information Science and Technologies “A. Faedo” in Pisa. The project aims to develop a strategic plan for the communication and dissemination of the original polychrome appearance of selected masterpieces of the Roman artistic production preserved in the Museum collections aimed at different audiences. As is known, the Museo Nazionale Romano hosts one of the most significant collections of Roman sarcophagi in the world. In the last decade,

these sarcophagi have been the subject of a systematic study to identify the ancient polychromy, which also involved the sarcophagi exhibited in the Vatican Museums and the Capitoline Museums collections arriving at detailed and standardised cataloguing of a conspicuous group (about eighty) of polychrome sarcophagi. The research addressed the problems of colour and gilding, arriving at results and data derived from field observation, from scientific analyses combined with archive-bibliographic research, through the use of emerging technologies to support the traditional research process. A new way of relating to the study of polychromy focused on a specific class of archaeological artefacts: the Roman marble sarcophagi produced in Rome between the beginning of the 2nd and the end of the 4th century AD. Among the eighty sarcophagi analysed, many of the Museo Nazionale Romano sarcophagi have shown, and still lead, peculiar polychrome evidence. They made it possible to define new 3D computer graphics methodologies to deepen the knowledge of ancient polychromy and its digital visualisation, arriving at extremely interesting data. Starting from these results, the project “In Colours: Rediscovering Polychromy at the Museo Nazionale Romano” goals to deepen the study and to create a museum itinerary aimed at the rediscovery of colour on the sarcophagi exhibited in the Michelangelo Cloister, the Halls of the Terme di Diocleziano and the Palazzo Massimo with impact tools but at low maintenance costs and which allow easy access to the public mainly through personal devices. The project aims to develop and implement a playful-educational activity plan for the student public from primary to upper secondary schools, as well as a digital communication plan with proposals for visits and face-to-face activities that allows the public to know the original appearance of these sarcophagi and the methodologies used to reconstruct their colour appearance.

STUDY ON THE POLYCHROMY OF THE PARTHENON'S METOPES AND TRIGLYPHS

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The aim of this study is the investigation of the remaining traces of polychromy on the Parthenon's west metopes and triglyphs. The architectural members were studied by using imaging techniques (Visible induced luminescence and portable digital microscope) in situ along with various techniques in the lab (Stereomicroscope, μ -Raman spectroscopy, ATR-FITR spectroscopy and SEM/EDX). The data obtained by the current investigation is compared with the 19th century studies, made by scholars from all over the world, that visited and studied the Acropolis monuments' polychromy. The results revealed that the scientific investigation not only confirms

or invalidates the data of 19th century but also exhibits new findings. Azurite, egyptian blue and red ochre were identified as the main pigments for the metopes and triglyphs depiction. Beeswax is also, identified as binder in plenty of investigated microsamples. This finding enhances the aspect that ancient Greeks decorated their temples, made by marble, by using the encaustic technique.

L'ORO DI EFESTO, SCULTURE DAGLI HORTI LAMIANI

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Tra il 1874 ed il 1881 l'area occupata in antico dagli Horti Lamiani fu una delle zone interessate dalle grandi opere di urbanizzazione necessarie per rispondere alle nuove esigenze della città di Roma, divenuta nel 1870 capitale del Regno d'Italia. In particolare gli scavi eseguiti a partire dal 1874 presso piazza Dante, all'angolo con via Ariosto portarono alla luce un piccolo impianto termale. L'edificio, databile in età massenziana, ha restituito un gran numero di statue ridotte in frammenti e inglobate nei muri di fondazione; tra queste sculture alcune conservavano evidenti tracce di policromia e doratura. Ulteriori scavi nella stessa area risalgono al 1879. I frammenti formano un contesto chiuso in età tardoantica che è interessante indagare nel suo complesso dal punto di vista della policromia. Il riesame permette inoltre di proporre una relazione tra le teste rinvenute nel 1879 e i corpi – anch'essi con tracce di doratura – rinvenuti nella prima fase degli scavi. Le opere oggetto di questa ricerca sono state indagate tramite un protocollo analitico che prevede l'impiego di strumentazione portatile totalmente non-invasiva. È stata condotta una documentazione preliminare tramite microscopio portatile e tecniche di imaging multibanda (UVL e VIL) per evidenziare sulle superfici la presenza di materiali con emissioni caratteristiche nell'intervallo spettrale di ripresa e di interesse. Successivamente, guidati dai risultati delle indagini fotografiche, sono state condotte analisi con tecniche puntuali (XRF, Spettroscopia UV-Vis-NIR, TR-FTIR, Raman) sulle dorature e sulle aree con policromia residua.

Between 1874 and 1881 the area formerly occupied by the Horti Lamiani was one of the areas affected by the major urbanization works necessary to meet the new needs of the city of Rome, which in 1870 became the Capital. In particular, the excavations started in 1874 in Piazza Dante, at the corner with Via Ariosto, brought to light a small thermal building, dated to the time of Maxentius. The research returned a large number of statues reduced to fragments and reused in the foundation walls; among these sculptures some retained evident traces of polychromy and gilding. Further

excavations in the same area date back to 1879. The sculptural fragments form a late antique context which is interesting to investigate as a whole from the point of view of polychromy. One of the results of the re-examination is the proposal of a relationship between the heads found in 1879 and the bodies with traces of gilding, found in the first phase of the excavations. The artifacts studied during this research were investigated through an analytical protocol that involved totally non-invasive and portable instrumentation. Preliminary documentation was carried out by using a portable microscope and multiband imaging technique (UVL and VIL) to highlight, on the surfaces the presence of materials, with characteristic emissions, in the spectral range investigated. Subsequently, following the results of the photographic investigations, selected areas with gilding and residual polychromy were analyzed by means of single-spot techniques (XRF, UV-Vis-NIR Spectroscopy, TR-FTIR, Raman).

THROUGH THE LENS OF THE MIDDLE AGES: MODALITIES AND MEANINGS OF THE USE OF THE POLYMATERIC TECHNIQUE OVER THE CENTURIES

Grazia Maria Fachechi, Università degli Studi di Urbino “Carlo Bo”

As we know, the Middle Ages continued and strengthened the relationship between form and colour that characterized temples and sculptures in Antiquity. Based on the idea that research on medieval polychromy could be, by analogy, methodologically of great relevance to Graeco-Roman polychromy research, this paper aims to focus on polychromy and polymateriality as technical practices that connect these two ages, too often mistakenly put in opposition (while a real caesura, regarding the theme ‘colour’, is recorded starting from the Renaissance, always considered a pure revival of Antiquity). In this paper, special emphasis will be given to the concept of ‘polymateriality’, the “free and easy” use of different media in various combinations (mixed media) in Medieval buildings and sculptures. Assuming that the use of materials chosen to build a building and create a sculpture was never accidental but determined by specific and conscious purposes, we will try to find them and answer the following questions: was polymateriality intended to decorate a building or a work of art in the name of ‘*varietas delectat*’ principle, to heighten the architectural structure and the realism of the figure, to ennoble them, to convey symbolic meaning, to reuse and hoard materials from Antiquity? Or is there more?

THE PAINTING CODE IN THE ROMAN PROVINCES: THE CASE OF TURRIS LIBISONIS (SARDINIA)

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The ancient Roman town of *Turrus Libisonis* was located on the north coast of Sardinia. Known in the past as a fundamental marine port, located in the Asinara Gulf, it was a Roman colony since the 1st century BC and reached its peak during the 2nd centuries, becoming one of the richest towns of the island. Among the artefacts rediscovery in the area, the memorial stoner exhibited in the Antiquarium Turritano is a matter of great concern for the well-preserved traces of polychromy. The memorial stone, found during the excavation of the commercial port, with a similar one, is dated back to the first imperial age, and could have funeral or votive function. The artefact was investigated by portable and non-invasive protocol: multi-band imaging (MBI), X-ray fluorescence coupled with Monte Carlo simulation (EDXRF -MC), Portable FT-IR in total reflectance mode (TR-FTIR) and Raman spectroscopy. The results obtained allowed to better understand the materials used and shed light on pigments and their use outside the italic peninsula and, in particular, Roman Sardinia.

ANCIENT POLYCHROMY AND SURFACE TREATMENTS ON CLAY AND LIMESTONE SCULPTURES AND ARCHITECTURES AT CASTRO (LECCE)

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Systematic archaeological research carried out since 2000 brought to light the ancient

sanctuary of Athena in the indigenous settlement of Castro (Lecce). The site played an important cultural and religious role during the Archaic, Classical and early Hellenistic period (7th-2nd century BC). Among the many significant discoveries, sculptural and architectural materials allow us to deeply investigate craft productions. The recent AthenaInColor project offered the opportunity to investigate ancient polychromy, terracotta and stone technology, benefiting from the exceptional state of conservation of the archaeological materials. A protocol based on imaging (VIS, UVL, VIL) coupled with non-invasive techniques (p-XRF, TR FTIR and FORS) was conducted to detect traces of ancient polychromy on Archaic terracotta roofs, on a limestone colossal statue of Athena and on 'peopled' friezes (4th cent. BC). Besides the identification of yellow, red ochres, Egyptian blue, the presence of preparatory layers was highlighted. UVL observations demonstrated the extensive use of organic treatments on all the finished limestone surfaces, a technological solution not attested so far for limestone sculptures in Magna Graecia. This aspect has been further investigated by GC-MS, FTIR and ESEM analyses.

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THE WALTERS "APHRODITE": EXCAVATING AN IMPORTANT POLYCHROME MARBLE HEAD FROM THE BASEMENT

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In 1927 a life-size female marble head, possibly representing Aphrodite, with conspicuous painting, gilding, and burial soiling was acquired indirectly by American industrialist Henry Walters from the Cairo-based antiquities dealer Maurice Nahman. Since the 1930s, questions about the authenticity of the head and its exceptional polychromy have been raised at the Walters Art Museum, and until 2021 the head remained unpublished and unknown outside of a handful of specialists. Although displaying some peculiarities of marble technique, the head appears to have originated from a high-quality full-length statue and likely dates from the second to mid-third century AD. Multiband imaging, microscopic examination, and scientific analyses have revealed multiple aspects about the

elaborate processes of sculpting, painting and gilding the surfaces of the head – all of which are consistent with ancient practice, including some possibly local to Egypt.

INVESTIGATION OF THE ORIGINAL POLYCHROMY OF THE GLAZED BRICKS FAÇADES FROM AŠŠUR (9TH - 7TH CENT. BCE)

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An in-depth study aiming at reconstructing the glazed bricks façades from Aššur (Iraq) dating to the Neo-Assyrian Period is currently undertaken in the Vorderasiatisches Museum in Berlin (GLAssur project [1] – DFG financial support). One of the great difficulties facing this study is the poor state of preservation of the bricks. Notably, the colours of the glazes appear heavily faded to the naked eye nowadays. To bring into light the original polychromy of the façades, a multi-spectroscopic approach (μ -XRF, SEM-EDX, μ -Raman, DRX) was followed for identifying the main colouring agents of the glazes. The analyses revealed that the Assyrian glassmakers had mastered at least 7 different glaze colours. The implemented strategy also helps understanding the early glaze colouring practices and the related technological innovations in Ancient Mesopotamia through the comparison with other major corpora of architectural glazed bricks [2].

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ERCOLE FARNESE. PRELIMINARY REPORT

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Dal 2018/19 il progetto MannInColours si è concentrato sui grandi capolavori della Collezione Farnese, dalla Minerva a Pomona, dal Lare (Farnese) all'Atlante. Tra le opere analizzate, particolare attenzione è stata rivolta alla colossale statua di Ercole (INV: 6001). Le indagini preliminari difatti restituiscono dati che confermano la presenza di policromia originale: nonostante l'opera abbia subito numerosi interventi di restauro e sia stata esposta a calcature, anche in tempi recenti, è stata accertata la

presenza di colore sulla superficie. La scoperta più importante è di sicuro la presenza di tracce di colore sul petto e sulle braccia che indica l'uso di terre la cui possibile funzione era creare una base sulla quale applicare successivamente altri pigmenti per ottenere l'effetto finale desiderato. In questo contributo sarà discusso il preliminary report.

From 2018/19 MannInColours project has focused on the great masterpieces of the Farnese Collection, from Minerva to Pomona, from the Lare (Farnese) to the Atlas. Among the works investigated, particular attention was paid to the colossal statue of Hercules (INV: 6001). Preliminary investigations suggest data confirming the existence of original polychromy: despite the statue having undergone several restorations and has been exposed to plaster casts, even in recent times, the occurrence of coloured pigments on the surface has been ascertained. The most important discovery is certainly their presence on chest and arms which indicates the use of pigments whose potential function was to create a base on which to subsequently apply others to obtain the needed final effect. The results of the analyses will be presented for the first time in form of preliminary report.

THE COLOURS OF THE PILASTERS, CLIPEI AND MASKS OF THE CHIRAGAN VILLA: A WORK IN PROGRESS

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Alexandra Dardenay, Université de Toulouse-Jean Jaurès

Adeline Grand-Clément, Université de Toulouse-Jean Jaurès

The aim of the presentation is to discuss the ongoing study of the polychromy on marble sculptures from the villa of Chiragan (Martres-Tolosane, France), exposed at the Saint-Raymond Museum in Toulouse. This exceptional collection, dating from the long period of occupation of the villa (1st - 4th century), is composed by sixty portraits, mainly in oriental marble, as well as by a group of mythological sculptures and architectural decorations in local marble (Saint-Béat), including ornamental elements and masks. Pilasters, clipei and masks – some bacchic, others from theatrical repertoire – will be, here, examined. Following an analytical protocol, coupling visual observation through white light, UVL and IR, optical videomicroscopy and MA-XRF analysis, we confirm the presence of the pictorial finishing and the compositional nature of the preserved colours. In order to better understand and interpret the results of the physico-chemical analyses, and to sketch some elements of restitution, the analysed objects are systematically compared to the same objects represented in other coloured supports (wall paintings, mosaics or even the real materials in which the represented elements were made). The results of this work in

progress may provide a better understanding of the initial appearance of certain works and, from a museographic point of view, a renewed reflection on the presentation of these works in the Musée Saint-Raymond in Toulouse and their visual impact.

RESEARCHING COLOURS ON THE ‘LUDOVISI THRONE’ (MUSEO NAZIONALE ROMANO - PALAZZO ALTEMPS, ROME)

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Simona Pannuzi, Istituto centrale per il restauro

Jan Stubbe Østergaard, Emeritus research curator, Ny Carlsberg Glyptotek

Mauro Torre, Istituto centrale per il restauro

Adriano Casagrande, Istituto centrale per il restauro

Paolo Pallante, For.Geo Associated

Debora Papetti, Museo Nazionale Romano

Stefano Ridolfi, Ars Mensurae

The ‘Ludovisi Throne’ was found in 1887 in the area of the Villa Ludovisi in Rome; purchased by the Italian State in 1901 together with the Boncompagni Ludovisi collection and assigned to the Museo Nazionale Romano, the ‘Throne’ has been exhibited in Palazzo Altemps since 1997. Opinions remain divided on its function, iconology, geographical origin, date and even authenticity especially in relation to the so-called ‘Boston Throne’. Although the object biography and conservation history involves cleaning and casting, the potential importance of the ‘Ludovisi Throne’ to polychromy studies has led to an investigation for traces of ancient colours. Such traces would further confirm its authenticity as an ancient artifact. The paper describes investigations carried out in 2021 and 2022, by digital videomicroscope, VIL, XRF and mineropetrographic analysis of the Thasian marble of the ‘Throne’, with preliminary evaluations of their results about the possible presence of traces of Egyptian blue on the surface of the artwork.

THE POLYCHROMON PROJECT – POLYCHROMY OF ROMAN MONUMENTS IN THE DANUBE PROVINCES

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Robert Linke, Federal Monuments Authority Austria

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Eduard Pollhammer, Collections of the Provincial Government of Lower Austria

Nirvana Silnovic, Austrian Archaeological Institute, Austrian Academy of Sciences

The aim is to present an ongoing project that is currently being carried out within the framework of the Heritage Science Programme at the Austrian Academy of Sciences. The artefacts under investigation are primarily votive, funeral and

architectural monuments from Carnuntum, the Vienna Basin and the Leitha area as well as selected examples with traces of original colouring from other regions. The focus is on the possibilities of analysis, documentation and interpretation within this group of finds, which has so far received little attention in polychromy research. Special attention is given to the development of Multispectral Imaging techniques, interlinked with chemical-physical and archaeological data and the implementation of the results in the practice of heritage conservation and archaeological evaluation.

I COLORI DELLE SCULTURE DEL MUSEO ARCHEOLOGICO NAZIONALE DI AQUILEIA: RAPPORTO PRELIMINARE **THE COLOURS OF THE SCULPTURES IN THE NATIONAL ARCHAEOLOGICAL MUSEUM OF AQUILEIA: PRELIMINARY REPORT**

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Rita Deiana, Università degli Studi di Padova

Marta Novello, Museo Archeologico Nazionale di Aquileia

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Negli ultimi anni, con l'evolversi degli studi sul colore applicato su sculture di età classica, vari musei hanno iniziato a guardare con occhi diversi le proprie collezioni e cercare tracce fino ad oggi trascurate. Un caso è quello del Museo Archeologico Nazionale di Aquileia, fiorente città romana dell'area adriatica, oggi localizzata nell'Italia nord-orientale. Se già sono ben noti i colori dei mosaici e degli intonaci dipinti, ad oggi non esiste invece uno studio sulla policromia delle sculture di Aquileia, le cui tracce di colore sono solo raramente citate nei cataloghi. Tra le opere riscontrate con policromia ancora ben visibile (decorazioni architettoniche, rilievi funerari, statuaria), sono state selezionate alcune attestazioni che possano fornire inedite informazioni sul colore su marmo e pietra dell'Aquileia romana, grazie anche al supporto di indagini diagnostiche non invasive (imaging, XRF).

Recently, some museums started seeing in a new light their collections and searching for overlooked traces of painted colours, thanks to the development of the research about polychromy on ancient sculpture: one example is the National Archaeological Museum of Aquileia, nowadays in north-eastern Italy, a Roman city close to the Adriatic Sea. The colours of mosaics and wall paintings of Aquileia are well known to the scholars, but the traces of polychromy on the sculptures are widely unknown and rarely cited in literature. Among the sculptures with an easily recognizable polychromy (architectural decorations, funeral reliefs, statues), some were chosen, in order to give new and unpublished information about the colours on marble and stone of the Roman Aquileia, with the support of non-invasive analyses (imaging and XRF in particular).

POLYCHROMY AND GILDINGED DECORATIONS ON GANDHARAN SCULPTURES OF THE MUSEUM OF ORIENTAL ART IN TURIN

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Maria Perla Colombini, Università di Pisa - Dipartimento di Chimica e Chimica Industriale

Fabio Talarico, former MIC, Istituto centrale per il restauro, Roma

Stefano Ridolfi, Arsmensurae, Roma

Claudia Ramasso, MAO, Museo di Arte Orientale, Torino

This contribution will discuss the new scientific results of recent physical and chemical analyses on the polychrome and gilded stone, stucco and clay sculptures of Gandharan art, in continuation of the previous ICR project realised in last years with the collaboration of Italian and French Museums and the Italian Archaeological Mission in Pakistan. The polychrome artworks belong to the collection of the Museum of Oriental Art in Turin, and derive from Italian archaeological excavations in some Gandharan sites of Pakistan and from the antiques market. Multispectral diagnostic analyses (digital videomicroscope, Infrared Reflectography, Infrared False Colour Photography, UV Fluorescence) showed the presence of restorations and different ground layers, as well as traces of colours and gildings, which are, in some cases, totally invisible to the naked eye. Investigations based on XRF, SEM EDS, Raman and Mass Spectrometry are being carried out to determine pigments and binders used on sculptures.

NOTE DI COLORE DAL PALATINO. SCULTURE PROVENIENTI DAL CRIPTOPORTICO CENTRALE DELLA DOMUS TIBERIANA.

Alfonsina Russo, Paola Quaranta, Sabrina Violante, Parco archeologico del Colosseo

Silvia Borghini, Museo Nazionale Romano

Lo scavo dei vani ipogei del criptoportico centrale della Domus Tiberiana ha restituito elementi scultorei di eccellente fattura, che conservano evidenti tracce di colore. Alcuni di questi, come la statua di personaggio maschile con mantello, attualmente esposta al Museo Palatino, ed una cista frammentaria di cui si conserva il coperchio con decorazioni in foglia d'oro, sono state già oggetto di pubblicazioni ed approfondimenti legati alla policromia. In questa sede si intende integrare la ricerca presentando le indagini in corso sui restanti materiali ed in particolare su un frammento di statua di attore vestito da Papposileno e su una statua di satiro. Con l'occasione verrà riesaminato l'intero nucleo di sculture, che seppur di numero limitato, contribuisce in maniera significativa a restituire la ricchezza dell'apparato decorativo di uno dei contesti più significativi di età imperiale provenienti dal Palazzo Palatino.

The excavation of the underground rooms of the central cryptoporticus of the Domus Tiberiana has brought to light sculptural elements of excellent workmanship, which preserve evident traces of color. Some of these artifacts, such as the statue of a male figure wearing a cloak, currently on display at the Palatine Museum, and a fragmentary cyst of which the lid with gold leaf decorations is preserved, have already been the subject of publications and in-depth studies related to polychromy. Here we intend to integrate the research by presenting the investigations in progress on the remaining materials, in particular a fragment of a statue of an actor dressed as Papposilenus and a statue of a satyr. On this occasion, the entire nucleus of sculptures will be re-examined as, although limited in number, it contributes significantly to restoring the richness of the decorative apparatus of one of the most significant contexts of the Imperial age from the Palatine Palace.

POSTER SESSION

RESTORING PATINAS AND TARTARS IN MUSÉE NAPOLÉON'S WORKSHOP OF SCULPTURES.

Emmanuel Rémond, FRAMESPA, Université Jean Jaurès, Toulouse

From 1798 to 1814, a very small number of bronzes sculptures compared to the number of marbles were restored before being exposed in the halls of the Musée Napoléon becoming Musée Royal. If the main activities of Bernard Lange (1754-1839), chief of the workshop, were about reassembling or complete sculptures, an unsuspected part of the activity was to recreate a general aspect to the sculpture. About the marbles, the question of sanding is partially known for the period. Studying supplier invoices of the Atelier des restaurations permits to apprehend and better know the “cooking recipes” and steps which lead to the actual states of marbles and bronzes. As exemples, Pierre-Maximilien Delafontaine (1774-1860) or his father was paid 30 francs after 1805 for «Raccords de la dorure et du vert antique¹» to the bust of Antonino Pio now come back to Parma. Another example, to restore an antique porphyria table², fish glue with lime [chaux], alcohol, egg white, charred bone stew and ocher were used³. The contribution will be focused on the first controversies about the technics of cleaning marbles, at the end of the 18th century, and “cooking recipes” for recreating the past by new patinas and tartars.

[1] Paris, Archives Nationales, O2 839 « Note des dépenses faites pour la restauration de la tête antique, faite pour le musée Napoléon, sous les ordre de monsieur Visconti, conservateur des antiques par Delafontaine, ciseleur-fabriqueur de bronzes, rue d'Orléans, St honoré n°13.

[2] Paris, musée du Louvre, n° inv. MR 1111

[3] Paris, Archives Nationales, O31408, États des paiements de restaurations de statues et tableaux.

LAYERED PAINTING. HOW TO ANALYSE AND ILLUSTRATE THIS ANCIENT TECHNIQUE

Katharina Ute Mann, Universität zu Köln / Akademia Ignatianum

The history of Greek painting, whose artistic innovations were accompanied by political or social changes, allows important conclusions for the colour reconstruction of ancient sculptures today. In this case, it is important to focus on new colours, colour theories, modern painting techniques and painting styles to get an idea of polychromy in antiquity. Particularly remarkable are the differences between layered painting and mixed techniques, which must be clearly worked out in colour reconstruction of ancient sculptures. For example, in reconstructions of archaic sculptures where only the lower layer of colour can be identified, it is essential to characterize the six-colour technique (layered painting). In this sense, hypothetical reconstructions are of enormous importance to avoid irritating impressions. This technique was used in Egypt since 1550 BC, so Egyptian examples help us to get an idea of the aesthetic effect of layered painting. Digital reconstruction models assist in giving this idea, because it does not present only one interpretation, as the conventional model shows us.

I COLORI DEL TROPAEUM TRAIANI

Anca Cezarina Fulger, Centro di Storia Comparativa delle Società Antiche (CICSA) – Facoltà di Storia, Università di Bucarest

La costruzione del monumento di Tropaeum Traiani (109 d.C.) situato ad Adamclisi (Romania) corrisponde ad una commemorazione bellica romana vincente e rappresenta un'iconografia parziale di un evento politico-militare. Eretto sul campo di battaglia, il monumento rappresenta un "marchio" politicogeografico, un'impronta territoriale che corrispondeva con connotazioni specifiche, testimoniate in primo luogo dall'iscrizione dedicatoria verso Marte Ultore. Il monumento rappresenta la testimonianza diretta dell'imperatore Traiano di correlare attraverso la sua politica propagandistica coerente, il centro del potere dalla periferia, attraverso forme architettoniche che nascondono messaggi legati alla concezione di coabitazione, humanitas e pax romana. Il monumento di Tropaeum Traiani ha sollevato fin dall'inizio una serie di problematiche che riguardavano la datazione e la sua forma originale, l'analisi e la successione delle metope e la correlazione del monumento con le costruzioni adiacenti come l'altare e il mausoleo, ed anche se lo stesso gode oggi di una vastissima bibliografia al pari della sua importanza sia per i suoi significati storici che artistici, il monumento però non dispone ancora di una precisa documentazione iconografica e dunque un'analisi dettagliata riattualizzata dei suoi elementi architettonici e scultorei. L'intervento porterà per la prima volta nell'ambito scientifico il risultato inedito delle analisi di laboratorio come la spettroscopia in

infrarosso e SEM-EDX, ai quali alcuni dei blocchi di pietra delle metope e dei merli furono sottoposti proprio per identificare pigmenti di colore e composti organici. I risultati confermano che il monumento era stato dipinto e proponiamo alcune ipotesi di ricostruzione grafica dell'iconografia del monumento.

The triumphal monument from Adamclisi (Romania), which was erected by order of Emperor Trajan on the place where he obtained an important victory against barbarian enemies in the early second century of the Christian era (109 d.C.), stands as evidence of the imperial propaganda implemented in a provincial environment with an artistic standard not equal to that of culturally advanced regions. Since the beginning Tropaeum Traiani raised controversy starting with dating it, its initial form, the analysis and the succession of the metopes, as well as its relationship with the surrounding monuments – the altar and the mausoleum. The monument, with a clear dedicatory inscription to Mars Ultor, is a propagandistic construction with a clear message to the conquered population and represents the indisputable wish of the Emperor to connect the centre of power with the Empire's provinces, by utilising architectural forms with subliminal messages of co-habitation, humanitas and pax romana. Consequently, through architecture the Emperor wished to transmit his coherent politics as well as his systematic and consistent rule of the state. This study — the first of its kind — presents the results of the laboratory analysis identifying color pigments and organic matter on select metopes and merlons of the monument, using the combined method TG-MS (thermogravimetry analysis - mass spectrometry). The results confirm that the monument was painted; thus, we propose graphic reconstruction of the iconography of the entire monument to validate these results.

MEDITERRANEAN POLYCHROMIES: FOR A CORPUS OF COLORED SCULPTURE BETWEEN EAST AND WEST

Silvia Pedone, Accademia Nazionale dei Lincei

Paola Antonella Andreuccetti, Istituto Storico Lucchese

The joint project of a database on color and its multiple artistic applications and functions arises from the fruitful comparison of data relating to polychrome sculptures of the Middle Ages in the East and West. The database that we present here for the first time, classifies and systematizes the results of different studies focusing on an early chronology, often affected by the lacking of interests and case studies. The areas that will be taken into consideration are those of sculpture in stone (marble in particular), wood, terracotta, ivory and stucco, in monumental (architecture, liturgy) and museum contexts. A comparative look that takes into account the artistic media offers the opportunity to reflect on specific technical skills, common practices and aesthetic and visual effects in the use of color. Among the

aspects considered there is the use of polychromy to mask or hide the surface, to articulate the space of the representation, to enhance structurally relevant or visually significant elements.

POLYCHROME SCULPTURE, CONSERVATION AND COMMUNICATION: A CRITICAL APPROACH

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In the last years the Istituto centrale per il restauro (ICR) focused on technological, conservative and reconstructive issues of some polychrome stone and stucco sculptures and architectural decorations belonging to different museum collections, artistic context, and historical periods. In all cases one of the most important challenges was to understand how we perceive today, compared to the ancient viewer, these artworks, which often conserved very little traces of polychromy. During the restoration we had to solve some issues: can we reconstruct the colored surfaces, based on the thin traces found? And how can we do it? Can the 3D reproductions help the perception of the original aspect of the sculptures? The 3D graphic restitution of the ancient polychromy, based on the traces of the original layers, can help the study of the sculptures and the fruition of artworks museums. Moreover, a 3D scale model (prototype) printed with specific material painted with colours similar to the original pigments found by diagnostic investigations helps the comprehension of the original aspect of the sculptures and could be very useful for the museum setting-up.

NEW DATA ON PIGMENTS AND TECHNIQUES OF APULIAN TOMB PAINTING

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Annarosa Mangone, Università degli Studi di Bari Aldo Moro, Dipartimento di chimica

Italo Maria Muntoni, Soprintendenza archeologia, belle arti e paesaggio per le province di Barletta-Andria-Trani e Foggia

The results of new analyses of paintings from five Apulian graves are the subject of the present paper. The analyses were conducted as part of a research project on funerary images in Apulia carried out by the German Archaeological Institute in Rome. One of the aims of the research project is the investigation of the aspects of technical know-how and technology transfer in the configuration and painting of

non-Greek graves from Apulia. In this context, the figurative paintings of five late classical-hellenistic chamber and semi-chamber tombs were analysed: Tomba della Nike and Tomba dei Cavalieri (Arpi), Ipogeo del Cerbero, Ipogeo Scocchera B and Ipogeo Sant'Aloia (Canosa). The results have shown that in four of the five graves considered, very common pigments were used, "basic stock" for funerary painting in Apulia and elsewhere. However, the results from the Tomba della Nike were striking: cinnabar and Tyrian purple as red and pink pigments, particularly refined plaster with lime putty consisting of well-selected material, "secco" application of the pigmented layer. The pigments and technique are therefore quite different from the other analysed graves and can possibly be related to the polychrome vases from the same Apulian centres.

ARGUMENTS IN SUPPORT OF THE CERA PUNICA PAINTING TECHNIQUE FOR THE COLOURING OF CLASSICAL AND HELLENISTIC GREEK STATUES MADE FROM WHITE MARBLE

Euphrosyne Doxiadis

My thesis is that coloured cera punica was used for the colouring of Classical and Hellenistic Greek white marble statues. I support this thesis from a painter's point of view based on my experience of my decadeslong engagement, study and practical exploration with the encaustic technique. I use a multidisciplinary approach, based on both empirical and theoretical methods; bibliographic references from ancient sources (Vitruvius, Pliny the Elder and other), evidence from archeological finds, as well as personal technical experiments with the materials. For these I have used a new sculpted head made of white unpolished marble. On the surface of this new sculpted head I applied superimposed layers of "glazes" of saponified coloured (punic) wax. The result is luminous and naturalistic as the white of the underlying marble is allowed to shine through the transparent layers of punic wax. The subtleties of the sculpture's three-dimensional quality are not covered-up by a "blanket", so to speak, of egg tempera or any other non-transparent paint.

VISUALIZE / COMMUNICATE

Francesca Gollo, RUFA - Rome University of Fine Arts

The neoclassical heritage is a very strong idea rooted in the common collective imagination. It is therefore very important, to familiarize the polychrome appearance of ancient Mediterranean sculpture and architecture, highlighting the coloration of not just some parts but the whole. It is necessary to "go inside" and "expand" the visualization, through multiple strategic actions that collaborate synergistically within

the museum spaces, using different multimedia languages and different technologies. Augmented reality can, for example, be applied to visualize one or a group of works in the original polychrome aspect and, by exploiting the possibilities and familiarity of the medium, also create a storytelling that helps to understand the meaning of the colors; the immersive projections can instead help the representation of the original context of the works, the interactive tables can instead work on the materiality, trying to transfer the sensation of contact with the different materials.

LA POLICROMIA DEL CONTROSOFFITTO DEL SALONE DEI MARMI DELLA CASA DEL RILIEVO DI TELEFO AD ERCOLANO

Domenico Camardo, Herculaneum Conservation Project

Elisabetta Canna, Parco Archeologico di Ercolano

Lisa Castelli, Istituto Nazionale di Fisica Nucleare

Sabrina Grassini, Politecnico di Torino

Annunziata Laino, Herculaneum Conservation Project

Mario Notomista, Herculaneum Conservation Project

Federica Pozzi, Fondazione Centro di Conservazione e Restauro “La Venaria reale” di Torino

Chiara Ruberto, Istituto Nazionale di Fisica Nucleare

Fin dalla loro scoperta, lo straordinario stato di conservazione degli elementi lignei pertinenti al controsoffitto del Salone dei Marmi della Casa del Rilievo di Telefo ha destato enorme interesse. Le parti rinvenute, infatti, per particolari condizioni di seppellimento non si presentano carbonizzate ma sostanzialmente come “legno vivo”. Conservano ancora tutta una serie di segni di lavorazione che hanno permesso di individuare le tecniche di costruzione e assemblaggio dei singoli pezzi e di ricostruire l'intero schema compositivo. Si tratta di un controsoffitto a cassettoni che si caratterizza per la presenza di spazi quadrangolari arricchiti da elementi geometrici a rilievo e lacunari di diverso tipo. Ad enfatizzare questa ricca composizione vi era una fastosa policromia che ancora si conserva su molti degli elementi ritrovati. Quest'ultima è stata analizzata in dettaglio fin dalle prime fasi della scoperta e dettagliata durante il lungo processo che ha portato al restauro di alcuni di questi elementi. Del resto questo controsoffitto per la quantità e la qualità degli elementi ritrovati costituisce un caso studio di particolare interesse grazie al quale si potranno capire meglio le notizie che ci vengono dalle fonti antiche su questo argomento. Infatti, i risultati che qui si espongono rispondono innanzitutto a domande di tipo archeologico e sono stati raggiunti grazie all'apporto delle discipline scientifiche applicate al mondo dei beni culturali. In particolare si ci è concentrati sulla identificazione dei pigmenti, sulla loro composizione e sulla loro applicazione sugli elementi lignei: informazioni che sono servite anche ai restauratori per mettere a punto la procedura più corretta per la conservazione di questi elementi.

Since their discovery, the extraordinary state of conservation of the wooden

elements pertaining to the false ceiling of the Marble Hall of the Casa del Rilievo di Telefo has aroused enormous interest. The parts found, in fact, due to particular burial conditions are not charred but substantially as “living wood”. They still retain a whole series of processing marks that have made it possible to identify the construction and assembly techniques of the individual pieces and to reconstruct the entire compositional scheme. It is a coffered ceiling which is characterized by the presence of quadrangular spaces enriched by geometric elements in relief and lacunar of different types. To emphasize this rich composition there was a sumptuous polychromy that is still preserved on many of the elements found. The latter was analyzed in detail from the earliest stages of the discovery and detailed during the long process that led to the restoration of some of these elements. Moreover, for the quantity and quality of the elements found, this false ceiling constitutes a case study of particular interest thanks to which it will be possible to better understand the information that comes to us from ancient sources on this topic. In fact, the results presented here primarily answer archaeological questions and were achieved thanks to the contribution of scientific disciplines applied to the world of cultural heritage. In particular, we focused on the identification of the pigments, their composition and their application on the wooden elements: information that also served the restorers to develop the most correct procedure for the conservation of these elements.

THE COLOURS OF ROMAN GEMS. A “SEMANTIC SYSTEM” OF PRECIOUS STONES

Chiara Ballestrazzi, Scuola Normale Superiore, Pisa

Attraverso un'indagine della Storia Naturale di Plinio, libro 37, decodificherò un “sistema semantico” delle gemme sofisticato e coerente, radicato nelle qualità fisiche, chimiche ed estetiche delle gemme, colore in primis. La distinzione tra gemme per le donne, per gli uomini, “greche”, “romane” ed esotiche rispecchia la dicotomia fuoco/calore/scuro vs acqua/freddo/pallore che distingueva i corpi maschili e femminili nella fisiognomia classica, e trova riscontro nel simbolismo cromatico romano. Questo linguaggio è pienamente confermato dalle fonti materiali e letterarie, e resistette fino alla tarda antichità, quando nuovi significati furono assegnati ai colori delle gemme. La decodifica di questo codice minerale arricchisce notevolmente la nostra comprensione della glittica antica: in aggiunta a e in combinazione con le iconografie di intagli e cammei, la scelta del minerale rivela importanti dati su chi li ha usati e perché (genere, politica, cultura, moda, tradizione, ecc.).

Through an in-depth analysis of Pliny's Natural History, Book 37, I will decode a remarkably sophisticated and coherent “semantic system” of gems, which was rooted in the physical, chemical and aesthetic qualities of the minerals, colour in primis. The distinction between gems for women, gems for men, “Greek” vs “Roman” gems,

and exotic gems mirrors the dichotomy fire/heat/darkness vs water/cold/paleness that distinguished male and female bodies in classical physiognomy, as well as the Roman chromatic symbolism. This semantic code is fully confirmed by material and literary sources, and lasted until late antiquity, when new meanings were assigned to the colours of gems. The decoding of this mineral language appreciably enriches our interpretation of ancient glyptics: in addition to and in combination with the iconographies of intaglios and cameos, the choice of the mineral reveals important data about who used them and why (gender, politics, culture, fashion, tradition, etc).

EUMACHIA, SACERDOTESSA DI VENERE, DEDICA A [UNA] CONCORDIA **EUMACHIA, PRIESTESS OF VENUS, DEDICATES TO [ONE] CONCORDIA**

Cristiana Barandoni, Museo Archeologico Nazionale di Napoli

In CIL X 811 leggiamo «Eumachia figlia di Lucius sacerdotessa pubblica [di Venere] a nome suo e di suo figlio Marcus Numistrius Fronto costruì a sue spese il calcidico, la cripta e la porticus; ella stessa li dedicò alla Concordia e alla Pietas Augusta».

Dall'Edificio di Eumachia a Pompei provengono due straordinarie sculture: Eumachia (INV. 6232) e Concordia (INV: 6362), il cui studio può fondatamente contribuire alla ricerca di un comune denominatore pittorico, plausibilmente locale.

In questo contributo si discuterà l'identificazione della policromia rinvenuta su entrambe le opere che ancora oggi è evidente e visibile ad occhio nudo. I risultati della ricerca invitano ad un ulteriore approfondimento oltre alla stretta relazione confermata dalle fonti letterarie ed epigrafiche. Le opere sono state inserite nel progetto MannInColours in corso al Museo Archeologico Nazionale di Napoli.

In CIL X 811 we read «Eumachia daughter of Lucius public priestess [of Venus] in her name and of her son Marcus Numistrius Fronto built the chalcidicus, the crypt and the porticus at her own expense; she herself dedicated them to Concordia and Pietas Augusta ». Two extraordinary sculptures come from the Eumachia Building in Pompeii: Eumachia (INV. 6232) and Concordia (INV: 6362), whose study can justifiably contribute to the search for a common pictorial denominator, possibly local. This contribution will discuss the identification of the polychromy found on both statues, which is still evident and visible to the naked eye today. The results of the research encourage further studies beyond the close relationship confirmed by literary and epigraphic sources. The two statues were included in MannInColours project at the National Archaeological Museum of Naples.

**PROBLEMI DI AUTENTICAZIONE DELLE CERAMICHE POLICROME
PROVENIENTI DA COLLEZIONI PRIVATE: IL CASO DELLA
COLLEZIONE MARCHETTI DELL'UNIVERSITÀ DI PADOVA**
**THE PROBLEMS OF AUTHENTICATION OF POLYCHROME
CERAMICS COMES FROM PRIVATE COLLECTION: THE CASE OF
STUDY OF MARCHETTI'S COLLECTION OF UNIVERSITY OF PADUA**

Giusti Chiara, Salvadori Monica, Università degli studi di Padova, Dipartimento dei Beni Culturali: archeologia, storia dell'arte, del cinema e della musica (dBC)

Il contributo affronta le problematiche che accompagnano lo studio delle ceramiche policrome attraverso l'indagine di alcuni manufatti facenti parte la Collezione Marchetti, donata all'Università di Padova e attualmente parte integrante del Progetto MemO. Degli oggetti in questione alcuni si accostano per caratteri alla ceramica centuripina mentre altri sono individuabili all'interno dello stile canosino. Si affronterà il legame tra queste particolari classi ceramiche e il collezionismo, descrivendo le criticità determinate dal traffico illecito e dalla falsificazione di questi beni. In questa sede le opere sono state esaminate partendo da un'analisi formale congiunta, ove necessario, ad analisi scientifiche che possano aver confermato o meno la presunta autenticità. Con questo intervento verranno infine illustrati i risultati delle analisi e le prospettive di ricerca a questi legati.

The contribution addresses the problems that accompany the study of polychrome ceramics through the investigation of some artifacts that are part of the Marchetti's Collection, donated to the University of Padua and currently an integral part of the Progetto MemO. Of the objects in question, some are similar in character to centuripine ceramics while others are identifiable within the Canosa style. The link between these particular ceramic classes and collecting will be addressed, describing the criticalities determined by the illicit trafficking and falsification of these goods. Here the artifacts have been examined starting from a formal analysis combined, where necessary, with scientific analyzes that may have confirmed the alleged authenticity or not. Finally, this paper will illustrate the results of the analyzes and the research perspectives related to them.

**SOTTO UNA NUOVA LUCE: UN RIESAME DEI COLORI DELLE ARULE
DELLE COLLEZIONI CAPITOLINE**
**IN A NEW LIGHT: A REEXAMINATION OF THE COLORS OF THE
ARULAE IN THE CAPITOLINE COLLECTIONS**

Paola Piccione, Federico Floridi, Musei Capitolini

Il cospicuo nucleo di arule delle collezioni capitoline è stato oggetto di recenti attività di conservazione che hanno consentito di osservare questi manufatti sotto

una nuova luce e di evidenziare le tracce di colore presenti su diversi di essi. Come è noto, la decorazione delle arule era caratterizzata non solo da una varietà di soggetti vegetali, zoomorfi e antropomorfi, ma anche, in molti casi, da una vivace policromia. Attraverso la documentazione grafica, fotografica e macro-fotografica delle tracce di colore, ci si propone ove possibile di “(ri)colorare le figure” e di individuare i colori utilizzati per le diverse scene figurate. Si presentano inoltre i risultati preliminari di un lavoro volto a indagare continuità e discontinuità nella gamma dei soggetti rappresentati e nelle modalità di utilizzo dei colori, nel corso del lungo arco di tempo nel quale è attestata la produzione di arule.

The large assortment of arulae (small terracotta altars) in the Capitoline collections has recently undergone conservation interventions, that have made it possible to observe them in a new light and to highlight several traces of the colors originally used. As is well known, the decoration of this unique class of artifacts was characterized not only by a variety of plant, zoomorphic and anthropomorphic subjects, but also, in many cases, by vivid polychromy. Through the graphic, photographic and macro-photographic documentation of the color traces, we aim, where possible, to “(re)color the figures” and to determine the colors used for the different figured scenes. We will also present the preliminary results of a study aimed at considering the long span of time long span of time during which we know the arulae were produced and investigating the continuity and discontinuity in the range of subjects depicted and in how the colors were used.

“SI CONSERVANO ASSAI TRACCIE DELL’ANTICA DORATURA” . SARCOFAGO CON IMAGO CLIPEATA DELLA DEFUNTA ALLA CENTRALE MONTEMARTINI. UN ESEMPIO DI DORATURA DEL III SECOLO D. C.

Giovanni Bartolozzi, IFAC-CNR, Firenze

Roberta Iannaccone, Università degli Studi di Sassari

Sara Lenzi, Università di Pisa

Donata Magrini, ISPC-CNR, Firenze

Barbara Nobiloni, Musei Capitolini - Centrale Montemartini

Nell’area di Prati di Castello a Roma si rinvenne nel 1889 un sarcofago con immagine clipeata della defunta, sorretta da eroti alati e sull’alzata del coperchio scene di eroti vendemmianti ai lati di una tabula priva di iscrizione. La caratteristica che venne chiaramente indicata nei resoconti di scavo riguarda le allora evidenti tracce di doratura su tutta la superficie. Lo studio del sarcofago e dei residui di doratura non più del tutto visibili ad occhio nudo costituiscono l’approfondimento di un esempio di doratura nell’ambito del III secolo d.C. Le indagini archeometriche che sono state condotte hanno permesso di evidenziare, oltre alle tracce di doratura, abbondanti residui di blu egizio, unitamente all’ocra rossa visibile sui profili di numerosi personaggi e oggetti.

In the area of Prati di Castello in Rome, a sarcophagus with a clipeus of the deceased supported by winged Eroses was found in 1889. The front side of the lid featured scenes of harvesting Eroses on both sides of a tabula without an inscription. The characteristic that was clearly indicated by the excavation reports concerned the evident traces of gilding on the entire surface. The study of the sarcophagus and of the gilding residues today no longer fully visible to the naked eye will deepen an example of the gilding technique in the third century AD. Archaeometric investigations were carried out and, beyond the richness of gilding, they found abundant traces of Egyptian blue, together with the red ochre applied on the profiles of numerous figures and objects on the lid.

STATUE POLICROME DALLA NECROPOLI DELLA VIA TIBURTINA: ALCUNI ESEMPLARI INEDITI DALLE COLLEZIONI DEI MUSEI CAPITOLINI

Serena Guglielmi, Musei Capitolini - Centrale Montemartini

Giovanni Bartolozzi, IFAC-CNR, Firenze

Roberta Iannaccone, Università degli Studi di Sassari

Donata Magrini, ISPC-CNR, Firenze

Il contributo presenta l'analisi di alcune statue di età romana scoperte durante gli scavi eseguiti tra il 1872 e il 1878 per ampliare il cimitero Verano sulla via Tiburtina a Roma. Le sculture, scoperte in situ e quasi intatte, recavano tracce di colore ancora oggi visibili ad occhio nudo. Le indagini archeometriche di quanto rimane dell'antica policromia consentiranno di ricostruire la tecnica e l'aspetto originario di queste sculture.

The contribution presents a group of roman statues discovered during excavations carried out between 1872 and 1878 to expand the Verano cemetery on Via Tiburtina in Rome. The sculptures, discovered in situ and almost intact, retained traces of color that are still visible today. The archaeometric survey on the remains of the ancient polychromy will allow us to reconstruct the technique and the original appearance of these sculptures.