

Ancient Sculptural Polychromy: A Round Table Workshop at the British Museum

15 – 16 September 2011

Programme

Thursday, 16 September 2011

09.30 – 09.45	Arrival at Sackler Rooms, British Museum
09.45 – 10.00	Welcome and Introduction
10.00 – 10.45	T. Opper/J. Dyer: <i>Rome to Cyrene and Beyond: Recent work at the British Museum</i>
10.45 – 11.05	Coffee
11.05 – 11.50	V. Brinkmann: <i>The Colours of Chiotissa</i>
11.50 – 12.35	C. Blume: <i>The Frankfurt Muses: Appearance, Shared Polychrome Characteristics, Origin, Re-Painting Over the Course of Time</i>
12.35 – 13.30	Lunch
13.30 – 14.15	J. S. Østergaard: <i>The Copenhagen Polychromy Network Main Project: A brief Update</i>
	Rikke H. Therkildsen: <i>Recent investigations into the polychromy of a Late Roman garland sarcophagus, IN 2468</i>
	Amalie Skovmøller: <i>The NCG / CPN polychromy project database and website</i>
14.15 – 15.00	P. Schertz: <i>The Virginia Museum of Fine Arts Caligula</i>
15.00 – 15.20	Coffee
15.20 – 15.45	P. Liverani: <i>A progress-report on ongoing projects in Italy</i>

15.45 – 16.30 T. Nogales Baratte: *Sculptural Polychromy in Ancient Hispania: The Example of Augusta Emerita*

16.30 – 17.05 Annemarie La Pensée: *Non-contact replication, using 3D laser scanning and rapid manufacture techniques, to create reconstructions of sculpture for research, visitor interpretation and interaction.*

19.30 Speakers' dinner

Friday, 17 September 2011

10.00 – 10.45 H. Brekoulaki: *A preliminary examination of the polychromy of Classical Attic marble vases from the National Museum Collection at Athens*

10.45 – 11.30 Heinrich Piening: *Gold to purple: a corrosion product of gold on ancient marble*

11.30 – 12.15 Giovanni Verri: *The embroidered garment of an Etruscan female figure from Polledrara*

12.30 – 14.00 Speakers' Lunch

14.00 – 16.00 Closed session for speakers

Abstracts

Day 1

Thorsten Opper*, Joanne Dyer*

Rome to Cyrene and Beyond: Recent work at the British Museum

Work has continued on the Treu Head (1884,0617.1), an important Roman marble head of the mid-second century AD. Stable isotope analysis (carried out by Prof L. Lazzarini) has identified the marble source and strongly indicates that all fragments belong together, confirming our previous observations. This may also provide further clues to the sculpture's ancient appearance. The head has been laser-scanned and a first replica produced in preparation for a future physical reconstruction of its polychrome rendering.

The methodology employed in the examination of the Treu Head (non-invasive imaging techniques and invasive analytical methods) has in the meantime been applied to other examples of potential sculptural polychromy within the collection. A particular recent focus has been on marbles from the ancient city of Cyrene (modern Libya), partly in order to explore the potential for a larger project focussing on this site (the British Museum contains a strong collection of Cyrenean sculpture acquired through R. Murdoch Smith and E. A. Porcher in 1860-1861).

On a marble portrait head of Marcus Aurelius from Cyrene dating to AD 160-180 (1861,1127.162), hematite was identified on the lips and a remnant of hematite-based skin tones and carbon black on the beard. In this case, no evidence of Egyptian blue was observed. In addition, the eyes were originally inlaid in a different material. The examination of a slightly earlier Cyrenean full-length female portrait statue has only just begun (1861,1127.19).

Work was completed on two marble heads discussed at previous meetings, a marble head of Queen Berenike II from Cyrene (1861,1127.145) dating from 246 -221 BC, and the head of a marble figure from the Classical Temple of Artemis at Ephesos (1872,0405.121) of the fourth century BC. In addition to Egyptian blue, traces of skin tones were found in both cases, but there was no surviving evidence for the type of elaborate composition used to create the subtle tonal variations in the depiction of skin found on the Treu Head. Instead these were largely composed of hematite with possible calcite highlights.

Throughout this work, it has proved essential to use complimentary techniques of imaging, microscopy and analysis to identify polychromy, as such traces would not always be apparent using any single method. In the cases discussed above, such an approach has been successful in confirming the existence of surviving traces of colour. However, none of these remnants are as intricate in composition or execution as those found on the Treu Head. This may relate to the original use of less complex or less profuse paint layers or merely reflect greater losses over time, but these traces nonetheless represent real examples of colour on sculpture. It is likely that the objects examined in this study may be more typical of what is to be found in museum collections than exceptional pieces such as the Treu Head, but it is important that these often minimal but still significant traces of colour are not overlooked in our search for another piece of such quality.

Vinzenz Brinkmann*, Ulrike Koch-Brinkmann

The Colours of Chiotissa

Clarissa Blume*

The Frankfurt Muses: Appearance, Shared Polychrome Characteristics, Origin, Re-Painting Over the Course of Time

As part of my wider research on the polychromy of Hellenistic sculpture, I examined a group of Muses in Frankfurt. The findings are of great interest. The statues' polychromy is well preserved and raises a number of thrilling questions. With different empiric analyses, such as with the naked eye, a microscope, UV-light, the VIL-technique developed by Giovanni Verri, as well as colour-analyses by Heinrich Piening, it was possible to gain a good understanding of how the sculptures were designed. Based on that, further questions could be addressed. The paper presents the polychromy of the Muses and continues with three particular questions: firstly, to what extent did the polychrome layout of the sculptures match one another? Secondly, are we able to tell the origin of the sculptures by particular characteristics of their polychrome layout? And thirdly, might we have evidence here for a re-painting of sculptures, possibly even at different periods?

Jan S. Østergaard

The Copenhagen Polychromy Network Main Project: A brief update

Activities and selected results for 2009 and 2010 are found in our two preliminary reports (www.glyptoteket.dk/trackingcolour.pdf and www.glyptoteket.dk/tracking-colour2.pdf).

An outline of activities carried out in the spring of this year, of the status of the project and of plans for the future will be given.

(5 minutes)

Rikke H. Therkildsen*

Recent investigations into the polychromy of a Late Roman garland sarcophagus, IN 2468

Basic information on the sarcophagus is found in J.S. Østergaard *et al.*, Catalogue. Ny Carlsberg Glyptotek. Imperial Rome (1996) 112-115, no. 48. It was found in 1884 on the Via Tiburtina near the Campo Verano in Rome. The suggested date is c. 300 CE

This contribution reviews the interesting results of the technical investigations into the polychromy of the reliefs on the front of the chest and on the lid panel. They have extensive remains of original colour: besides gilding, the sarcophagus reveals a rich colour-palette of pigments such as Egyptian blue, madder lake, cinnabar and ochre. The garland sarcophagus not only provides first-hand

knowledge on the chromatic scheme and painting techniques in the Late Roman period but is also representative of a category within sculptural polychromy which remains poorly investigated. Although sarcophagi are frequently well-preserved due to their funerary context, the colour scheme of their reliefs have only been studied in a few cases.

The visual examination of the garland sarcophagus included handheld video microscopy followed by technical analytical imaging using ultra violet fluorescence (UVF) and visible-induced luminescence (VIL). Furthermore, to obtain insight into the stratigraphy and composition of the paint layers, samples were taken for cross-sectioning. The cross-sections were analysed by means of polarised light microscopy (PLM) to provide data on particle size, size distribution, colour, shape and morphology which are critical for the identification of the different types of pigments. These data are compared and supported by non-destructive quantitative chemical analysis of the paints-layers by means of electron microprobe analysis (EMPA).

Some brief archaeological comments will be given by Østergaard.

Amalie Skovmøller*

The NCG / CPN polychromy project database and website

Background information on this element of our project is found in A. Skovmøller, Tracking Colour Online: Managing and Sharing the Digital Assests of the CPN / NCG Project, in: J.S. Østergaard (ed.), Tracking Colour. The polychromy of Greek and Roman sculpture in the Ny Carlsberg Glyptotek. Preliminary report 2, 2010, 61 – 67 (www.glyptoteket.dk/tracking-colour2.pdf). Since May, the base and the site have been under construction. This contribution reports on progress so far.

Paolo Liverani*

A progress-report on ongoing projects in Italy

In the last year the efforts of our group were focused on the Polychromy Meeting held in Florence in November, where some of the participants to this Round Table kindly intervened with very interesting papers together with other Italian colleagues. Ulderico Santamaria and I hope to publish the proceedings by the first part of the next year.

In the same period the Laboratory for Diagnostic, Conservation and Restoration of the Vatican Museum directed by U. Santamaria acquired the equipment necessary for VIL examination. The shots are in course and I hope to give some first elements: in our project there is the Augustus of Prima Porta, the Ara dei Vicomagistri and some sarcophagi. On the other hand we depend on the resolution of some problems due to the daylight, which in summer is particularly strong in the Galleries of the Museum.

We hope in the near future to be able to carry out the same kind of examination also on works of other museums in central and southern Italy.

I can also give some preliminary news about other projects of younger colleagues related to our issue. Eliana Siotto embarked on a systematic survey of the sarcophagi of the National Museum of Rome, obtaining several samples that will be examined in the laboratory of the CNR at Pisa. She is now in charge to develop this studies and the virtual reconstruction of the colours on 3D model of sculpture in a three year joint-project between CNR and “Normale” University of Pisa.

Sara Lenzi (University of Florence), began the study of the so-called monochrome slabs from the National Museum of Naples and – less known – of a couple of similar slabs of the Kunsthistorisches Museum in Vienna, obtaining new UV-light photographs which revealed interesting details and a painting technique more complex and interesting than previously believed.

Peter Schertz*

The Virginia Museum of Fine Arts Caligula

Trinidad Nogales Baratte

Sculptural Polychromy in Ancient Hispania: The Example of Augusta Emerita

[As urgent work commitments sadly prevent Trinidad Nogales Baratte from attending the workshop, her paper will be read out by Jan S. Østergaard]

Annemarie La Pensée*, Martin Cooper

Non-contact replication, using 3D laser scanning and rapid manufacture techniques, to create reconstructions of sculpture for research, visitor interpretation and interaction.

Non-contact replication using 3D laser scanning in combination with rapid manufacture and robotic machining techniques allows highly accurate replicas of objects with friable and vulnerable surfaces to be created in a wide range of natural and synthetic materials. These replicas can be used in real world reconstructions of colour, form or both. Replicas created by Conservation Technologies – National Museums Liverpool for use in reconstructions have been used for research, on-gallery visitor interpretation and hands-on public engagement.

This talk will examine some of the ethical questions that can arise in the course of replication projects, such as; Replica, copy or fake? What is highly accurate? Is human subjectivity removed if we use laser scanning and rapid manufacture? Do we need real world reconstructions, or can it all be done on-screen? These questions will be discussed in the context of example case studies of projects undertaken by Conservation Technologies (NML) including; A replica marble head of Caligula from the Carlsberg Glyptotek; A replica nylon Treu head from the British museum; An interactive based on a sculpture of Artemis (NML), and some pre-historic footprints.

Day 2

Hariklia Brekoulaki*

A preliminary examination of the polychromy of Classical Attic marble vases from the National Museum Collection at Athens

Heinrich Piening*

Gold to purple: a corrosion product of gold on ancient marble

Traces of a violet colour can occasionally be observed on the surfaces of ancient marbles. At first sight, this colour seems to be associated neither with the former polychromy of the sculpture nor with the surrounding areas. However, close observations revealed that in each case the violet colour seems to occur near formerly gilded areas. So far, the colour could not be identified by using XRF technology.

In Mai 2011, the Brinkmann – Team in cooperation with Jan Stubbe Ostergaard was given the opportunity to carry out analyses on polychromy on an Artemis figure at the Ny Carlsberg Glyptothek in Copenhagen, showing a violet colour phenomenon also observed on other antique marbles. Research in several spectra libraries revealed a first hint at the origin of the violet material. The UV-VIS-spectra show a close similarity to gold purple, a pigment made of gold and tin which is known as “purple of Cassius”. Purple of Cassius is a synthetic pigment but it can develop as a corrosion product of gold in the presence of trace elements naturally occurring in the marble. In practical tests very similar gold purple could be synthesized on marble samples. The spectra of these products are very similar to those of the Copenhagen Artemis.

Giovanni Verri*, Janet Ambers, Judith Swaddling

The embroidered garment of an Etruscan female figure from Polledrara

Many Etruscan sculptures bear extensive remains of pigment but the gypsum statue of a woman from the so-called Polledrara or Isis Tomb at Vulci, ancient Etruria, is rare in that it retains extensive evidence of intricate painted patterns on the drapery. Dating from about 570-560 BC (BM 1850,0227.1) the statue represents a woman making an offering. She is elaborately dressed in a chiton, a long tunic, belt, which once had gilt decoration, an himation, or mantle, and sandals, originally painted red. The figure has clearly been subject to fire at some time and parts of the sculpture show considerable damage. Traces of very fine painted decoration remain, however, in particular towards the base of the figure, and are visible to the naked eye.

In the attempt to reconstruct the original painted border of the chiton, technical imaging (infrared-reflected, ultraviolet- and visible-induced luminescence imaging) and Raman spectroscopy of microscopic samples were undertaken. The visualization of the lotus embroidery on the hem of the

tunic using infrared-reflected and visible-induced luminescence imaging has allowed a new interpretation of its composition.