

Looking for Colour on Greek and Roman Sculpture

Review of:

Vinzenz Brinkmann, Oliver Primavesi, Max Hollein (eds.), *Circumlitio. The Polychromy of Antique and Medieval Sculpture*. Proceedings of the Johann David Passavant Colloquium, 10-12 December 2008. Liebighaus Skulpturensammlung, Frankfurt am Main, 2010, 423 pp., 334 colour ill., ISBN 978-3-7774-2871-0

Most renaissance artists were well aware that the ancient sculpture which appeared to them as bleached marble or blackened bronze was once painted, just as medieval sculpture was painted, and they often painted their own works; the evidence has always been available in quantity for those who wish to see it. But on the whole from the renaissance right down to the present day we have generally continued to prefer our classical antiquity in ruins, and in monochrome white, an abstraction on which our imagination is then free to build any reality we want in accordance with our own taste. Modern archaeologists and art-historians are no less prone to do this than anyone else, but the ground rules are now undergoing some radical changes as museum curators and conservators have begun to apply a slew of new technologies to the analysis of the residues on the surfaces of the ancient artefacts in their care. Much of the impetus has come from a hugely successful exhibition *Bunte Götter* (Gods in Colour), which was curated by Vinzenz Brinkmann and Raimund Wünsche at the Munich Glyptothek in 2003/4 and has since travelled in various forms to the Ny Carlsberg Glyptothek in Copenhagen, the Vatican Museums, Basel, Amsterdam, Istanbul, Athens, Hamburg, Harvard, and Malibu, and will go to Vienna in 2012. Results of photographing a range of works under ultraviolet fluorescence and reflection and raking light, and examining pigments via UV-VIS absorption spectroscopy, formed the premise: the Aigina temple pediment and its sculptures, two grave stelai and a bronze head in Munich, the so-called Peplos Kore in Athens, the Alexander Sarcophagus in Istanbul, the small Herculaneum Woman from Delos in Athens, the Augustus from Prima Porta in the Vatican, a head of Caligula and an Attic lekythos in Copenhagen. The full scale reconstructions of their original polychromies, which consisted in most cases of a complete covering of thick, opaque paint in combinations of bright primary colours, both astounded and disturbed the specialist and general public alike.

Circumlitio consists of 20 papers given at a conference in the Frankfurt Liebighaus in late 2008, where the subject of colour in sculpture was addressed by an international assembly of philologists, art historians, archaeologists, materials scientists and conservators. Production values are high, the 334 illustrations, though sometimes reduced to postage stamps to fit them in, are all in sharp colour, the bibliography is 26 pages long, the quality of English translations (credited in the foreword to Judith Rosenthal) and copyediting (by Heike Höcherl) is generally excellent, and the book provides a fascinating if somewhat miscellaneous introduction to a fast-evolving field of research.

The Latin title, *circumlitio*, is one of the many puzzles set to try us; it comes from Pliny the Elder *Natural History* 35,133: 'Praxiteles [a famous Classical Greek

sculptor], when asked which of his works he would rank the highest replied “Those to which Nicias [an equally famous painter], has set his hand” – so much value did he assign to his *circumlitio*.’ The same term is used elsewhere by Pliny (24.40), but in the context of pitch, to describe applying liquid pitch as a lip-salve, so quite where the connection lies between the two situations is obscure. Neither Brinkmann in his general introduction to the volume nor any of the other papers is much bothered by the question; the closest we come is in the first of two papers which are grouped together as ‘historical essays’, that by Oliver Primavesi, professor of Greek philology at Munich, who points out (p.28) that the Latin is the direct equivalent of the Greek *enaleiphen*, which is found in Plato’s *Republic* (IV, 420c5-d1) where it clearly means the coating of marble sculpture with colours. Primavesi’s lengthy paper is otherwise primarily concerned to counter the widespread assumption that Winckelmann was in denial of the colouring of ancient sculpture and usefully publishes a number of documents concerning the polychromy of the archaic marble Diana found at Pompeii in July 1760 which featured twice in Winckelmann’s *History of the Art of Antiquity* (1764), in a section on marble and painting and in the chapter on Etruscan art. While Winckelmann’s idea that Pliny’s *circumlitio* meant putting the finishing touches (in clay) to a clay model was evidently misplaced, it was Diana’s smile, not her paint, that upset him.

In the second of the two ‘historical essays’ Jan Stubbe Østergaard, who in 2004 set up the Copenhagen Polychromy Network (described in a second paper later in the volume pp. 324-33), covers much the same ground as Brinkmann’s introduction in more detail, tracing the story of the ‘rediscovery of colour’ from 1800 to 1900, and down to the present day, then offers an overview of the current state of research regarding the development of colouring from Archaic Greece to the Roman period, which indicates a gradual progression from stylised, solid colour, to more nuanced and lighter pastel shades in a widening variety of colour schemes, including all-over gold.

Four papers grouped as ‘historical painting techniques’ concern, respectively, archaic and hellenistic Greece and medieval Europe and the ancient and medieval literature on the madder root (a source of dye). H. Piening and Vinzenz and Ulrike Brinkmann explain how UV-VIS light and XRF operates in the identification of pigments and the materials and methods they employ in their reconstructions, exemplified by the Persian Rider in the Acropolis Museum inv. 606 of c. 490 BC (whose costume bears traces of green, blue, red, yellow and various tones of brown, applied over finely incised guidelines, employing some 13 different pigments, sometimes mixed together) and the Alexander sarcophagus, c. 330BC, where 22 pigments, including 10 different ochres for yellow-dark brown, five different reds (minium from lead, red ochre, light and dark iron oxide and madder lake) and three shades of purple, covered every surface. No part was left unpainted marble, including the background, which though white was rendered in lead white; the sculptural finish on flesh was smoother than on hair or fur, contributing to their differentiation also in paint, while the depths of folds carved in drapery were first outlined in colour, adding emphasis to their relief, before applying a second coat of colour to the whole.

Ten papers under the rubric ‘polychromy of ancient sculpture’, after an essay by D.A.Warburton on colour vocabulary in the art and language of Bronze

Age Egypt, report on analyses of individual works: first Piening and the Brinkmanns on their re-examination of the exceptionally well-preserved polychromy on the marble figure of the maiden Phrasikleia from Attica (c. 540BC), which has revealed appliqués in gold and lead foil as well as 11 different red, yellow, black and white pigments. Their reconstruction (on a full scale 'stereolithic' replica, made of polymethyl methacrylate –PMMA) included the addition of gum arabic on the skin parts, which is not authorised by scientific analysis but they justify on analogy with contemporary Egyptian mummy sarcophagi. The mimetic qualities of Phrasikleia's glossy skin (a mixture of white lead, red ochre and light brown umber) and the shiny metal foil ornaments on her chiton, the realistic painting of the lotus blossom in her hand and the perfume jar on the necklace round her neck, it is argued, will have kept her alive in the eyes of viewers, whom she addresses in the first person in the statue's dedicatory inscription. Her polychromy contrasts strongly with that of the 'ex-Peplos' Kore in Athens, whose peplos can now be identified on the basis of its colouring as an ependytes – the robe of the gods - and whose anachronistic pillar-like form could therefore signify a cult statue – a replica in stone of the Artemis of Brauron, an ancient image in wood (*xoanon*). What look like very similar figures were in fact clearly differentiated by paint.

A brief note by C. Vlassopoulou (pp.219-23) on some traces of blue and green on the Parthenon frieze, not yet analysed, is followed by a more substantial account by Brigitte Bourgeois and Phillipe Jockey (pp. 225-39) of their work on the marble sculpture of Delos (mostly dating from the 2nd/early 1st centuries BC). Having first analysed raw pigments found in excavations on the island, they analysed 223 spots of colour detected on 32 marble artefacts with the aid of a video microscope and then subjected a small selection to destructive analysis (IRTF spectroscopy, micro-Raman spectrometry and gas chromatography) in an effort to identify not only colourants but also their organic binding agents. A bright luminous pink-red (madder) was particularly popular on clothing; a purple was achieved by superimposed layers of white, pink (madder) and Egyptian blue. A white lead substrate found on almost all works was probably intended to aid adherence and add luminosity to bright colours. It is found even under gilding, which was applied extensively (in two cases over the whole sculpture) and consisted of gold leaf on a bole of yellow, red or brown ochre. Paint was an integral element in the sculptural process, substituting for the carving of details (e.g. strands of hair) in some cases, complementing the carving in others, adding extra realism to naturalistic forms. An intriguing idea (p.235), tendered as yet another possible meaning for Pliny's *circumlitio*, is that some of these painted sculptures are translations into 3D of models taken from 2D panel pictures (e.g. A449, a statue of Artemis slaying a Deer has a close parallel an Attic pelike of the 4th century BC, British Museum E342). As an aid to reconstruction, the sculptures were scanned with a 3D laser-scanner, producing blank 3D images, which they then painted and gilded using ISTI (open source) software, mapping the results from the video microscope on to the model, coloured according to the XRF results. Where the sculptures have been found in situ, as in the case of the Artemis & Deer, the reconstruction extended to their ancient setting, putting the model of the sculpture into the model of the house.

The contribution of colour to the interpretation of the subject matter of Hellenistic sculpture (marble and terracotta) is explored by Clarissa Blume (pp. 240-

57), with particular reference to the Small Herculaneum Woman from Delos (Athens NM 1827), whose high-status costume was matched by an equally expensive polychromy, and a grave relief of a Horse and Groom (Athens NM 4464), whose now blank background was once filled with painted weapons and armour, in pink, yellow and black, indicating that the monument was not a monument to the horse (a light brownish pink colour), or the groom (with curly orangey brown hair) but probably a commander of Macedonian cavalry in the late 4th or 3rd century BC. Julia Großekathöfer (pp.259-76) draws similar lessons from a survey of the rich polychromies documented by Etruscan statuary, urns and sarcophagi in stone and terracotta.

Mark B. Abbe, analysing traces of paint and gilding on Roman marble statuary at Aphrodisias-in-Caria (pp.277-89), has found carbon black emphasising drill holes and channels in the hair of over-lifesize caryatid statues from the Hadrianic baths. Some locks of their hair were also gilded (gold-leaf over red ochre bole) and probably the eyebrows, but details of the eyes and lips were painted red. A leg from a large heroic nude male statue, probably an emperor, is covered with a red ochre bole, probably a preparation for gilding, laid over a white ground. The latter is not white lead but fine calcium carbonate (i.e. powdered marble), on which the gold leaf was probably burnished to a mirror-like surface. Although traces of red and black predominate and are usually interpreted as underlays or underpainting, a deep red stripe on the border of a mantle beside the seated Apollo from the Bouleuterion, is a proper paint layer, produced by mixing red ochre, red lead, cinnabar, and Egyptian blue. The reds (ochre, lead, iron) and (carbon) blacks generally survive because they are not only stable and fine grained, they are embedded in the marble surface. If they are indeed only an undercoat, Abbe suggests that the complete loss of the overpainting means that it could have consisted of less stable pigments, more complex mixtures, and different organic binding media. What is preserved, therefore, is the penultimate phase of working, before the sculptor and/or his painter began to add the real colour. Interestingly, red (ochre) paint on a marble figure of a youthful athlete (a variant on the Diskophoros) appears to be imitating metalwork – eyebrows are indicated with a chevron pattern characteristic of those incised in bronze statuary and the upper eyelashes are given the saw-tooth shape like those cut out of bronze for inlaid eyes; the lips have an incised outline, which Abbe wonders might indicate they were to be gilded or silvered, as on a bronze. Roman polychromy is also the subject of a contribution by Paolo Liverani (pp. 291-302), a major player in the field, who reports on recent investigations, mainly in Italy, where concerted efforts are being made to correlate and systematise the reporting of results, so that different laboratories can compare their data (The Vatican Museums, the Italian Ministry of Cultural Heritage and the University of Pisa have all agreed to use the same system, SiCAR). Organic reds (from madder, and the scale insects which produce scarlet cochineal and crimson kermes) are high on their research agenda, as are lacquers (red lacquer has been identified on the mantle and cuirass of the Augustus from Prima Porta) and organic binders. It is evident that ancient binders must have been much stronger than generally realised: colour is now being found on statues and sculptured monuments exposed to the open air (not placed under cover, under a portico). On the Ara Pacis, a bright yellow fluorescence under UV light is interpreted as the

residue of some organic binder; red, gold, blue and green are variously present. In a new reconstruction proposed by Eugenio La Rocca et al (at a conference in Rome in March 2008, still not published) the background of the acanthus friezes was painted blue, while that of the processional friezes was sky blue. Relief grounds are traditionally believed to have been uniformly dark blue in the Classical period, only giving way to brighter colours in the Hellenistic, but Liverani cautions that much could have depended on the subject and status of the monument. Blue, dominant in public 'state' art, was perhaps synonymous with the 'Classical' style (à la Hölscher), enduring even in early Christian mosaics, whereas the white or lighter grounds go with Hellenistic subjects (see further, P. Liverani, 'Reflections about the colour coding in Roman art' in *Les arts de la couleur en Grèce ancienne ... et ailleurs* Colloque Athènes École Française: 23 - 25 avril 2009, forthcoming).

A last essay, on the qualities of the 'colour' white in antiquity by Ursula Mandel (pp. 303-23) offers a timely reminder that, while our ability to track the material evidence of ancient polychromy may grow apace, ancient literature and art contain plenty of signs that alongside the colour there existed an aesthetic of the 'white', 'light', or 'colourless'. It is evident in the technique of monochrome (grisaille) painting, in delicately moulded relief in bright white stucco, in poetic references to brightly shining white marble buildings and white naked statues, to the purity and luminosity of Parian marble, to the skill of certain sculptors (not painters) to breathe life into stone. White need not mean a lack of colour; it was a colour in its own right, white marble no different from other self-coloured stones (green basalt, black, yellow or red limestones). However, in some contexts it could, as it did in post-antique times, acquire connotations of 'antiquity' – the ancient world lasted a very long time, long enough for many older Greek marble sculptures to have lost their colour by the time Roman generals carried them off as booty to Rome. Augustan eyes may have come to appreciate archaic and classical Greek statuary and reliefs without paint in much the same way as we do now.

Some of the results presented here are already being superseded, or improved, as new equipment and techniques are tested; for instance the VIL (visible-induced luminescence) digital imaging technique, developed by Giovanni Verri, which detects Egyptian blue in a trice. We have a growing body of scientific data, considerably more reliable than anything we have ever had before, but it is also clear that as the quality of the science improves so do the complexities of the analytical process. Identification of pigments, not just inorganic (ocres and minerals) but also organic is getting easier and more accurate, and the possibilities for analysis of stratification in situ, without damage, are expanding, making it likely that museums hitherto reluctant to get involved themselves or permit others to carry out experiments on their behalf, will become more amenable. The main objective at the moment is to expand the number of analyses performed to common standards of as many well-dated and well-provenanced examples of colour as possible. Although the existing analyses have started to reveal certain repeating patterns, it is also possible that every new example is potentially unique.

Pigments are only a part of the picture; the binding agents employed in their application are much more difficult to determine, and may never be recovered. At the moment a lot is simply guesswork, based on such knowledge as we have of organic binders documented in later medieval and early modern practice, which

may or may not be relevant to antiquity, while the experiments in reconstruction are being carried out by conservators, keen not to overstep the boundaries of science, or on computer, essentially painting by numbers. When there is an opaque white ground on white marble, of powdered marble or, more commonly on present showing, of white lead, what does that actually signify – it is a residue, of course, but of what process? Is the marble powder the same marble as the sculpture; can lead white be made transparent depending on the binder? What happens to these pigments in the heat of the mediterranean sun? What kinds of resins, lacquers, and waxes could have been made in antiquity and are there ways of hardening them, or raising their resistance to heat? We are also woefully uninformed as to the methods by which marbles were polished, especially the polishes achieved on sculpture in 2nd and early 3rd centuries AD, which modern polishers have never managed to replicate. Contrary to expectations, some of these highly polished surfaces were also painted.

Our biggest challenge will be to reconstruct the full extent of the spectrum in any one age or any one part of the ancient world, not just of pigments and binders, but of painterly skills. Surviving sculptures attest to a vast range of ability among sculptors, with levels of technical skill in some directions that cannot actually be matched today. Presumably a lot of them did their own colouring but, as Pliny on *circumlitio* indicates, some, including the best, did not, entrusting it to specialists. For the experimental reconstruction of the colouring of sculpture, in addition to the materials - the paints and metal leaf and whatever - we also need to place the experimental techniques in expert hands. Otherwise, once the novelty has worn off, the risk is that we slide back into our comfort zone, where we keep the evidence fragmentary and trust to imagination.

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