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## 22 Polychromy in Greek Sculpture

**Abstract:** This chapter offers a survey of the literary sources on pigments and of the actual pigments used by the ancients. Several examples of painted sculptures mainly in Athenian museums are examined.

**Keywords:** Minium, cinnabar, Egyptian blue, gold leaf, *ganosis*

### Introduction

It is now established that the idea that Greek sculpture was white, erroneously attributed to the 18th-century art historian Johann Joachim Winckelmann during the 19th century, does not hold true thanks to the findings of laboratory research that demonstrates the extensive use of colour in sculpture. In addition, Vinzenz Brinkmann<sup>1</sup> has vigorously stressed that the misunderstanding of Winckelmann's words in reference to the simplicity of ancient Greek sculptures, which came from the circle of Johann Wolfgang von Goethe, ultimately contributed to the articulation of the theory concerning the ideal whiteness of ancient statues, occupying the position of 'Platonic archetypes' that would have lost their 'geometric perfection' had they received colouring.<sup>2</sup>

Colour was moreover not a decorative element, according to Dimitrios Pandermalis, but rather an additional aesthetic quality of sculpture.<sup>3</sup> The significance of the symbolism of colours remains obscure, given that the use of the same colour can on occasion occur with a completely opposite meaning. For instance, in the case of red, the colour is identified with life and action but also with swiftness; later, it was identified with blood and violent death. In contrast, some colours appear to have retained the same meaning throughout their use, such as black, which has been closely associated with mourning since the Aegean Bronze Age.<sup>4</sup>

On the other hand, we have more than a few testimonia, mainly from Pliny, about the naturalness and liveliness of large-scale paintings whose value is always demonstrated by their anecdotal touch, as they deceive both animals and actual human beings.<sup>5</sup> This concept, however, is not a figment of Pliny's time, given that it already

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<sup>1</sup> Brinkmann, Deutsche Welle (DW) interview about the *Bunte Götter* exhibition at the Pergamon Museum in Berlin (18 July 2010). Cf. Prater 2004.

<sup>2</sup> Winckelmann 1756, 24: "eine edle Einfalt, und eine stille Größe" ("a noble simplicity, and a quiet grandeur"). Cf. Brinkmann and Scholl 2010, 206–211 (Primavesi).

<sup>3</sup> Pandermalis 2012, 4.

<sup>4</sup> Paus. 1.22.4.

<sup>5</sup> The contest between Zeuxis and Parrhasios: Plin. *HN* 35.65.

appears much earlier in references to the works of Daedalus; here, it has particular significance as something said about sculptures, not works of painting. The instance of the fabrication of the hollow wooden simulacrum of a cow into which Pasiphae went,<sup>6</sup> led astray by lust for the bull of Poseidon (or Zeus), along with the reference to Daedalus' creation of a statue of Herakles for the grave of his son, as a thank-offering to the hero, which Herakles then destroyed because he thought it was alive,<sup>7</sup> constitute two typical examples of verisimilitude. We thus have a long tradition of works attributed to Daedalus that were so realistic that they were thought to have life, capable of deceiving anyone from a bull to a demigod.

The use of red colour in antiquity seems to possess a conceptual continuity through both time and space. We know that the idea of a correspondence between the four basic colours and the fundamental states of nature, the four elements, was expressed as a philosophical view for the first time by Empedocles in the fifth century B.C.<sup>8</sup> In his account of minium (cinnabar), Pliny relates that the leaders of the Ethiopians painted their bodies with it; in addition, he mentions that among the first responsibilities of the censors was to determine when to paint the statue of Jupiter (Zeus) with minium, as well as that the generals who celebrated a triumph were painted with it.<sup>9</sup> Tarquinius Priscus dedicated a terracotta statue of Jupiter on the Capitoline which was traditionally painted with minium.<sup>10</sup> Again, Pliny invokes the name of Varro (who furnished a list of writers Pliny himself considered trustworthy) to state that the face of the statue of Zeus was painted with minium at festivals because this red pigment was regarded as sacred.<sup>11</sup>

In addition, Dioscorides (*De Materia Medica* 5.113) informs us that Lemnian miltos was used in rituals. Pausanias mentions that in Phelloe (Achaia) the statue of Dionysos was painted with cinnabar.<sup>12</sup> This practice surely did not aim at the realistic portrayal of the god's form, but had a purely ritual and mystical character, echoing comparable practices of ritual embellishment, which has its roots in the prehistoric Aegean.<sup>13</sup>

The need, however, to cover a work of sculpture, initially of wood and much later of stone, with a layer of colour must also have served practical purposes beyond such theoretical stances and magical-mystical habits of thought. This can be concluded from the fact that the cult images which enjoyed great reverence in antiquity were wooden xoana. The sacred Palladium of Athena on the acropolis of Troy, which must

<sup>6</sup> Apollod. *Bibl.* 3.1.4, 3.15.1, 3.8.11; Hyg. *Fab.* 40; Diod. Sic. 4.77.2; Bacchyl. Fr. 26 (Maehler); Philostr. *Imag.* 1.16.

<sup>7</sup> Apollod. *Bibl.* 2.6.3.

<sup>8</sup> Pandermalis 2012, 4–7.

<sup>9</sup> Plin. *HN* 33.111–112.

<sup>10</sup> Plin. *HN* 35.157.

<sup>11</sup> Plin. *HN* 33.111.

<sup>12</sup> Paus. 7.26.11.

<sup>13</sup> Papaeuthymiou-Papanthimou 1997, 9–11; cf. Brinkmann and Scholl 2010, 40–45 (Brinkmann).

have been painted, was such a case. This wooden statue, according to the tradition of the *Ilioupersis*, had been faithfully copied and smuggled out of the besieged city; the Trojans subsequently put a copy in its place,<sup>14</sup> which was what Odysseus took. As Oliver Primavesi has aptly stressed, invoking the excerpt from Euripides' *Helen* in which Helen curses her own beauty and wishes that she were ugly like a statue wiped clean of paint,<sup>15</sup> it seems perfectly clear that the simile which the poet is using describes a reality in which statues were painted and, indeed, were regarded as ugly when they lost their colouring.

In his *Republic*, Plato refers to the painted rendering of the eyes of a statue with the most beautiful medicaments (colours), insisting on the naturalistic rendering of the human form.<sup>16</sup> But we can also ascertain that animals were perfectly rendered in sculpture, as is the case on the Parthenon frieze, where blocks of the north side (IX–X) have a scene with horses whose manes are smooth and the hairs must have been delineated only if they had been painted.<sup>17</sup>

The systematic study of the polychromy of ancient sculpture began in the 19th century with the work of the famous physicist Michael Faraday on the Parthenon sculptures in the British Museum.<sup>18</sup> Émile Gilliéron, père had the good fortune to be present at the great excavations of the Athenian Acropolis in 1885–1890, when he was called upon to make a visual record of the state of preservation of the colours on the poros and marble sculptures that were uncovered.

But the extensive research within Greek territory on polychromy in ancient sculpture and painting, which has its beginnings in the first five years since the creation of the modern Hellenic state, still remains unfamiliar. Othon Rousopoulos, Konstantinos Zegelis, Spyridon Manginas, Andreas Kordelas, Michael Stefanidis, Anastasios Dambergis, and Georgios Krinos,<sup>19</sup> together with the chemistry professor Franz Xavier Landerer,<sup>20</sup> were pioneers in the study of ancient colours in Greece during the 19<sup>th</sup> century.

More recently, a significant contribution to the literature was made by Reuterstård's monumental thesis, which brought together a multitude of testimonia about

14 Dion. Hal. *Ant. Rom.* 1.69.3 (commenting on the *Ilioupersis*): εἰκόνα δ' ἐκείνου κατεσκευασμένην ὡς μηδὲν τῆς ἀρχετύπου διαφέρειν ἀπάτης τῶν ἐπιβουλευόντων ἔνεκεν. Cf. Petrain 2014, 99 n. 94.

15 Primavesi 2007, 194 (on Eur. *Hel.* 260–263).

16 Pl. *Resp.* 4.420c-d (part of a dialogue between Adeimantos and Socrates), commented on by Primavesi (2007, 196–197).

17 Palagia 1998, 56.

18 Katsaros 2012a, 18–23. Cf. Prater 2004.

19 The article on colourants in Politis 1891 (775–776, s.v. Βαφική) refers to the analysis made by Krinos to classify the colours on the poros sculptures from the Acropolis.

20 F. X. Landerer, first Professor of Chemistry and Pharmacology at the University of Athens in the reign of Otto I (and in fact the palace pharmacist), left us an abundance of works on subjects connected with the nature of the ancient pigments which he had studied: Landerer 1837, 1839, 1840, 1841a, 1841b, 1843, 1856. His obituary: *American Journal of Pharmacy* 57 (1885), 464.

colours and traces of colour on ancient sculptures.<sup>21</sup> As well, the books and articles produced by Yfantidis, Brinkmann (and his colleagues), Manzelli, and Jenkins and Middleton constitute pillars of current research.<sup>22</sup>

## Literary Sources: Aristotle, Theophrastus, Vitruvius, Pliny the Elder, and Galen

The oldest source, though incomplete, for the colouring materials of the ancient Greeks that we have is the second book of Aristotle's *Meteorologica*, which contains extensive references to colourants. The fullest, most comprehensive, and scientifically complete source as regards the number and extent of its references is the treatise *On Stones* by Theophrastus of Eresus, a student of Aristotle and his successor at the Lyceum.<sup>23</sup> Written around 315 B.C., it makes reference to the materials used by painters of the period (Fig. 22.20) representatively mentioning the various types of miltos (red, from Kea, Sinope, and Lemnos) and cyanus (from Cyprus and Scythia). He describes the ways of preparing lead white (*psimythion*) and green from copper, as well as Egyptian blue.

Euphranor's writings on "symmetry" (proportions) and colours have unfortunately not survived; they would have cast light on the subject under examination here.<sup>24</sup> The book of the *Parva Naturalia* entitled *On Colours*, which is attributed to Aristotle (while some theories regarding the authorship of the work want the writer to be Theophrastus), is the oldest treatise on the colours of the rainbow.

Douris of Samos (fourth to third century B.C.) wrote a handbook *On Painting*, which has unfortunately not survived, however. Both Xenokrates and Douris lived in the third century B.C.; the latter was a student of Theophrastus, the former also wrote a work entitled *On Painting*, according to Pliny.<sup>25</sup> The thirty-fifth book of Pliny the Elder's *Natural History* is dedicated to Greek painting. Gleaned from Greek writers, including Theophrastus, it gives an abundance of information about colouring agents, their origin, the technical procedures for preparing them, and their cost.

In Book 7 of his *De Architectura*, Vitruvius discusses pigments and the methods of their production, as well as the techniques of applying them. From Book 5 of Dioscorides' work *De Materia Medica* we can draw a multitude of details about

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21 Reuterswärd 1960.

22 Yfantidis 1984; Brinkmann 1987; Jenkins and Middleton 1988; Manzelli 1994; Brinkmann 2003; Brinkmann and Wünsche 2004, 2007; Brinkmann et al. 2007; Brinkmann and Scholl 2010.

23 Katsaros 2009, 1–13, 544–554.

24 Euphranor of Isthmia (after the 104th Olympiad, i.e. 364–361 B.C.) wrote about proportions and pigments according to Pliny, *HN* 35.128–129: *volumina quoque compositi de symmetria et coloribus*; Palagia 1980, 11–12. See also Chapter 13.

25 Plin. *HN* 35.68.

colourants and their properties in reference to medicine, while the author also preserves recipes for preparing special pigments which were used either as cosmetics (lead white<sup>26</sup>) or as medicines, indicating their places of production, as in the case of lead white from Corinth, Rhodes,<sup>27</sup> and Lacedaemon.

Finally, in several of his writings, Galen makes references to pigments which he himself studied,<sup>28</sup> inspired by the work of Dioscorides, as in the case of Lemnian miltos. Alexander of Aphrodisias, a scholiast on Aristotle, provides us with information about the colours mentioned in Aristotle's *Meteorologica*.

Of course, amid the multitude of ancient writers, the authors mentioned above do not constitute our exclusive sources of information regarding pigments and their uses. A scattering of valuable references is found in the *Onomasticon* of Pollux,<sup>29</sup> the lexicon of Hesychius of Alexandria,<sup>30</sup> the *Suda*,<sup>31</sup> and the work of Stobaeus.<sup>32</sup> In addition, the writings of Stephanus of Alexandria and of Synesius, the learned and prolific bishop of Cyrene, preserve details about pigments and dyes. Beyond these sources, the papyrus fragments in the collections at Leiden, Stockholm, and in the Biblioteca Marciana in Venice furnish us with technical details of the process of producing and using colourants.